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BANK OF GREECE
EUROSYSTEM

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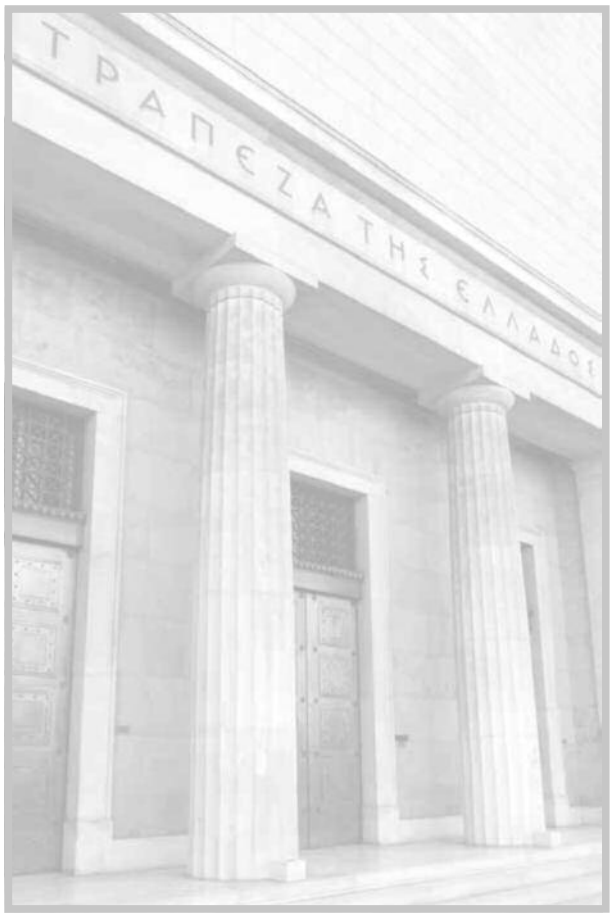

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BANK OF GREECE

Address
21, E. Venizelos Avenue
GR-102 50 Athens

Website
http://www.bankofgreece.gr

Telephone
+30 210 320.2393

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FOREWORD BY THE GOVERNOR

The Russian invasion of Ukraine is the greatest challenge facing the European Union (EU) since the end of the Cold War. It brings humankind once again in front of a war in Europe, upsets global geopolitical balances and causes a huge humanitarian crisis. Russia's war against Ukraine and the sanctions imposed lead to further rises in energy prices, fuel a wave of price hikes in foods and commodities, exacerbate inflationary pressures and have a negative effect on real disposable household income, thus curtailing private consumption and dampening growth dynamics in the EU. Moreover, the conflict slows global trade and disrupts supply chains. However, the situation is still unfolding, and the duration and outcome of the Ukrainian crisis are currently unknown. The intensity of the shock and the size of its impacts on the European and the global economy will depend on how soon the war ends, the persistence of inflationary pressures and the monetary and fiscal policy response at the European level.

In 2021, the Greek economy rebounded rapidly, as progress in vaccinations helped contain the pandemic and enabled a gradual lifting of social distancing measures and the reopening of the economy. Real GDP grew by 8.3%, driven by strong growth in exports of goods and services, tourism in particular, higher gross fixed capital formation and a recovery in private consumption. At the same time, labour market developments were favourable, and the unemployment rate declined. For 2022, the economic and financial outlook is inevitably surrounded by new, high uncertainties. However, despite increased energy costs and while the scars from the pandemic are still visible, other factors continue to have a positive effect, including employment growth and the earlier accumulation of savings, the financing of investment projects through the NGEU, and continued export growth, acting as the main drivers of the recovery.

Maintaining the growth momentum is the key challenge for the Greek economy. In the medium term, coping with headwinds and addressing problems –partly a legacy of the debt crisis– in order to achieve the transition to a sustainable, extrovert, high-growth production model, require the efficient use of European funds, the implementation of reforms as well as increased financing of the real economy. The pandemic-related surge in debt and the additional borrowing needed to finance the high deficits necessitate a return to primary surpluses and to fiscal sustainability. The latter is a prerequisite for a further upgrade of Greece's credit rating to investment grade.

1 January 2022 marked 20 years since the largest-ever currency changeover, when euro banknotes and coins were introduced simultaneously in Greece and 11 other euro area member countries. The anniversary of the euro circulation is a milestone in the history of the Bank of Greece. Admittedly, the first two decades of the euro have been eventful. The pandemic, however, has been a real game changer, highlighting both the high interdependence and the strong unity of the countries participating in the Monetary Union. It has therefore acted as a catalyst for the long advocated common economic policy response across the euro area. The lessons learnt from the pandemic are very relevant today, when the Ukrainian crisis is posing a new unprecedented challenge to European economies. The EU could emerge stronger and we could see significant steps towards further integration in key areas such as defence, energy and fiscal policy.

The ECB strategy review, covering all aspects of monetary policy, was completed in 2021. The Bank of Greece was actively involved in the individual workstreams set up for this purpose. Furthermore, aiming to maintain and increase its good reputation and citizens' trust, the Bank hosted for the first time a virtual listening event, inviting representatives of the civil society to contribute their views on the strategy review, and expanded its channels of engagement with the public. Amid the exceptional circumstances created by the pandemic and being aware of its important role, the Bank of Greece further strengthened its monitoring and analysis of economic developments and prospects, while continuing to provide the necessary research-based input to the monetary policy discussions of the ECB Governing Council.

As a way to maximise its contribution to financial innovation, the Bank launched a Regulatory Sandbox in 2021. Another significant development was the completion of the migration to the TARGET2 Instant Payment Settlement (TIPS) service. With a view to improving organisational efficiency, the first changes to the Bank's structure were implemented as part of the reorganisation project entitled "Future". The Bank has constantly invested in skill and competence building among its staff, fully respecting its employees and the environment. In keeping with its tradition of pioneering efforts to highlight the risks and opportunities associated with climate change, the Bank of Greece established the Centre for Climate Change and Sustainability. Furthermore, it inaugurated at its Museum a major exhibition on climate change, the first of its kind in Greece, and published an Environmental Report on its environmental footprint.

Numerous activities were carried out in 2021, which attested to the Bank's role in the social and cultural development of the country. Besides, the past year was of particular significance to all Greeks, as it marked 200 years since the Greek Revolution of 1821 that led to the creation of the modern Greek state. To honour this anniversary, the Bank of Greece joined and supported the national bicentennial celebration programme alongside other important institutions of the country.

Twenty years on since the introduction of the euro, we at the Bank of Greece continue to adhere to the same principles and values and to work with the same dedication for the currency that has brought Europeans closer. We shall continue to perform our tasks effectively, responsibly and impartially, in accordance with our Statute. The high skills, diligence and commitment of our staff are undoubtedly the best safeguards for our continued ability to successfully deliver on our mandate in the best interest of Greek citizens. Let me take this opportunity to express my gratitude to all the staff for their contribution over the past year. I would also like to thank the members of the General Council for their support and cooperation. Finally, we all wish that the conflict in Ukraine ends as soon as possible and in a manner that respects international law, the principles and values of democracy and –above all– the value of human life.

Yannis Stournaras

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THE ECONOMY IS FACED WITH MAJOR GLOBAL CHALLENGES

1 2022: EUROPE IS FACED WITH NEW, BIG CHALLENGES

The Russian invasion of Ukraine on 24 February 2022 has brought the European Union (EU) and the western developed world as a whole in front of perhaps the greatest challenge since the end of the Cold War. The military conflict has unpredictable consequences not only for the global and the European economies, but also for international geopolitical stability, security, peace and cooperation. It triggers tectonic shifts in world politics and urgently calls for an update of the EU's security architecture, as well as for action to defend European values and institutions. Shoring up the European economy against the effects of this new shock and preventing an interruption of the ongoing recovery are key priorities for the current economic policy at the European level. The magnitude and duration of these effects will depend on how the war unfolds, on the impact of the current sanctions and possible further measures and on the response of fiscal and monetary policies. The rupture in EU-Russia relations will inevitably have lasting and far-reaching impacts on the European economy, particularly in terms of energy, defence and security, while the largest refugee crisis since 2015 is unfolding, this time with flows coming from within the European continent.

Russia's war against Ukraine is heightening the geopolitical tensions between the US and the EU, on the one hand, and Russia, on the other. It is a new, major exogenous supply-side shock to the economies of the EU Member States that also affects, through various channels, aggregate active demand. It occurred at a very critical time, when economies were rebounding globally from the two-year health crisis and the ensuing severe recession. Apart from the incalculable human cost, the conflict has significant adverse effects not only on the economy in the wider region, but also on the global economy. It exacerbates the already strong inflationary pressures through further rises in energy prices and a new wave of medium-term price increases in metal commodities and basic consumer goods, notably in the food supply chain; it erodes investor and consumer confidence and disrupts global trade and the international financial system. Globalisation is in fact reversing. The result is a slowdown in the European and the global economy and rising prices and interest rates.

As far as the EU economy is concerned, a direct effect is higher inflationary pressures persisting for much longer than previously expected. The war and the associated economic sanctions have caused energy prices to soar from already high levels, on the back of the EU's very high energy dependency on Russia, as well as increases in the prices of metal and food commodities. Higher production and transport costs are passed through to final prices and feed into headline inflation, weighing on consumers' real disposable income. Lower consumer spending by households and declining corporate profitability, combined with heightened investor uncertainty entailing the risk of cancellation or postponement of investment decisions, all result in a slowdown in economic growth.

In other words, while European countries are gradually exiting the pandemic, they are faced with a new risk, that of inflation. Soaring energy and other commodity prices, as well as the actions necessary to meet the ambitious green transition targets set by the EU, could give rise to pressures for nominal wage increases in order to protect the purchasing power of household incomes. This could lead to an entrenchment of inflationary pressures and expectations, which, together with heightened uncertainty, are the most important short-term threats to the recovery of the European economy.

Against this background, the main challenge for economic policy currently is how to prevent a temporary inflation from becoming structural, which would create stagflationary pressures in the European economy, and how to mitigate the negative effects on households' purchasing power and on corporate profitability without jeopardising the ongoing economic recovery.

2 EXPECTATION OF A DEFINITIVE EXIT FROM THE HEALTH CRISIS, AND CONTINUED GROWTH AMID INTERNATIONAL INSECURITY AND HEIGHTENED UNCERTAINTY

The pandemic continued in 2021, causing heavy human losses across the globe, including Greece. The huge number of new infections and, most importantly, deaths was a tragic everyday fact, with social and economic consequences that cannot be ignored. The health crisis is perhaps the most severe humanitarian crisis in the history of the EU, as it affected the most precious good: human life. The EU addressed the adverse effects of the health crisis and the deep recession with courage, determination, unity, solidarity and economic realism. Building on the lessons learnt from previous crises, it promptly took action to strengthen European integration and economic governance, making changes that in normal conditions would have taken much longer to implement.

These efforts culminated in the agreement reached by EU leaders on the first-ever common European recovery instrument, the NextGenerationEU (NGEU), aimed primarily to support the convergence of Member States and increase resilience to negative shocks, especially of the more vulnerable economies. The first visible result has been the strong recovery of the European economy which started in 2021 and is expected to continue in 2022, albeit at a much slower pace mostly due to the impact of the war in Ukraine, thereby offsetting the economic losses recorded in 2020.

Over the past year, the global and the European economy were faced with successive waves of the pandemic. The emergence of new COVID-19 variants, including Omicron most recently, have pushed back expectations for an end to the health emergency. However, a remission of the pandemic is in sight, at least in advanced economies. Thus, EU economies one after the other are relaxing their containment measures with a view to ultimately lifting all restrictions and fully returning to economic and social normalcy. In this context and as the pressure on the public healthcare system has eased, Greece has also proceeded to a phasing out of containment measures.

Uncertainty about the evolution of the COVID-19 pandemic globally has declined but has not been eliminated. It remains uncertain how soon the global economy can fully reopen and global supply chains, transports and trade can be restored. This uncertainty is further compounded by the war in Ukraine, disrupting the global energy market and supply chains in food and other commodities.

Turning to the EU economy, uncertainties related to the pandemic have been contained so far, thanks to the high vaccination coverage of population and the flexibility shown by individual economies in adapting to the new circumstances. On the other hand, Russia's war on Ukraine poses persistent risks to the path of inflation, fuels inflationary expectations and negatively affects consumer and investment decisions, slowing the growth momentum.

Another significant risk stems from the sharp increase in global debt in 2020-21, the largest one-year debt surge since World War II. The unprecedented fiscal support measures have prevented the pandemic crisis from turning into a depression, but have inevitably accumulated large debts. Governments now have to manage a high stock of public debt, whose sharp increase, mostly in advanced economies and, to a lesser extent, in emerging and developing economies, was fa-

cilitated by historically low borrowing rates as a result of coordinated action by major central banks. However, as the risk of inflation mounts, central banks are shifting their focus to rising inflation and resurging inflationary expectations and are adjusting their monetary policy stance accordingly. Interest rate increases by the Bank of England and the Federal Reserve and a scaling down or discontinuation of net asset purchases, including under the ECB's Pandemic Emergency Purchase Programme, have increased the cost of money, while the need to restore fiscal sustainability has implications for the fiscal policy stance, particularly in the more vulnerable economies. At the same time, the upward trend in energy prices has a direct impact on public finances, as governments are implementing economic support measures in an effort to reduce the effect of inflation on households' disposable income and firms' production costs.

Global economic normality in the pre-pandemic period was marked by stable, albeit moderate, output growth rates, price stability and high yields in asset markets. The pandemic has changed all this. On the other hand, it has acted as an accelerator for the transformation of the global economy along two main axes: green transition and digitalisation. Meanwhile, economic convergence and tackling income inequality remain key challenges.

Exit from the health crisis and return to growth will be uneven across countries. Richer countries, thanks to easier access to vaccines and healthcare, are expected to fully offset their output losses in the course of 2022, despite headwinds from the new variant and from inflation. By contrast, emerging and developing economies with limited access to vaccines will continue to grapple with the health crisis and recession, while at the same time trying to control high inflation by raising interest rates, which could jeopardise their own recovery as well as that of developed economies.

The first post-pandemic period is characterised by greater macroeconomic instability worldwide, fuelled mainly by very high levels of private and public debt and financial market volatility. Moreover, shifting global geopolitical balances minimise the scope for economic cooperation at global level and intensify a retrenchment behind national borders, with adverse effects on global trade and activity. Protracted geopolitical instability in Eastern Europe would entail serious long-term consequences for world peace, security and cooperation, as well as for growth dynamics. The geopolitical crisis is, however, a historic opportunity for deeper economic and political union in Europe, with a view to strengthening EU institutions across all areas, including defence, security and energy autonomy.

The new economic reality will be characterised by higher public and private spending on health, clean energy, digitalisation and automation, but also on military equipment. Economic policy focus will shift to strengthening the productive base and functioning of economies to make them resilient to exogenous adverse shocks.

Scientific progress and, therefore, the upcoming technological developments will be centred around: (a) personalised healthcare, prevention and cure of genetic diseases, and more effective treatment; (b) providing affordable, sufficient and clean energy solutions, including nuclear fusion, green hydrogen and renewables; and (c) enhanced protection against cyber-attacks.

Although the transformation of the global economy is expected to increase total factor productivity and create new jobs, particularly in the Information and Communication Technology (ICT) sector, the benefits will not be evenly distributed across countries or across economic sectors and social groups within the same country, thereby widening income inequalities. Adaptability to the new global economic environment, fast integration of modern scientific achievements, continued investment in research, willingness to implement structural reforms, and specialisation advantage are key determinants of an economy's ability to participate in global value chains, as these will be reshaped by geopolitical challenges, and to maximise its gains from the new distribution of wealth.

3 THE GLOBAL AND THE EUROPEAN ECONOMY

The roll-out of effective vaccines and adequate immunisation of the population, at least in developed countries, enabled a return of the global economy to a functional normality. Thus, based on IMF data, global GDP grew by 5.9% in 2021, while a growth rate of 4.4% was foreseen for 2022. Inflation in 2022 is projected at 3.9% in advanced economies and 5.9% in developing economies. However, following the conflict in Ukraine, these figures are expected to be revised for the worse. More recent OECD forecasts (March 2022) suggest that global growth in 2022 will be one percentage point lower and inflation 2.5 percentage points higher than expected before the war.

In the euro area, real GDP grew by 5.3% in 2021, driven by increased private consumption on the back of higher household savings during pandemic-related restrictions on mobility, as well as rising asset values. The higher disposable income of households as a result of rising employment as the labour market recovers strongly, coupled with accumulated savings, are expected to partly offset the negative effect of inflation on private consumption and to sustain growth in the current year.

The new Omicron variant of the coronavirus, which led to the reintroduction of containment measures in the midst of the holiday season last December, disrupted the sectors of tourism, travel and food services and dampened consumer demand and economic growth in the fourth quarter of 2021 and possibly in the first quarter of 2022. The subsequent phasing out of restrictions and reopening of activities put the conditions in place for an acceleration of growth in the course of this year.

However, the war in Ukraine fundamentally changed the economic outlook. Growth is now projected to slow down further in 2022, due to the protracted energy crisis, worsening supply bottlenecks, heightened uncertainty, declining confidence and significantly higher and more persistent inflation than previously expected. Safe predictions cannot be made, only estimates based on scenarios, given that the extent of the effects of the war will depend on the duration of the geopolitical crisis and the impact of the EU sanctions against Russia. In any event, though, the economic consequences will be significant.

According to the baseline scenario of the ECB staff macroeconomic projections (March 2022), which includes an initial assessment of the impact of the war, growth in the euro area will continue, but at a clearly slower pace. Assuming that the war in Ukraine will end soon, that current disruptions to energy supplies and negative impacts on confidence linked to the conflict are temporary and that global supply chains are not significantly affected, euro area GDP is projected to grow by 3.7% in 2022, 2.8% in 2023 and 1.6% in 2024; the 2022 figure has been revised downwards from 4.2% in the December 2022 baseline projection. Growth will be driven by a strong labour market, the use of accumulated household savings to finance consumption, and the stimulus from the Recovery and Resilience Facility resources. Continued fiscal and monetary policy support remains a crucial factor, especially in the context of the current difficult geopolitical situation.

Given the high uncertainty surrounding the impact of the conflict in Ukraine on the euro area economy, the ECB has also considered two alternative macroeconomic scenarios assuming a longer duration of the war. Under the adverse scenario, which assumes worse impacts via the trade, commodity and confidence channels and constraints in the production capacity of the euro area, euro area GDP growth would be 2.5% in 2022. Under the severe scenario, which assumes a steeper and more persistent rise in prices as well, growth in 2022 would be even lower, 2.2%.

The recovery of the global and the European economies in 2021 was underpinned by the highly accommodative monetary policies pursued by major central banks, which led to very favourable

financial conditions, enabling governments to finance substantial fiscal support packages in response to the pandemic. On the other hand, the favourable financial conditions gave rise to a temporary euphoria in financial markets worldwide, resulting in a rally in asset prices, including risky assets, equities and property. Thus, negative news trigger a re-pricing of risks, increasing the possibility of sharp corrections in prices.

Moreover, the protracted energy crisis and the resurgence of inflationary pressures increase production costs and reduce corporate profitability, particularly for businesses facing elastic demand that choose not to pass higher costs to prices. Higher consumer prices for products with zero or low elasticity of demand could trigger a price-wage spiral.

Higher than projected inflation, in its early phase at least, stemmed from imbalances between temporarily constrained supply and pent-up demand, particularly for consumer durables and services, following the reopening of economies. Later on, the ramping up of production to meet higher demand brought about excessive demand for energy inputs. This, coupled with the recent extreme geopolitical developments in Europe and the acceleration of the green transition, has resulted in ongoing sharp increases in energy commodity prices.

The forecasts of all international organisations about the future course of the European economy are surrounded by significant uncertainties and mounting risks, which are primarily related to inflation developments and are exacerbated by the war in Ukraine. In the short term, the COVID-19 pandemic remains an additional risk to the global economy, as long as vaccination coverage in less developed countries is very low. Nevertheless, strong expectations of new vaccines becoming available next autumn and the high immunisation rates in the advanced world support hopes that the COVID-19 pandemic will eventually become an endemic seasonal disease that will not cause significant disruption in daily life or social and economic activity. By contrast, geopolitical confrontations and widespread uncertainty worldwide hamper the normalisation of supply chains, global transport and trade, while they further exacerbate inflationary pressures, thereby weakening the global growth momentum.

The pandemic had already exposed the weaknesses and fault lines of the global economic system. The severe disruptions in global supply chains, shortages in intermediate goods, as well as labour shortages in trade-related activities due to the containment measures, all contributed to unprecedented bottlenecks in large transit hubs, long delays in freight transport and increased transport costs, affecting industry in advanced economies. This situation has encouraged reshoring, whereby businesses based in advanced economies move production back to their home countries. This trend is likely to strengthen following the war in Ukraine, which has made global supply chains more precarious and costly, particularly for raw materials.

Moreover, the incomplete restoration of global goods trade flows, the energy crisis, the impact of climate change on crucial natural resources, as well as the war in Ukraine, all negatively affect primary production, causing long delays or shortages in food supply, pushing food prices upwards. The sharp increases in food commodity prices keep consumer price inflation elevated for longer, reducing the purchasing power of mostly medium- and low-income households and exacerbating economic inequalities.

Against this background, there is a risk of inflation exceeding the target in 2022 as a whole, mainly driven by energy prices and, to a lesser extent, food and metal commodity prices. In particular in the euro area, HICP inflation turned out at 2.6% in 2021 and is projected in the ECB's baseline scenario to increase further to 5.1% in 2022, before falling back to levels close to the medium-term target of 2% (2.1% in 2023 and 1.9% in 2024), as both inflation expectations and nominal wage growth remain contained so far. In other words, energy and food price increases are seen as reflecting conjunctural rather than structural factors, and thus they should gradually ease as the military conflict de-escalates and global supply chains are restored. In

the adverse scenario, associated with a more protracted war in Ukraine, inflation in 2022 would reach 5.9%; in the severe scenario, it would be 7.1%.

In order to control inflation and safeguard currency stability, major central banks are turning to less accommodative monetary policies. Increases in interest rates inevitably lead to a higher cost of money for banks and the private sector, as well as to higher production costs, with a dampening effect on growth. Furthermore, a monetary tightening is typically accompanied by corrections in asset markets, which suggest elevated risks for international capital and property markets.

In the area of government finances, high primary deficits and soaring public debt levels across the globe call for a shift from a strongly expansionary fiscal stance during the pandemic to a more contractionary one, with a significant reduction in public expenditure, mostly due to the phasing-out of emergency support measures. Moreover, tightening monetary conditions and rising borrowing costs as growth gains traction also support the case for restrictive fiscal policies, particularly in countries with high public debt.

For European economies in particular, the war amplifies the effects of higher energy and food prices amid generalised uncertainty. New support measures are therefore required to mitigate impacts on the available income of more vulnerable households. However, in countries with limited fiscal space and high public debt, such measures need to be appropriately targeted, temporary and reasonable. At the same time, the cost of admitting refugees from Ukraine puts an additional burden on government budgets.

Consequently, it becomes evident that striking a balance between (a) a gradual and cautious normalisation of highly accommodative monetary policy to cope with inflation; (b) a flexible fiscal policy, combining the withdrawal of pandemic-related emergency support measures with the adoption of temporary targeted measures to support the most vulnerable social groups; (c) adjustment to changing circumstances through the faster implementation of the envisaged reforms; and (d) credible commitment to the principles of fiscal responsibility, is vital for limiting the risk of stagflation and maintaining a brisk pace of growth, especially in countries with increased fiscal vulnerabilities and inherent weaknesses. Such a strategy would ensure the sustainability of public debt and facilitate the work of central banks in curbing inflation.

4 THE GREEK ECONOMY IS RECOVERING, BUT IS FACED WITH NEW CHALLENGES

The Greek economy is showing remarkable resilience, flexibility and dynamism, despite the protracted uncertainty due to the recurring waves of the pandemic worldwide, but also to the new challenges associated with the serious natural disasters that affected the country last year and the recent energy crisis. Currently, Greece is among the fastest growing euro area economies.

In 2021, GDP at constant prices grew by 8.3%, marking one of the best performances in the euro area, almost fully offsetting the 2020 contraction of 9% and confirming expectations of a U-shaped recovery. The high GDP growth rate in 2021 and the expectation of continued growth in 2022, along with the positive long-term economic outlook, have contributed to the recent upgrade of Greece's credit rating by DBRS to just one notch short of investment grade.

The main objectives of economic policy in 2022 should be to maintain the growth momentum, with a view to expanding the productive capacity of the economy, and to continue the efforts to regain investment grade; the latter should become a national goal.

After a long period of sluggish growth before the pandemic, the Greek economy needs to follow a growth path towards convergence with the euro area, changing its productive model and fo-

cusing on investment and extroversion. The experience of the pandemic as well as the current energy crisis suggest that enhancing the productive base, increasing investment and exports, improving the functioning of the public and private sectors and strengthening governance and institutions should be top policy priorities in the near term.

Reopening the economy with only few restrictions remaining in place, which has become possible thanks to a gradual easing of the pandemic on the back of high immunisation rates, and an improvement in economic expectations are supporting the recovery. It should be pointed out that, after an initial slowdown as a result of vaccination refusal by a part of the population (mostly vulnerable age groups) that led to a worsening in epidemiological data, immunisation coverage of adult and general population has increased in recent months (supported by mandatory vaccination), catching up with the EU average. However, the vaccination rate among vulnerable age groups is still lower than the EU average; this puts continued pressure on the healthcare system and is the main reason for the slow improvement of the pandemic situation in Greece.

The driving forces behind growth in 2021 were the better-than-expected performance of the tourism and the hospitality sector, along with positive developments in exports of goods; disposable income; private consumption expenditure financed by the earlier accumulation of private savings; government consumption; private and public investment; and a strong recovery in the labour market, as reflected in the large decline in the unemployment rate. However, the youth unemployment rate (15-24 years old), although declining, remains too high, at twice the EU average. Notable was also the recovery of industry and construction, whereas the large rise in imports of goods had a negative impact on GDP growth.

The estimated stronger-than-anticipated recovery in 2021 and the projected continuation of growth in 2022, albeit at a slower pace due to the impact of the war in Ukraine, are putting the economy on a new growth path, which is expected to continue in the coming years. They are also paving the way for an end to the pandemic-related support measures, thereby helping to drastically reduce the primary fiscal deficit and restore fiscal sustainability. The pandemic-related headwinds are expected to fade away, while the continued support from monetary policy in 2022 –despite the less accommodative stance of the ECB– coupled with the strong boost from the Recovery and Resilience Facility (RRF), should sustain the growth momentum. In particular, the National Recovery and Resilience Plan “Greece 2.0” for the first time includes an ex ante detailed and precise description of the investment projects to be financed under the RRF, while its objectives are designed to directly address the challenges of the Greek economy, ultimately aiming at its structural transformation.

Ongoing economic recovery in 2022 will crucially depend on the following: (a) continuation of reforms, with results already visible in areas such as digitalisation of the public sector, including tax administration; (b) a further decline in unemployment on the back of labour market reforms; (c) a rise in investment; (d) reduction of non-performing loans (NPLs); and (e) timely and efficient use of funds under the Recovery and Resilience Facility (RRF). These funds, expected to be disbursed at a faster rate between 2022 and 2026, combined with those available under the NSRF 2021-2027 will finance new public and private investment projects that are necessary for carrying through the transformation of the Greek economy with a focus on green and digital economy, employment and skills, and social cohesion. Moreover, pressing ahead with reforms, as described in the National Recovery and Resilience Plan, will help to build strong governance institutions in Greece and a business-friendly environment, which is indispensable for encouraging private investment initiatives. The strong growth outlook is supported not only by anticipated RRF-funded investment, but also by higher productivity as a result of the reforms envisaged in the National Recovery and Resilience Plan. Furthermore, ongoing NPL reduction efforts and sufficient liquidity should enable Greek banks to accelerate lending to businesses and households, thus contributing to GDP growth.

However, the surge in economic uncertainty due to high and persistent inflation as well as to the war in Ukraine weighs on economic agents' expectations and decisions. Against this background, the Greek economy is expected to keep growing in 2022, but at a clearly slower pace than the initial forecast of 4.8%. Real GDP growth is limited to 3.8% in the baseline scenario and 2.8% in the adverse scenario, depending on the size of the impacts via the commodity, confidence and financial channels.

Although the main drivers of growth this year are domestic demand and tourism, there is significant uncertainty: the negative impact of inflation on households' real disposable income will drag down private consumption expenditure. Higher production costs and lower consumption will weigh on firms' profitability and, together with widespread uncertainty, could lead to a postponement or cancellation of investment decisions. There is also uncertainty about tourism inflows, mainly from Europe and the United States, due to a decline in the purchasing power of households in the countries of origin, but also to a feeling of insecurity.

On the other hand, there are several countervailing forces at play, which mitigate the negative effects of the war in Ukraine and sustain the growth momentum. These include: the start of investment projects under the National Recovery and Resilience Plan; rising employment; accumulated savings; and continued growth in exports. These forecasts are subject to a number of conditions, including a complete elimination of the pandemic risk, a significant decline in geopolitical instability, a continued rise in international tourism, a recovery in the euro area, a faster pace of investment and a gradual easing of inflation.

In 2021, HICP inflation in Greece was 0.6%, mainly driven by rising energy and food prices. It was well below the euro area average. For 2022, inflation is projected at 5.2% in the baseline scenario, with positive contributions from all components, and at 7% in the adverse scenario. A de-escalation of inflation is expected in 2023, conditional on a restoration of global supply chains and a decline in energy prices. In the event of an exacerbation of the energy crisis and a faster growth in nominal wages relative to productivity growth, headline inflation in Greece, combined with the elevated cost of housing, would rise further, thus fuelling inflationary expectations.

A further upgrade in Greece's credit rating and the maintenance of a favourable growth outlook crucially hinge on a return to fiscal sustainability and to prudent and responsible fiscal management. The robust performance of tax revenues, in line with the trend observed in the last months of 2021 and the first two months of this year and as a result of the upturn in economic activity and higher private consumption and employment, along with a phasing-out of the pandemic-related support measures allow for a drastic reduction in the primary deficit in 2022.

In greater detail, the high growth rate achieved in 2021 and the projected continued growth momentum in 2022 and 2023 facilitate the conduct of a credible countercyclical fiscal policy in order to generate primary surpluses, which, coupled with low interest rates and higher nominal GDP growth, would put the debt-to-GDP ratio on a steady downward path. A consistent countercyclical fiscal policy would help create adequate fiscal space, required to cushion the economy against future recessions, provide targeted support to the more vulnerable and build a sufficient cash buffer enabling smooth debt servicing so as to mitigate country risk. In this regard, a further curbing of tax evasion would create additional fiscal space, which is of vital importance in the current circumstances.

Although the data so far available suggest that real GDP losses from COVID-19 are likely to be fully recouped in 2022, thereby eliminating the risk of lasting scars, the Greek economy is recovering against a backdrop of exceptionally high global uncertainty. The main sources of heightened uncertainty are: first, the possibility of the current acute geopolitical conflict becoming more permanent, which would pose risks to global security, prolong pressures on global supply chains, international transport and inflation and shadow the prospect of fully recouping tourist inflows;

second, a resurgence –even temporary– of the pandemic worldwide next autumn; third, a more severe and protracted energy crisis; and fourth, an entrenchment of higher inflation expectations among economic agents, with negative effects on consumption and investment.

In the new environment of extreme uncertainty, ensuring fiscal sustainability through the planned phasing-out of pandemic-related support measures proves to be a difficult balancing act between two policy objectives. On the one hand, the impact of high energy costs and inflation on household disposable income and corporate profitability needs to be mitigated in order to limit dampening effects on recovery and safeguard financial stability. On the other hand, support measures in 2022 need to have a small direct budgetary impact, so that the necessary fiscal policy tightening in the current year can facilitate a return to fiscal sustainability.

5 THE SINGLE MONETARY POLICY

In view of the progress of economic recovery and the need to rein in rising inflation, the Governing Council of the ECB has already embarked on a gradual and cautious normalisation of monetary policy. By the Governing Council's decision of 16 December 2021, confirmed in the meeting of 3 February 2022, net purchases of assets under the Pandemic Emergency Purchase Programme (PEPP) continued in the first quarter of 2022, although at a significantly lower pace, and the PEPP was terminated at the end of March 2022. Importantly, by that decision, the reinvestment horizon for the PEPP was extended until at least the end of 2024. This prevents the risk of market fragmentation and ensures a smooth transmission of monetary policy across all euro area countries for as long as their economies are still recovering from the fallout of the pandemic. The single monetary policy, although gradually becoming less accommodative, retains the necessary flexibility to cope with potential negative shocks, such as a resurgence of the pandemic, but also the recent geopolitical shock. Flexibility relates to the reinvestment horizon and asset classes, as well as the possibility of resuming net asset purchases, if necessary.

It is important to note that monetary policy flexibility includes the ability to purchase Greek government bonds, as part of PEPP reinvestments, over and above rollovers of redemptions, although they still lack investment grade and are therefore ineligible for the asset purchase programme (APP). This helps to contain the borrowing costs of Greek government and facilitates the smooth refinancing of public debt from the markets. By doing so, it gives time to the Greek authorities to make headway with the restoration of fiscal sustainability and the implementation of the necessary structural reforms, both of which are seen as essential prerequisites for an upgrade of Greece's credit rating.

By the decision of 10 March 2022, monthly net purchases under the standard asset purchase programme (APP) continue in the second quarter of 2022, with monthly volumes set at €40 billion in April, €30 billion in May and €20 billion in June. For the third quarter, the volume of purchases will depend on the path of inflation. In particular, if the medium-term inflation outlook can be maintained even after the end of its net asset purchases, net asset purchases will be ended in the third quarter of 2022. If the inflation outlook deteriorates or financing conditions become inconsistent with the 2% target, the Governing Council stands ready to revise the schedule for net asset purchases in terms of size and/or duration. The Governing Council also intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it starts raising the key ECB interest rates, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.

According to its decision of 24 March 2022, the ECB Governing Council continues to allow national central banks to accept as eligible collateral in Eurosystem refinancing operations Greek government bonds that do not satisfy the Eurosystem's minimum credit quality requirements,

but fulfil all other applicable eligibility criteria, for at least as long as reinvestments under the PEPP continue.

The interest rates on the main refinancing operations, the marginal lending facility and the deposit facility have remained unchanged at 0.00%, 0.25% and -0.50%, respectively. Any adjustments to the key ECB interest rates will take place sometime after the end of net purchases under the APP and will be gradual. The path for the key ECB interest rates will continue to be determined by the Governing Council's forward guidance and by its strategic commitment to stabilising inflation at 2% over the medium term. Therefore, the Governing Council expects the key ECB interest rates to remain at their present levels until it sees inflation reaching 2% well ahead of the end of its projection horizon and durably for the rest of the projection horizon, and it judges that the path of inflation is consistent with the 2% target over the medium term.

In July 2021, the Governing Council concluded its monetary policy strategy review. The review took into account the fundamental changes in the global economic environment since the last strategy review, including the downward trend in the "natural" interest rate, the slowdown in productivity, the ageing of the population, the climate change-related risks, the digital transformation of the financial system and the interaction between fiscal and monetary policies. In this context, the medium-term inflation target has now been set at 2% annually, instead of "close to, but below, 2%". The target is symmetric, with deviations on both sides seen as equally undesirable. This allows more flexibility in the conduct of monetary policy by the ECB and enables it to adjust all of its instruments, as appropriate, to achieve its inflation target. In line with its new monetary policy strategy, the Governing Council also revised its forward guidance on the key ECB policy rates.

At the same time, the ECB announced an ambitious action plan to incorporate climate change considerations into its monetary policy framework. This plan ensures that the Eurosystem conducts its monetary policy taking into account the financial impacts of climate change, as well as the risks entailed by the transition to a lower-carbon economy.

6 FISCAL DEVELOPMENTS

In 2021, fiscal aggregates continued to be adversely affected, although to a lesser extent, due to ongoing support measures from the government amounting to around 9.4% of GDP. As the economy gradually reopened and started to recover, the support measures were more limited in scope and retargeted at the most vulnerable groups of society, with an emphasis on helping businesses to meet their working capital needs. A gradual restoration of fiscal sustainability should start from 2022 as the pandemic eases and the economy continues to grow. However, a resurgence of inflationary pressures on the back of soaring energy prices may be more persistent than initially expected, thus weakening economic growth. Against this background, the scope for fiscal policy intervention is limited. To avoid a negative effect on nominal fiscal aggregates, any further support measures should take into account the size of the available fiscal space and the broader macroeconomic uncertainties; they should be temporary and appropriately targeted, so as not to jeopardise the ongoing efforts to restore fiscal sustainability.

The incipient fiscal consolidation process, with a lower primary deficit in 2022 and a return to annual surpluses from 2023 onwards, needs to be preserved. Sound fiscal balances, coupled with continued structural reforms and optimal utilisation of RRF funds, would help to solidify growth and lead to an upgrade of Greece's credit rating, enabling Greek government bonds to regain investment grade.

In 2020, the general government primary deficit stood at 7.1% of GDP and the debt at 206.3% of GDP. For 2021, it is estimated that the primary deficit fell, on account of higher tax revenues

and lower non-productive expenditures. According to Bank of Greece forecasts, in 2021 the primary deficit declined to 6.2% of GDP and government debt to 193% of GDP.

The very low levels of borrowing costs throughout 2021 enabled the continued presence of Greek government bonds on international bond markets, ensuring the smooth and comfortable financing of public expenditure and the maintenance of a high cash buffer. The low implicit interest rate and strong nominal GDP growth are the most important factors that weaken public debt dynamics, having already put the debt-to-GDP ratio onto a downward path since 2021. While short-term risks to debt sustainability are contained, in the long run there are potential risks stemming from lower growth and/or higher borrowing costs as a result of higher interest rates.

7 THE BANKING SYSTEM

In 2021, bank credit to the private sector continued to increase, underpinned by the highly accommodative single monetary policy and the programmes of the Hellenic Development Bank (HDB) and the European Investment Bank (EIB) Group. Its growth rate stood at 3.7% year-on-year in December 2021, down from 10% in December 2020, and at 5.7% on average in the year as a whole, broadly unchanged from 2020. As business revenues recovered and firms had built up sufficient liquidity buffers already since 2020, their needs for bank credit declined. Therefore, the average net monthly flow of bank credit to non-financial corporations was lower than in 2020, but much higher compared with the pre-pandemic period. At the same time, the funds made available by the HDB and the EIB were lower than in 2020, but their impact was very significant, as they supported one-third of loans to businesses (mainly small and medium-sized enterprises) and the self-employed. The average annual rate of growth in lending to large enterprises decelerated, while the respective rate for SMEs accelerated. However, large enterprises continued to account for the bulk of new bank lending. Credit expansion to non-financial corporations was mainly channelled to the sectors of industry, trade and tourism. By contrast, the net flow of credit to households remained negative, despite an increase in disbursements of new housing and consumer loans increased.

Bank deposits by the private sector (businesses and households) continued to grow in 2021, by a cumulative €16.2 billion, which was lower than in 2020 (€20.6 billion) but much higher than the levels observed before the pandemic. Household deposits rose by €8.5 billion, driven by an increase in disposable income, on the back of the fiscal support measures, higher employment and forced savings in the context of the pandemic-related containment measures. Deposits by non-financial corporations increased by €7.8 billion, reflecting higher bank borrowing, direct State aid and a rebound in revenues after the reopening of the economy.

With regard to nominal bank interest rates, deposit rates in general and lending rates for non-financial corporations continued to decline. The decline in borrowing costs for SMEs was slightly larger. By contrast, interest rates on bank loans to households for house purchase remained virtually unchanged, while consumer credit rates increased. In real terms, however, lending rates for both non-financial corporations and households fell significantly on account of higher inflation.

Banks' operating income showed a small decline, mainly due to lower income from financial operations. Net interest income remained broadly unchanged, while operating expenses increased, leading to weaker results before provisions and taxes. Overall, partly reflecting impairment losses from NPL transactions and provisioning for credit risk, banks posted losses.

Turning to capital adequacy, both the common equity tier 1 ratio and the total capital ratio declined, mainly reflecting losses on NPL sales and securitisations. The relatively low quality of bank capital, given that deferred tax assets make up the largest part (64%) of total regulatory

capital, coupled with the impact of International Financial Reporting Standard 9 and the obligation to meet the Minimum Requirement for Equity and Eligible Liabilities (MREL), call for a qualitative and quantitative strengthening of the capital base and an improvement of core profitability. It is positive that banks have started efforts to strengthen their capital base through capital increases and bond issuance. Finally, it is worth pointing out a growing bank-sovereign nexus, as total exposure to central government stood at 22.5% of total bank assets and 38.7% of GDP at the end of 2021.

In the current environment of changing financial conditions, Greek banks are faced with major challenges, such as new NPLs that may arise after the expected withdrawal of support measures, but also as a result of high inflation; the obligation to meet the Minimum Requirement for Equity and Eligible Liabilities (MREL); the need to absorb the impact of International Financial Reporting Standard 9; the consequences of climate change; and the adoption of new, digital technologies. It is clear that these challenges call for continued vigilance and stronger actions on the part of banks to further reduce NPLs, strengthen their capital base and more effectively use their increased liquidity towards financing the economy.

Non-performing loans

According to available data, the stock of NPLs on Greek banks' balance sheets declined further in 2021, mostly through loan sales of €27.5 billion under the Hellenic Asset Protection Scheme. Smaller contributions to NPL reduction came from active NPL management and from the pandemic-related temporary borrower relief measures.

NPLs stood at €18.4 billion at end-December 2021, down by €28.8 billion from end-December 2020 and by €90.3 billion from their March 2016 peak. Of the total NPL stock, corporate loans account for about two-thirds, housing loans for one-fifth, while the remainder consists of consumer loans. Progress with NPL resolution has led to a significant improvement in bank asset quality, reducing risk costs and widening profit margins.

Nevertheless, the stock of NPLs as a percentage of total loans (12.8%) remains well above the EU average of 2.1%. About 39% of NPLs are subject to forbearance measures, but a high share of forborne loans has fallen back into arrears. It is estimated that, due to the pandemic and the impact of high inflation, an additional proportion of forborne loans might be classified as NPLs in 2022. Efforts should therefore be stepped up to further reduce NPLs, especially given that the full impact of the pandemic and inflation on bank asset quality is expected become visible with a lag.

As NPL reduction on bank balance sheets in 2021 was achieved mainly through securitisations and transfers to international investors, the stock of NPLs remains a burden for the real economy and excludes a large number of borrowers from bank credit. Finally, it should be noted that certain non-core banks have made little progress with addressing their still high NPL stocks.

8 INSURANCE UNDERTAKINGS

In 2021, the Greek private insurance market saw significant developments, including consolidation through mergers and acquisitions; higher sales of unit-linked products, where investment risk is borne by the policyholder; and, in the context of low interest rates, a drop in sales of insurance contracts with profit participation clauses.

Overall, the Greek insurance sector weathered well the impact of the pandemic. In January-September 2021, total life, and to a lesser extent, non-life gross written premiums grew relative to the respective period of 2020. Currently, insurance undertakings increasingly focus on action to address the risks of climate change and adjust to new technological developments.

Regulatory developments in 2021 included: (a) a revision of the minimum coverage amounts for compulsory insurance against civil liability in respect of motor vehicles; and (b) the adoption of the guidelines of the European Insurance and Occupational Pensions Authority (EIOPA) regarding information and communication technology security and governance in order to ensure risk management in ICT systems.

The Greek insurance market is characterised by a high degree of concentration, in particular among insurers pursuing both life and non-life activities, where the top five undertakings hold an aggregate market share of 81% in terms of technical provisions.

Both total assets and total liabilities of insurance undertakings increased, while own funds remained unchanged. A substantial part of liabilities concerns life insurance. With regard to the quality of eligible own funds, 93% are classified in Tier 1, i.e. the highest quality level, and all supervised insurance undertakings have Solvency Capital Requirement coverage ratios of more than 100%.

The climate crisis and its non-linear nature pose serious challenges for insurance undertakings providing natural disaster damage coverage. The higher frequency and severity of extreme weather events, also given the increasing fiscal cost of loss coverage, point to a need to strengthen the role of private insurance protection. The implementation of best international practices, such as tax incentives for taking out insurance, and public-private partnerships are appropriate tools for ensuring adequate financial protection of citizens against natural disasters.

EIOPA has published a number of reports, consultation papers and opinions, such as the consultation paper on the application guidance on running climate change materiality assessment and using climate change scenarios in the Own Risk and Solvency Assessment (ORSA); the opinion on the supervision of the use of climate change risk scenarios in ORSa; the report on non-life underwriting and pricing in light of climate change; and the methodological paper on potential inclusion of climate change in the Nat Cat standard formula.

9 SOURCES OF RISK AND UNCERTAINTY

The Greek economy faces a number of risks, both exogenous and endogenous. Exogenous risks relate to: the extreme geopolitical tensions and their effects on the global and European economy and especially on inflation; ability to control COVID-19 variants and turn the pandemic into an endemic disease; and climate change.

Although not yet completely and definitely eradicated, the pandemic poses less of a risk to the Greek economy. However, the most significant exogenous risk in the short term arises from inflation persistence, which will chiefly depend on the evolution of the war in Ukraine and the ensuing geopolitical developments in the broader region. As inflationary pressures appear to be more permanent and persistent globally, they are propagated across the economy, negatively affecting disposable income, consumption and investment expenditure, profit margins, asset yields, real wealth, tourism inflows and ultimately growth. At the same time, the rise in inflation at the EU level will lead to a gradual normalisation of the single monetary policy and a tightening of financing conditions, affecting borrowing costs. Given the need to restore a sound fiscal position, there is little scope for an expansionary fiscal policy to counter the impact of economic slowdown.

However, Greece can turn the current energy crisis into a historic opportunity and become an energy hub in Southeast Europe. By building on its know-how in submarine electricity interconnection projects and by accelerating investment in renewable energy, it can enhance its energy security, speed up the energy transition and become a factor of energy stability in the EU.

In the medium-to-long term, perhaps the most important exogenous risk stems from the non-linearity of the climate crisis, which poses a serious threat to economic and financial stability. The frequent and more disruptive extreme weather events, combined with a delayed transition to a low-carbon economy, could negatively affect the transmission of monetary policy through the financial system and jeopardise price, financial and macroeconomic stability. For example, last summer's wildfires in Greece caused huge ecological and financial damage and highlight the vulnerability of the domestic economy to the impacts of climate change. The rise in temperature and the change in precipitation patterns have an effect on the quality and availability of national resources and thus on the economy's productive capacity. This explains why central banks have a keen interest in addressing the consequences of climate change on the financial system. In this regard, the ECB has launched a roadmap to further incorporate climate change considerations into macroeconomic modelling and monetary policy operations, in order to assess the climate risk exposure not only of banks and businesses, but also of its own balance sheet.

Specifically for banks, the risks of climate change are significant, including: credit risk related to defaults on loans; market risk, as asset valuations are negatively affected; liquidity risk insofar as the climate crisis affects banks' funding sources (deposits, assets); and operational risk due to infrastructure damage as a result of natural disasters.

Endogenous risks are linked both to chronic weaknesses in the structure and functioning of the economy and to issues as a legacy from the Greek sovereign debt crisis. These risks include:

(i) the possibility of hysteresis as a result of failure to achieve sustained strong growth and accelerate reforms;

(ii) a sharp increase in the already high government debt-to-GDP ratio. In the short term, debt sustainability is ensured. Ensuring also long-term sustainability would require primary surpluses, which, coupled with the projected high growth rates, low average interest rates and the favourable debt structure, should keep the debt ratio on a downward path;

(iii) the high stock of NPLs. Despite the great progress achieved, the stock of NPLs on bank balance sheets remains high and, as a percentage of GDP, well above the EU average. Moreover, there is a risk that new NPLs may emerge in the period ahead once the pandemic-related support measures are fully withdrawn. Key priorities include an improvement in banks' core profitability and a qualitative and quantitative strengthening of their capital base, especially given the large share of deferred tax credits (DTCs) in total regulatory capital;

(iv) private debt overhang;

(v) the low structural competitiveness of the Greek economy. It is essential to accelerate the necessary structural reforms, mainly in the goods and services markets, in order to strengthen competition and foster innovation;

(vi) the large investment gap, which is detrimental to the quantity and, more importantly, the quality of physical capital;

(vii) a failure of education to keep pace with international labour market trends, which affects the quality of human capital and exacerbates the already high youth unemployment rate. Today's uncertain and fluid labour market calls for constant evolution and adaptability;

(viii) a potential failure of public administration to ensure a timely disbursement of EU funds, and potential administrative obstacles to the implementation of investment projects;

(ix) the long delays in the administration of justice.

10 A ROADMAP FOR SUSTAINABLE STRONG GROWTH

Looking forward, a steady path of growth at an average annual rate of 3% calls for concrete and longer-term economic policy decisions as part of a clear roadmap towards:

- making markets for goods and services more extrovert and competitive, by exploiting technological advances to promote the presence of the Greek economy in global value chains;
- using available know-how to transform the country into an energy hub;
- protecting healthy entrepreneurship, by eliminating administrative obstacles in order to encourage private investment initiative;
- creating a more efficient and functional public sector by completing the digital transformation of public administration;
- digitalising the judicial system, to ensure speedier administration of justice and dispute resolution;
- addressing the problem of private debt overhang by using all available tools and fostering a payment culture;
- speeding up the privatisation programme to optimise the use of resources and infrastructures;
- financing by a robust banking system;
- creating hubs of excellence, innovation and technological progress; and
- focusing on critical thinking and adapting curricula across all levels of education to the current needs of the globalised labour market.

Moreover, the effectiveness of economic policy hinges crucially not only on the right policy choices, but also on their successful implementation. As the ten-year Greek crisis has shown, delays, missteps or incomplete implementation of economic policy actions have significantly reduced the effectiveness of stabilisation programmes and prolonged the crisis.

Given the adverse demographic trends, strong growth can be driven by increasing total factor productivity and expanding the productive capacity of the economy by improving the quantity and quality of physical and human capital through the integration of new technologies. The fourth industrial revolution is shaping a new production paradigm, shifting employment away from unskilled manual labour and menial tasks towards high-skill jobs demanding critical thinking and an open mind to evaluate and apply knowledge rather than just reproduce information. At the same time, social cohesion considerations imply that equal opportunities and inclusion should be ensured, so that the benefits of growth can be shared among all social groups.

Over the next eight years, the Greek economy will receive over €70 billion in EU financial support, available from the NGE (2021-2026) and the EU Multiannual Financial Framework 2021-2027. An appropriate prioritisation of reform actions, their implementation within the strict timeframes and complementarity between private and public investment will determine the pace of disbursement of the funds, which are seen as essential for a shift towards a modern, sustainable and extrovert economic model. Furthermore, the utilisation of EU funds can bring about considerable output gains, helping to generate primary surpluses and reduce public debt, thus ensuring long-term fiscal sustainability.

In the short term, cautious policy steps need to be taken to consolidate the recovery, especially as long as the risk from the health crisis has not been fully eliminated and the risk of stagflation is real. Such policy steps concern: (a) the appropriate phasing-out of all emergency support measures with a view to gradually restoring fiscal sustainability while preserving the recovery; (b) the smooth absorption of EU funds and their utilisation to finance new productive investment projects in export-oriented sectors in order to reduce the current account deficit; (c) a credible commitment to implementing the necessary reforms as described in the National Recovery and Resilience Plan; and (d) a definitive clean-up of bank balance sheets.

All in all, the key determinants of growth in 2022 and the next few years will be the following: a boost to (mostly private) investment, through a strong reform policy, necessary for attracting foreign businesses to invest in Greece; a rise in private consumption expenditure; and a reduction in the current account deficit. However, this crucially presupposes the termination of the war in Ukraine and the mitigation of its impact on the economy, as well as the restoration of a climate of international confidence, cooperation and peaceful resolution of conflicts.

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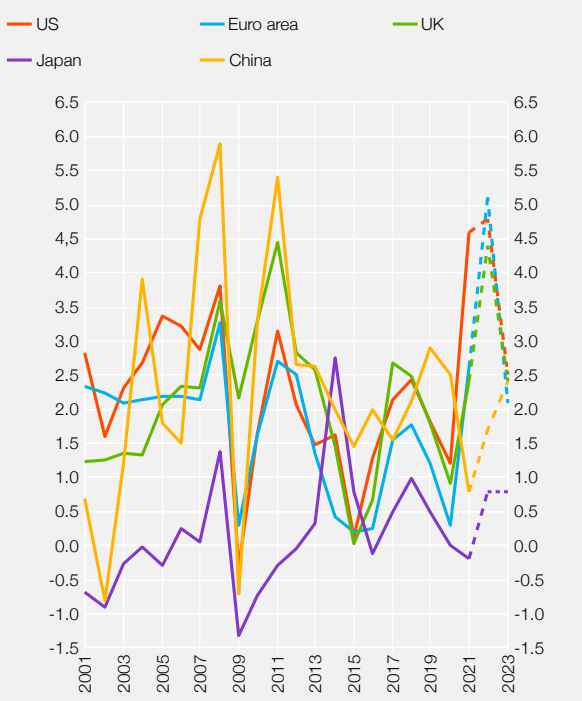
It has been more than two years since the COVID-19 pandemic broke out, causing irreparable human losses and social and economic costs that have been unprecedented in peacetime. Adequate vaccination coverage of population worldwide has been the only shield against the pandemic so that social and economic life can return to normal as soon as possible. Despite the successive and multiple crises faced over the past year (health-related, energy, climate and geopolitical), the Greek economy has shown functional adaptability and resilience, so that in only one year almost all economic losses have been recouped. Growing geopolitical instability, which peaked with the outbreak of the war in Ukraine, and the exacerbated energy crisis will slow but not halt the recovery path. 2022 marks the dawn of a new era, which will shape a new social and economic reality. The dominant features will be digitalisation and automation, green energy, scientific knowledge and specialisation, repatriation of international production to safer regions, but also the need to strengthen defence and energy security in view of new geopolitical crises and abrupt political changes. Greece has a historic opportunity to transform its economy and keep pace with developments. The positive economic momentum carried over from 2021 to 2022, the lessons learnt from the ten-year debt crisis, the important EU funding instruments, the political will to implement reforms, but above all the maturity of the Greek society and its ability to understand the new environment and accept structural changes, are factors that help to turn crises into opportunities, enabling the country to overcome once and for all its inherent chronic weaknesses, transform into a modern, sustainable, extrovert and competitive economy and show adaptability and resilience to a highly uncertain international environment. The ultimate goal of this effort is to consolidate sustainable and inclusive growth and improve social welfare.

II THE EXTERNAL ENVIRONMENT OF THE GREEK ECONOMY

Exiting the deepest post-war recession due to the pandemic in 2021, the global economy was faced with new, more contagious variants of the coronavirus, as well as severe inflationary pressures in the second half of the year, caused by a sharp increase in global energy demand. Inflation increased steeply, mainly in advanced economies (see Chart II.1), reflecting both a swift rise in fuel prices and the creation of conditions similar to excess demand. Overall supply has not been able to accommodate the strong recovery in global demand, due to shortages of raw materials and intermediate goods, and global supply chain disruptions persisted for the second year in a row, as a result of the pandemic crisis and containment measures. Economic policy remained highly expansionary in 2021 in response to the pandemic. Fiscal policy now needs to tighten, with the recovery of economies gaining some traction and debt rising to new highs. Monetary policy, which remained highly accommodative in 2020-21, is heading to normalisation, balancing the need to address inflationary pressures with the need to continue to adequately support economic recovery. Projections for 2022 point to a sustained recovery of the global economy, international trade and employment, albeit at a more moderate pace, amid high uncertainty, rising geopolitical risks and higher inflation than in 2021 on account of the Russia-Ukraine war.

Chart II.1 Headline inflation in major economies (2001 - 2023)

(average annual inflation, percentage changes)



Sources: 2022-2023 forecasts: OECD and IMF. For the euro area: ECB.

1 OVERVIEW OF DEVELOPMENTS[1]

Exiting the biggest post-war recession due to the pandemic, the European and the global economy were faced with new challenges in 2021. First, the pandemic continued for the second year to affect people worldwide, with the emergence of new, more contagious variants of the virus, despite the development of vaccines and the vaccination of a significant part of the population, which contained the spread of the virus. From mid-year onwards, strong inflationary pressures emerged after many years, partly due to the energy crisis induced by the sharp rise in demand for energy, in particular natural gas, which may have been exacerbated by Member States' rush to achieve a transition to less polluting energy in an effort to tackle climate change.

The most serious new challenge for the global community is undoubtedly Russia's invasion of Ukraine at the end of February and the war, which is still raging and has already had tragic con-

1 The cut-off date for information and data used in this Chapter is 21.03.2022.

sequences: human casualties, large refugee flows and a significant impact on the global economy (see Box II.1).

Global GDP grew by 5.9% in 2021, after an unprecedented post-war drop of 3.1% in 2020. Recovery will continue in 2022, slowing to 4.4% according to IMF estimates (January 2022) or below, taking into account the impact of Russia's invasion of Ukraine that followed these forecasts. In advanced economies, where vaccinations progressed faster and economic policy was more supportive, GDP grew above the average of recent years in 2021, whereas recovery in developing and emerging economies has been less pronounced. Among advanced economies, growth in 2021 rebounded faster in the US, the UK, France and Italy and slower in Germany and Japan.

Global trade recovered in 2021, benefiting from a strong recovery in global demand, despite the impact of ongoing global supply chain bottlenecks and supply-side constraints. The volume of international trade in goods and services, after declining by 8.2% in 2020, increased by 9.3% in 2021. According to IMF estimates (January 2022), global trade will also increase in 2022, but at a slower pace, as supply disruptions and uncertainty linger because of the pandemic. The Russian invasion of Ukraine on 24 February 2022 further amplified the risks to global trade for 2022.

Inflation has risen globally in 2021, owing to the surge in energy prices and other inputs, as well as to the failure of overall supply to respond to rapidly recovering final demand.[2] In advanced economies as a whole, CPI inflation increased more sharply, reaching 3.1% (the highest level since 2008), up from 0.7% in 2020. Inflation is now expected to remain high also in 2022 and to decline in 2023. In the euro area, although inflationary pressures turned out to be more persistent than initially expected, according to the ECB's projections (March 2022) they will gradually decline over the medium term, and the increase in the Harmonised Index of Consumer Prices (HICP) is projected to be consistent with the ECB's target of 2% (see Chart II.1).

Monetary policy in 2021 remained accommodative in most economies worldwide, supporting the recovery. In some advanced economies with strong recovery and rising inflation in the last months of the year, central banks have announced the gradual normalisation of monetary policy, either by scaling back quantitative easing (US Federal Reserve, ECB) or by increasing the policy rate (Bank of England). With the revision of its strategy, the ECB redefined the price stability objective, setting a medium-term symmetric inflation target at 2.0%.

The fiscal stance worldwide continued to be expansionary in 2021, although less than in 2020, in order to mitigate the impact of the pandemic and protect the most vulnerable population groups. In many advanced economies such as the EU and the US, the fiscal policy mix has gradually started to shift from horizontal, pandemic-related, one-off transfers towards more targeted actions and investments that support sustainable growth. By contrast, in emerging and developing economies, low vaccination rates, combined with less fiscal space and higher borrowing costs, have reduced fiscal policy flexibility and increased the risk of economic underperformance and inequality. In 2022, the fiscal policy stance is expected to tighten, especially in advanced economies, as the global pubic debt has surged to historical highs and its servicing costs are expected to increase. The IMF projects that –despite its nominal growth– the global public debt will decline as a percentage of GDP by one percentage point in 2022 due to global nominal GDP growth.

Economic activity in the euro area rebounded strongly in 2021, offsetting the pandemic-induced historical losses of 2020, as GDP exceeded its pre-pandemic level at the end of the year. Re-

2 See Bank of Greece, *Monetary Policy, Interim Report 2021*, December 2021, Box II.1 "Global inflationary pressures: determinants and prospects".

covery is driven by the adaptation of businesses and households to the reality created by the pandemic, the gradual lifting of containment measures, as well as the coordinated and extensive fiscal and monetary policy response to support incomes and jobs. Global supply chain disruptions continued to be a major constraint on the recovery of manufacturing and external trade in goods, exacerbating inflationary pressures. GDP in the euro area grew by 5.3% in 2021, after shrinking by 6.4% in 2020. However, the Russia-Ukraine war in early 2022 is expected to dampen the euro area growth dynamics in 2022, while also significantly amplifying the risks of weaker growth in the medium term. According to ECB projections (March 2022), GDP will grow by 3.7% in 2022, driven by the gradual waning of the impacts of the pandemic, as well as a strong labour market in the euro area, assuming that the Russia-Ukraine conflict will end soon (see Box II.1 for alternative adverse macroeconomic scenarios). Risks to the euro area's economic outlook are pronounced and directly linked to geopolitical developments. At the same time, heightened uncertainty and the tightening of monetary policy in major economies may exacerbate global financial conditions. In this context, the high public and private debt accumulated during the pandemic poses a significant risk to the euro area's growth prospects (see Box II.2).

The EU Taxonomy and the concepts of sustainable finance, responsible investment and responsible banking, associated with a positive environmental footprint in view of the global threat of climate change and environmental degradation, are discussed in more detail in Box II.3.

The various major institutional and policy actions in the EU and the euro area in response to the pandemic and towards green transition, digital transformation, etc. are briefly presented in Box II.4.

The South-Eastern European economies also recovered strongly in 2021 and GDP growth was driven by all demand components. Despite the rise in inflation, the monetary authorities of these countries, with the exception of Romania, did not raise their key interest rates in the course of 2021. In Turkey, despite high inflation and an unorthodox monetary policy, GDP growth increased remarkably to 11%, supported by the favourable effects from the lifting of containment measures.

The EU is strengthening its enlargement process by providing financial and technical assistance to EU candidate and potential candidate countries, with multiple gains for all sides. Box II.5 presents the relevant technical assistance programmes and analyses the role and the way in which the Bank of Greece is engaged in them, being a member of the Eurosystem.

2 GLOBAL AND EURO AREA ECONOMIC DEVELOPMENTS AND PROSPECTS AND POLICY ACTIONS

2.1 World economy

Global GDP recovered faster than projected in 2021. The development and mass rollout of vaccines against COVID-19 in early 2021 proved effective in containing the pandemic and restoring confidence, allowing for the gradual lifting of restrictions and the reopening of economies around the world. Despite the differences and inequalities observed between advanced and developing economies in terms of the vaccination coverage rate, confidence, economic activity and employment recovered rapidly. Economic activity has benefited from the lifting of constraints, the adaptation of firms, households and sovereigns to the new reality, as well as from the expansionary fiscal policy, coupled with the exceptionally favourable financial conditions ensured by a determined monetary policy.

Global GDP grew by 5.9% in 2021, compared with an unprecedented post-war drop of 3.1% in 2020. The recovery will continue in 2022, slowing down to 4.4% according to IMF estimates

(January 2022); however, these estimates do not incorporate the effects of the war in Ukraine that broke out in February. According to recent OECD estimates (17 March 2022), these effects may shave one percentage point off the economic growth rate forecast before the war.

Global recovery in 2021 was uneven across economies and sectors. In advanced economies, where vaccination progressed faster and economic policy was more supportive, GDP in 2021 grew at a significantly higher pace than the pre-pandemic long-term average, unlike the recovery in developing and emerging economies, which was closer to it. In the first half of 2021, strict lockdown measures affecting social life and travel put a disproportionate burden on the services sector. During the second half of the year, with the gradual lifting of these measures and the strong rebound in demand, supply-side disruptions and constraints emerged, placing a heavy burden on the manufacturing sector.

In advanced economies, real GDP grew by 5.0% in 2021, after declining by 4.5% in 2020. Among advanced economies, the pace of recovery was faster in the US, the UK, France and Italy in 2021 and slower in Germany and Japan, since the latter are more exposed to the global supply chain shortages and disruptions.[3] According to the IMF, recovery will continue in 2022 at high but more moderate GDP growth rates (slowing to 3.9%), as inflation and the gradual withdrawal of emergency support measures will dent its momentum.

In the US, GDP grew by 5.7%, after dropping by 3.4% in 2020. Private consumption and private investment increased strongly, supported by pent-up demand and increased savings during the previous year. By contrast, public expenditure on consumption and investment, which was a significant growth component in 2019 and 2020, slowed down significantly, as the pandemic-related support measures were phased out in the course of the year. Imports grew at a much faster pace than exports, resulting in net exports of goods and services making a negative contribution (1.4 percentage points) to the change in GDP. The labour market recovered strongly and the unemployment rate returned to the pre-pandemic low of 3.9% in December. The number of Americans who quit their jobs in search of better opportunities increased to record highs throughout the year (the "Great Resignation"), exacerbating staff shortages in some sectors of the economy. In the last months of 2021 wages rose by 5% year-on-year, almost twice their average pre-pandemic rate, putting additional upward pressure on domestic inflation. From 1.4% in January 2021, headline inflation picked up sharply after April and gradually reached 7.0% in December, the highest rate since June 1982. Before the Russia-Ukraine war broke out, GDP growth for 2022 was forecast to be high (4.0%), but lower than in 2021, as the large fiscal package "Build Back Better" had stalled and it was broadly expected that monetary policy would normalise earlier. According to March OECD estimates, the war will shave around 0.9% off US GDP in 2022.

In Japan, GDP recovered and increased by 1.6%, following a decrease of 4.5% in 2020. Health developments forced a new round of containment measures in July, denting the rebound in domestic demand, while investment continued to decline. However, despite the disruptions in production and external trade, exports recovered considerably, accounting for almost half of GDP growth. Headline inflation and core inflation were slightly negative in 2021. Unlike other major economies, Japan's GDP growth is projected to accelerate in 2022 to 3.3%.

In the UK, the quick vaccination rollout in the first half of the year changed dramatically the adverse health and economic situation of 2020 and allowed for a swifter economic recovery in 2021. GDP grew by 7.2%, the highest rate among the G8, compared with a sharp drop of 9.4% in 2020. The most significant component of GDP growth was public consumption, which in-

3 It is estimated that in 2021 the loss in output on account of automotive supply chain disruptions and shortages was around 0.1% in the US, 0.2% in Italy, 0.7% in Japan and 1.7% in Germany, see Box 1.1 in OECD, *Economic Outlook*, No. 110, December 2021.

Table II.1 Key macroeconomic aggregates of the world economy

	Number of countries	Share in GDP[1] (%)	GDP (volume, annual percentage changes)			Inflation[2] (annual percentage changes)			Fiscal balance[3] (% of GDP)			Gross government debt (% of GDP)			Current account balance (% of GDP)		
			2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
World total	**196**	**100.0**	**-3.1**	**5.9**	**4.4**	**3.2**	**4.6**	**5.1**	**10.2**	**7.9**	**5.2**	**98.6**	**97.8**	**96.9**	**-**	**-**	**-**
1. Advanced economies	40	42.4	-4.5	5.0	3.9	0.7	3.1	3.9	-10.8	-8.8	-4.8	122.7	121.6	119.3	0.3	0.4	0.3
United States		15.8	-3.4	5.7	4.0	1.2	4.6	4.8	-14.9	-10.8	-6.9	133.9	133.3	130.7	-2.9	-3.5	-3.5
Japan		4.0	-4.5	1.6	3.3	0.0	-0.2	0.8	-10.3	-9.0	-3.9	254.1	256.9	252.3	3.3	3.5	3.3
United Kingdom		2.2	-9.4	7.2	4.7	1.0	2.4	4.4	-12.9	-10.1	-5.5	102.3	103.0	103.9	-2.6	-2.8	-3.0
Euro area	19	12.1	-6.4	5.3	3.7	0.3	2.6	5.1	-7.2	-5.5	-3.1	97.3	95.8	92.0	1.9	2.5	1.7
2. Emerging and developing economies	156	57.6	-2.0	6.5	4.8	5.1	5.7	5.9	-9.3	-6.6	-5.7	63.1	63.4	64.8	0.6	0.8	0.6
China		18.3	2.3	8.1	4.8	2.4	0.8	1.7	-11.2	-7.5	-6.8	66.3	68.9	72.1	1.8	1.6	1.5
Russia		3.1	-2.7	4.5	2.8	3.4	5.9	4.8	-4.0	-0.6	0.0	19.3	17.9	17.9	2.4	5.7	4.4

Sources: IMF, *World Economic Outlook*, and *Fiscal Monitor*, October 2021 and *WEO Update,* January 2022, OECD, *Economic Outlook,* December 2021 European Commission, *European Economic Forecast, Autumn 2021,* November 2021,and US Bureau of Economic Analysis. For the euro area: ECB, *ECB staff macroeconomic projections for the euro area,* March 2022, and Eurostat.
Notes: Estimates for 2022. The impact of the Russia-Ukraine war is not included in the estimates, except for the euro area.
1 Percentage share in world GDP in 2020, based on purchasing power parities.
2 HICP for the euro area and the UK; CPI for the other countries. Annual averages.
3 General government.

creased by 16% in 2021, boosting employment and income. The higher cost of cross-border transactions after the country's withdrawal from the EU weighs on exports of goods and services, which also declined in 2021 (by 2.5%, after dropping by 14.7% in 2020). Inflation was fuelled by energy costs and gradually reached a 30-year high of 5.4% in December.

In emerging and developing economies, after a slight decline in 2020, GDP grew by 6.5% in 2021, with the two major economies recording the highest growth rates. In China, despite the huge health and economic crisis, GDP did not shrink in 2020 (see Table II.1) and in 2021 growth edged up to 8.1%. The rebound of economic activity was supported by the vaccination coverage rate reaching 85% at the end of the year. In the second half of the year, the recovery was dampened by reduced government support, the real estate market crisis, power supply cuts and plant closures as a result of a sharp rise in energy costs, resulting in almost no change in GDP quarter on quarter in Q3. A slowdown is expected for 2022, as pandemic-related measures remain strict and housing investment is associated with increased risk. India's GDP, after falling by 7.3% in 2020, is estimated to have increased by 9.0% in 2021, despite a surge of the pandemic in the country and low vaccination coverage, reaching 50% at the end of the year. Inflation in 2021 remained high and almost unchanged year on year (6.4%, compared with 6.2% in 2020).

Inflation rose worldwide throughout 2021, as a result of a spike in energy prices and other inputs, as well as of supply failing to respond to strongly recovering demand in some economic sectors. In advanced economies CPI inflation, after many years of moderate or even low inflation, which had dropped to 0.7% in 2020 due to the collapse of global demand, increased sharply in 2021, especially towards the end of the year. Although in the last quarter the annual inflation rate had risen markedly to 4.8%, it reached an annual average of 3.1%. This was the highest rate recorded since 2008, when the average crude oil price had increased by 36% to USD 97 per barrel and price inflation had reached 3.4%. Inflation increase was weaker in developing and emerging economies (5.7% in 2021 from 5.1% in 2020) and, in some of them, was driven also by rising food prices. For 2022, after continuous upward revisions already be-

fore the outbreak of the war in Ukraine, inflation was eventually projected to rise rather than decline on average, as high energy prices and overall supply disruptions will persist, while the output gap will have narrowed significantly in several major economies. In advanced economies, according to the IMF's January projections, inflation will rise to 3.9% in 2022 and fall to 2.1% in 2023. According to the latest OECD estimates (17 March 2022), the overall impact of the war on global inflation in 2022 will amount to 2.5 percentage points.

The already significant risks to the global economic outlook further increased after Russia's invasion and war with Ukraine, which was still ongoing at the end of March. The duration of the war is a crucial factor in the evolution of uncertainty and the severity of its impact on the global economy (see Box II.1). A further rise of already very high global energy prices, possible shortages of fuel and agricultural products and the food crisis that may erupt in emerging economies will undoubtedly be a double shock on both supply and demand. In addition, the emergence of new coronavirus variants may prolong the pandemic, causing new economic shocks and weakening the recovery. At the same time, persistent global supply chain bottlenecks, high and continuously increasing energy prices and legitimate pressures for wage increases in several economies exacerbate uncertainty around inflation expectations and inflation rates but also as regards the response of monetary authorities. The warranted normalisation of monetary policy and the tightening of fiscal policy following the pandemic must take into account the new geopolitical developments and the underlying stagflationary risks.

Global trade and international commodity prices

Developments in global trade in 2021 reflect both the positive impact of the recovery in global economic activity and the negative impact of persisting problems on global supply chains and supply-side constraints. In 2021, shortages in the supply of key inputs (such as semiconductors) and increased delivery times were observed, due to both the inability of production to respond to the sharp increase in demand and sea transport disruptions. Moreover, the sharp increase in international energy prices and the temporary shutdown of production plants in China dented the momentum of global trade in goods, thus dampening the asymmetric recovery of trade in goods and services. In more detail, global trade in services grew by around 25% year on year during the second and third quarters of 2021. Digitally deliverable services such as financial, business and e-services were the main drivers of trade growth, as well as transport, which grew despite increased freight costs. In 2021 as a whole, the volume of global trade in goods and services is estimated to have picked up by 9.3%, following a significant decline of 8.2% in 2020. According to IMF estimates (January 2022), international trade volumes will increase in 2022, albeit at a slower pace, as supply disruptions and uncertainty due to the pandemic persist. In addition, the Russia-Ukraine war increases the risks to global trade amid worsening economic sentiment, lower-than-expected global growth and continuing supply chain disruptions.

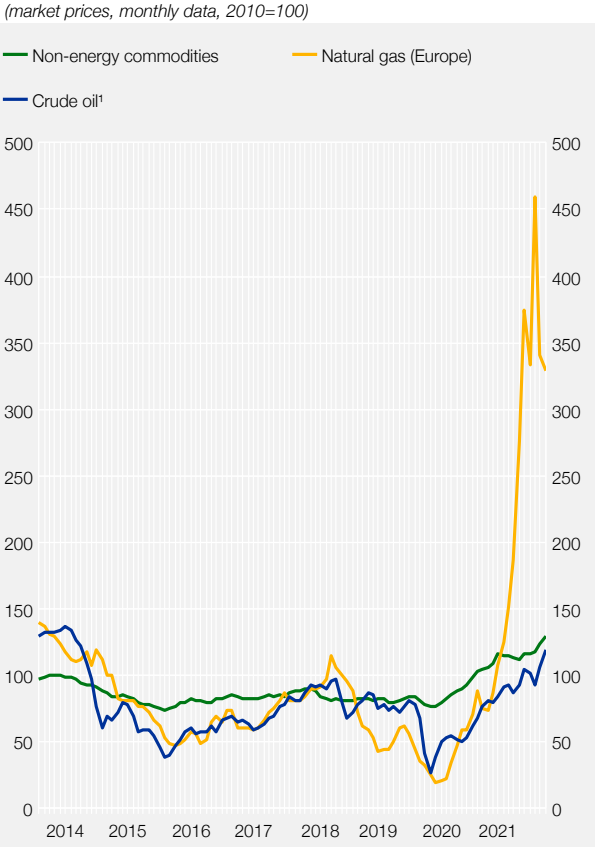
The global recession caused by the pandemic in 2020 led to a steep decline in global commodity prices, followed by a synchronised strong rebound throughout 2021. In 2021, the average international crude oil price spiked to USD 69.1 per barrel, the highest since 2014, up by a steep 67.4% on an annual basis. The oil price peaked at USD 82 in October 2021, before falling to USD 73 per barrel in December, from USD 49 one year before, amid heightened uncertainty due to the Omicron variant. The decline in energy reserves contributed to rising energy prices, due to both a strengthening of global demand for oil products as a result of the economic recovery and to reduced oil production by OPEC countries and Russia. Moreover, the historical increase in natural gas prices in 2021 partly supported the demand for oil products for energy production. The international oil price increased month on month in January 2022, following the improved economic outlook and the inability of OPEC countries to meet their daily oil production targets. The Russia-Ukraine war pushed the average international crude oil price to USD 93.5 per barrel in February, the highest since September 2014, amid heightened uncertainty and increasing supply-side constraints, as Russia is a major global exporter of oil and

gas. In early March, the international oil price came close to USD 120 per barrel as a consequence of the US ban on imports of oil, coal and gas from Russia.

At the same time, the price of gas of all types increased by an annual average of 186.8% in 2021, as a result of falling reserves due to weather conditions, reduced European gas imports from Norway and Russia, as well as the strengthening of industrial activity in many economies, especially China. In particular, gas prices in Europe surged by 397% in 2021 year on year, reaching new all-time highs in December, up by 549% compared to December 2020 (see Chart II.2). By contrast, the 26.8% price increase for liquefied natural gas (LNG) in 2021 was more moderate. At the beginning of 2022 gas prices in Europe fell, but fluctuated widely. On the demand side, milder weather conditions and, on the supply side, the increase in European imports of liquefied natural gas to record highs contributed to lower prices. In addition, the decision of the Netherlands to ramp up production in the Groningen field temporarily fuelled expectations of a further fall in gas prices in 2022. However, the Russia-Ukraine war at the end of February triggered new unprecedented increases in gas prices as a result of heightened uncertainty, supply-side constraints and the sanctions against Russia (see Box II.1).

Chart II.2 Global commodity prices (January 2014 - February 2022)

(market prices, monthly data, 2010=100)



Source: World Bank.
1 Average global price of three types of crude oil (UK Brent, West Texas Intermediate and Dubai)

Moreover, the observed rise in energy prices in 2021 is also partly associated with a reduction in the use of coal and an increase in electricity generation from renewable energy sources (RES). It should be noted that the transition to RES requires the parallel –albeit reduced– use of conventional energy sources (e.g. fossil fuels) and the possibility of storing energy for uninterrupted supply. Specifically, in 2021, the decrease in RES production due to the underperformance of wind farms compared to the previous year, as well as the existing technological constraints hampering the increase in wind energy storage, have led to a further rise in demand for fossil fuels and a surge in their prices.

In 2021, the increase in global industrial activity, the improved outlook for infrastructure investment and the shutdown of base metal plants (such as aluminium) in China contributed to a significant rise in metal prices, which reached all-time highs in May, while in the year as a whole they increased by 46.8%. A further increase was recorded at the beginning of 2022, compared with the December average, reflecting a broad rise in various metals amid a depletion of stocks and persisting value chain constraints due to the Russia-Ukraine war. The aluminium price, which is highly sensitive to energy price hikes, has also risen. Moreover, in 2021, international food commodity prices have risen to their highest levels since 2012, recording an annual increase of 29.7%, which continued in early 2022. The poor harvest of agricultural products (coffee, potatoes, etc.) due to adverse weather conditions in some areas (e.g. South America, Europe, Canada), and the increase in transport costs and fertiliser prices, driven by higher energy costs, supported the upward trend of prices that had started in mid-2020. The Russia-Ukraine conflict triggered a further increase in food prices by 11%

in February 2022 compared with the December average, as these two countries are major global exporters of wheat, maize and other food commodities. In 2021 as a whole, the average price of non-fuel commodities increased by 26.7% (in USD), compared with an increase of 6.7% in 2020, while war-induced stock and value chain shocks are expected to push up average commodity prices in 2022.

Fiscal policy

Fiscal policy continued to be expansionary worldwide in 2021, albeit to a lesser extent than in 2020, in order to counter the negative impact of the pandemic and protect the most vulnerable population groups. In many advanced economies with high vaccination rates and low financing costs, such as the EU and the US, the fiscal policy mix has gradually started to shift from horizontal pandemic emergency measures to more targeted actions and investments supporting sustainable growth, green transition and digital transformation. By contrast, in emerging and developing economies, increased healthcare needs due to low vaccination rates, combined with less fiscal space and higher borrowing costs, have reduced fiscal policy flexibility and increased the risk of economic underperformance and inequality.

Before the outbreak of the Russia-Ukraine war, the fiscal policy stance was expected to tighten in 2022, especially in advanced economies, due to high public debt. Nevertheless, the economic impact of the war in Ukraine creates the need for additional, temporary and well-targeted fiscal support, in particular as long as interest rates remain low and fiscal space allows. Mitigating the impact of the surge in energy and food prices on household and business incomes is an immediate fiscal priority in both advanced and developing economies. Higher interest rates, following planned interventions by some central banks to counter high inflation, will drive up borrowing costs, especially for countries that borrow short-term in foreign currencies. As a result, budget deficits in most economies must shrink in the coming years, although the size of fiscal adjustment should depend on the pace of economic recovery. However, given that fiscal space is generally very limited in most countries and uncertainties at the current juncture are thriving, a better targeting of overall fiscal support, the establishment of credible medium-term fiscal frameworks and the continuation of structural reforms are key to maintaining fiscal sustainability.

According to IMF forecasts before the Russia-Ukraine war, global public debt, despite its nominal growth, will decrease as a percentage of GDP, due to global nominal GDP growth, by one percentage point to 96.9% in 2022 from 97.8% in 2021, and will stabilise at this high level in the coming years. The global fiscal deficit-to-GDP ratio is projected to decrease further to 5.2% in 2022 from 7.9% in 2021 and 10.2% in 2020, and to return to pre-pandemic levels in 2026. Turning to the three largest economies, the general government deficit-to-GDP ratio in the US is projected to decrease to 6.9% in 2022 from 14.9% in 2020, the first year of the pandemic;[4] in China to 6.8% from 11.2% in 2020 and in Japan to 3.9% from 10.3% in 2020, with a tendency towards correction across all economies in 2022, as containment measures are gradually lifted and the recovery gains traction. These projections are subject to significant risks due to recent geopolitical and economic developments.

Monetary policy

Monetary policy in 2021 remained accommodative in most economies worldwide, supporting economic growth amid the pandemic. In some advanced economies where recovery has been dynamic and inflation strongly on the rise, central banks have announced the gradual normalisation of monetary policy, either by scaling back quantitative easing or by increasing their policy rates. In particular, in December 2021, central banks in the US and, much more moderately, in

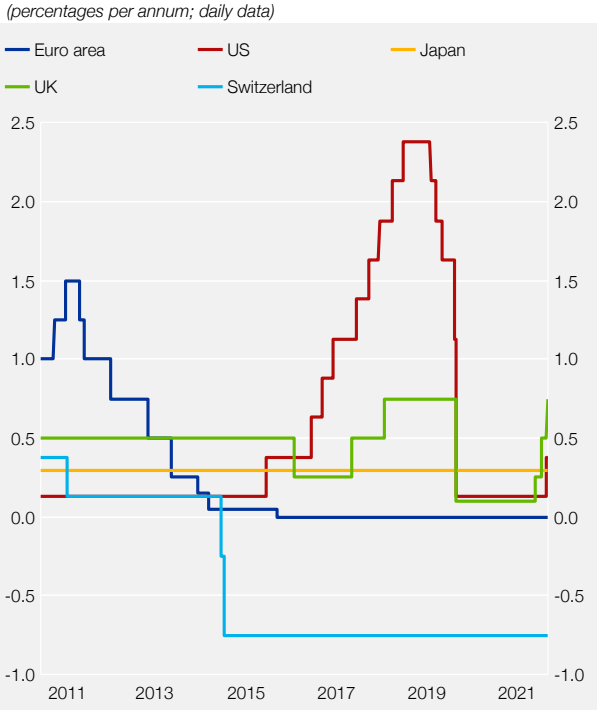
4 Importantly, in the US the USD 1.75 trillion investment and social policy package (Build Back Better Act) has stalled in the Senate since November 2021 and its future is uncertain. Therefore, the fiscal impulse to growth in the US is likely to weaken much faster than expected.

the euro area decided to reduce their monthly asset purchases, while the Bank of England slightly raised its key interest rate. Monetary policy in major developing economies (excluding Turkey) tightened, owing to inflationary pressures exacerbated by the depreciation of the exchange rate of their currencies.

Global monetary policy in 2022 should on the one hand tackle high inflation and financial risks and, on the other, continue to adequately support economic recovery, which is expected to be weakened by the war in Ukraine. Inflation projections are surrounded by even higher uncertainty, as disruptions in global supply chains persist and there are growing concerns about supply adequacy and energy prices. In countries where the current additional inflationary pressures stemming from the war are transient, inflation expectations are firmly anchored and second-round effects from the labour market on inflation are moderate, monetary policy could remain accommodative. Nevertheless, in the current unprecedented conjuncture, continued central bank vigilance and transparent and clear communication on the outlook for monetary policy are even more crucial for averting shocks to the real economy and financial markets.

Chart II.3 Central bank key interest rates (1 January 2011 - 18 March 2022)

(percentages per annum; daily data)



Sources: Euro area: European Central Bank, interest rate on main refinancing operations. United States: Federal Reserve Bank, federal funds target rate. Japan: Bank of Japan, official discount rate. UK: Bank of England, repo rate. Switzerland: Swiss National Bank, policy rate.

At its meeting in March 2022, the US Federal Reserve raised the target range of the federal funds rate to 0.25%-0.50% in order to address inflation, which spiked to 40-year highs and is likely to increase further as a result of the war in Ukraine. It also announced that repeated hikes in the target range are considered appropriate and that it would start shedding debt securities from its balance sheet at a forthcoming meeting. In its March meeting, the ECB Governing Council kept the interest rate on the main refinancing operations at zero, but revised its purchase schedule under its asset purchase programme (APP) for the coming months. Monthly net purchases under the APP will amount to €40 billion in April, €30 billion in May and €20 billion in June. The calibration of net purchases for the third quarter or the discontinuation of the programme will be data-dependent and will reflect the Governing Council's evolving assessment of the outlook. The Bank of England raised its interest rate by 25 basis points to 0.75%, following two successive increases, each by 0.15 basis points in February 2022 and December 2021. It also confirmed the shrinking of its balance sheet, as it did not reinvest sovereign bonds maturing in March 2022. As a result, the total stock of debt securities held under the asset purchase programme declined from GBP 895 billion to GBP 867 billion (see Chart II.3).

2.2 Euro area

Economic activity in the euro area rebounded strongly in 2021, offsetting the 2020 pandemic losses. Despite the waning impact of the pandemic on euro area economic activity in 2021, the emergence of new coronavirus variants during the second half of the year has prolonged uncertainty, forced some Member States to reintroduce tighter social distancing measures and led to a downward revision of the economic outlook for 2022. At the same time, global supply chain disruptions in 2021 were a major constraint on industrial production and trade in goods in the euro area, and exacerbated inflationary pressures due to the failure of supply to accommodate recovering demand. The Russia-Ukraine war in early 2022 is expected to reduce the

euro area's growth potential in 2022, while significantly increasing the risks of weaker growth in the medium term.

After a historical contraction in 2020, euro area GDP rebounded from the second quarter of 2021, reflecting the adaptation of businesses and households to the pandemic situation, the gradual lifting of containment measures, as well as the coordinated fiscal and monetary policy response to support incomes and jobs. In particular, in the second and third quarters of 2021, GDP grew by around 2.2% quarter on quarter, reaching historically high growth rates. The reintroduction of restrictions on economic activity in the fourth quarter as a result of the Omicron variant dampened growth dynamics, with GDP growing by a mere 0.3% quarter on quarter. The level of economic activity at the end of the year exceeded the pre-pandemic level by 0.2%, compared with 3.2% in the US. In 2021 as a whole, euro area GDP grew by 5.3%, after contracting by 6.4% in 2020. However, in 2022, the Russia-Ukraine war is expected to weaken growth amid heightened uncertainty, a surge of energy and food prices, persisting supply chain constraints and additional implications due to Europe's economic sanctions on Russia. According to the ECB staff macroeconomic projections (March 2022), GDP is expected to grow by 3.7% in 2022 owing to the gradual waning of the impacts of the pandemic and the strong labour market in the euro area, assuming that the Russia-Ukraine conflict will be short-lived (see Box II.1 for alternative adverse macroeconomic scenarios). The economic outlook directly hinges on the course of the pandemic and geopolitical developments, the normalisation of problems in global supply chains and the containment of inflationary pressures.

Private consumption recovered strongly in the course of 2021, supported by policy measures and improved consumer confidence and labour market prospects. The household saving ratio declined to 15% in the third quarter of the year, from 19% in the second quarter and 25.6% in the second quarter of 2020, an indication of the gradual consumption of increased savings accumulated during the pandemic. Real disposable household income has been subject to countervailing effects: policy measures and higher labour incomes, on the one hand, and a sharp rise in inflation, on the other. Consumption increased quarter on quarter by 3.9% and 4.5% in the second and third quarters of 2021 respectively, after falling by 2.3% in the first quarter, yet still stood 2.4% lower than the pre-pandemic level. In the fourth quarter, it fell by 0.6% compared with the previous quarter due to heightened uncertainty about the pandemic and a decline in households' real disposable income. For 2021 as a whole, private consumption increased by 3.5%, against a decrease of 7.9% in 2020, while in 2022 it is expected to strengthen further by 4.6%, although at a slower pace than previously projected due to heightened uncertainty about geopolitical developments. By contrast, public consumption rose by 3.8% in 2021, compared with an increase of 1.1% in 2020, mainly due to higher public health spending. It is expected to increase only marginally by 0.1% in 2022, reflecting the withdrawal of support measures.

In 2021, total gross fixed capital formation in the euro area was supported by favourable financing conditions, rising demand and the gradual deployment of the European recovery instrument NGEU. However, supply-side constraints and volatility in expectations as a result of the new variants of the virus, in particular in the second half of 2021, have had a countervailing effect on investment expenditure. At the same time, corporate profits as a percentage of gross value added declined gradually to 40.4% in the third quarter of 2021, from 41.5% in the first quarter, the highest rate since the second quarter of 2008, due to a gradual increase in wage costs. In the housing sector, investment growth largely reflects higher investment demand, mainly as a result of favourable financing conditions, while house prices rose historically by 8.8% in the third quarter of 2021, compared with an average increase of 6.3% in the first half of the year. Over 2021, total investment increased by 4.3%, compared with a decrease of 7.0% in 2020, although its recovery in 2022 is forecast to lose momentum due to the energy crisis and high production costs, as well as uncertainty and trade disruptions resulting from the Russia-Ukraine war. By contrast, strong demand for capital goods and frontloaded NGEU utilisation in many Member States will support investment.

The reintroduction of restrictive measures due to the pandemic and global supply chain bottlenecks throughout 2021 were the main drags on a more dynamic recovery of euro area trade. The shortages of intermediate inputs and the increase in freight rates have weighed on trade in goods, while the emergence of new virus variants has kept services trade below 2019 levels. However, the impact of these factors was offset by the dynamic recovery of the global economy and the strengthening of external demand. Total euro area exports of goods and services increased by 10.9% in 2021, against a decrease of 9.1% in 2020. The contribution of net exports to GDP was positive in 2021, while it is expected to be marginally positive in 2022, given the downturn in external demand amid geopolitical tensions, the slower normalisation of disrupted global value chains and increased imports.

The euro area labour market recovered strongly in 2021, driven by a pick-up in domestic demand and job retention schemes. In particular, employment in terms of hours worked rebounded strongly by 17.5% year on year in the second quarter of 2021 and by 3.4% and 5.0% in the third and fourth quarters respectively, reflecting a decline in the number of employees under support schemes. Total employment grew by 1.1% in 2021, compared with a decrease of 1.5% in 2020, and according to the ECB's projections (March 2022), will increase by 1.4% in 2022. Unemployment as a percentage of the labour force stood at 8.3% in the first quarter of 2021 and gradually fell to 7.1% in the fourth quarter, declining to 7.7% in the year as a whole (compared with 8.0% in 2020). The unemployment rate in individual Member States, according to recent monthly data (January 2022), ranged from 3.1% in Germany and Malta to 12.7% in Spain and 13.3% in Greece. Despite the gradual withdrawal of support measures and increased uncertainty, the unemployment rate is expected to decline further to 7.3% in 2022, driven by a continuing economic recovery and rising labour demand.

2021 was marked by strong inflationary pressures, mainly due to a significant rise in energy prices and the creation of quasi conditions of excess demand or supply shortfalls. Inflation in the euro area, measured by the Harmonised Index of Consumer Prices (HICP), gradually picked up from 1.4% in the first half of 2021 to 2.9% and 4.7% in the third and fourth quarters of 2021 respectively, reaching a historical high of 5.0% in December. Annual headline inflation was 2.6% on average in 2021, compared with 0.3% in 2020. Inflationary pressures turned out to be more persistent than initially expected and, according to ECB staff projections (March 2022), will gradually subside over the medium term, as second-round effects from upward pressures on inflation expectations and nominal wage growth remain moderate. In January 2022, inflation stood at 5.1% and in February at 5.9%, amid a historical increase in energy prices by 32% and food prices by 4.2%. For 2022 as a whole, it is forecast to stand at 5.1%, mainly driven by increases in the prices of oil products, natural gas and electricity, exacerbated by the war in Ukraine. These effects will be partly offset by a decline in economic growth and lower base effects on oil prices in the second half of 2022. Over the medium term, the increase in the HICP is projected to be in line with the ECB target of 2%. In addition, inflation excluding energy and food stood at 1.5% in the third quarter of 2021 and 2.5% in the fourth quarter, while it reached 2.7% in December, the highest level since August 2008. It stood at an annual average of 1.4% in 2021, up from 0.7% in 2020, signalling rising prices for services and non-energy industrial goods. In 2022, it is estimated at 2.6% mainly due to indirect effects from high energy prices and lingering supply chain disruptions.

The growth of financing of the economy in 2021 was mainly affected by the ECB's highly accommodative policy and the increasing demand for housing loans, as well as for short-term lending to businesses as a consequence of global supply chain disruptions. The growth rate of bank lending to non-financial corporations declined significantly during 2021, from 7.0% in February to 1.5% in August, before gradually increasing to 4.2% in December. The growth rate of loans to households stood at 4.1% in December, almost unchanged for the fourth consecutive month and the highest since November 2008. According to the ECB's Banking Lending Survey for the fourth quarter of 2021, the tightening of credit standards for corporate loans continued,

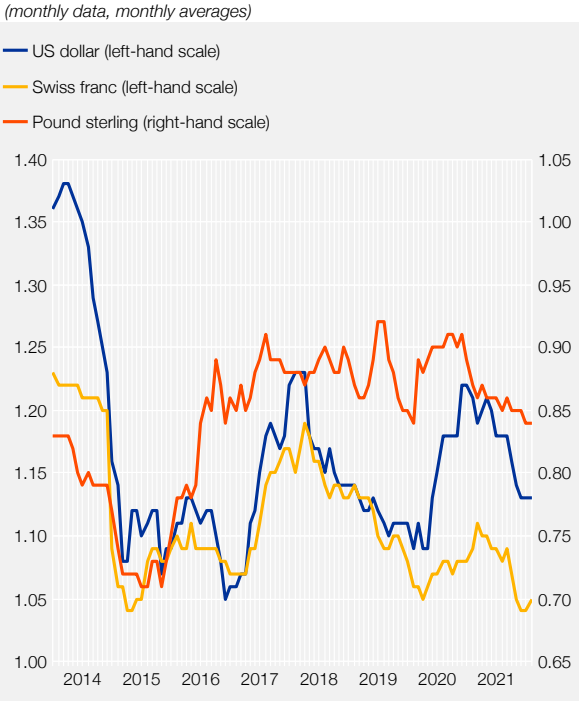
albeit to a lesser extent than in the third quarter. This is mainly due to the relative improvement in expectations about the economic outlook, as well as to the reduced risk of rising NPLs. The tightening of credit standards applies to small and medium-sized enterprises, while there is a marginal easing of these standards for loans to large enterprises. Credit standards for loans to households remained unchanged as regards housing loans, while they have been eased for consumer loans as a result of improved capital cost and increased credit risk-taking by banks. At the same time, demand for corporate loans recorded the second largest increase after the first half of 2020, driven on the one hand by increased demand for short-term working capital due to supply chain disruptions and by demand for investment loans on the other. Improved economic outlook and consumer confidence, as well as low borrowing rates have contributed to an increase in the demand for housing and consumer loans.

In 2021, fiscal policy in the euro area as a whole continued to support the growth momentum, as many of the measures to support businesses and employment taken in the previous year in response to the pandemic were maintained. Although fiscal interventions vary across Member States, they focus, inter alia, on direct and indirect tax cuts, as well as job retention schemes. According to the European Commission, the increase in public investment in the euro area over 2019-22 contrasts with its decline during the 2008-09 financial crisis, partly due to the expected frontloading of investment financing by the NGEU recovery instrument. The fiscal deficit for the euro area as a whole, according to the ECB staff macroeconomic projections (March 2022), is estimated at 5.5% of GDP in 2021, from a historical high of 7.2% of GDP in 2020. In the same vein, public debt is estimated to have declined to 95.8% of GDP, from its peak of 97.3% in 2020, mainly on account of the strong economic recovery and declining interest payments as a result of the accommodative monetary policy. In 2022, the fiscal stance in the euro area as a whole is expected to tighten, as a result of the withdrawal of most fiscal emergency support measures adopted during the pandemic, although to a lesser extent than previously projected due to new policy measures to compensate for high energy costs for households. The relaxation of the fiscal rules of the Stability and Growth Pact, which also applies for 2022, will allow for a smooth restoration of fiscal equilibrium.

The nominal effective exchange rate of the euro (against 42 trading partners) appreciated by an annual average of around 1.4% in 2021, compared with a depreciation of 3.4% in 2020. However, the euro depreciated against the US dollar in the second half of 2021, as well as against other currencies, mainly reflecting expectations of a faster increase in interest rates by the Fed and other central banks. At the same time, the pressures from the collapse of the property developer Evergrande in China have translated into an increase in demand for US dollars and euros, which are seen as investors' safe havens. The lower-than-initially-expected impact of the Omicron variant and the improvement of the economic outlook in the euro area supported the euro in early 2022. By contrast, the breakout of the Russia-Ukraine war at the end of February contributed to significant volatility in foreign exchange markets, fuelled flight to safety and led to the depreciation of the euro against other currencies amid expectations of lower economic growth in the euro area (see Chart II.4).

Chart II.4 US dollar, pound sterling and Swiss franc exchange rates vis-à-vis the euro (January 2014 - February 2022)

(monthly data, monthly averages)



Source: ECB.

The risks surrounding the euro area's economic outlook remain high and are directly linked to geopolitical developments and the course of the pandemic. A longer-than-expected duration of the Russia-Ukraine war would intensify uncertainty and adversely affect consumer and investment expenditure, leading to weak economic growth and higher inflation. At the same time, the risk of higher spillover effects on financial markets and of a pick-up in risk premia, particularly in vulnerable Member States, would increase. In addition, imposing more severe sanctions on Russia may exacerbate supply chain disruptions and dampen export growth, while a systematic reduction in gas and oil supplies from Russia would keep the price of energy high and limit production in the euro area. The persistence of inflationary pressures over a longer period increases the risk of higher inflation expectations and more permanent price increases. In this context, the asynchronicity of monetary policy between the ECB and other major central banks may result in an asymmetric recovery among the euro area's trading partners and a decline in external demand. A tightening of monetary policy in the US may also lead to a deterioration of global financial conditions, with spillover effects on global growth and financial markets. The high public and private debt accumulated during the pandemic therefore constitute an additional risk to the euro area's growth prospects (see Box II.2). Finally, the emergence of new variants of the coronavirus may hamper economic growth. By contrast, the prompt implementation of investment plans, including investments in Europe's energy self-sufficiency, and a faster absorption of NGEU funds will support incomes, employment and medium-term economic prospects.

Box II.1

THE GLOBAL ECONOMIC IMPACT OF THE WAR IN UKRAINE

On 24 February 2022, Russia invaded Ukraine, a few days after it had recognised the non-government-controlled areas of the Donetsk and Luhansk oblasts as independent states and had sent Russian troops into these areas. The war in Ukraine continues unabated, and so does human suffering, causing growing uncertainty about its duration, outcome and political and economic impacts at the global and the European level.

The EU responded promptly, in close coordination with the US, the UK and other international partners, by imposing sanctions against Russia (and, later on, Belarus), which were gradually stepped up. Since 23 February 2022, the EU has adopted four packages of restrictive measures, which have included targeted sanctions against 877 individuals and 62 entities in the form of asset freezes, exclusion from funding and travel bans. It has also imposed sweeping economic sanctions, most notably: (a) a ban on all transactions with the central banks of Russia and Belarus and a freeze on a part of the foreign exchange reserves of the Russian government held abroad (about USD 300 billion out of a total of USD 640 billion, according to the Russian Minister of Finance); (b) exclusion of seven Russian and three Belarusian banks from SWIFT (see Box III.4); (c) exclusion of the Russian government and state-owned enterprises from EU capital markets; (d) a ban on the overflight of EU airspace and on access to EU airports by Russian carriers of all kinds (the UK also banned Russian ships from its ports); (e) restrictions on exports to Russia of certain goods, services and technologies in the sectors of oil refining, aviation and space, defence and security, maritime navigation and radio communication; and (f) further trade restrictions on iron, steel and luxury goods. With regard to Russia's external trade, the EU together with other WTO members decided to revoke Russia's "most favoured nation" status, paving the way for the imposition of higher tariffs on Russian exports. The official sanctions were accompanied by a number of private sector initiatives suspending the economic and trade relations of large enterprises with Russia.

The impact of the Ukraine war and the ensuing international sanctions on the Russian economy was immediate and significant. The exchange rate of the rouble against the euro and the US dollar collapsed, inflation surged, the key policy rate doubled to 20%, the stock exchange was closed and the risk of default for banks and enterprises increased. The suspension of trading of Russian government bonds on international regulated markets and the downgrades of Russia's credit rating have increased the risk of default on public debt. At the same time,

shortages of goods and services were seen in the domestic market, as well as a rise in cryptocurrency transactions. Russian GDP is projected to fall steeply in 2022. Ukraine is also expected to face a deep recession and the high costs of rebuilding the country, amid a severe humanitarian crisis. The direct effect on global demand from the recession in Russia and Ukraine is assessed to be relatively small, as the two countries together represent only about 2% of global GDP.

Channels of transmission to the global and the European economies

With the military conflict escalating and economic volatility and uncertainty mounting, it is currently difficult to accurately assess the global economic impact of the war in Ukraine. Impacts can be direct or indirect, short-term or longer-term, local or geographically more widespread, and could be intensified by possible spillover effects or, conversely, mitigated by appropriate fiscal and monetary policy responses. Possible economic impacts can be transmitted via four main channels: (a) trade in goods and services; (b) financial transactions; (c) energy and other commodity prices; and (d) confidence. In general, the European economy is likely to be affected harder than other advanced economies due to geographical proximity and higher energy dependence on Russia. Moreover, impacts are expected to vary across the EU Member States according to the specificities of their economies, their energy intensity and dependence[1] and their direct exposure to trade and financial transactions with Russia.

(a) Bilateral trade between the EU and Russia represents a very small share of the EU's total external trade.[2] However, both the European and the global economy are vulnerable to possible disruptions in global supply chains due to delivery delays or shortages in essential inputs for industry, such as metals and rare gases (used, for example, in the production of semiconductors and batteries), but also for agricultural production, such as fertilisers, seeds and animal feed, of which Russia is a major producer and exporter. Also, Russia accounts for an important share of global exports of grain (about 30% together with Ukraine) and, among fossil fuels, coal, crude oil, refined petroleum products and natural gas. A total stop of grain in exports from Russia and Ukraine would entail severe shortages not only in many emerging and developing economies, but also in several advanced economies. Furthermore, cargo rerouting due to sanctions and geopolitical risks increases transport costs. The extent to which possible shortages in intermediate goods can affect production depends on inventories at country and enterprise level, as well as on the ease of substituting suppliers and transport routes in order to secure the necessary amounts of inputs at a reasonable cost.

(b) In the financial sector, the exposure of European banks to the Russian market, although uneven, has been low overall and systemically non-important,[3] particularly after 2014 and the annexation of Crimea by Russia. Moreover, according to estimates, US dollar-denominated Russian bonds held by foreign investors amount to some USD 170 billion. However, increased investor uncertainty surrounding the outlook for growth, inflation and interest rates, combined with a plausible repricing of risk premia on sovereign and corporate debt securities and the ensuing adjustments of asset valuations to the new reality, all increase the risk of shocks in global financial markets and of a tightening of financial conditions, with serious repercussions on the real economy, particularly in countries with high debt ratios and other macroeconomic imbalances.

(c) The most critical transmission channel of the impact of war is through commodity prices, particularly energy prices, which continue their steep rise to record highs. High energy prices further increase inflation and the cost of living, weakening household budgets and reducing the real disposable income of households. They also in-

1 Energy intensity is defined as the energy consumed per unit of output, and energy dependence is defined as the proportion of energy imports in total energy consumption.

2 Euro area exports to Russia account for about 3% of its total goods and services exports. However, the euro area imports around 20% of its oil and 35% of its natural gas from Russia. See Box 3 "The impact of the conflict in Ukraine on the euro area economy in the baseline and two alternative scenarios", ECB staff macroeconomic projections for the euro area, March 2022.

3 According to consolidated banking data from the Bank of International Settlements (BIS), by the third quarter of 2021, Austria, Italy and France had the highest exposures to Russia globally, but their banks' claims on Russia were only 1.6%, 0.6% and 0.2% of their assets respectively. In aggregate, the consolidated cross-border claims of BIS reporting banks on Russia accounted for less than 0.5% of their total international claims.

crease production and transport costs for enterprises, squeezing or eliminating profit margins, particularly when it is difficult to pass higher costs to final prices. This weighs on the financial condition of enterprises, affects investment and worsens their global competitiveness. In the first month of the Russo-Ukrainian war, price increases in Europe were about 20% for Brent crude oil, 25% for natural gas and 30% for coal (which is a substitute for oil in electricity production), thus reaching historic highs and triggering a knock-on effect on prices in many categories of goods and services. Important increases are also expected in the prices of industrial metals and agricultural products in general (in addition to grain), as their production is energy intensive and requires higher priced raw materials (fertilisers), respectively. Persistently high energy and/or food prices entail the risk of higher inflation expectations becoming entrenched, further curbing the post-pandemic rate of recovery and increasing the risk of stagflation trends. Finally, high energy prices, as a structural supply-side disruption, could erode the productive fabric (through below capacity operation or closure of businesses) and reduce production capacities in the medium term. Oil exporting countries in the Middle East or Africa may benefit from energy price rises, while developing economies in Latin America and Africa may face higher food insecurity and social unrest due to soaring food commodity prices. In China, where already during 2021 increased energy costs resulted in production cuts, the further increase in international commodity prices, as well as the risk of declining external demand from large western markets, have exacerbated both supply-side and demand-side concerns.

(d) Finally, reduced confidence as a result of heightened uncertainty and the worsened financial position of households, enterprises and governments are expected to be a major drag on economic activity (affecting both consumption and investment), which was in a phase of strong recovery from the pandemic prior to the Russia-Ukraine war.

Forecasts for weaker growth and higher inflation

Available forecasts of the economic impacts of the war in Ukraine vary in magnitude depending on their timing and underlying assumptions, and are subject to continuous revisions. Broadly speaking, all forecasts point to weaker growth and higher inflation, which, if they both persist in coming quarters, could lead several economies and economic regions to stagflation. The most important factors behind the projected slowdown in growth include higher energy prices, impaired confidence, weaker foreign demand and new disruptions in international trade and global supply chains, which were already experiencing difficulties due to the pandemic. The growth and the inflation outlook is subject to downside and upside risks, respectively and, in general, heightened uncertainty.

Thus, by mid-March, according to market analysts, global GDP growth was revised downwards by about 0.7-0.8 percentage point to 3.2%-3.4% for 2022,[4] quite lower than the pre-war estimates, which all exceeded 4%, including those by international organisations (IMF: 4.4% and European Commission: 4.3%).[5] On 17 March 2022, the OECD estimated that global growth could be more than 1 percentage point lower this year than pre-conflict projections, while global inflation, already elevated since the start of the year, could further rise by at least 2.5 percentage points.[6] These projections did not incorporate several factors that could intensify the impact of the conflict, including further sanctions or consumer and business boycotts, disruptions to shipping and air traffic, unavailability of basic commodities from Russia, trade restrictions (e.g. bans on food exports), or undermined consumer confidence.

With regard to individual economies, apart from Russia and Ukraine, that are expected to see a deep recession in 2022, the most severe impact on growth from the Russo-Ukrainian conflict was forecast for emerging European economies and the euro area, followed by the United Kingdom and, at a distance, the US, China and Japan. In particular with regard to the euro area, according to the baseline scenario of the ECB staff projections of March

4 S&P Global Ratings, "Global Macro Update: Preliminary Forecasts Reflecting The Russia-Ukraine Conflict", 8.3.2022, and Capital Economics, "World GDP forecast revised down due to Ukraine war", 16.3.2022.

5 IMF, *World Economic Outlook Update*, 25.1.2022, and European Commission, *Winter 2022 (Interim) Economic Forecast*, 10.2.2022.

6 OECD, *Economic Outlook, Interim Report: Economic and Social Impacts and Policy Implications of the War in Ukraine*, 17.3.2022.

2022, GDP growth has been revised downwards by -0.5 percentage point, to 3.7%. Under an adverse scenario entailing more negative economic impacts, the ECB projected a further weakening of GDP growth to 2.5%, i.e. 1.2 percentage points lower than the already revised baseline. Also under the adverse scenario, the large increases in energy prices would drive inflation to 5.9% in 2022, i.e. 0.8 percentage point higher than the baseline. Under the third, more severe scenario put forward by the ECB, GDP would slow down to 2.3% in 2022, while inflation would stand at 7.1%.[7]

Fiscal and monetary policy response

The economic impact of the war is expected to call for continued expansionary fiscal policies, at least during 2022 and where fiscal space allows this, as governments try to mitigate the negative effects on household and business incomes from price increases mostly in energy, as well as in other raw materials and foodcommodities. The emergency fiscal measures considered vary, from direct subsidisation of fuels and electricity/natural gas bills to more drastic market interventions, such as the imposition of temporary price caps. European governments, in particular, are expected to face additional fiscal pressures due to the higher expenditure required for energy security, the green transition, national defence and support to millions of refugees from Ukraine.[8] Indicatively, the OECD estimates that a rise in final government spending by 0.5% of GDP for one year in all the OECD economies could offset around one-half of the estimated war-induced output losses without adding significantly to inflation.[9] Fiscal space varies significantly across emerging market and developing economies, with many facing difficult trade-offs between supporting incomes and ensuring debt sustainability and investor confidence.

Monetary policy is called upon to strike a balance between supporting recovery in the short term and addressing a higher and more persistent inflation. Against a background of elevated uncertainty regarding the magnitude and duration of the economic impacts from the war in Ukraine and the medium-term inflation outlook, it is essential that central banks maintain vigilance and flexibility in order to ensure well-anchored inflation expectations and favourable financial conditions. The smooth transmission of monetary policy could be disrupted by a more drastic reassessment of risks and a flight to safety, in the event of a prolonged or escalating conflict, thereby increasing the risk of fragmentation in government bond markets and financial instability. Similarly to the pandemic, coordinated support to banks and to the real economy is crucial for strengthening confidence and averting a derailment of economic recovery. A slower pace of monetary policy normalisation could be a policy choice in economies where underlying inflation remains low, wage pressures continue to be moderate and the adverse effects of the war on growth are more acute. In any event, new net asset purchases, the extension of currency swap lines and a temporary easing of macroprudential regulations could mitigate potential tensions and liquidity shortages in financial markets. Challenges are even greater for several emerging market economies, where rises in food and energy prices will likely require further interest rate hikes, given the higher weight of basic goods in inflation.

Longer-term challenges

In the medium term, the war in Ukraine has prompted far-reaching decisions towards higher strategic energy independence. This is expected to accelerate investment in renewable energy and storage technologies, as well as the EU's independence from Russian gas, oil and coal imports in the coming years and higher energy efficiency, as announced by EU leaders in March 2022. At the same time, it is expected to strengthen investment in innovation in order to ensure the strategic autonomy of countries with respect to cutting-edge technologies, defence and cyber-security. Also, the economic and financial uncertainties from the war in Ukraine could provide impetus to the EU enlargement process and accelerate European integration, in particular the banking union.

In the longer term, the war has the potential to fundamentally change the global balance of economic and geopolitical power by causing a dislocation of global energy trade, a restructuring of global value chains towards greater

7 See Box 3 "The impact of the conflict in Ukraine on the euro area economy in the baseline and two alternative scenarios", ECB staff macroeconomic projections for the euro area, March 2022.
8 Since the outbreak of the war, the UN has calculated Ukrainian refugees to over 3 million people.
9 See footnote 6.

resilience and security, a fragmentation of payment networks and the international financial system and a change in large economies' currency composition of their reserve assets. Increased geopolitical tension raises further concerns of economic fragmentation, also in terms of the diffusion of information, technology and know-how.

To sum up, the war in Ukraine creates heightened uncertainties around the growth and inflation outlook. The short-term factors driving inflation upwards are likely to strengthen, while energy and possibly other commodity prices, including some metals and agricultural products, are expected to remain high for a longer period of time. Possible new disruptions in global supply chains could result in shortages and delays in deliveries of intermediate and final goods, with repercussions on production and business activity as a whole in many economies. The conflict can also impair household and business confidence and thus dampen consumption, increase precautionary savings and delay or limit investment. An immediate end to war and the restoration of peace with the smallest possible human and economic losses are everyone's wish and priority.

Box II.2

DEBT AND ECONOMIC GROWTH IN THE POST-PANDEMIC PERIOD

The COVID-19 pandemic has led to a sharp increase in global debt. The deep recession, coupled with fiscal and monetary policy measures to support incomes and employment, has contributed to a deterioration of fiscal aggregates and a build-up of public and private debt in both advanced and emerging economies. While the non-financial sector's debt was already on the rise before the pandemic in most countries, the size and the unprecedented rate of its accumulation in 2020-2021, compounded by the likelihood of interest rate hikes in the post-pandemic period, have raised concerns about whether it can be financed as planned and about its impact on economic growth prospects. The strong rise in inflation in 2021 will reduce the debt-to-GDP ratio, so far as economic growth is higher than the increase in the borrowing rate. However, in countries with high levels of public debt, the favourable interest rate-growth differential can reverse quickly, especially after crises, thereby exacerbating the risks to growth dynamics stemming from high debt.[1]

This box describes pandemic-related global debt developments in the non-financial sector of the economy and analyses the impact of the substantial increase in public and private debt on economic growth, focusing on estimating the effects for the euro area. Lastly, it presents policy recommendations that can help de-escalate the accumulated public and private debt in advanced economies and support the momentum of economic recovery in the medium term.

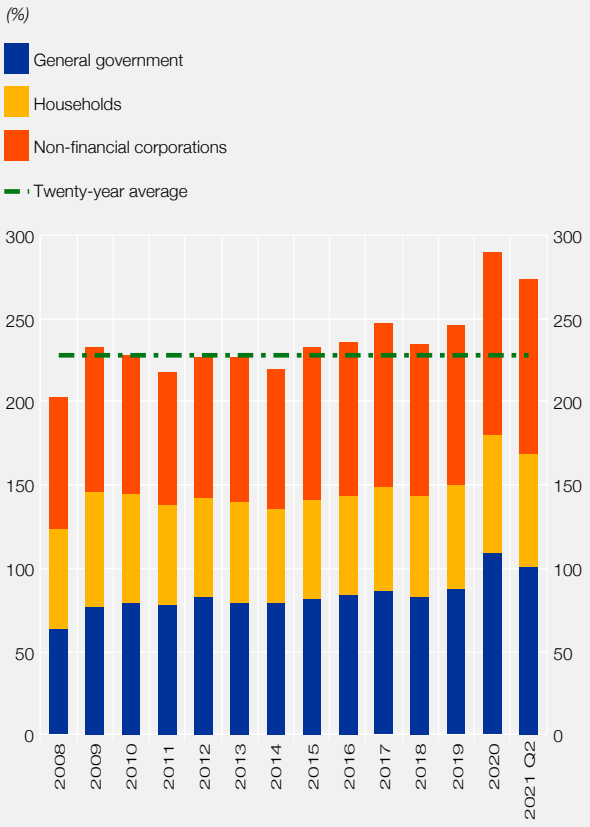
Pandemic-related debt developments

In 2020, the global debt-to-GDP ratio rose by 44 percentage points to 289.4% (see Chart A),[2] the highest annual increase since World War II.[3] Half of this increase stemmed from the accumulation of public debt, which, for the first time in 20 years, stood above 100% of GDP. In absolute terms, in the first year of the pandemic the stock of global debt spiked to USD 221.6 trillion, of which 68% was owed by advanced economies.[4]

The increase in the debt ratio in advanced economies in 2020 was higher than in emerging economies, partly due to a larger fiscal space, coordinated support policies, particularly favourable financial conditions and deeper capital markets. As a result, the total debt-to-GDP ratio in advanced economies increased by around 47 percent-

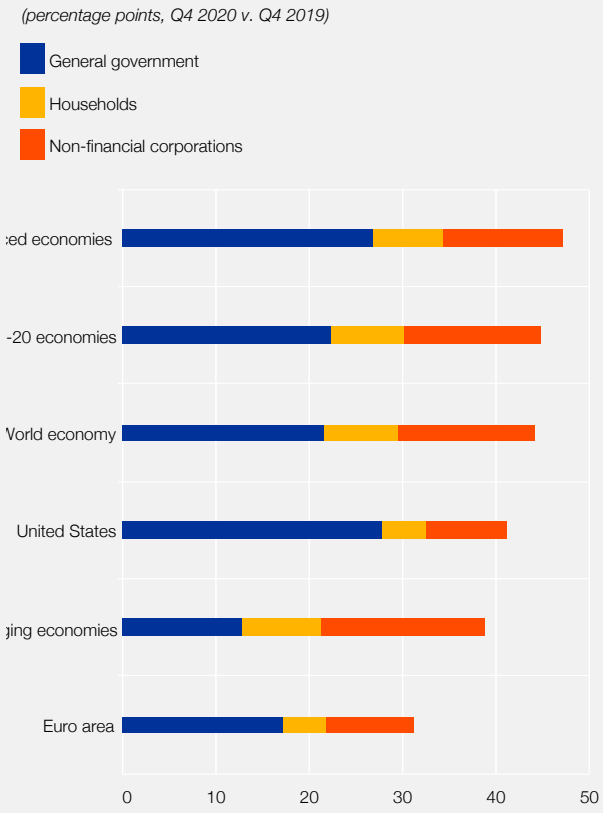
1 Weicheng, L., A.F. Presbitero and U. Wiriadinata (2020), "Public debt and r-g at risk", IMF Working Paper WP/20137.
2 The debt analysis in this box is based on statistical data from the Bank for International Settlements (BIS) up to Q2 2021; see https://www.bis.org/statistics/about_credit_stats.htm. Public debt is defined as the general government debt. Financial corporations are not included in private sector debt.
3 Buysse, K., F. De Sloover and D. Essers (2021), "Indebtedness around the world: Is the sky the limit?", National Bank of Belgium, *NBB Economic Review*, June, 69-105.
4 The share of advanced economies' debt has declined over time from 84% of global debt in 2008 to 66% in Q2 2021, mainly due to high debt accumulation by China.

Chart A Global debt-to-GDP ratio



Source: BIS, own calculations.

Chart B Change in the debt-to-GDP ratio during the pandemic



Source: BIS data, own calculations.

age points, from 273.1% in 2019 to a record high of 320.3% in 2020, with public debt standing at 135.5% and private debt (households and non-financial corporations) at 184.8% of GDP. The share of public borrowing in the increase in total debt was higher (60%) than that of private borrowing (40%). In the private sector, the increase in the debt ratio was more pronounced in firms than in households. Firms faced liquidity problems, as some economic sectors were not fully operational or temporarily closed down due to pandemic-related containment measures (see Chart B).

Debt had already been on an upward path before the pandemic, in an environment of low bank interest rates and low cost of market-based financing. However, the increase in the debt-to-GDP ratio in 2020 appears to have been faster, larger and more broadly based across institutional sectors of the economy than in earlier economic crises, due to both further debt accumulation (numerator effect) and deeper recession (denominator effect). For example, in advanced economies, public debt increased in one year (2020) as much as it had increased cumulatively in the three-year period 2008-2010, while the debt of non-financial corporations was twice its level during the global financial crisis, reflecting the different nature of the two crises. During the pandemic, governments and central banks encouraged further private sector borrowing to support the economy and incomes, while during the global financial crisis the challenge had been the opposite, i.e. to limit excessive leverage of the private sector.

In the first half of 2021, global debt as a percentage of GDP de-escalated slightly, as economies started to recover and inflation picked up. However, quickly resolving the high level of debt of both the general government and the private sector, particularly non-financial corporations, is not expected to be easy amid heightened uncertainty about the evolution of the pandemic and economic growth dynamics, and amid conditions of a tighter monetary policy, which are expected to increase overall debt service costs.

Consequences and risks of high debt for economic growth

In the short term, an increase in public debt can boost domestic demand and incomes, as seen in the recent COVID-19 crisis.[5] At the same time, private debt growth is consistent with economic growth and increased productivity, reflecting *inter alia* the economic benefits of financial deepening, which facilitates a better distribution of savings towards productive investment.[6] However, in the long run, there is a negative correlation between debt and growth, as high debt hampers macroeconomic and financial stability.[7]

The channels through which the accumulation of high public and private debt respectively affect the economy differ. In the long run, high public debt increases interest rates and reduces public and private investment, thereby dampening economic growth.[8,9] At the same time, in advanced economies high public debt levels are associated with higher taxation and/or inflation in the future, limiting the available economic policy space required to address economic crises.[10] For the euro area in particular, high-debt countries appear to be experiencing a larger loss of output during crises than economies with low debt, mainly due to higher borrowing costs, as well as a decline in potential output.[11]

On the other hand, the negative impact of high private debt on economic activity over the medium term is more likely to go through the channel of reduced consumption and private investment,[12] but also through a possible decrease in productivity due to a distorted distribution of resources. High debt affects corporate and household balance sheets, increasing the need for deleveraging, while it limits the supply and demand for new loans. Borrowers may have to liquidate assets or even go bankrupt, impacting on lenders' profits and balance sheets. At the same time, adverse second-round effects due to problems in servicing such high debts, including lower collateral valuations, increased risk premia and heightened uncertainty, will exacerbate risks to the financial system and the economic outlook. High levels and/or rapid accumulation of private sector debt are also key predictors of both the likelihood and the severity and duration of future economic downturns and financial crises.[13] In particular, over-indebted households are more vulnerable to interest rate and income shocks and tend to invest less

5 Public debt may have a temporary positive impact on economic growth, as well as a larger, more permanent, negative impact. See Abubakar, A.B. and O.S. Mamman (2020), "Permanent and transitory effect of public debt on economic growth", *Journal of Economic Studies*, 48(5), 1064-1083.

6 Verner, E. (2019), "Private debt booms and the real economy: Do the benefits outweigh the costs?" MIT, Sloan School of Management. See http://dx.doi.org/10.2139/ssrn.3441608.

7 For a review of the recent literature on the relationship between public debt and growth, see Salmon, J. (2021), "The impact of public debt on economic growth", *Cato Journal*, 40(3), 487-509. Recent discussions on the relationship between private debt and growth include: Mian, A., A. Sufi and E. Verner (2017), "Household debt and business cycles worldwide", *Quarterly Journal of Economics*, 132(4), 1755-1817, and Jorda, O., M. Kornejew, M. Schularick and A.M. Taylor (2020), "Zombies at large? Corporate debt overhang and the macroeconomy", Federal Reserve Bank of New York, Technical Report 951.

8 See, *inter alia*, Gomez-Puig, M. and S. Sosvilla-Rivero (2015), "Short-run and long-run effects of public debt on economic performance: Evidence from EMU countries", Research Institute of Applied Economics, Working Paper 2015/22, 1-37; Checherita-Westphal, C. and F. Rother (2010), "The impact of high and growing government debt on economic growth: an empirical investigation for the euro area", ECB Working Paper No. 1237; and Reinhart, C.M., V.R. Reinhart and K.S. Rogoff (2012), "Public debt overhangs: Advanced-economy episodes since 1800", *Journal of Economic Perspectives*, 26(3), 69-86.

9 A recent meta-analysis study shows that a 10 percentage point increase in the government debt-to-GDP ratio relates on average to a 0.14 percentage point decline in output growth. However, it should be noted that there is a relatively weak negative causal relationship between the two aggregates, considering the bias in publishing more statistically significant estimates (publication bias) and the endogeneity problems in empirical methodologies. See Heimberger, P. (2021), "Do higher public debt levels reduce economic growth?", The Vienna Institute for International Economic Studies, Working Paper 211.

10 Bouabdallah, O., C. Checherita-Westphal, N. de Vette and S. Gardo (2021), "Sensitivity of sovereign debt in the euro area to an interest rate-growth differential shock", ECB, *Financial Stability Review*, 24-27.

11 Burriel, P., C. Checherita-Westphal, P. Jacquinot, M. Schon and N. Stahler (2020), "Economic consequences of high public debt: evidence from three large scale DSGE models", ECB Working Paper No. 2450.

12 See e.g. Cevik, S. and F. Miryugin (2020), "Leverage shocks: Firm-level evidence on debt overhang and investment", IMF Working Paper WP/20/287, December.

13 Jorda, O., M. Schularick and A.M. Taylor (2013), "When credit bites back", *Journal of Money Credit and Banking*, 45(2), 3-28.

as their borrowing costs increase.[14] Similarly, in over-indebted corporations, shareholders have fewer incentives to take new investment initiatives, given that any increase in corporate value will be used to pay off the debt.[15] Lastly, the increased leverage of one economic sector often leads to spill-over effects to other sectors via lower investment and/or wage costs (investment and income channels), leading to lower economic growth.[16]

In addition, empirical studies on the relationship between debt and economic growth suggest a non-linear impact of debt accumulation on growth (debt threshold effect).[17] When the level of debt is low, an increase in debt may lead to higher economic growth by boosting incomes and investment, as well as by smoothing consumption. This positive relationship appears to reverse when debt exceeds a certain level.

Although in literature there is no universally acceptable debt threshold above which the debt-growth relation becomes negative,[18] these estimated thresholds seem to differ between public and private debt. While there are significant differences across advanced countries, in general, the debt threshold may be relatively lower for public debt than for private debt, especially corporate debt, suggesting possibly higher risks to macroeconomic stability from the accumulation of public debt beyond a certain level.[19] However, when private and public debt exceed their respective estimated thresholds, the impact of further credit accumulation on economic activity is negative and statistically significant for both types of debt.[20]

Empirical estimation of the impact of high debt on growth

With a view to assessing the potential risks to the economy in the post-pandemic period from the recent debt build-up, the impact of high public and private debt on anticipated euro area economic growth is examined empirically.[21] The dependent variable is defined as the average euro area growth rate two, four and eight quarters ahead, while (public or private) debt is calculated as the trend deviation in the current period. The trend deviation describes periods when debt moves strongly upwards or downwards and can therefore be used to assess whether excess debt accumulation is associated with lower growth in the future.

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14 Ampudia, M., H. Van Vlokhoven and D. Żochowski (2016), "Financial fragility of euro area households", Journal of Financial Stability, 27, 250-262.

15 Kalemli-Ozcan, S., C. Reinhart and K. Rogoff (2016), "Sovereign debt and financial crises: theory and historical evidence", *Journal of the European Economic Association*, 14, 1-6.

16 Bricongn, J.C. and A. Mordonu (2017), "Interlinkages between household and corporate debt in advanced economies", *Open Economies Review*, 28, 1029-1055; and Caner, M., T.J. Grennes and F.N. Kohler-Geib (2010), "Finding the tipping point: When sovereign debt turns bad", in C.A. Primo Braga and G.A. Vincelette (eds.), *Sovereign Debt and the Financial Crisis*, World Bank, Washington, D.C.

17 For an overview of the literature on public debt, see De Rugy, V. and J. Salmon (2020), "Debt and growth: A decade of studies", George Mason University, *Policy Brief*.

18 Eberhardt, M. and A.F. Presbitero (2015), "Public debt and growth: Heterogeneity and non-linearity", *Journal of International Economics*, 97(1), 45-58.

19 Given the significant differences in the sample and the empirical methodology among studies, the public debt thresholds for advanced economies range between around 70% and 90% of GDP. See *op. cit.* De Rugy and Salmon (2020) and Checherita-Westphal and Rother (2010). For private debt, the accumulation of borrowing by businesses and households, over 90% and 85% of GDP respectively, is associated with lower output growth. See, *inter alia*, Cecchetti, S.G., M.S Mohanty and F. Zampolli (2011), "The real effects of debt", Economic Symposium Conference Proceedings, Jackson Hole, 145-96; and Lombardi, M.J., M.S. Mohanty and I. Shim (2017), "The real effects of household debt in the short and long run", BIS Working Paper No. 607.

20 However, the actual impact of public and private debt may be underestimated if their interaction is not taken on account. See Caner, M., F. Qingliang and T. Grennes (2021), "Partners in debt: An endogenous non-linear analysis of the effects of public and private debt on growth", *International Review of Economics & Finance*, 76, 694-711.

21 The model is of the form of $\Delta GDP_{t+h} = \beta_{0\theta}+\beta_{1\theta}*DEBT_t+\beta_{2\theta}*X_t+\varepsilon_t$, where ΔGDP_{t+h} is the average growth rate h = 2, 4 and 8 quarters ahead respectively, DEBT is the percentage deviation of the ratio of (public or private) debt to GDP from its long-term trend and X is a matrix comprising other economic variables such as the current growth rate, annual HICP inflation, the long-term interest rate, as well as a dummy variable capturing sharp changes in the economic cycle, and taking a value of 1 if output growth in the current period lies in the two lowest quantiles of the economic growth distribution. The model is estimated using quantile regression for the period from the first quarter of 1999 to the fourth quarter of 2018, while parameter θ denotes the quantiles of the dependent variable. The long-term trend of (public or private) debt was estimated using the Hodrick-Prescott filter.

Impact of public and private debt on anticipated economic growth

Quantiles	Q5	Q10	Q25	Q50	Q75	Q90
			Two quarters ahead			
Public debt	-0.19*** (0.07)	-0.16*** (0.06)	-0.14*** (0.05)	-0.11*** (0.03)	-0.13*** (0.04)	-0.10*** (0.04)
Private debt	0.02 (0.09)	-0.03 (0.09)	-0.04 (0.11)	-0.14 (0.09)	-0.12 (0.16)	-0.18 (0.19)
			Four quarters ahead			
Public debt	-0.26*** (0.07)	-0.26*** (0.05)	-0.26*** (0.06)	-0.17*** (0.05)	-0.18*** (0.04)	-0.21*** (0.04)
Private debt	-0.10 (0.12)	-0.15 (0.12)	-0.01 (0.12)	-0.22** (0.10)	0.07 (0.20)	0.02 (0.20)
			Eight quarters ahead			
Public debt	-0.32*** (0.05)	-0.25*** (0.07)	-0.33*** (0.08)	-0.26*** (0.05)	-0.28*** (0.05)	-0.31*** (0.03)
Private debt	-0.62** (0.29)	-0.41** (0.20)	-0.11 (0.12)	-0.07 (0.12)	0.19 (0.21)	0.26 (0.18)

Notes: The dependent variable is the anticipated average annual rate of economic growth in the next two, four and eight quarters. Q5-Q90 are the 5th-90th quantile of the dependent variable respectively. Public and private debt are defined as a deviation from their long-term trend. Estimates are based on the quantile regression method (see footnote 21). In parentheses: bootstrapping standard errors with 1,000 repetitions. *, ** and *** statistical significance level of 10%, 5% and 1% respectively.

In addition, the impact of debt on anticipated growth may vary both along the economic growth distribution (i.e. between expected favourable and unfavourable economic prospects) and over the time horizon considered (i.e. short or medium term). The distinction of the impact of debt along the distribution of economic activity is significant because, if high debt is more associated with future recessions, this may contribute to the formulation of appropriate policies to address serious downside risks to growth.

The table reports results on the impact of high public and private debt on anticipated economic growth two, four and eight quarters ahead based on the quantile regression empirical method.[22] This method divides the dependent variable into quantiles, where Q5 marks low (mostly negative) projected economic growth, Q50 medium growth and Q90 high economic growth. This approach makes it possible to assess the impact of high debt on all future growth paths and at different projection horizons. Consistent with literature, the empirical results of the table show that there is a non-linear negative relationship between debt and anticipated economic activity. More specifically, the current accumulation of high public debt is associated with lower future growth, regardless of the anticipated economic outlook (i.e. across all quantiles of the economic growth distribution).[23] However, the estimated impact of public debt is stronger at the tails, especially at the lower tails of the growth distribution (Q5 and Q10) than at the median of the distribution (Q50), reflecting the fact that high public debt further amplifies downside risks to economic growth. At the same time, high public debt is also associated with lower upside risks to growth, denting the growth momentum.[24]

The negative relationship between future growth and public debt is present both in the short and the medium term, i.e. two, four and eight quarters ahead. However, the effects of heightened leverage increase over time. Higher debt appears to be associated with a milder negative impact on economic activity in the short term. By contrast, the risk of lower future growth due to higher debt increases significantly eight quarters ahead, possibly because of the build-up of macroeconomic imbalances. In other words, the excessive debt accumulated during the pandemic will have a negative impact on the anticipated high economic growth rates in the post-pandemic period.

On the other hand, the accumulation of high private debt in the euro area does not seem to have a negative impact on growth in the near term. Nevertheless, the coefficient of the debt variable in the lower growth quantiles eight quarters ahead is negative and statistically significant, pointing to a marked increase in downside risks to

22 Koenker, R.W. and G. Bassett, Jr. (1978), "Regression Quantiles", *Econometrica*, 46(1), 33-50.

23 The main conclusions of the analysis remain unchanged if the dependent variable is defined as the anticipated economic growth two, four and eight quarters ahead (i.e. non-overlapping data) and if the level of debt is taken as a deviation from its long-term trend.

24 Increasing downside risks and reducing upside risks to growth imply a left-skewed conditional growth distribution.

economic growth over the medium term. This is in line with studies indicating that an increase in private debt can boost the economy in the short term, but the negative effects of high debt, such as higher risk premia and low long-term growth, become stronger over the medium term.[25]

Conclusions and policy implications

Fiscal expansion during the COVID-19 pandemic has been instrumental to limiting the economic impact of the crisis in 2020 and supporting the economic recovery in 2021. However, the rise in non-financial sector debt to historically high levels has shifted the focus of public debate from the benefits of increasing debt to support economies during crises to the potential costs of excessive debt accumulation. This analysis shows that persistently high debt levels in the post-pandemic period could be associated with lower economic activity in the future and, in particular, increased downside risks to growth, thereby making an adverse economic scenario more likely to materialise. The Russia-Ukraine war that started in early 2022 could exacerbate the risks to future growth because of further debt accumulation in some countries owing to increased defence spending and costs of weaning off Russian energy.

A critical challenge is to achieve the right mix of fiscal and monetary policy amid uncertainty about output growth, high debt and rising inflation. Fiscal and monetary policies complemented each other during the worst phase of the pandemic. In the post-pandemic period, a gradual return to sound fiscal positions is essential as economic recovery gains traction, because high debt levels typically limit the ability of governments to effectively support recovery as well as the ability of the private sector to invest in the medium term while remaining solvent. Targeted fiscal support, as well as credible and sustainable medium-term fiscal frameworks, will contribute to addressing the short-term challenges of the pandemic crisis, but also to achieving longer-term economic policy objectives, such as digital and green growth.

Meanwhile, factors such as using loan resources for productive investment, diversifying the investment base of the debt portfolio, maintaining a favourable public debt structure (e.g. its repayment profile) and addressing macroeconomic imbalances and structural weaknesses (such as by strengthening institutions) will enable smooth debt servicing and limit the impact of high debt on growth dynamics.

Lastly, careful monitoring of high private debt is important, given the potential spillover effects on financial stability and public sector debt in the medium term. To mitigate corporate debt problems, policymakers should also consider a combination of tools, including reforms in corporate debt insolvency and restructuring frameworks, as well as in the regulatory framework to promote equity financing.

25 IMF (2017), "Household debt and financial stability", *Global Financial Stability Report* (October), Chapter 2.

Box II.3

INVESTMENT WITH A POSITIVE ENVIRONMENTAL IMPACT: CONCEPT AND FINANCING

Over the past decade, the concepts of sustainable finance, responsible investment and responsible banking have increasingly gained popularity around the world. Responsible investment is often associated with a positive environmental impact (green investing), in view of the global threat of climate change, environmental degradation and the need to address social and governance issues across economies.[1] The devastating potential conse-

1 Although much of the attention is directed towards climate change, the traditional parameters of sustainability, i.e. the social and economic factors, cannot be ignored. Therefore, the modern concept of sustainability encompasses environmental, social, governance and economic issues, all considered equal, while some of them come into sharper focus depending on the circumstances. For instance, the pandemic has highlighted the urgent need to improve health systems and to address the problems that are affecting people's well-being, thus strengthening the social factor.

quences have motivated political will and mobilised the international community in joining efforts to address these challenges. The European Commission has formulated policies for sustainable finance based on the UN Sustainable Development Goals (SDGs) and the Paris Agreement,[2] with the ultimate objective of making Europe the first climate neutral economy by 2050. In 2018, a short-term action plan[3] was adopted, which focuses on "transforming finance to finance the transformation".[4] The goals are to reorient capital flows towards sustainable investments, to incorporate sustainability considerations into risk management and to foster transparency and long-termism in financial and economic activity. The long-term vision,[5] a clean planet for all, entails a radical transformation of the production model of the European economy.

To help put the action plan into practice, the European Commission adopted a package of measures, including the establishment of a common EU classification system for sustainable economic activities (Taxonomy Regulation), so as to support their financing and to avert greenwashing. This allows the development of green-labelled instruments for financing investments with a positive environmental impact. Furthermore, the European Commission published a proposal for a regulation on green bond standards, which, when adopted, will make it easier for firms and public authorities to tap the capital markets for financing investment projects that meet sustainability criteria.

The EU taxonomy

The EU taxonomy aims to provide businesses and investors with a common language and a clear definition of what is "sustainable" and thus eligible for green financing. It also serves as a guide for economic sectors with smaller or greater negative environmental impacts. The six environmental objectives established by the Taxonomy Regulation are: (1) climate change mitigation; (2) climate change adaptation; (3) sustainable use and protection of water and marine resources; (4) transition to a circular economy; (5) pollution prevention and control; and (6) protection and restoration of biodiversity and ecosystems.

To qualify as taxonomy-aligned, an economic activity must contribute to one or more of the environmental objectives, cause no significant harm to any other environmental objective, comply with minimum social safeguards and comply with the relevant technical screening criteria.

The current taxonomy mainly focuses on environmental objectives, underplaying the social dimension of sustainability. Nevertheless, it makes explicit reference to social, human and labour rights, under the "do no significant harm" principle. Thus, an activity should have at least one positive environmental effect, without harming any of the other five, which means that an activity with a positive environmental effect but an adverse social impact does not qualify as taxonomy-aligned. To better clarify this, the European Commission intends to develop a social taxonomy system. Besides, an activity that it is not taxonomy-compliant is not necessarily unsustainable or "brown"; it is just outside the current scope of the taxonomy.[6]

Financing green investment

The exponential increase of financial products that incorporate directly or indirectly sustainability considerations and are used to finance investments with a positive environmental impact is an important step forward.[7] Such

2 Sustainable development can be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Under the Paris Agreement, the scientific community converged on the idea that a limit to the increase in average global temperature well below 2°C above pre-industrial levels, and preferably closer to 1.5°C, may prevent catastrophic consequences from climate change.

3 European Commission (2018), "Action Plan: Financing Sustainable Growth", COM(2018) 97 final.

4 "Sustainable finance: transforming finance to finance the transformation", speech by Fabio Panetta, Member of the Executive Board of the ECB, 25.1.2021, https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210125_1~2d98c11cf8.en.html.

5 European Commission (2018), "A Clean Planet for all. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy", COM(2018) 773 final.

6 On 2 February 2022, the European Commission presented a draft Complementary Climate Delegated Act to accelerate decarbonisation, which proposes the inclusion, under strict conditions, of specific nuclear and gas energy activities in the list of economic activities covered by the EU taxonomy (see also Box II.4).

7 The European Commission decided to raise 30% of NGEU funds through the issuance of green bonds. Against this backdrop, in October 2021 the EU issued its first 15-year green bond of €12 billion, which was warmly received by the markets.

products are primarily debt instruments which are identified as "green" by one of the following approaches, namely the use of proceeds model, the counterparty profile model and the hybrid model.

(a) Use of proceeds model

According to the use of proceeds model, green bonds are issued for specific projects that are labelled environmentally-friendly[8] rather than for general financing purposes. Thus, the issuer may only use the funds raised to finance projects with an earmarked environmental purpose. Specific sustainability objectives, which should have a material impact on high-level objectives or particular areas of concern, must be determined and clearly described in legal documents, thereby allowing to evaluate eligibility and compatibility with the issuer's strategy, policy or processes. Furthermore, the issuer must disclose details regarding the management of the proceeds, such as the degree of funds ring-fencing, a comparison of the amounts raised and used, and the environmental impact of the project.

There are further sub-groupings according to more specific purposes, such as blue bonds, which are government bonds the proceeds of which are used to finance marine and ocean-based projects with positive environmental, economic and climate impacts, or green securitised bonds, which are backed by one or more specific green projects or provide for a green use of proceeds (i.e. for investment in green projects).

The "use of proceeds" logic embedded in green finance has greatly facilitated the greening of traditionally brown sectors and contributed to the emergence of a new market for green financial products available to investors. However, it has also given rise to allegations of greenwashing and concerns about the creation of a "market for virtue" without driving systemic changes in global business operations.

Several lending instruments offered by banks, such as green loans, also fall within the use of proceeds model. Green loans are instruments whose funds are committed exclusively to green projects, in key areas of environmental concern. As in the case of green bonds, borrowers are subject to a periodic reporting requirement regarding the actual use of proceeds.

(b) Counterparty profile model

The use of proceeds model was a useful starting point but has somehow reached its limits, since green activities cannot be indefinitely separated from the overall evaluation of the company. For instance, green bonds, although exclusively financing green projects, are not ring-fenced, as bond payments are not necessarily linked to proceeds from the green project. This means that their credit rating is similar to that of other bonds from the same issuer on the same terms and conditions. The main difference is the commitment to use the proceeds for green projects. Even if a market segment is prepared to pay a premium (the so-called greenium) and thus enjoy a lower yield, green bonds cannot be considered in isolation.

The design limitations of financial instruments according to the use of proceeds model led to an alternative approach, the counterparty profile model, and to a new generation of financial products, the sustainability-linked bonds. Sustainability-linked bonds do not finance specific projects but rather the general operations of an issuer with explicit sustainability targets that are linked with the financing conditions of the bond. The bonds are structurally linked with the issuer's achievement of climate-related or broader SDG goals. For instance, there are usually covenants that link the bond coupon to the progress, or lack thereof, towards the defined goal; the coupon increases or decreases accordingly.

There are three basic characteristics of sustainability-linked bonds. First, the selected key performance indicators (KPIs) should be relevant, core and material to the issuer's overall business, measurable, externally verifiable

8 Such projects relate e.g. to renewable energy, green buildings or resource conservation. In a similar vein, social bonds finance projects that address social issues and/or seek to achieve positive social outcomes, especially for a targeted population, e.g. vulnerable groups, the unemployed and minorities. Sustainability bonds finance projects with a mix of green and social purposes. The pace of growth for social bonds is not similar to that for green bonds, although a new type of social bond has recently emerged in the form of COVID-19-related bonds. Such bonds have a use of proceeds specifically aimed at mitigating COVID-19-related social issues, targeting in particular the populations affected the most.

and benchmarkable. Second, the KPIs should be assessed against agreed sustainability performance targets (SPTs), which must represent a material improvement in the respective indicators, beyond a "business as usual" trajectory, and be determined on a predefined timeline set before (or concurrently with) the issuance of the bond. Third, depending on the performance, the bond characteristics, e.g. the coupon rate, should be subject to significant adjustment relative to its original features at issue. This mechanism provides a financial incentive associated with the attainment of the sustainability objectives.

In a similar vein, sustainability-linked loans are being developed, whereby the borrower is taken into account when assessing sustainability, on the basis of predefined criteria. Such loans are not project-specific but counterparty-specific. In the case of a company, it must either operate in a certain industry or sector focused on specific activities, or be assessed as overall sustainable or committed to improving its performance on certain sustainability indicators. In the case of private individuals, they often need to meet certain criteria, such as belonging to a vulnerable group affected by climate change. Their setting is fairly similar with that of sustainability-linked bonds. The SPTs specified should be linked with the company's environmental responsibility policy as well as with the loan terms and conditions. For instance, the interest rate of the loans is tied with the borrower's sustainability performance.

(c) Hybrid model

In certain cases, both the use of proceeds and the counterparty profile should be used to assess the impact. This applies to the so-called transition bonds, i.e. instruments designed to help companies that are considered "brown" to become "greener". The proceeds from these bonds are used to improve the sustainability and environmental profile of the issuer. Thus, a twofold analysis is warranted, focused on both the issue (use of proceeds) and the issuer (counterparty profile), to ensure respectively the use of the funds for transition-eligible projects and the necessary strategy and business model adjustments for a smooth transition.

European green bond (EuGB)

To facilitate businesses that wish to issue bonds with a positive environmental impact, as well as protect investors from greenwashing practices, various private initiatives have been launched, such as that of the International Capital Market Association,[9] which published key principles to increase the transparency, integrity and acceptance of green bonds. The European Commission followed suit, in order to make the signalling effect more clear, and developed a proposal for a European green bond standard,[10] which is a voluntary set of rules but a requirement for issuers wishing to align with the "European green bond" or "EuGB" label.

Thus, the European Commission follows the use of proceeds approach, as the funds raised by the bond should be allocated fully to projects that are aligned with the EU taxonomy. Eligible expenditure should involve fixed capital formation, investment in financial instruments, capital expenditure and selected operating expenditure. Prior to issuance, the issuer must draft a Green Bond Framework outlining the type of investments, as well as the proceeds allocation and impact reporting methodologies. Post-issuance verification will be required annually in a report stating the alignment with EuGB standards, the breakdown of allocated amounts per project or portfolio and the geographical distribution of the projects. Moreover, impact reporting will be mandatory at least once during the lifetime of the bond. It should be noted that all disclosures must be verified by certified external reviewers.

Conclusions

The sharp rise in bond issues with a positive environmental impact (green bonds) has created the need for standardisation of their features, with a view to facilitating issuers and protecting investors. The European Union, being particularly sensitive to environmental issues, in order to finance its strategy for sustainable development has established a set of rules for the classification of green economic activities, as well as a standard for green financial products. At the same time, it has decided to finance its policy for the recovery from the pandemic through the issuance of green bonds. All these initiatives are expected to contribute significantly to the long-term objective of a clean planet for all.

9 International Capital Market Association − ICMA (2021), "Green Bond Principles", June.
10 The European green bond standard is an action in the context of the Capital Markets Union.

Box II.4

EU AND EURO AREA POLICY RESPONSES

The Russian military attack on Ukraine

The European Union condemns Russia's unprovoked and unjustified military aggression against Ukraine, noting that Russia is grossly violating international law, undermining European and global security and stability and causing untold suffering to the Ukrainian people. Since the start of the invasion of eastern Ukraine on 22 February 2022, the EU has adopted sweeping and unprecedented packages of economic and individual sanctions against Russia and Belarus (see Box II.1) and has been providing political, material, financial and humanitarian support to Ukraine, while also granting temporary protection to all war refugees. On 10 March, the European Council invited the European Commission to submit its opinions on the applications of Ukraine, Moldova and Georgia for EU membership. At the same time, in view of the geopolitical and economic consequences of the Russo-Ukrainian war, the EU leaders reaffirmed their commitment to bolster the defence capabilities and reduce the energy and strategic dependencies of the European Union. Meanwhile, emergency measures are being considered at the EU level to mitigate the impact of higher energy prices on households and businesses, with a particular focus on the most vulnerable groups of the population and small and medium-sized enterprises.

20 years of the euro, and the road to a digital currency

The introduction of euro banknotes and coins in the euro area countries on 1 January 2002 marked the largest-ever currency changeover and a major milestone on the path towards European economic and political integration. Today, 20 years on, the euro is the official currency of 19 EU Member States, or 340 million European citizens, and the second most important currency in the world, accounting for around 40% of global cross-border payments. Alongside the European Commission's initiatives to strengthen the international role of the euro, including the issuance of a European green bond, the Eurosystem has been exploring the possibility of developing a digital euro and, in October 2021, launched the 24-month investigation phase of the project, aimed to address key issues (design, distribution, impact on markets, legislative changes needed, etc.). If introduced, a digital euro would function in parallel with euro banknotes and coins.

Pandemic, economic adjustment and resilience

The EU policy responses to the COVID-19 pandemic have been crucial and multifaceted over the past two years. On the public health front, following the authorisation of four vaccines, the EU achieved its target of full vaccination of 75% of adult population in October 2021. Also important was the agreement on a common EU Digital COVID-19 Certificate, which entered into force in July 2021 and facilitated the safe and free movement of citizens within the Single Market during the pandemic. In terms of international cooperation and solidarity, the EU Member States pledged to donate 700 million vaccine doses to support the goal of 70% global COVID-19 immunisation coverage by mid-2022 and were actively involved in the decision of the World Health Organisation in December 2021 to start the process of drafting and negotiating a new international treaty on pandemics.[1] Finally, to ensure better preparedness for and response to future health emergencies in the EU, the European Council of 21-22 October 2021 called for the conclusion of negotiations on the Health Union and for adequate involvement of Member States in the governance of the European Health Emergency Preparedness and Response Authority (HERA).

On the economic front, 2021 saw the establishment of the Recovery and Resilience Facility (RRF), the core of the NextGenerationEU recovery instrument, which entered into force in February 2021. By March 2022, the national recovery and resilience plans of 22 EU Member States had been approved, while 21 Member States had already received a total of EUR 54.2 billion in pre-financing equivalent to 13% of their RRF allocation. In addition, five Member States had submitted their first payment requests to the European Commission, and more than 30 further payment requests are expected in 2022. At the same time, discussions continued during 2021 and the

1 https://www.consilium.europa.eu/en/policies/coronavirus/pandemic-treaty/

first months of 2022 to strengthen the EU's preparedness, response capability and resilience to future crises caused by physical and digital threats. This is a major horizontal political priority for the EU.

Digital transformation and green transition

In 2021, the EU elaborated several policies towards digital transformation. In March, the European Commission presented the Digital Compass, which sets out a vision and concrete targets for Europe's digital transformation by 2030, with a particular focus on digital skills and literacy. The European Council of 21-22 October called for a swift examination of this proposal and also reviewed progress on a number of key legislative files regarding roaming (the current regulation expires at the end of June 2022), digital services, digital markets, network and information system security and artificial intelligence. Moreover, a provisional agreement on a Data Governance Act was reached between the Council of the EU and the European Parliament in November.

As regards the EU's actions to tackle climate change and facilitate the green transition, in June 2021 the Council of the EU and the European Parliament adopted the European Climate Law, which is at the heart of the European Green Deal and sets out a binding objective of climate neutrality in the Union by 2050 and a binding Union climate target of a reduction of net greenhouse emissions (emissions after deduction of removals) by at least 55% by 2030 compared to 1990. In this context, in July the European Commission presented a package of legislative proposals and policy initiatives to support the EU's climate objectives ("Fit for 55"), the main points of which are the revision of the EU Emissions Trading System and the establishment of a Carbon Border Adjustment Mechanism (CBAM). This mechanism is expected to be adopted in the first half of 2022 and would take the form of an import carbon tax to apply as from 2026, on the basis of the carbon footprint of imported goods. By ensuring equivalent carbon pricing between imports and domestic products, the mechanism is designed to reduce the risk of carbon leakage resulting from the relocation of production of energy-intensive products form the EU to other countries with lower environmental compliance costs. Finally, a significant and controversial issue during 2021 was the integration of nuclear energy and gas (as a means of facilitating the green transition) into the EU Taxonomy, which aims to guide private investment to activities that are needed to achieve climate neutrality. On 2 February 2022, the European Commission reached a political agreement to add certain nuclear and gas activities to the EU Taxonomy under clear and strict conditions, while imposing specific disclosure requirements for businesses related to their activities in the gas and nuclear energy sectors.[2]

Banking Union and Capital Markets Union

On 27 January 2021, representatives of the EU Member States signed the amending agreements to the Treaty Establishing the European Stability Mechanism (ESM) and to the Intergovernmental Agreement on the Single Resolution Fund (SRF). This was followed by the ratification procedures in the Member States in accordance with their national constitutional requirements. At the Euro Summit in December, leaders stressed the importance of a completed Banking Union and a deep, integrated and well-functioning Capital Markets Union. On 17 January 2022, the Eurogroup reviewed progress in the ratification of the revised ESM Treaty. Following the ratification of the Treaty, the ESM will become the backstop for the Single Resolution Fund as soon as the beginning of 2022, two years ahead of the initial plan. Also, on 14 March 2022, the Eurogroup discussed the state of play on strengthening the Banking Union, focusing on the finalisation of a consensual, stepwise and time-bound work plan on all outstanding elements.

In 2021, the EU took measures to make it easier for capital markets to support economic recovery after the pandemic. On 15 February, the Council of the EU adopted targeted amendments to the Markets in Financial Instruments Directive (MiFID II) and the Prospectus Regulation in order to facilitate the recapitalisation of EU companies on financial markets. On 30 March, the Council of the EU approved adaptations to the EU securitisation framework. On 25 November, the European Commission presented a new package of four legislative proposals on the Capital Markets Union.[3] The legislative proposals are aimed to better connect EU companies and investors,

2 The relevant Complementary Delegated Act will soon be forwarded to the European Parliament and the Council of the EU for consideration and adoption, with a view to its entry into force on 1 January 2023.

3 The legislative proposals concern: (a) the review of the Alternative Investment Fund Managers Directive (AIFMD); (b) the review of the Regulation on European Long-term Investment Funds (ELTIF); (c) the creation of a European Single Access Point (ESAP); and (d) the review of the Markets in Financial Instruments Regulation and Directive (MiFIR/MiFID).

to improve companies' access to funding, to broaden investment opportunities for retail investors and to further integrate capital markets.

EU economic governance review

On 19 October 2021, the European Commission relaunched the public debate on the review of the EU's economic governance framework. The debate was first launched in February 2020 but later suspended to focus on responding to the economic and social impact of the pandemic. The main objective of the review is to strike a balance between promoting growth-friendly investment and ensuring the sustainability of public finances taking into account future challenges, such as the high public debt in the post-pandemic period and an ageing population in the long term. On 17 January 2022, the Eurogroup discussed the euro area fiscal framework, as well as arrangements for financial assistance and post-programme surveillance.

3 ECONOMIC DEVELOPMENTS AND PROSPECTS IN SOUTH-EASTERN EUROPE

South-Eastern European[5] economies recovered rapidly in 2021, with average GDP growth increasing significantly (6.5%) following the previous year's deep recession due to the health crisis. According to European Commission forecasts,[6] recovery has been faster than expected, with strong performance throughout the region in the second quarter and less strong in the third and fourth quarters (except for Montenegro and Turkey) due to the reintroduction of strict containment measures in food services. The economic recovery was largely supported by the return to normality and the quick rollout of vaccinations within the EU and worldwide, leading to a strengthening of domestic and external demand and to increased tourist arrivals. However, the new coronavirus variants and the resurgence in infections in late 2021, as well as the geopolitical risks arising from Russia's invasion of Ukraine, prolong the existing uncertainties.

In the Western Balkans, economic recovery in 2021 was particularly strong (6.2% on average, compared with a recession of 5.9% one year earlier, see Table II.2), supported by almost all components of domestic demand. The labour market has recovered strongly, with employment increasing and unemployment rates declining further in most countries, as people abstaining from seeking work re-entered the labour market. Private investment gained momentum in all the Western Balkan countries, as business sentiment rebounded and investment picked up on the back of the Instrument for Pre-Accession Assistance (see Box II.5), amounting to EUR 14.2 billion for 2021-27, and of the country-specific national recovery and resilience plans. Albania, the Republic of North Macedonia and Serbia recorded high public investment. The Western Balkans region has already been attracting investors mainly from North America, China, South-East Asia, as well as from Russia, although trade relations with the latter may be disrupted as a result of the sanctions agreed upon. However, economic activity is further supported by the reforms implemented separately by each country, as beneficiaries of this Instrument, with a view to improving its competitive position.

Economic growth in 2022 is projected to return to a more moderate pace, but nonetheless to remain strong after its surge in 2021 and the deep recession in 2020. The risks and uncertainties surrounding the outlook for economic activity in these economies are mainly associated with the strictness of containment measures, as the number of new infections remains high, but also

5 The economies examined are Albania, Bosnia and Herzegovina, Bulgaria, the Republic of North Macedonia, Montenegro, Romania, Serbia and Turkey.

6 See European Commission, *European Economic Forecast, Winter 2021 (Interim)*, February 2022, and *EU Candidate Countries' & Potential Candidates Economy Quarterly CCEQ*, *4th Quarter 2021*, January 2022, except for Bosnia and Herzegovina, for which data are drawn from the IMF, World Economic Outlook Database, and Turkey, for which data are drawn from OECD, *Economic Outlook, Interim Report*, March 2022.

Table II.2 Key macroeconomic and banking indicators in South-Eastern European countries

	GDP (volume, annual percentage changes)			Inflation (averages, annual percentage changes)			Balance of payments (% of GDP)			Fiscal balance[3] (% of GDP)			Credit growth (annual percentage changes)			Capital Adequacy Ratio (%)			NPLs (%)		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2019	2020	2021[3]	2019	2020	2021[3]	2019	2020	2021[3]
Albania	-4.0	6.9	3.7	1.6	2.2	2.8	-8.9	-7.7	-7.3	-6.9	-5.9	-4.0	3.0	6.1	10.5	18.3	18.3	18.1	8.4	8.1	6.5
Bosnia-Herzegovina[1]	-3.2	2.8	3.3	-1.1	1.8	1.8	-3.6	-3.9	-3.5	-5.1	-3.3	-1.5	5.7	1.1	3.2	17.9	19.2	19.2	7.4	6.1	5.5
Bulgaria[2]	-4.4	4.2	3.7	1.2	2.8	6.3	0.6	0.4	1.2	-2.9	-3.1	-2.8	7.5	4.9	-	20.7	22.7	22.9	9.8	9.5	-
Montenegro	-15.3	10.7	6.4	-0.8	3.3	2.5	-26.1	-17.8	-15.8	-11.1	-3.4	-0.5	4.0	5.0	7.1	17.5	19.6	-	5.1	5.9	6.6
Republic of North Macedonia	-6.1	4.0	3.9	1.2	3.2	2.1	-3.4	-3.6	-2.6	-8.2	-6.1	-4.9	7.2	6.4	7.6	16.3	16.7	-	4.6	3.3	3.5
Romania[2]	-3.7	5.9	4.2	2.3	4.1	5.3	-5.5	-6.5	-6.3	-7.5	-7.1	-6.4	8.0	11.1	-	20.0	23.2	23.9	4.1	4.0	-
Serbia	-0.9	6.7	4.3	1.6	3.6	3.6	-4.1	-4.4	-4.3	-8.0	-4.9	-2.7	9.7	12.3	8.9	22.6	22.4	-	4.1	3.7	3.6
Turkey	1.8	11.0	4.0	12.3	19.6	17.7	-5.0	-2.7	-2.2	-2.8	-3.6	-3.5	6.5	29.6	36.1	14.0	19.4	1.8	5.4	4.1	3.6

Sources: European Commission, *EU Candidate Countries' & Potential Candidates' Economic Quarterly (CCEQ), 4th Quarter 2021*, January 2022, and *European Economic Forecast*, *Autumn 2021*, November 2021,IMF, *World Economic Outlook*, October 2021, national central banks and national statistical authorities.
Notes: Estimates for 2022. The impact of the Russia-Ukraine war is not included in the estimates.
1 IMF forecasts for Bosnia-Herzegovina
2 Credit growth for the private sector in Bulgaria and Romania, total credit growth for the other countries.
3 Latest available month.

with the increased geopolitical uncertainty resulting from Russia's invasion of Ukraine, which weighs on the recovery of domestic and foreign direct investment.

The GDP of Bulgaria and Romania, the two EU Member States in the region, increased significantly in 2021, after declining one year earlier. As regards Bulgaria, its strong economic recovery mainly reflects the positive contributions from private consumption, supported by higher disposable income as a result of higher wages, and secondarily the strong dynamics of net exports of goods. Accelerating vaccinations, which are progressing slowly, is necessary to mitigate the risk of a prolonged pandemic. For 2022, the efficient management and use of EU funds received by Bulgaria from the NGEU recovery instrument and the continuation and deepening of reforms to enhance competitiveness and modernise public administration will be key to the sustainability of the economic recovery. In Romania, GDP growth in 2021 was the fastest in recent years. Recovery is supported by a positive contribution from inventories, fixed capital formation and private consumption, but the latter is gradually losing momentum due to rising prices and weakening real income. Romania's economic growth for 2022 is forecast to be less pronounced, but set to remain robust, as investment is supported by the NGEU and the construction and industrial sectors are expected to pick up. Its momentum will be affected by the large number of refugees that the country is expected to receive and by divestment due to the strong depreciation of the local currency against the euro and the US dollar during the Russo-Ukrainian crisis.

GDP growth in Turkey, the largest economy in the region, increased in 2021 to 11.0% from 1.8% in 2020. This strong performance reflects solid external demand and high vaccination coverage, which, despite the surge in new infections, has had a positive effect on attracting tourists. The external sector recorded a strong export performance and at the same time a decrease in imports, particularly of gold. Private consumption is estimated to have increased by 7.7%. Exports are estimated to have increased by an impressive 17%, while imports decreased by 3%. The recovery has also had positive effects on the labour market, as the labour force participation rate improved and the employment rate, in particular in services and construction, increased significantly. For 2022, GDP growth for the Turkish economy is estimated to be lower

(4.9% according to the IMF, 4.0% according to the European Commission, 3.3% according to the OECD and 2.0% according to the World Bank), as domestic demand is expected to fall due to very high inflation. At the same time, investment activity is projected to decline due to the uncertainty primarily related to monetary policy and the risks it poses to the Turkish economy.

Turning to inflation, it generally accelerated in the region in 2021, as demand picked up rapidly and overall supply failed to keep up. In Bulgaria, inflation increased, particularly at the end of 2021, reflecting higher international energy and other non-energy commodity prices and strong food demand. In order to prevent further increases in household electricity and heating fuel prices, on 15 December the Bulgarian government decided to stabilise retail rates until the end of March 2022. For 2022, inflation is expected to pick up as Russia's invasion of Ukraine has led to a further rise in international food and oil product prices. Similarly, in Romania, inflation significantly accelerated in 2021, in particular from August onwards, mainly due to rising prices of fuel, agricultural goods (fertilisers), food and transportation costs, as a result of the observed supply and production chain bottlenecks. Since October, the Central Bank of Romania has raised its key interest rate on four occasions, each time by 25 bps, bringing it to 2.50% on 9 February 2022. For 2022, the short-term forecasts of the central bank indicate that inflation will remain well above the upper bound of the target (2.5% ± 1%) and is expected to be affected by increases in electricity, gas and processed food prices.

Inflation in Turkey surged in the last months of 2021 and early 2022, standing at 54.4% in February 2022, its highest in 20 years, with the energy component growing at an annual rate of 83%. The increase in inflation in the course of 2021 was mainly driven by hikes in energy and food prices, strong credit growth and, most importantly, the depreciation of the Turkish lira, which deteriorated in the fourth quarter of 2021 as a result of an unorthodox monetary policy of rate cuts. In addition to the sharp depreciation of the currency and rising import prices, the rise in prices was intensified by increases in administered prices and services prices and by disruptions in production chains. In order to strengthen the Turkish lira and support financial stability, after repeatedly cutting its key policy rate in the course of 2021 instead of raising it, Turkey's central bank on 11.1.2022 incentivised domestic legal entities to convert their foreign exchange, gold and mutual fund assets into Turkish lira fixed-term deposits. On 17.3.2022, the central bank decided to keep the policy rate unchanged at 14% (having cut it on 16.12.2021). During 2021, the central bank had repeatedly cut the key interest rate (in September from 19% to 18%, in October to 16% and in November to 15%), while increasing the percentage of banks' reserve requirements. According to the central bank, the desired inflation target remains at 5%. At end-December 2021, the Turkish lira had overall weakened by 40.2% against the euro and 44.8% against the US dollar compared to end-2020, which has led to a decrease in the central bank's reserve assets.

In 2021, inflation in all the Western Balkan countries accelerated. The recovery in global demand and high food, energy and other commodity prices have led to a continuous upward trend in producer and consumer prices. In addition, supply constraints resulting from disruptions in global value chains have exacerbated inflationary pressures on the cost side, leading to an acceleration of inflation throughout the year. Supply and demand imbalances are likely to persist in 2022 as they are estimated to last longer than expected.

The current account balance as a percentage of GDP in 2021 continued to show a significant deficit in most of the countries in the region, with the exception of Bulgaria, where the current account remained positive (see Table II.2). The developments in the current account balance in 2021 are driven by buoyant imports due to strong domestic demand. The slight narrowing of external deficits in Albania, Montenegro and Turkey is attributed to their improved export performance, driven by high demand for commodities, metals and minerals, increased current transfers and a surplus in the services balance (mainly tourism) as a result of the acceleration of vaccinations rollout and the lifting of restrictive measures. For 2022, it is estimated that the

current account balance will see an improvement in all the countries of the region. Exports of goods and services will continue to rise, supported by a gradual recovery in world trade and external demand, as well as the lifting of travel restrictions. Specifically in Turkey, it is estimated that services exports will boost the economy, despite the negative impact of the Russia-Ukraine crisis on external demand, as tourist arrivals from the two countries involved in the conflict are relatively high.

The fiscal balance as a share of GDP in the region's economies improved in 2021, on account of a rebound in tax revenue (increased VAT revenue) due to stronger growth rates and the over-performance against budgetary plans. The general government debt-to-GDP ratio also declined for these countries after the historically high levels reached in 2020. For 2022, the fiscal position of all countries is estimated to improve further. Underlying this will be in particular the expected strong economic growth and the additional investments to be implemented through the national recovery and resilience plans, which will have a positive impact on public revenue.

The banking systems of these countries continue to show resilience, as capital adequacy ratios are above the required minimum. The repeated banking crises have highlighted the importance of restructuring the European banking sector and central banks adjusting their capital buffers for credit risk. The Bulgarian central bank, as part of its macro-prudential policy, decided on 16.12.2021 to increase the countercyclical capital buffer rate from 1.0% to 1.5%, with effect from 1.1.2023, in order to strengthen the resilience of the banking sector. The Russia-Ukraine crisis creates high uncertainty, as the EU-based commercial banks most exposed to Russia and Ukraine, such as Raiffeisen and Unicredit, also have a presence in the Western Balkans, and may have an impact on their activity in the region.

The ratio of non-performing loans (NPLs) in most countries in 2021 hovered slightly below 2020 levels, following the adoption of measures to mitigate the impact of the 2020 recession. However, as most central banks have adopted measures to boost bank lending, the amount of NPLs may not yet reflect the full impact of the pandemic crisis on the financial sector.

As regards developments in the association and accession process of the Western Balkans to the EU, in October the European Commission presented the Enlargement Package,[7] providing a detailed assessment of the progress made by the Western Balkan countries and Turkey in implementing fundamental reforms identified as key priorities. In the EU-Western Balkans Summit held on 6 October 2021 at Brdo pri Kranju in Slovenia, the leaders of the EU Member States, in consultation with the Western Balkans leaders, reaffirmed the EU's commitment to the enlargement process and expressed their shared strategic interest. For their part, the countries concerned reaffirmed their commitment to the European principles and to the implementation of reforms to the benefit of their peoples.

In particular, the first political intergovernmental conference with Montenegro and Serbia was held in June 2021, and these countries have accepted the application of the revised methodology. Serbia, an EU candidate country since 2012, has so far opened most of the 35 negotiations chapters with the EU. Another four chapters, namely chapter 14 on transport policy, 15 on energy, 21 on trans-European networks and 27 on environment and climate change, were opened in mid-December 2021. Montenegro has been negotiating with the EU on all chapters of the European acquis since 2012. Progress in negotiations now depends on the fulfilment of the rule of law interim benchmarks. Albania, a candidate for membership since 2014, has not yet opened any negotiations chapters. For the Republic of North Macedonia, candidate since 2005, bilateral issues with Bulgaria are pending. As regards Bosnia and Herzegovina, the country's decreased rate of alignment with the EU foreign and security policy is a negative signal in re-

7 European Commission press release, "2021 Enlargement package: European Commission assesses and sets out reform priorities for the Western Balkans and Turkey", 19.10.2021.

lation to its prospects as a candidate for EU membership. Moreover, before the EU could recommend granting candidate status, Bosnia and Herzegovina needs to carry out a set of reforms, mainly of institutional nature.

As regards Turkey, whose accession negotiations have come to a standstill since 2016 due to violations of human rights and the rule of law, dialogue and cooperation with the EU increased in 2021. In June 2021,[8] the European Council recalled the EU's strategic interest in a stable and secure environment in the Eastern Mediterranean and in the development of a cooperative and mutually beneficial relationship with Turkey. Leaders welcomed the de-escalation of tensions in the Eastern Mediterranean, which need to be sustained. The European Commission, in its Enlargement Measures in October 2021, reiterated that the EU is ready to engage with Turkey in a phased, proportionate and reversible manner to enhance cooperation in a number of areas of common interest, provided that the current de-escalation is sustained and that Turkey engages constructively and subject to the established conditionalities set out. In case of renewed unilateral actions or provocations in breach of international law, the EU will use all the instruments and the options at its disposal, in order to defend its interests and those of its Member States. The EU's serious concerns on continued deterioration of the rule of law, fundamental rights and independence of the judiciary have not been credibly addressed by Turkey. Turkey is urged to reverse this negative trend as a matter of priority. Finally, the EU welcomes the ratification of the Paris Agreement on climate change by Turkey and looks forward to engaging with Turkey on the implementation of the European Green Deal.

8 European Council, 24 and 25 June 2021, Conclusions.

Box II.5

INTERNATIONAL COOPERATION PROGRAMMES, THE CONTRIBUTION OF THE BANK OF GREECE AND THE PROGRESS MADE BY THE BENEFICIARY COUNTRIES

The European Union (EU) has been supporting its enlargement process and the smooth integration of candidate countries (Albania, Republic of North Macedonia, Serbia, Montenegro) and potential candidate countries (Kosovo and Bosnia and Herzegovina), by means of the Instrument of Pre-Accession Assistance (IPA), first introduced in 2007. This is a financial instrument that assists the beneficiaries[1] in adopting and implementing the political, institutional, legal, administrative, social and economic reforms to comply with EU values and to progressively align to its rules, standards, policies and practices with a view to becoming equal members.

According to the revised Multi-Country Indicative Strategy Paper 2014-2020,[2] the IPA, with an overall budget of €2.98 billion, pursues the following four specific objectives: (a) support for political reforms towards strengthening democratic institutions, the rule of law and protection of human rights; (b) support for economic, social and territorial development, with a view to smart, sustainable and inclusive growth; (c) strengthening the ability of the beneficiaries to fulfil the (future) obligations stemming from EU membership by supporting progressive alignment with the Union *acquis*; and (d) strengthening regional integration and territorial cooperation.

As specified in the relevant Regulation,[3] financial assistance under the IPA mainly addresses five policy areas: (a) reforms in preparation for EU membership; (b) socio-economic and regional development; (c) employment, social policies, education, promotion of gender equality, and human resources development; (d) agriculture and rural development; and (e) regional and territorial cooperation.

1 In addition to the Western Balkan states, beneficiaries of pre-accession assistance also include Turkey and Iceland.
2 http://integrimi-ne-be.punetejashtme.gov.al/wp-content/uploads/2020/05/Multi-country-strategy-paper-2014-2020.pdf.
3 Regulation (EU) No. 231/2014 of the European Parliament and of the Council of 11 March 2014 establishing an Instrument for Pre-accession Assistance (IPA II).

For the period 2021-27, the updated Instrument for Pre-Accession Assistance (IPA III) is part of the 2021-2027 Multiannual Financial Framework and, following the political agreement reached between the European Parliament and the Foreign Affairs Council on 2 June 2021, the next steps at technical level are expected to be clarified.

Forms of cooperation

The Instrument provides assistance to the national programmes of beneficiaries through four multi-country channels:[4]

1) Horizontal support: Providing technical assistance to the competent authorities of beneficiary countries, making available to them the know-how of EU and international organisations and best practices, including in the form of twinning programmes.[5]

2) Regional structures and networks: Regional cooperation, networking and sharing of best practices to help beneficiaries prepare for EU membership, align their national legislation with EU law and gradually adapt to EU standards and practices.[6]

3) Regional investment support: Targeting investment projects with a clear regional dimension that help socio-economic development in more than one IPA beneficiary countries by improving: (a) competitiveness of businesses; (b) connectivity between beneficiaries and EU countries; and (c) environmental protection & climate change mitigation/adaptation.[7]

4) Territorial cooperation: Promoting good neighbourly relations between border regions through cross-border programmes within the region and EU Member States, as well as transnational cooperation programmes and related macro-regional programmes.[8]

The contribution of the Bank of Greece

The Bank of Greece, in cooperation with other central banks, has been involved in many EU-funded programmes in recent years,[9] mainly by providing short-term experts (STEs), who have offered technical assistance on specialised topics or training in the fields of banking supervision and financial stability.

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4 European Commission, "Multi-country financial assistance under IPA II", https://ec.europa.eu/neighbourhood-enlargement/enlargement-policy/overview-instrument-pre-accession-assistance/multi-country-financial-assistance-under-ipa-ii_en.

5 Twinning was first introduced by the European Commission in 1998, in preparation for EU enlargement. It was designed as a tool for institutional cooperation between EU Member States and candidate countries, assisting the latter to strengthen their administrative and judicial capacity to implement EU legislation as future Member States. In twinning projects, actions are jointly agreed on the basis of agreed policy objectives and should deliver concrete results as regards the Union acquis. Twinning projects involve mutual obligations, but the achievements are maintained as a permanent asset to the beneficiaries.

6 Support is implemented through several initiatives, such as the Environmental and Climate Regional Accession Network (ECRAN), which assists the beneficiaries in exchange of information and experience and in taking actions towards the transposition and implementation of the EU environmental and climate *acquis*.

7 Support is implemented through various instruments, such as the Western Balkans Investment Framework, a joint initiative of the European Commission, supranational financial institutions, bilateral donors and the governments of the Western Balkans which supports socio-economic development and EU accession across the Western Balkans by providing financing and technical assistance for strategic investments in the energy, environment, social, transport and digital infrastructure sectors.

8 Support is implemented through several programmes, such as the Interreg V-B Adriatic-Ionian programme (ADRION), which promotes cooperation and solidarity between eight partner states, including Greece, on matters of common interest, e.g. sustainable tourism, environmental quality, interregional connectivity and a sustainable marine and maritime economy.

9 The Bank of Greece was also actively involved in international programmes in the more distant past: including two major technical assistance programmes organised by the ECB in the late 2000s, one for the Central Bank of Egypt as part of the MEDA programme, which supports the reform of economic and social structures in Euro-Mediterranean Partnership countries, and one for the Central Bank of Russia under the TACIS initiative for countries of the former Soviet Union; in both cases, the Bank of Greece's contribution was in the area of banking supervision. Also, in 2015 it participated in the Eurosystem's technical cooperation programme with the Central Bank of Montenegro in the context of its preparations for joining the ESCB, and its contribution focused on micro and macro stress testing.

(a) Republic of North Macedonia

October 2019 saw the launch of the twinning project entitled "Strengthening the institutional capacity of the National Bank of the Republic of North Macedonia (NBRM) in the process of its accession to the ESCB", led by the Deutsche Bundesbank. The objective of the project was to support the NBRM in maintaining macroeconomic and financial stability through the harmonization of rules, policies and operations with the ESCB standards and best international practices. The project was structured into four components: (1) strengthening the institutional framework, organisation and capacity of the NBRM for harmonisation with the Union acquis and ESCB standards in the field of payment services and payment systems; (2) further alignment of the regulatory framework for the operation of banks with the relevant EU legislation and enhancement of current supervisory practices; (3) further alignment of NBRM's financial accounts statistics with ESCB/ECB standards; and (4) enhancement of NBRM's research-oriented know-how in the area policy analysis and decision-making with a focus on monetary and macroeconomic policy.

The contribution of the Bank of Greece related to component (3), in particular the topic "Developing conditions for improved collection of claims, improved NPL management and resolution and improved overall risk management in banks". Following in-depth discussions with NBRM staff, differences from best practices were identified, and proposals were presented at a dedicated workshop.

(b) Western Balkans

In March 2019, the "Programme for strengthening the central bank capacities in the Western Balkans with a view to the integration to the European System of Central Banks" was launched, coordinated by the Deutsche Bundesbank and bringing together 20 central banks of EU countries, including the Bank of Greece. The objective of the programme was to further strengthen the institutional capacities of the beneficiary institutions,[10] notably by enhancing their analytical and policy tools and by transferring the best international and European standards into national practices. The programme was implemented through training activities in the areas of banking supervision, financial stability, financial consumer protection, financial inclusion, monetary policy, payment systems, statistics, recovery and resolution, EU integration, compliance and governance issues, internal audit and accounting.

The Bank of Greece took part in this programme through its experts, who contributed to three training events on banking supervision and financial stability. The first contribution was in the context of the High-Level Policy Workshop on NPLs, sharing Greece's experience with the management of non-performing loans; the second focused on supervisory issues and featured an analysis on regulatory capital, as well as the Supervisory Review Process (SREP) as implemented by the ECB. The third covered financial stability issues, in particular micro and macro stress testing.

(c) Ukraine

In December 2020, a twinning project[11] was launched, entitled "Strengthening the institutional and regulatory capacity of the National Bank of Ukraine (NBU) to implement the EU-Ukraine Association Agreement".[12] The general aim of the project, implemented by the central banks of Poland and Lithuania, is to promote the macroeconomic stability of Ukraine by strengthening the NBU's institutional capacity and establishing a reliable banking and payment infrastructure. In particular, the project focuses on four components: (1) strengthening the NBU's capacity in terms of the supervisory review and evaluation process (SREP) and banking risk and capital adequacy assessment; (2) implementing instant payments in accordance with PSD 2; (3) institutional strengthening through the establishment of an integrated system of strategic planning, execution and monitoring, process-based model of planning and management; and (4) strengthening the NBU international cooperation function and capacity in the area of European integration of Ukraine.

10 The national banks of Albania, Bosnia & Herzegovina, Kosovo, Republic of North Macedonia, Montenegro and Servia and two supervisory authorities (Federal Banking Agency of the Federation of Bosnia and Herzegovina and Banking Agency of Republika Srpska).

11 The project is implemented as part of the European Neighbourhood Policy and is funded by the European Neighbourhood Instrument (ENI).

12 The project is ongoing and, following the recent events, a decision has been taken to continue it, but it is yet unknown how.

The Bank of Greece's contribution is on component (1), in particular on issues related to the adaptation of the regulatory framework in the area of internal capital adequacy assessment process (ICAAP), internal liquidity adequacy assessment (ILAAP), as well as stress testing and assessment of banks' risk profiles through a pilot SREP. A series of training events on these topics are also planned.

The progress made

The overall objective of all programmes in any form is the alignment and convergence of candidate countries (Albania, Republic of North Macedonia, Serbia, Montenegro) and potential candidate countries (Kosovo and Bosnia & Herzegovina) with the EU *acquis*. In November 2021, the European Commission published progress reports[13] on political, economic and legal reforms in the aforementioned countries in line with the EU membership criteria implemented as a result of the Instrument for Pre-Accession Assistance 2014-2020. At the EU-Western Balkans Summit in Slovenia on 6 October 2021, EU leaders reaffirmed their commitment to the enlargement process, while the Western Balkans leaders reiterated their dedication to European values and principles.[14]

According to the Commission's reports, the countries under review have made progress towards the required reforms recommended by the European Commission, but to varying degrees. In particular:

Albania has made some progress in terms of its capacity to cope with competitive pressure and market forces within the EU. The energy sector, transport infrastructure and the use of digital communication have improved, but significant gaps remain compared to EU levels. Albania's competitiveness is hindered by a lack of entrepreneurial and technological know-how, low spending on R&D, as well as skills and education gaps.

Montenegro's economy proved vulnerable to shocks following its sharp recession in 2020 due to the health crisis. It remains moderately prepared to cope with competitive pressure and market forces within the EU, as its economy relies entirely on tourism, the quality of the education system and curricula preferences appear inadequate, while some efforts have been made to improve innovation capacities and to introduce EU standards at local companies thanks to public grants.

The **Republic of North Macedonia** has taken steps towards modernisation, by further improving fiscal transparency and liberalising the electricity market. Nevertheless, the country remains moderately prepared to cope competitive pressure and market forces within the EU, as the economy's spending on research and innovation remains below the EU average, private companies are reluctant to adopt new technologies and reforms of the education system and transports as well as digitalisation are slowly implemented.

Serbia has made some progress and is at a good level of preparation, as fiscal management improved and privatisation of state-owned banks advanced, but the private sector is still underdeveloped. Digitalisation has progressed, and public investment has continued to increase. The energy sector remains largely inefficient and highly polluting, although some regulatory reform steps have been taken that may have helped attract investments in the energy, energy efficiency, renewables and mining sectors.

Bosnia and Herzegovina has made limited progress in addressing the European Commission's recommendations mainly as regards education and is at an early stage of the accession process. Similar progress has been made by **Kosovo**, which is also at a similar stage, mainly improving road infrastructures and the digitalisation of the economy.

Finally, **Turkey** did not make any progress over the reporting period and has yet to fully implement the Commission's recommendations from 2020, therefore serious concerns persist. The government adopted a Human Rights Action Plan and an Economic Reform Package in March 2021, envisaging a number of actions, including the

13 European Commission (2021), "Progress on Meeting the Economic Criteria for EU Accession, The EU Commission's 2021 Assessments", Institutional Paper 161, November.

14 Bank of Greece, *Monetary Policy – Interim Report 2021*, December 2021, Section II (in Greek).

strengthening of specialised courts and reviewing public procurement legislation. Spending on research and innovation continues to grow, but falls significantly short of the government's target, while progress has been made in the development of the renewable energy sector.

Concluding remarks

EU enlargement and the implementation of reforms by candidate and potential candidate countries with a view to their smooth integration into the EU is an ongoing and long process that brings qualitative and quantitative benefits. The EU Member States have reaffirmed their commitment to this process and support these countries by establishing cooperation programmes, under which they provide resources via a wide variety of channels. For a given EU Member State, its involvement in such programmes is of undeniable importance, as it offers opportunities to share know-how, tools and best practices; for the beneficiaries, the usefulness of the programmes is clearly reflected in the progress made by each country, as assessed in the recently published European Commission reports. The Bank of Greece, for its part, supports this process and has been participating in several cooperation programmes and providing expertise in specialised areas.

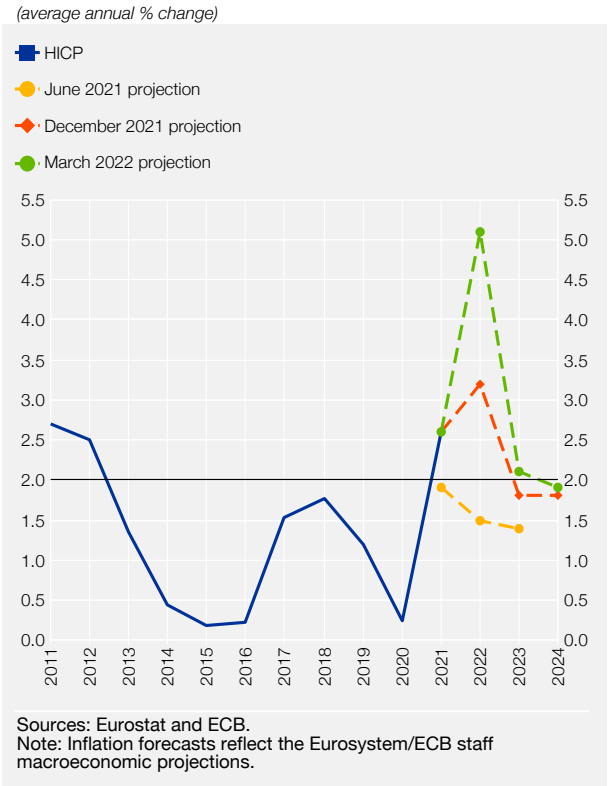
III THE SINGLE MONETARY POLICY IN THE EURO AREA

With the reopening of the economy, which was made possible thanks to the roll-out of vaccines from late 2020 onwards, GDP recovery in the euro area gained additional momentum in 2021. At the same time, a rise in inflation was observed, which proved more persistent than initially expected. This was due, among other things, to rising energy prices and to aggregate demand and supply mismatches owing to product and labour shortages. Nevertheless, up until its February 2022 meeting, the Governing Council of the ECB was assessing that headline inflation would fall short of the 2% target in 2023 and 2024 (see Chart III.1). At its meeting of 10 March 2022, the Governing Council, having also taken into account a first assessment of the economic consequences from the Russian invasion of Ukraine, considered that it was increasingly likely that inflation would stabilise around the 2% target over the medium term and decided to further reduce net asset purchases.

1 OVERVIEW OF DEVELOPMENTS AND PROSPECTS[1]

In early 2021, the Governing Council of the ECB stressed that activity in the manufacturing sector held up well. However, services sector activity, despite an improvement relative to the first wave of the pandemic, remained very weak, as COVID-19 containment measures had tightened once again. Inflation was then very low, against a background of weak aggregate demand and significant slack in labour markets. Indicators of inflation expectations also stood at very low levels. The Governing Council estimated that underlying price pressures would remain subdued owing to weak demand, notably in the travel-related sectors, low wage pressures and the appreciation of the euro exchange rate. It underlined that vaccination would contribute to a gradual resolution of the health crisis, but anticipated that, once the impact of the pandemic had faded, inflation would re-surge over the medium term, supported by the accommodative single monetary policy and expansionary fiscal policies. The Eurosystem's accommodative monetary policy has had a favourable effect on the cost and the availability of bank credit, as reported by banks and enterprises in field surveys (see Boxes III.2 and III.3).

Chart III.1 Euro area inflation (2011 - 2024)



Sources: Eurostat and ECB.
Note: Inflation forecasts reflect the Eurosystem/ECB staff macroeconomic projections.

In March 2021, the Governing Council noted that inflation had picked up since the start of the year on account of some transitory factors, which were expected to fade out in early 2022. How-

1 The cut-off date for information and data used in this chapter is 24 March 2022.

ever, it predicted that underlying price pressures would increase somewhat that year, due to supply constraints and an anticipated recovery in domestic demand. Nevertheless, inflation was expected to remain below the desired levels for a number of years. In view of this, preserving favourable financing conditions in the euro area economy at least until the end of the pandemic was essential.

In around mid-2021, the Governing Council of the ECB expected growth to continue improving strongly in the second half of 2021, as progress in vaccination programmes in Member States allowed the lifting of containment measures. In late July 2021, forward guidance on key interest rates was revised in line with the single monetary policy strategy review and it was confirmed that a persistently accommodative monetary policy stance would be maintained to meet the inflation target. The target was now set at 2% (annually) and was characterised as symmetric. It was also underlined that the Eurosystem's policy rates had been close to their effective lower bound, while the medium-term outlook for inflation was still well below the 2% target.

In its forward guidance on possible future monetary policy measures, the Governing Council announced that key interest rates would remain at their present or lower levels. Interest rate hikes were not intended until, among other things, (a) inflation reached 2% well ahead of the end of the two-to-three-year projection horizon[2] and (b) realised progress in underlying inflation was sufficiently advanced to be consistent with headline inflation stabilising at 2% over the medium term. The Governing Council explained that this might imply a transitory period in which inflation was moderately above target, in the context of the Eurosystem's monetary policy strategy review (see Box III.1).

In September 2021, the ECB Governing Council stressed that, with more than 70% of European adults fully vaccinated, the economy had largely reopened. Manufacturing was performing solidly, but was now faced with shortages of materials and equipment.

Economic activity had been moderating somewhat towards the end of the year, as labour shortages were also holding back production, mainly of manufactured goods. Suppliers' delivery times were lengthened, while transport and energy costs had risen sharply. The bottlenecks were expected to persist for some time and ease in the course of 2022. Moreover, the latest pandemic wave and the emergence of the Omicron variant had prompted some countries to re-introduce tighter restrictions, which could weigh on economic growth.

The upward trend in inflation was estimated to persist for longer than initially envisaged, with long-term expectations moving closer to 2% than previously. Furthermore, it was noted that, on top of crude oil, natural gas and electricity prices, demand outpacing supply also added to inflationary pressures, pushing upwards the prices of durable goods and of those consumer services that had recently reopened.

The Governing Council expected inflation to remain elevated in the near term and start declining during 2022. The projections for average annual inflation were revised upwards, yet headline inflation was expected to settle below 2% in the later years of the projection horizon.

The pandemic has shown that, under stressed conditions in financial markets, flexibility in the design and conduct of outright asset purchases by the Eurosystem has helped to counter the impaired transmission of monetary policy. With this in mind, the Governing Council took the following decisions:

2 The forecast horizon includes the current year and the following two years, except for the December rounds of projections that include the current year and the three subsequent years.

1. Net asset purchases under the pandemic emergency purchase programme (PEPP) would be scaled down initially and discontinued at end-March 2022. The reinvestment horizon for the PEPP was extended to until at least the end of 2024.

2. PEPP reinvestments would be adjusted in the event of renewed market fragmentation related to the pandemic in the euro area.

3. This would include the Eurosystem's ability to purchase bonds issued by the Hellenic Republic over and above rollovers of redemptions, in order to avoid an interruption of purchases in that jurisdiction while the Greek economy was still recovering from the fallout of the pandemic.

4. Net purchases under the PEPP would also be resumed, if necessary, to counter negative shocks related to the pandemic.

5. Monthly net purchases under the asset purchase programme (APP) would double in the second quarter of 2022. These purchases would then be reduced and from the fourth quarter of 2022 onwards their pace would return to 2021 levels.

At the beginning of this year, the Governing Council underlined that factors restraining production and consumption in the euro area would gradually ease, creating conditions for a strong economic recovery in the course of 2022. It also pointed out that rising food prices had also contributed to higher inflation in recent months. It noted that the upward trend in prices tended to become broad-based, affecting a growing number of goods and services to an increasing extent, reiterating that inflation would remain high in the Monetary Union for longer than previously expected, but in the course of 2022 it would start declining.

At its most recent meeting (10 March 2022), the Governing Council of the ECB stated that the Russian invasion of Ukraine was a watershed for Europe and expressed its full support to the people of Ukraine. It also made clear that it would ensure smooth liquidity conditions and implement the sanctions against Russia decided by the European Union and Member States' governments. As is known, some of these sanctions involve the exclusion of several Russian banks from the SWIFT system, the role of which is analysed in Box III.4.

It was assessed that the Russia-Ukraine war would have a material impact on economic activity and inflation. On the other hand, it was stressed that at the onset of the war the underlying conditions for the euro area economy were undoubtedly solid and there was considerable support from economic policies. Yet, inflation once again exceeded the expected levels, as the surge in energy prices was unanticipated. The econometric projections for average annual inflation and its core have also been revised upwards, with various measures of long-term inflation expectations now standing at 2%. More generally, the Governing Council of the ECB judges that inflation is now all the more likely to stabilise at its 2% target over the medium term (see Chart III.1).

Against this backdrop, it decided to further reduce the Eurosystem's net asset purchases under the APP. In addition, the Governing Council of the ECB complemented its forward guidance as follows:

(1) Net purchases under the APP will be concluded in the third quarter of 2022 if the incoming data support the expectation that the medium-term inflation outlook will not weaken (even after the end of its net asset purchases). If the medium-term inflation outlook changes and if financing conditions in the euro area become inconsistent with further progress towards the 2% inflation target, the schedule for net asset purchases under the APP in terms of size and/or duration will be revised.

(2) Any adjustments to the key ECB interest rates will take place gradually after the end of net asset purchases under the APP. For the time being, key interest rates are expected to remain at their present levels until inflation is estimated to have reached 2% well ahead of the end of its projection horizon and durably for the rest of the projection horizon. It should also be assessed that realised progress in underlying inflation is sufficiently advanced to be consistent with inflation stabilising at 2% over the medium term.

Moreover, in late March 2022, the possibility (as part of the policy response to the pandemic in place since 2020) to accept Greek government bonds (GGBs) as eligible collateral in Eurosystem refinancing operations was extended, for at least as long as reinvestments in GGBs under the PEPP continue.

The Governing Council of the ECB also announced that it reserves the right to deviate from credit rating agencies' ratings if warranted.

On the other hand, it was announced that the collateral easing measures introduced in April 2020 to facilitate the availability of eligible collateral for Eurosystem counterparties would be gradually phased out in three steps (up until early 2024).

Turning to the direct effects of the Eurosystem's money market interventions, short-term interest rates remained very low and negative throughout 2021 and declined further. Finally, as regards monetary and credit developments in 2021, monetary dynamics in the euro area slowed during the year, but remained strong. The growth rate of loans to firms declined markedly, but picked up in the last few months of the year, whereas the growth rate of loans to households strengthened overall, mainly reflecting developments in housing loans.

2 THE SINGLE MONETARY POLICY: DESIGN AND IMPLEMENTATION

At its meeting of 21 January 2021, the Governing Council of the ECB noted that the global economic recovery continued towards the end of 2020. In the euro area, manufacturing output held up well, but services sector activity, despite an improvement relative to the first wave of the pandemic, remained very weak, as COVID-19 containment measures had tightened once again (see Chart III.2). The Governing Council considered that favourable financing conditions, an expansionary fiscal stance and the expected lifting of containment measures would lead to a rebound in economic activity over the medium term. It underlined that the roll-out of vaccines, which in some Member States had already started in December 2020, would contribute to a gradual resolution of the health crisis. However, it warned that, despite vaccinations, further serious risks to public health and the economic outlook should not be ruled out.

It was noted that inflation was very low in the context of insufficient aggregate demand and significant slack in labour and product markets. The Governing Council expected a rise in headline inflation owing to energy price dynamics and the reversal of the VAT rate cut in Germany. However, the Governing Council estimated that underlying price pressures would remain subdued owing to weak demand, notably in the travel-related sectors, muted wage growth and the appreciation of the euro. The Governing Council considered that, once the impact of the pandemic had faded, inflation would rebound over the medium term, supported by the accommodative single monetary policy and expansionary fiscal policies.

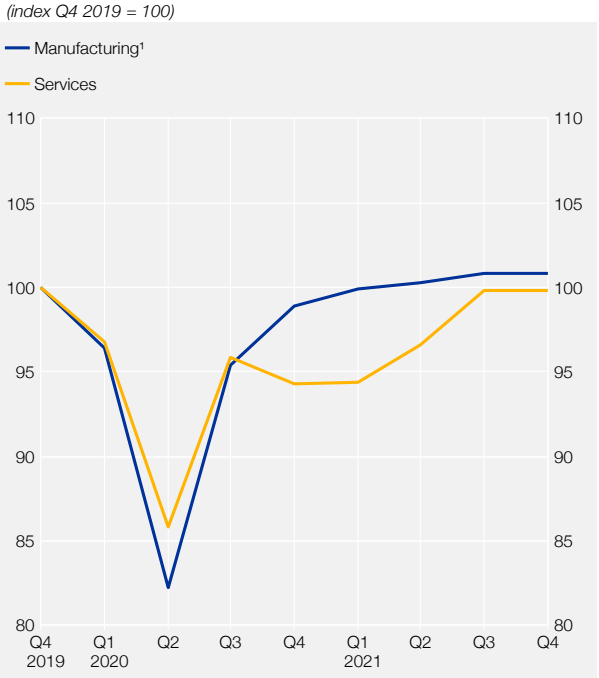
At its next meeting on 11 March 2021, the Governing Council noted that the rebound in global demand and additional fiscal measures adopted were supporting economic activity in the Monetary Union. On the other hand, the spread of the pandemic still persisting in early 2021, the emergence of virus variants and the associated tightening of containment measures were weighing on GDP growth in the short term.

Rising inflation since the beginning of the year was attributed to temporary factors and higher energy prices. It was stressed that inflation expectations remained at very low levels, although the market-based indicators had continued to rise gradually. Such effects could be expected to fade out of inflation rates in early 2022. The Governing Council expected underlying price pressures to increase due to supply constraints and an assumed recovery in domestic demand. It also assessed that inflation would fall short of its aimed level for some years, which made it necessary to preserve favourable financing conditions in the euro area economy until at least the end of the pandemic.

Furthermore, the Governing Council of the ECB noted that yields in securities markets had increased since early 2021. It saw risks of a premature tightening of financing conditions for all sectors of the economy, which had to be countered. To that end, it decided to scale up the pace of PEPP purchases over the second quarter of 2021 compared with the first few months of the year.

Chart III.2 Value added in the manufacturing and services sectors in the euro area (Q4 2019 - Q4 2021)

(index Q4 2019 = 100)



Source: Eurostat.
1 Excluding construction.

At its meeting of 10 June 2021, the ECB Governing Council projected that economic growth would accelerate markedly in the second half of 2021 as containment measures would be lifted, given the rapid progress with vaccination programmes in Member States. The observed pick-up in headline inflation was due to higher energy prices, coupled with an increase in non-energy industrial goods inflation.

Possible future monetary policy measures are outlined in the forward guidance announced by the Governing Council of the ECB. Throughout 2020 and up until mid-2021, forward guidance included that (1) the key interest rates of the Eurosystem would in principle remain unchanged, but further rate cuts could not be ruled out; (2) net asset purchases under the APP would end shortly before the Eurosystem started raising the key interest rates; and (3) the Eurosystem would continue to reinvest the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it started raising the key interest rates. Similarly, (4) PEPP reinvestments would continue until at least the end of 2023; and (5) the future roll-off of the PEPP portfolio would be managed to avoid interference with the appropriate stance of the single monetary policy.

At its meeting of 22 July 2021, the Governing Council of the ECB adjusted its forward guidance to reflect the outcomes of the single monetary policy strategy review, which had just been unveiled at the time. It also confirmed that monetary accommodation would be maintained on a persistent basis in order to achieve the inflation target. This target was now set at 2% (annually) –instead of "below, but close to 2%"– and was characterised as symmetric, in the sense that negative and positive deviations from the target are considered as equally undesirable. It was underlined that the key interest rates of the Eurosystem were near their effective lower bound, while a shortfall in the medium-term inflation outlook relative to the 2% target was projected.

In the light of the above, it was confirmed that key interest rates would remain at their present or lower levels. A rate lift-off should not be expected, first, until inflation was judged to have

reached 2% well ahead of the end of the approximately three-year projection horizon. The second condition that should be met before the Eurosystem raised interest rates was a high degree of confidence that headline inflation had reached its target on a durable basis (at least over the projection horizon). Third, it must be possible to establish that underlying inflation was sufficiently advanced to be consistent with headline inflation stabilising at 2% over the medium term. Furthermore, the Governing Council explained that raising policy rates in line with the above conditions implied the possibility of a short transitory period in which headline inflation could be moderately above target.

The Governing Council of the ECB acknowledged, among other things, at its meeting on 22 July 2021 that many firms and households had taken on more debt to survive the pandemic fallout, which made their financial soundness potentially vulnerable to a deterioration in the macroeconomic outlook. But if the financial health of these agents were to be compromised, the quality of banks' assets would also be adversely affected, which highlighted the need to avert financial amplification between borrowers' cash flow constraints and a worsening of banks' balance sheets and hence lending capacity.

At its meeting of 9 September 2021, the ECB Governing Council noted that, with more than 70% of European adults fully vaccinated, the economy had largely reopened, allowing consumers to spend more and businesses to increase production. With the easing of containment measures, the services sector was benefiting considerably from people returning to shops and restaurants and from the rebound in travel and tourism. Manufacturing was performing strongly, even though production was held back by shortages of materials and equipment. On the other hand, it was assessed that the global spread of the Delta variant could yet delay the full reopening of the economy and the recovery in global trade.

The Governing Council of the ECB judged that the observed rise in headline inflation would be temporary. Higher headline inflation was due, among other things, to base effects caused by the reversal of the temporary VAT reduction in Germany or by the postponement of seasonal sales in the summer of 2020 relative to other years, as well as to the aforementioned shortages of materials and equipment. Underlying inflationary pressures had already edged up and were expected to become stronger as the economy recovered further, supported by the single monetary policy. The increase in underlying inflation was expected to be only gradual since it would take time for the economy to return to operating at full capacity and wages were therefore expected to grow only moderately. The macroeconomic projections that had been submitted to the Governing Council incorporated a slight upward revision of the inflation outlook, but confirmed that in the medium term inflation would remain well below the 2% target.

On the basis of the above, it was decided to reduce the pace of net asset purchases under the PEPP in the coming months compared with the second and third quarters of 2021.

On 28 October 2021, the Governing Council of the ECB noted a deceleration in economic activity in the third quarter of 2021, as labour shortages were holding back production, mainly in the manufacturing sector. Suppliers' delivery times had lengthened, while transport and energy costs had surged abruptly. Both labour force participation and the hours worked in the euro area economy remained below their pre-pandemic levels. Private consumption was increasing, although higher energy prices might reduce purchasing power in the months to come.

The Governing Council of the ECB acknowledged that the upswing in headline inflation would last longer than originally anticipated and stressed that inflationary pressures were fuelled, among other things, by higher oil, gas and electricity prices.

At its meeting of 16 December 2021, the ECB Governing Council noted that economic activity was expected to pick up again and strongly in the course of 2022. The labour market was im-

proving, with more people in jobs and fewer in job retention schemes. Of course, the latest pandemic wave and the emergence of the Omicron variant had led to the reintroduction of tighter containment measures in some Member States, which could slow down economic growth. The public health crisis persisted, but vaccination campaigns, with booster doses, had intensified. Reference was made that society had become better at coping with the pandemic waves and the resulting constraints, thereby reducing the impact of COVID-19 on the economy.

The Governing Council underlined that inflation had risen sharply, owing to soaring energy prices and mismatches between supply and demand in some sectors. Such mismatches pushed upwards the prices of durable goods and those consumer services that had recently reopened following the lifting of some containment measures. The Governing Council expected that inflation would remain elevated in the near term, to ease in the course of 2022. The inflation projections had again been revised upwards on an annual average basis, but headline inflation was still expected to settle below the 2% target for the outer years of the projection horizon (2021: 2.6%; 2022: 3.2%; 2023: 1.8%; 2024: 1.8%). Shortages of materials, equipment and labour were expected to persist for some time, but were likely to ease during 2022. Over time, the gradual return of the economy to full capacity and further improvements in the labour market were anticipated to support faster growth in wages. This development as well as the fact that inflation expectations had moved closer to 2% in recent months would drive underlying inflation up further. In turn, stronger underlying inflation would contribute to stabilising headline inflation at the 2% target over the medium term.

The Governing Council of the ECB proposed a step-by-step reduction in the pace of the Eurosystem's asset purchases. At the same time, however, it underlined once again that monetary accommodation was still needed for inflation to stabilise at the 2% target over the medium term. It also stressed that, in view of the prevailing economic uncertainty, flexibility and optionality in the conduct of monetary policy had to be maintained. It was argued that, as the pandemic has shown, under stressed conditions in financial markets, flexibility in the design and conduct of the Eurosystem's asset purchases helped to counter the impaired transmission of monetary policy. Against this background, the following decisions were taken:

1. Net asset purchases under the PEPP would be scaled down in the first quarter of 2022 and discontinued at the end of March.

2. The reinvestment horizon for the PEPP would be extended until at least the end of 2024.

3. PEPP reinvestments would be scaled up in the event of renewed market fragmentation related to the pandemic in the euro area.

4. The Eurosystem would have the ability to purchase bonds issued by the Hellenic Republic over and above rollovers of redemptions, in order to avoid an interruption of purchases in that jurisdiction while the Greek economy was still recovering from the fallout of the pandemic.

5. Finally, net asset purchases under the PEPP would be resumed, if necessary, to counter negative shocks related to the pandemic.

6. The pace of monthly net asset purchases under the APP would double in the second quarter of 2022 at €40 billion. It would then be reduced to €30 billion in the third quarter of 2022 and return to €20 billion from the fourth quarter of 2022 onwards. Asset purchases would be maintained at that pace for as long as necessary to reinforce the accommodative impact of the policy rates.

Turning to forward guidance, the only shifts in the communication of 22 July 2021 were that (a) the exact timing of termination of net asset purchases under the PEPP was determined and (b) the reinvestment horizon for the PEPP portfolio was extended until at least the end of 2024.

The Governing Council of the ECB once again expressed, as at all its previous meetings in 2021, its readiness to adjust all the available monetary policy instruments, as appropriate, to ensure that inflation stabilised at the desired levels over the medium term.

As noted in the periodic assessment of the interrelation between monetary policy and financial stability, accommodative monetary policy supported economic growth in the euro area and thereby corporate balance sheets in both the non-financial and financial sectors, countering risks of market fragmentation in the Monetary Union. However, it was stressed that close monitoring of the impact of accommodative monetary policy on real estate and financial markets was needed, as in the medium term they presented evidence of vulnerabilities which had intensified recently. The Governing Council clarified that macroprudential rather than monetary policy was seen as the first line of defence in preserving financial stability and addressing medium-term vulnerabilities.

At its meeting of 3 February 2022, the Governing Council of the ECB underscored that factors hampering production and consumption in the euro area would start to ease, creating conditions for a strong recovery over the course of 2022. It also noted that inflation had increased considerably in the past few months, owing to rising energy costs, pushing up prices across many sectors, as well as higher food prices. This development reflected seasonal factors, but also higher fertiliser prices and shipping costs. Price gains had become more widespread, with the prices of a large number of goods and services having increased markedly. Most measures of underlying inflation had risen over recent months, although pandemic-related factors were also playing a role and therefore their effects could be reversed in the future. Finally, market-based measures of inflation expectations firmly suggested over the preceding weeks that inflation was expected to settle just below 2% in the long run. Survey-based measures of inflation expectations hovered around 2%. The Governing Council reiterated that inflation would remain elevated in the Monetary Union for longer than previously expected, but it would subside in the course of 2022.

At its meeting of 10 March 2022, the Governing Council of the ECB stated that the Russian invasion of Ukraine was a watershed for Europe and expressed its full support to the people of Ukraine. It also made clear that it would ensure smooth liquidity conditions and implement the sanctions against Russia decided by the European Union and Member States' governments. The Governing Council stressed that it would take whatever action was needed to fulfil the ECB's primary objective to pursue price stability and to safeguard financial stability.

It was assessed that the Russia-Ukraine war would have a material impact on economic activity and inflation. First, energy and commodity prices would remain high; second, global trade would be disrupted; and, third, confidence would be dented. The size of these effects would depend on how the conflict evolved, on the impact of already adopted sanctions and on possible further measures. At the same time, it was stressed that at the onset of the war the underlying conditions for the euro area were undoubtedly solid, helped by ample policy support. In particular, the negative impact of the Omicron variant had faded, while supply bottlenecks were showing some signs of easing and labour market conditions continued to improve. Of course, inflation once again exceeded the expected levels, as energy prices had surprised to the upside. According to the latest projection exercise of March 2022, average annual inflation was also revised upwards to 5.1% for 2022, 2.1% for 2023 and 1.9% for 2024. The corresponding projections for core inflation (i.e. excluding food and energy prices) are 2022: 2.6%; 2023: 1.8%; and 2024: 1.9%. Besides, several indicators of long-term inflation expectations were at around 2%. Overall, the ECB Governing Council is assessing that it is increasingly likely for inflation to stabilise around its 2% target over the medium term.

On the basis of the above data, the Governing Council decided to further reduce the Eurosystem's net asset purchases under the APP. Namely, net purchases will amount to €40 billion in April

2022, €30 billion in May and €20 billion in June. Furthermore, the Governing Council of the ECB made the following adjustments to its forward guidance on future monetary policy measures:

(1) Net asset purchases under the APP will be concluded in the third quarter of 2022 if the incoming data support the expectation that the medium-term inflation outlook will not weaken (even after the end of net purchases). If the outlook deteriorates, or if financing conditions in the euro area become inconsistent with further progress towards the 2% inflation target, the schedule for net asset purchases under the APP in terms of size and/or duration will be revised.

(2) Any adjustments to the key ECB interest rates will take place gradually after the end of net purchases under the APP. The path for the policy rates will be determined by the forward guidance and by the strategic commitment of the ECB Governing Council to stabilise inflation at 2% over the medium term. Accordingly, the policy rates are expected to remain at their present levels until inflation is judged to have reached 2% well ahead of its projection horizon and durably for the rest of it. It must also be possible to establish that underlying inflation is sufficiently advanced to be consistent with headline inflation stabilising at 2% over the medium term.

At end-March 2022, the possibility (as part of the policy response to the pandemic in place since 2020) to accept Greek government bonds (GGBs) as eligible collateral in Eurosystem refinancing operations was extended, for at least as long as reinvestments in GGBs under the PEPP continue.

The Governing Council of the ECB also announced that it reserves the right to deviate from credit rating agencies' ratings if warranted.

At the same time, it was announced that the collateral easing measures introduced in April 2020 to facilitate the availability of eligible collateral for Eurosystem counterparties will be gradually phased out in three steps (up until early 2024). In the first step, starting in early July 2022, (a) the temporary reduction in collateral valuation haircuts will be halved; (b) the eligibility of marketable assets whose credit ratings deteriorated below the minimum rating threshold after early April 2022 will no longer be maintained; (c) the maximum share of unsecured debt instruments issued by any single other banking group in a credit institution's collateral pool will be lowered; and (d) the temporary easing of certain technical requirements for the eligibility of additional credit claims (ACC) will be phased out.

Box III.1

THE NEW MONETARY POLICY STRATEGY OF THE ECB

In July 2021, the Governing Council of the European Central Bank (ECB) concluded the review of the monetary policy strategy of the Eurosystem.[1] The aim of the new strategy is to ensure that monetary policy remains fit for purpose both today and in the future, in pursuit of the Eurosystem's primary objective of price stability, as established in Article 127(1) of the Treaty on the Functioning of the European Union. Price stability supports economic growth and job creation, promotes social welfare and cohesion, and preserves the value of the euro.

During the review, which started in January 2020, the Governing Council reflected upon the profound changes in the global economic landscape that had taken place over the 18 years since the previous strategy review

1 For a more comprehensive and detailed analysis, see Argiri, E. and I. Skotida (2021), "The 2021 review of the monetary policy strategy of the Eurosystem: an economy of forces", Bank of Greece, *Economic Bulletin*, No. 54 (https://www.bankofgreece.gr/Publications/oikodelt202112.pdf).

in 2003. Such changes include the fall in the natural rate of interest, which limits the scope for conventional interest rate policy by central banks, as well as slowing productivity growth and a declining labour supply due to population ageing. In addition, the new strategy took into account the challenges for the conduct of monetary policy posed by climate change, globalisation, digitalisation and further structural changes in the financial landscape.

The review delved into all aspects of monetary policy. During the review process, comprehensive analyses and studies were carried out by separate Eurosystem work streams, to which Bank of Greece staff also contributed. The output of this work has been published in a series of ECB Occasional Papers,[2] which look at the following key topics: price stability objective; inflation measurement; framework for economic, monetary and financial analysis; macroprudential policy and financial stability; climate change; digitalisation; fiscal and monetary policy interactions; globalisation; employment, productivity and innovation; financial system structure; inflation expectations; and the communication of monetary policy decisions.

The new strategy lays down the key principles that guide the Governing Council in steering the appropriate monetary policy stance with the aim to achieve its primary objective of price stability. At the same time, the strategy provides a clear anchor for communicating with the public and for steering expectations of consumers and businesses about the future price level, allowing them to make well-informed economic decisions.

The key elements of the new strategy are the following:

- Price stability is best maintained by aiming for an inflation rate of 2% over the medium term. Compared with the previous formulation that aimed for inflation levels of "below, but close to, 2%", the new approach provides clarity that the 2% level should not be interpreted as a ceiling on the inflation aim, but as the ECB's symmetric target. This means that both negative and positive deviations of inflation from its target are equally undesirable.

- A wider positive inflation buffer is sought, so as to enlarge the space available for monetary policy easing through the conventional interest rate policy tool in the event of deflationary pressures and avert the incidence of effective lower bound episodes. The facilitation of macroeconomic adjustment across euro area countries, the presence of downward nominal wage rigidities and the measurement bias of inflation are further factors that call for the adoption of a wider inflation buffer.

- The Harmonised Index of Consumer Prices (HICP) has been reconfirmed as the appropriate measure for assessing the achievement of the price stability objective. Moreover, it is acknowledged that the inclusion of owner-occupied housing costs in the HICP could better capture inflation relevant for households. The Governing Council has therefore recommended a roadmap to Eurostat, while acknowledging that this process will require multi-year preparatory work. In the meantime, the Governing Council will complement the wider set of inflation indicators that it typically looks at with measures that include initial estimates of owner-occupied housing cost.

- When the economy operates close to the effective lower bound of interest rates, this requires especially forceful or persistent monetary policy measures to avoid negative deviations from the inflation target of 2% becoming entrenched. This may also imply a transitory period in which inflation is moderately above the 2% target.

- The set of policy rates is the primary monetary policy instrument. Additional monetary policy tools, which during past crises contributed to overcoming the effective lower bound constraint, will continue to be implemented by the ECB, where appropriate. Such tools are forward guidance, asset purchase programmes and longer-term refinancing operations. The ECB's monetary policy will continue to respond flexibly to new challenges and consider employing new policy instruments, if warranted.

2 See the ECB webpage Strategy review (https://www.ecb.europa.eu/pub/html/strategy_review.en.html).

- The medium-term orientation of monetary policy allows the Governing Council to react flexibly and with a forward-looking perspective in making its monetary policy decisions, but also to cater for other considerations relevant to the pursuit of price stability. It is thereby acknowledged that the transmission of monetary policy to the economy and to inflation is subject to considerable time lags and that the appropriate monetary policy response to a deviation of inflation from its target depends on the prevailing conditions, as well as on the origin, size and persistence of such deviation.

- The decisions on monetary policy are based on the assessment of all relevant factors, while drawing at the same time on two interdependent types of analysis: the economic analysis, which focuses on economic developments and contains the macroeconomic projections; and the monetary and financial analysis, which examines monetary aggregates and financial indicators, placing emphasis on the functioning of the transmission mechanism of monetary policy and assigning a specific role to financial stability in pursuit of the Eurosystem's primary objective.

- Without prejudice to its primary objective of price stability, the Governing Council takes into consideration in its monetary policy decision making the objectives of the European Union for balanced economic growth, full employment and social welfare. Furthermore, it safeguards financial stability and contributes to mitigating the impact of climate change.

- Climate change constitutes a significant challenge for price stability via its effects on the structure and dynamics of the economy and the financial system. Within its mandate and in line with the EU's climate goals, the Governing Council takes into account the implications of climate change and the transition to a carbon neutral economy for its monetary policy making. Moreover, it has committed to an ambitious climate-related action plan. With this plan, the Governing Council aims to adapt the operational framework of its monetary policy in relation to environmental sustainability disclosures, risk assessment methodology, corporate sector asset purchases and collateral framework.

- The effectiveness of monetary policy must continue to be complemented with targeted and coordinated fiscal measures to achieve macroeconomic stabilisation, especially when nominal interest rates are close to their effective lower bound. The Governing Council recognises the importance of countercyclical fiscal policies during deep recessions, as well as the need to ensure public debt sustainability.

The new strategy has been reflected in the reformulated communication with the public, as the communication of the monetary policy decisions was adapted to enhance citizens' understanding of and trust in the ECB's actions. In a constantly changing environment, the monetary policy strategy needs to be regularly reviewed, in order to effectively address any emerging new challenges. Against this background, the next review is expected to take place in 2025.

The reformulated strategy provides a solid framework within which the Governing Council determines the monetary policy of the euro area, with a view to responding to shocks in the most appropriate way, maintaining price stability and contributing to robust and sustainable growth in the euro area.

3 THE EURO AREA MONEY MARKET

As a result of the Eurosystem's net asset purchases and targeted longer-term refinancing operations (TLTROs), excess liquidity in the banking system increased further in 2021, reaching an average of EUR 4,119 billion, compared with EUR 2,519 billion in 2020.

The value of securities acquired under the various asset purchase programmes averaged around EUR 4,200 billion in 2021, compared with around EUR 3,080 billion in 2020. Purchases under the PEPP represented the largest increase across the ECB's asset purchase programmes, followed by the public sector purchase programme (PSPP) and the corporate sector purchase pro-

gramme (CSPP). However, the share of the asset purchase programmes (PEPP and APP) in total liquidity provided to Eurosystem counterparties declined on average to 67% in 2021, from 71% in 2020. The remainder was provided through refinancing operations (TLTROs, PELTROs, LTROs and MROs) and amounted to 33%, against 29% in 2020. This development mainly reflects the high volume of liquidity provided through TLTRO-III operations, in particular that of March 2021, which at end-December 2021 amounted to around EUR 2.2 trillion.

With regard to credit institutions' deposits in their current accounts with the Eurosystem, excess reserves that are exempted from the negative deposit facility rate under the two-tier system accounted for 22% of total excess liquidity in December 2021, compared with 25% at end-2020, while non-exempted reserves rose to 67% from 58%, respectively, in line with increased total liquidity in the euro area banking system.

Owing to the aforementioned developments in excess liquidity, short-term money market rates remained at very low (negative) levels in 2021, overall following a downward path that continued into the first two months of 2022. Namely, the €STR in the unsecured market segment (and consequently the EONIA) averaged -0.568% in 2021, down from -0.547% in 2020. This fall is also partly due to the forward guidance of 22 July 2021 on the future path of the Eurosystem's key interest rates (see Section 1 above). In the secured market, i.e. for repurchase agreements, which accounts for the bulk of euro area money market transactions, the drop in interest rates was slightly more pronounced than in the unsecured market. The GC Pooling ECB EXT rate was broadly close to the deposit facility rate and declined on average to -0.501% in 2021, from -0.475% in 2020.

Nevertheless, the €STR forward curve across shorter maturities moved up in September and October, suggesting expectations of a possible interest rate hike, although this was characterised by considerable uncertainty, as also captured by heightened money market volatility over that period. Towards the end of December 2021, the slope of the €STR forward curve steepened significantly, incorporating renewed expectations of a rate lift-off earlier than previously expected.

4 MONETARY DEVELOPMENTS IN THE EURO AREA

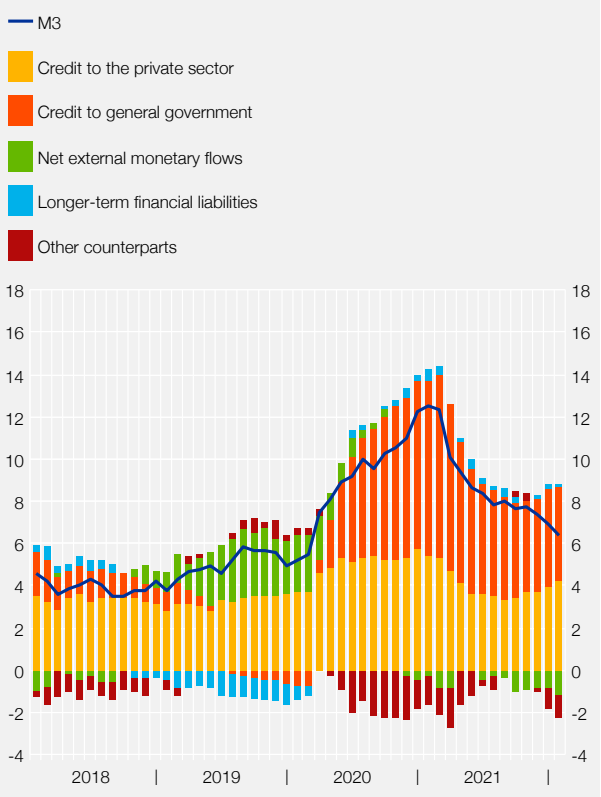
Despite declining in 2021, monetary dynamics remained above pre-pandemic levels throughout the year.

In particular, the annual growth rate of broad money (M3) peaked in January 2021 (12.5%), driven by the liquidity that firms and households had accumulated during the first year of the pandemic, mainly as a result of fiscal and monetary policy support measures, but declined sharply thereafter (January 2022: 6.4%; December 2021: 6.9%; December 2020: 12.2%; see Chart III.3). The path of M3 largely reflects developments in the growth rate of the narrow aggregate M1 (January 2022: 9%; December 2021: 9.8%; December 2020: 15.6%) and particularly its most liquid components, whose opportunity cost remained relatively low.

Across M1 components, the annual growth rate of currency in circulation, after reaching an 11-year high in February 2021 (12.3%), owing to the increased cash demand that had been observed especially in the first months of the pandemic crisis, moderated thereafter, but remained almost twice as high as its average growth rate in 2016-19 (January 2022: 7.7%; December 2021: 7.7%; December 2020: 11.3%). However, the main driver of M1 growth continued to be overnight deposits held by firms and households (January 2022: 9.3%; December 2021: 10.2%; December 2020: 16.2%). The rise in overnight deposits was comparatively stronger in 2021 for non-financial corporations, as these had already started to build up liquidity buffers since 2020 to offset their decreasing cash flows due to the pandemic. Subsequently, with the reopening of the economy, their cash flows improved, but shortages were observed holding back production and investment in some sectors. Turning to households, the accumulation of deposits normalised further during

Chart III.3 M3 and its counterparts in the euro area (January 2018 - January 2022)

(annual % changes for M3 and contributions in percentage points for its counterparts)



Source: ECB.

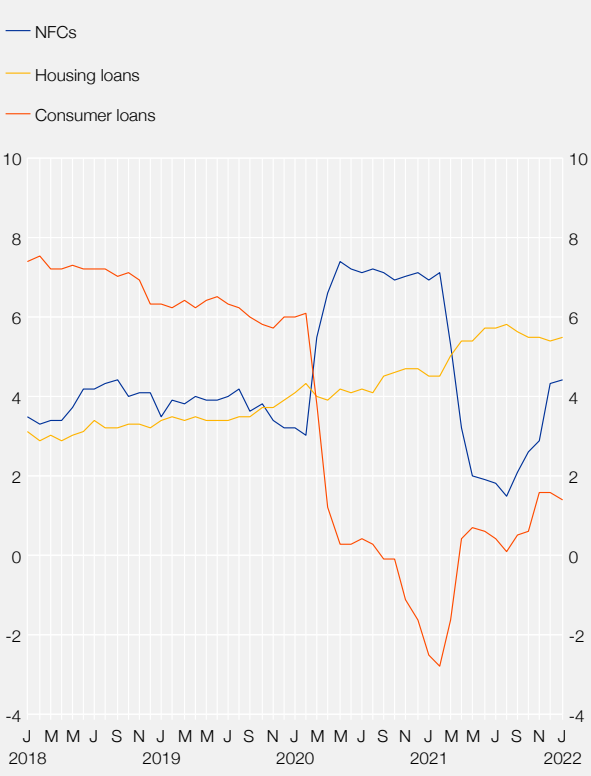
Credit to the private sector – through MFI loans to the private sector and MFI holdings of debt securities issued by the private sector (including the Eurosystem's purchases of non-MFI debt securities) – was another important contributor to M3 growth in the euro area. In more detail, the annual growth rate of loans to non-financial corporations moderated considerably between March and May 2021, as demand for loans weakened owing to the aforementioned build-up of liquidity buffers by firms, but also to the use of internal or alternative sources of finance. Towards the end of the year, bank lending to firms showed once again signs of recovery and the cumulative flow of loans in the fourth quarter of 2021 was significantly higher than in 2020 (January 2022: 4.4%; December 2021: 4.3%; December 2020: 7.1%; see Chart III.4).

the course of 2021, in line with the release of pent-up demand and the recovery in consumer spending after spring and summer, as support measures were gradually being withdrawn.

The largest contributor to broad money growth in 2021 and during the first months of 2022 was the increased liquidity provided through purchases of general government debt securities from domestic monetary financial institutions (MFIs),[3] reflecting almost entirely the Eurosystem's outright asset purchases (see Chart III.3). Other credit institutions (excluding central banks) in the euro area reduced their holdings of government bonds in 2021, which is partly associated with the reduced issuance of new bonds by Member States owing to the gradual withdrawal of fiscal support measures in response to the pandemic.

Chart III.4 Loans to non-financial corporations and households in the euro area (January 2018 - January 2022)

(annual % changes)



Source: ECB.

3 Euro area MFIs include the euro area national central banks and the ECB, which make up the Eurosystem, euro area credit institutions (as defined in accordance with the ECB's legal framework), as well as all other financial institutions whose business is to receive deposits and/or close substitutes for deposits from entities other than MFIs and to grant credit and/or invest in securities such as money market funds.

The growth rate of loans to households has picked up again since March 2021, remaining higher overall than before the pandemic (January 2022: 4.3%; December 2021: 4.2%; December 2020: 3.1%). The recovery was mainly driven by housing loans (January 2022: 5.5%; December 2021: 5.4%; December 2020: 4.7%). Consumer credit growth, which abruptly turned negative during the pandemic in line with shrinking consumption, weak consumer confidence and consumer loans' higher credit risk relative to housing loans, rebounded in the course of 2021, turning positive again from April onwards (January 2022: 1.4%; December 2021: 1.2%; December 2020: -1.6%), but remained relatively low (see Chart III.4).

Net external monetary flows had a slight dampening effect on M3 developments in 2021, as domestic investors rebalanced their portfolios towards foreign debt securities more than non-euro area residents did towards euro area debt securities (see Chart III.3). MFIs' longer-term financial liabilities[4] had a small positive effect on M3 growth overall, as longer-term market-based bank funding decreased on account of its substitution with liquidity provided at very favourable conditions through the TLTROs.

Supported by the monetary policy measures adopted during the pandemic and despite lingering divergences across Member States, borrowing costs in the euro area remained at historically low levels in 2021. The composite bank lending rate for loans to non-financial corporations averaged 1.5%, while the equivalent rate for housing loans to households stood at 1.3%, on average. The spread between bank lending rates on very small loans (of up to EUR 250,000) and large loans (above EUR 1 million) remained in 2021 close to the low levels it had reached in 2020 (2021: 75 basis points; 2020: 69 basis points; 2019: 96 basis points), suggesting that the policy measures were comparatively more beneficial to very small loans, which are assumed to be granted mainly to small and medium-sized enterprises.

4 Namely time deposits and debt securities with an original maturity of over two years and deposits redeemable at notice of up to three months.

Box III.2

FINANCING CONDITIONS FOR SMEs IN THE EURO AREA: INSIGHTS FROM THE SURVEY ON THE ACCESS TO FINANCE OF ENTERPRISES (SAFE)

The results of the last two rounds of the Survey on the Access to Finance of Enterprises (SAFE) show that the October 2020-March 2021 period (period "2020B") and the April-September 2021 period (period "2021A") saw a gradual normalisation of bank financing conditions for SMEs in the euro area. Initially, firms recorded a smaller increase in the availability of bank credit in 2020B, but this rose significantly in 2021A, supported by banks' willingness to provide credit, as well as by improved corporate solvency. For a third consecutive round, businesses reported that the public financial support measures taken by Member State governments to address the effects of the pandemic contributed to enhancing the availability of external financing. These developments reflect the effectiveness of the single monetary policy as well as of the economic policies adopted by Member States and European institutions with a view to cushioning the negative economic impact of the pandemic.

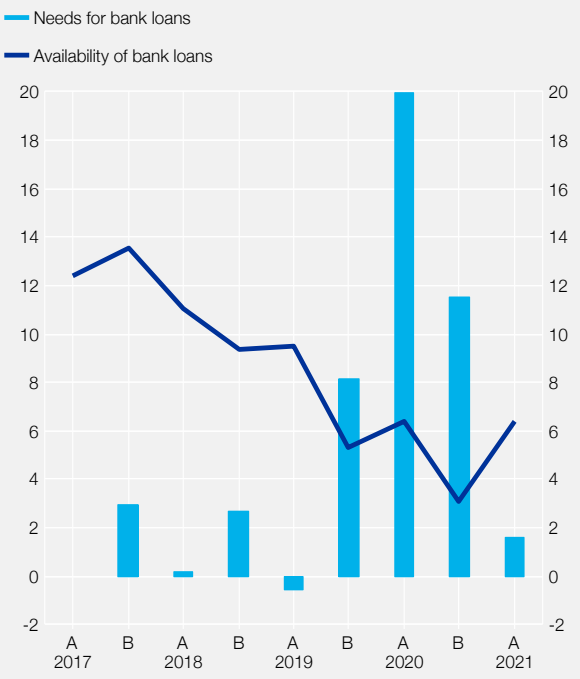
Results from the Survey on the Access to Finance of Enterprises (SAFE)

After a deterioration in 2020B, firms' access to external financing normalised in 2021A, as businesses reported higher positive net percentages[1] as regards the evolution of bank loan availability (2021A: 6%, against 2020B:

1 The results refer to net percentages of respondents, which are defined as the difference between the percentage of enterprises reporting that a given factor (e.g. availability of bank loans) has increased and the percentage of those reporting that it has declined.

Chart A Changes in the availability of bank loans and financing needs for euro area SMEs

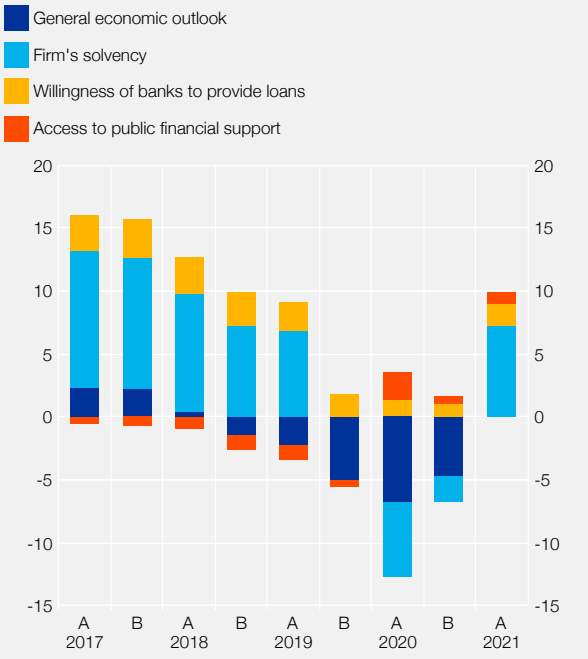
(in the corresponding six months,[1] net percentages of respondents[2])



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
1 The survey is conducted every six months and covers the periods of April-September (round A) and October-March (round B).
2 The net percentage is the percentage of firms reporting that a particular index (e.g. availability of bank loans) increased, less the percentage of firms reporting that the index decreased.

Chart B Factors that have an impact on the availability of external financing to euro area SMEs

(in the corresponding six months,[1] weighted net percentage of respondents[2])



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
1 The survey is conducted every six months and covers the periods of April-September (round A) and October-March (round B).

2 The change in the impact of each factor is described in terms of weighted net percentage of firms in order to facilitate comparisons between the evolution of the total impact of the factors and the change in the availability of sources of external financing (e.g. availability of bank loans). The weighted net percentage of firms is calculated by dividing the initial net percentage of firms with the number of factors (six). In addition, the percentage for "firm's solvency" is calculated as the sum of weighted net percentages of three factors: a) the firm's credit history, b) the firm's own capital, and c) the firm's outlook.

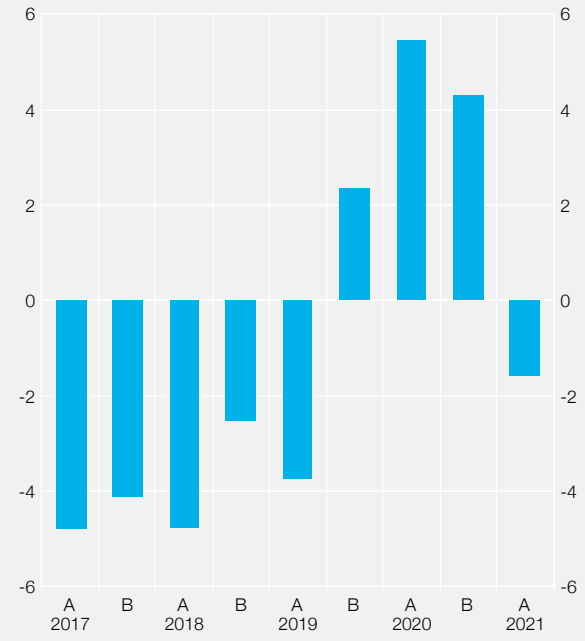
3%) (see Chart A) and leasing or hire-purchase[2] (2021A: 10%, against 2020B: 6%). In addition, following a stagnation in 2020B, companies reported an increase in the availability of credit lines or overdrafts in the most recent round of the survey (2021A: 5%, against 2020B: 0%) and trade credit (2021A: 7%, against 2020B: 0%).

As regards the factors that affect availability of external financing, businesses kept on assessing banks' willingness to provide credit as positive (2021A: 11% and 2020B: 6%) (see Chart B). In the most recent round of the survey, firms felt that changes in the general economic outlook had had no impact on their access to finance, whereas in the previous five iterations they had reported a significant negative impact.[3] Similarly, in the most recent round, the overall impact of the factors determining the solvency[4] of enterprises was positive, as opposed to the previous two reporting periods. In addition, contrary to past findings, for the third consecutive round, SMEs mentioned that the public financial support measures[5] supported the availability of external financing (2021A: 5%, 2020B: 4% and 2020A: 14%).

2 In the survey, leasing or hire-purchase is treated as a financing source which enables firms to obtain the use of a fixed asset (for example, vehicles or machinery) in exchange for regular payments, but without the immediate ownership of the asset.
3 Net negative impact means that the enterprises reporting that macroeconomic developments favourably affected the availability of external financing are less than those reporting a negative impact.
4 The percentage for "firm's solvency" is a sum of the net percentages of three factors: (a) firm's credit history; (b) firm's own capital; and (c) firm-specific outlook.
5 Access to the public financial support measures includes, *inter alia*, public co-financing or guarantee schemes for bank loans.

Chart C Changes in the composite external financing gap indicator reported by euro area SMEs

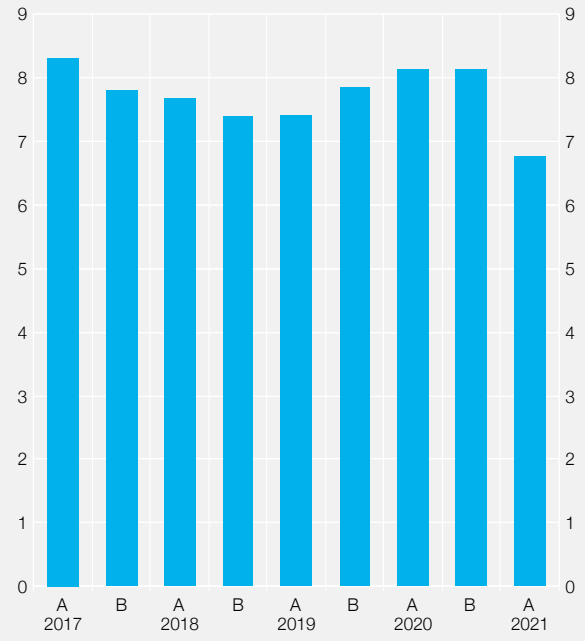
(in the corresponding six months,[1] net percentages of enterprises[2])



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
1 The survey is conducted every six months and covers the periods of April-September (round A) and October-March (round B).
2 The composite external financing gap indicator is calculated as the weighted average of the financing gaps (needs minus availability) for each of the five sources of external financing: a) bank loans, b) credit lines or bank overdrafts, c) trade credit, d) equity, and e) debt securities.

Chart D Change in the overall financing obstacles indicator for euro area SMEs

(in the corresponding six months,[1] sum of net percentages of respondents[2])



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
1 The survey is conducted every six months and covers the periods of April-September (round A) and October-March (round B).
2 The total financing obstacles indicator is calculated as the sum of the percentages of firms reporting loan applications that were rejected or loan applications for which only a limited amount was granted, and loan applications that resulted in an offer that was declined by the enterprise because the borrowing costs were too high or a decision not to apply for a loan for fear of rejection.

In the most recent round of the survey, companies reported a considerable moderation of their needs (i.e. demand) for bank loans (2021A: 2%, against 2020B: 12%) (see Chart A), as well as for credit lines or overdrafts (2021A: 4%, against 2020B: 10%). At the same time, businesses reported slightly smaller increases in their needs for trade credit (2021A: 7%, against 2020B: 8%) and leasing or hire-purchase (2021A: 9%, against 2020B: 10%).

The decrease in enterprises' external financing needs is also reflected in the simultaneous change in the composite external financing gap indicator (2021A: -2%, against 2020B: 4%) (see Chart C). At the same time, the overall financing obstacles indicator remained low (2021A: 7%, against 2020B: 5%) (see Chart D).

When asked about terms and conditions for bank financing, SMEs continued to report an increase in bank interest rates[6] (2021A: 4% and 2020B: 2%), while the percentage of SMEs reporting an increase in other financing costs, such as charges, fees and commissions, became even higher (2021A: 33% and 2020B: 28%).

6 Respondents were asked whether the level of interest rates on bank loans, overdrafts and credit lines increased.

Box III.3

EURO AREA BANK LENDING SURVEY (BLS)[1]

The latest rounds of the BLS provide evidence that the set of monetary policy measures employed by the ECB to mitigate the impact of the COVID-19 pandemic in 2021, and the corresponding policy responses by individual Member States, have contributed to a normalisation of euro area financial conditions.

Loan demand

At the beginning of 2021, BLS banks reported a net decline in firms' demand for loans[2] (Q1: -14%) (see Chart A), reflecting mainly the impact of measures taken by euro area governments in response to the coronavirus pandemic. Thereafter, firms' demand for loans was reported to have rebounded again in net terms (Q2: 12%; Q3: 8%; Q4: 18%). As regards the factors affecting firms' demand for loans, firms' higher debt refinancing/restructuring/renegotiation needs, as well as increased financing needs for fixed investment, inventories and working capital were reported as the main factors contributing to the observed rebound, while the low general level of interest rates contributed to a lesser extent (see Chart A).

Demand for housing loans developed positively over most of 2021 (Q1: -2%; Q2: 29%; Q3: 11%; Q4: 8%), mainly supported by improving consumer confidence, housing market prospects and the low general level of interest rates and, to a lesser degree, higher demand for household debt refinancing/restructuring/renegotiation. Likewise, the net fall in demand for consumer credit in the first quarter of 2021 was gradually offset by positive developments over the following three quarters.

Loan supply

Credit standards[3] on loans to euro area firms tightened in net terms at the beginning of 2021 (Q1: 7%), reflecting mainly banks' risk perceptions concerning both the general economic and the industry- or firm-specific situation and outlook and collateral demanded in the first quarter. To a lesser extent, they reflected the impact of banks' capital position and lower risk tolerance (see Chart B). Credit standards on loans to euro area firms remained broadly unchanged for the rest of the year (Q2: -1%; Q3: 1%; Q4: 2%), but banks reported a slight net easing impact (see Chart B) from an improvement in banks' perception of both the general economic outlook and their own liquidity situation, and competition from other banks.

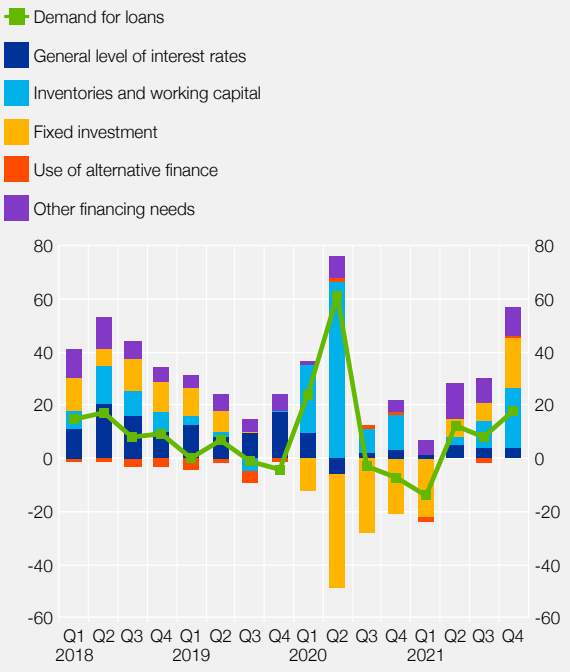
For housing loans, credit standards relatively eased in net terms in the first half of the year (Q1: -2%; Q2: -2%), reflecting mainly the impact of competition from other lenders and the favourable outlook of the housing market, as well as a more general improvement in the overall economic outlook in the second quarter of the year. By contrast, at the beginning of the second half of the year, there was a small net tightening (Q3: 2%; Q4: 0%), reflecting the negative impact of banks' cost of funds and balance sheet constraints, as well as of lower risk tolerance. Turning to consumer credit, a net tightening of credit standards in the first quarter of 2021 was gradually offset by a net easing over the following three quarters.

The sample of BLS banks indicated a relative net easing of overall terms and conditions on loans to firms (Q1: 0%; Q2: -5%; Q3: -2%: Q4: 0%), mainly driven by banks' perception of competition from other lenders and the narrowing of margins on average loans, while developments in risk tolerance had an opposite (tightening) effect. Likewise, BLS banks reported a relative net easing of overall terms and conditions on consumer credit (Q1: 0%;

1 The survey is conducted by the Eurosystem on a quarterly basis, using a sample of about 140 banks across the euro area ("BLS banks").
2 The results of the survey are discussed based on the notion of the "net percentage", which concerning demand for loans is 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".
3 With regard to credit standards, the net percentage is 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".

Chart A Change in demand for loans by euro area non-financial corporations (NFCs) and contributing factors[1]

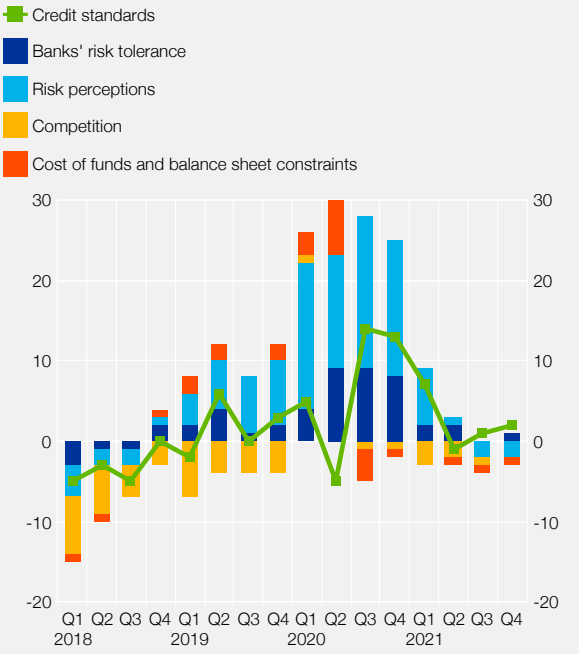
(net percentage of banks,[2] average of net percentages of banks[3])



Source: ECB, Bank Lending Survey.
1 The sum of the impacts of all contributing factors may not add up to the total reported for demand for loans to NFCs, as changes at factor level are derived from banks' replies to two successive questions, namely, whether or not demand for loans has changed, and, if so, how the evolution of any given factor has affected this change.
2 As regards demand for loans to firms, the net percentage of banks is 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". With respect to the factors that affect demand for loans to firms, the net percentage is defined as the difference between the sum of the percentages of banks responding that a given factor contributed to higher demand and the sum of the percentages of banks responding that same factor contributed to lower demand.
3 The percentage of "Other financing needs" is an unweighted average of the net percentages of "M&A and corporate restructuring" and "debt refinancing/restructuring and renegotiation". Likewise, the percentage of "Use of alternative finance" is an unweighted average of the net percentages of "internal financing", "loans from other banks", "loans from non-banks", "issuance of bonds" and "issuance of equity".

Chart B Change in credit standards on loans to non-financial corporations (NFCs) and contributing factors[1]

(net percentage of banks,[2] average of net percentages of banks[3])



Source: ECB, Bank Lending Survey.
1 The sum of the impacts of all contributing factors may not add up to the total reported for credit standards on loans to NFCs, as changes at factor level are derived from banks' replies to two successive questions, namely, whether or not credit standards have changed, and, if so, how the evolution of any given factor has affected this change.
2 As regards credit standards on loans to firms, the net percentage of banks is 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. With respect to the factors affecting credit standards on loans to firms, the net percentage is defined as the difference between the sum of the percentages of banks responding that a given factor contributed to the tightening of credit standards and the sum of the percentages of banks responding that the same factor contributed to their easing.
3 The percentage of "Cost of funds and balance sheet constraints" is an unweighted average of the net percentages of "capital position", "access to market financing" and "liquidity position". Likewise, the percentage of "Risk perceptions" is an unweighted average of the net percentages of "general economic situation and outlook", "industry- or firm-specific situation and outlook" and "risk related to the collateral demanded". Also, the percentage of "Competition" is an unweighted average of the net percentages of "competition from other banks", "competition from non-banks" and "competition from market financing".

Q2: -4%; Q3: 0%; Q4: -1%) and a somewhat greater net easing of overall terms and conditions on housing loans (Q1: -10%; Q2: -2%; Q3: 0%; Q4: -1%).

In their replies to the ad hoc questions of the survey, BLS banks indicated that the APP and the PEPP had a positive effect on both their liquidity position and funding conditions, while also bringing about an increase in their lending volumes and a net easing of their overall terms and conditions for loans to firms. As regards funding obtained through TLTRO III operations, BLS banks continued to mention TLTRO III take-up as having a positive net impact on their financial situation and lending volumes, accompanied by a net easing impact on their overall terms and conditions across all loan categories.

In addition, BLS banks indicated a positive impact on their capital position as a result of the regulatory and supervisory measures taken in 2021. Regarding the effectiveness of the pandemic-related measures taken by euro

area governments to support banks' access to funding, BLS banks reported that COVID-19-related government guarantees had a substantial net easing impact on both their credit standards and their overall terms and conditions for loans to firms. For 2021, BLS banks indicated a net decline in demand for loans or credit lines with COVID-19-related government guarantees. By contrast, after having decreased initially, demand for loans or credit lines without such guarantees was reported to have risen significantly in the second half of the 2021, which is consistent with the initially discussed simultaneous increase in overall loan demand by firms, and reflects the normalisation of euro area financial conditions.

Box III.4

ORDER TRANSMISSION MECHANISMS IN THE FINANCIAL SYSTEM – THE SWIFT SYSTEM

Transaction order transmission mechanisms are key infrastructures of the international financial system. They constitute networks providing messaging services ("specialised financial messaging services", as established in the relevant regulatory framework) and have developed a high degree of standardisation and specialisation according to the type of transaction and the individual markets in which they operate. Their operations are supported by the information systems of the institutions using them and are integrated into their transaction processes and security policies.

Messaging services –primarily the SWIFT system– were initially developed in the context of bilateral transactions between credit institutions with the main purpose of serving the conduct of payments. The increasing use of SWIFT in these transactions gradually led to a standardisation of the relevant procedures, particularly in the case of bilateral payments to correspondent banking services between different countries and, through the establishment of specific internationally recognised standards, has helped to speed up, facilitate and secure cross-border payments.

Payment systems – Central banks

With the subsequent development of Large Value Payment Systems (LVPS) and, in particular, Real-Time Gross Settlement Systems (RTGS), various applications and standards were created by SWIFT and integrated into the operational structure of these systems; as a result, the use of SWIFT in the financial sector has expanded massively.

With regard to the role of SWIFT in central bank operations, it is important to highlight SWIFT's critical contribution to key infrastructures set up for the functioning of the Eurosystem, such as the TARGET services and the new products offered in the context of these services (e.g. the TARGET Instant Payment Settlement (TIPS) system). SWIFT is also used in the CLS (Continuous Linked Settlement) system, which is the most important foreign exchange settlement platform for major currencies.

SWIFT has become the main order transfer network also for securities settlement, which now accounts for half of the system's total international activity (the corresponding share of messaging for payments has now contracted to around 45%). Eurosystem collateral operations, in the context of monetary policy implementation, are primarily conducted using SWIFT.

Data on activity

Based on 2021 data, SWIFT provides services to over 11,600 active users (mainly financial sector institutions) and over 100 central payment and securities settlement infrastructures in 202 countries. 86% of its use is allocated almost equally between the American continent and the EMEA region (Europe, the Middle East and Africa). It is the dominant international system for order transfers with a leading role in the creation of market standards and the technological evolution of the relevant services in terms of efficiency, speed and security. The annual volume of messages transmitted by SWIFT worldwide is almost 11 billion, with a daily average of around 42 million messages.

Company set up

SWIFT (Society for Worldwide Interbank Financial Telecommunication) is based in Belgium under a cooperative form with around 2,400 participant institutions that hold a corresponding number of shares. Participants represent also their national communities, while the governance of the cooperative structure is designed to take into account the positions and interests of individual members and communities in decision-making. The allocation of shares reflects the relative messaging volumes and usage of the network by each community and is subject to relevant adjustment every three years. SWIFT's functions comprise various working groups on technical and business issues, while numerous communications and collaborations take place between participants and educational activities are carried out at national, regional and international level.

International cooperation – Oversight

As a critical international market infrastructure, SWIFT is under the overall responsibility of G20, while oversight tasks are carried out on a cooperative basis by competent authorities of the G10 countries, with the involvement also of the ECB. SWIFT is subject to the legislation and regulatory framework of its home country (Belgium), with the central bank of Belgium playing a key role among the other central banks of the G10 countries with regard to SWIFT matters.

The oversight of SWIFT aims to ensure the smooth and uninterrupted functioning of the whole system, the integrity of processes, the confidentiality of transactions and the prevention of risks. The monitoring and oversight framework provides for the operation of four working groups with distinct responsibilities: the Cooperative Oversight Group, the Executive Group, the Technical Group and the SWIFT Oversight Forum. As regards the Forum in particular, a larger number of central banks (15 central banks in addition to those of the G10 countries) is involved, with a view to providing broader information and exchange of views, as well as a more effective communication and coordination in crisis situations. Expanded participation was foreseen in response to IMF recommendations in 2018 to enhance transparency and information-sharing. Forum participants also deal with specific SWIFT topics, such as important technical and cybersecurity issues.

SWIFT's oversight objectives have developed along five pillars (defined as "High Level Expectations" − HLEs): (a) risk identification and management; (b) information security; (c) reliability and resilience; (d) technology planning; and (e) communication with users. The five expectations that first applied to SWIFT are now the basis for oversight and evaluation of other critical mechanisms in the context of market infrastructures. Moreover, they have become part of the relevant internationally applicable regulatory framework and, in particular, they constitute a special annex to the CPMI-IOSCO Principles for FMIs (Committee on Payment and Market Infrastructures & International Organization of Securities Commissions: *Principles for Financial Market Infrastructures*, Annex F on Critical Service Providers, April 2012). SWIFT and other order transfer networks operating in the European Union (EU) are also subject to the institutional and regulatory framework applicable in the EU, as well as to agreements concluded between the EU and third countries for combating money laundering and terrorist financing.

Implementation of sanctions

SWIFT came into sharp focus with regard to the implementation of sanctions on Iran in 2012 and Russia in March 2022. In these cases, EU regulations and relevant decisions (mainly Council Regulations (EU) No 2012/267 of 23 March 2012 and No 2022/345 of 1 March 2022) were applied, which provide for the exclusion of specific institutions or a group of institutions from the provision of order transfer services.

Disconnecting a member from a network such as SWIFT, effected in practice by deactivating the member's electronic identity (in the case of SWIFT, the BIC − Business Identifier Code), directly results in preventing that member from carrying out transactions in payment and securities settlement systems that use the network, as well as a wide range of direct bilateral transactions, especially in the area of correspondent banking. It should be noted that the inability to execute transactions in practice also extends to retail payment systems or schemes (e.g. credit and debit card schemes) if their transactions are settled centrally in large-value payment systems.

As far as euro area credit institutions are concerned, given that messaging applications, such as SWIFT, are integrated into the processes of monetary, refinancing and collateral operations established by the Eurosystem on the basis of TARGET services, the entire functioning of a credit institution is, in practice, technically feasible only in connection with those applications.

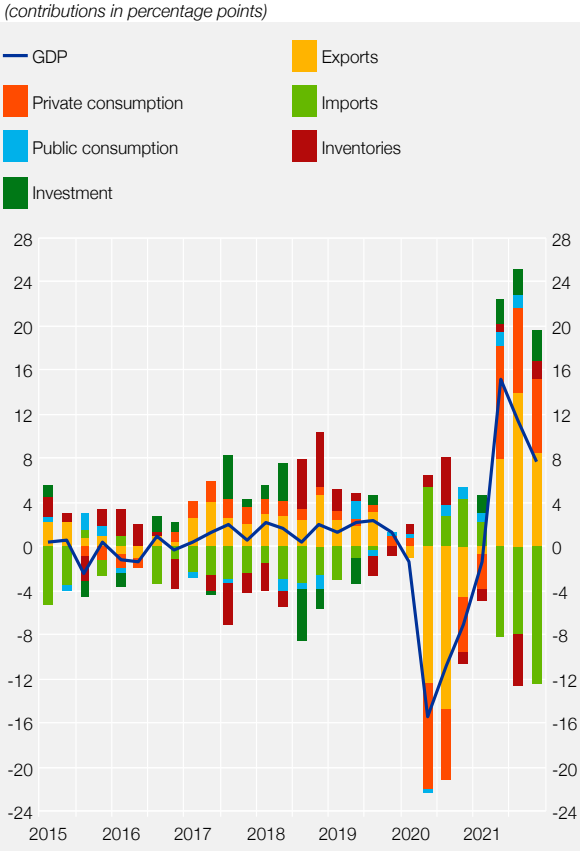
IV MACROECONOMIC DEVELOPMENTS AND PROSPECTS IN GREECE

The Greek economy recovered rapidly in 2021. Private consumption, investment and the external sector fuelled economic activity. Tourism recouped a significant part of the losses incurred in 2020 and supported, along with industrial activity, households' disposable income and employment. Business expectations remained high throughout the year, despite stronger disruptions in international supply chains due to the pandemic.

Headline inflation registered a positive average annual rate, with domestic demand recovering rapidly, while at the same time international energy, raw material and food prices recorded significant increases. The effectiveness of fiscal measures in protecting both employment and workers' income contained the impact of the pandemic on the labour market, so the rate of change in employment moved into positive territory, particularly since the second quarter. As regards the external sector, both price and structural competitiveness of the economy improved. Exports of goods continued their upward course and travel receipts largely recovered, though a rapid increase in imports partly offset these developments; as a result, the improvement in the current account was limited.

Chart IV.1 Contributions to annual GDP growth on the demand side (Q1 2015 - Q4 2021)

(contributions in percentage points)



Source: ELSTAT.
Note: Data on GDP components refer to constant 2015 prices and are seasonally adjusted.

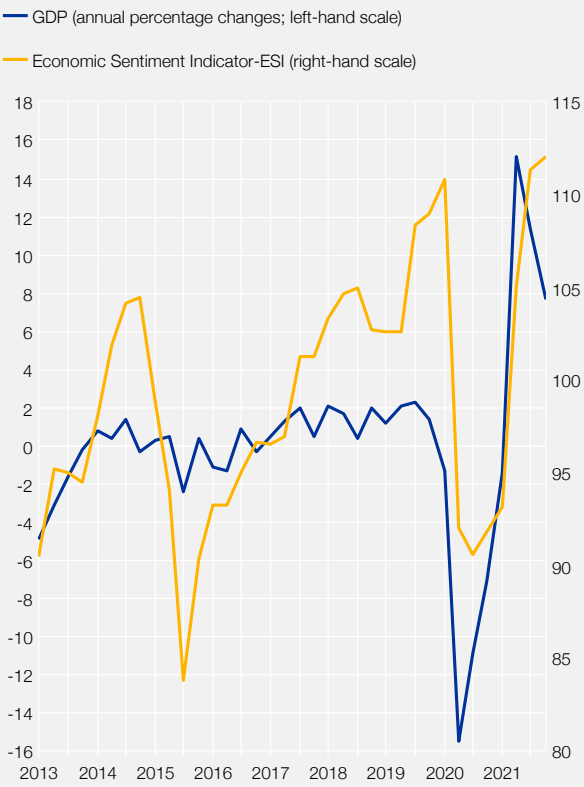
Maintaining the growth momentum in the near future is the single most important challenge. In this respect, faster absorption and utilisation of the NextGenerationEU funds, monitoring and curbing inflationary pressures in order to protect the competitiveness of the economy, as well as continuing reforms to strengthen the export performance of Greek businesses should play a crucial role.

The Greek economy is expected to keep growing in 2022, though clearly at a slower pace than initially projected (4.8%), due to Russia's invasion of Ukraine. Real GDP growth is limited to 3.8% under the baseline scenario and to 2.8% under the adverse scenario, depending on the size of the shocks in international energy and food prices, as well as any deterioration in confidence and financial market turmoil that may occur. On the other hand, under the baseline scenario, inflation is expected to accelerate to 5.2% in 2022, with positive contributions from all components. Under the adverse scenario, inflation is projected to rise further to 7%. At the current stage, risks to economic activity are on the downside and are mainly related to the intensity and duration of inflationary pressures, as well as to supply chain disruptions or a possible deceleration in the recovery of tourism.

1 OVERVIEW OF DEVELOPMENTS AND PROSPECTS[1]

Economic activity recovered strongly in the course of 2021, following the significant pandemic related recession recorded in 2020. In 2021, GDP increased by 8.3% (see Chart IV.1) compared with 2020, as already since the second quarter of 2021 economic activity had rebounded rapidly, boosted by fiscal measures, progress with the rollout of vaccines, the adaptation of consumers (see Charts IV.2 and IV.3) and businesses to the exceptional circumstances and a significant recovery in tourism. A particularly relevant development was a recovery in both private consumption –due to the unwinding of households' pent-up demand, supported by a rise in households' real disposable income– and exports of goods and services. Meanwhile, higher business investment spending and public consumption supported domestic demand. Growth in imports of goods and services, associated with stronger manufacturing and a recovery in private consumption and investment (see Table IV.1), had a negative contribution to GDP growth. A recovery of the services output (mainly in tourism), as well as of industry and construction, was the driver of supplyside developments.

Chart IV.2 GDP and ESI[1]
(Q1 2013 - Q4 2021)



Sources: ELSTAT and European Commission/IOBE.
1 3-quarter moving average.

Business expectations in all sectors improved significantly in comparison with 2020 and remained at high levels throughout 2021 (see Chart IV.2). Nevertheless, it should be noted that the consumer confidence indicator deteriorated in the second half of the year, possibly reflecting households' concerns about the evolution of the pandemic and the upward trend of prices. The Purchasing Managers' Index (PMI) improved significantly over the same period, remaining at high levels. The most significant indicators of economic activity, such as industrial production, retail sales, building permits and passenger car sales, also followed a similar pattern, recording high rates of increase.

The Greek real estate market recouped part of its losses in 2021 and is entering a period of positive expectations for further growth. However, recent geopolitical developments, combined with a significant increase in energy and material costs, create new uncertainties. Promoting legislation on streamlining processes related to property transfer, investment and real estate development could provide significant support to the market and help maintain current dynamics.

The impact of the health crisis on the labour market has been limited, as fiscal measures taken to support income and employment have proven to be effective. With economic activity already recovering since the second quarter of 2021, employment increased and the number of the unemployed decreased significantly. Accelerating the absorption of funds under the National Recovery and Resilience Plan "Greece 2.0" should help maintain positive employment growth rates, while continuing both the implementation of structural reforms and actions

1 The cut-off date for information and data used in this analysis is 30 March 2022.

to support vulnerable groups, such as the long-term unemployed, young people and women, also remains important.

Headline inflation returned to positive territory in 2021 on an average annual basis, as domestic demand recovered rapidly, while strong external inflationary pressures emerged, mainly due to supply chain disruptions and a steep rise in international energy prices. Nevertheless, core inflation recovered only partially compared to 2020 and remained in negative territory.

The international competitiveness of the Greek economy generally improved in 2021, more than offsetting losses incurred in 2020. In fact, structural competitiveness improved –and is expected to continue on the same path– in multiple areas, such as the digital transformation of the economy and the reduction of tax rates.

The current account improved slightly in 2021 in comparison with the previous year, as a result of a continued increase in goods exports and a recovery in tourist activity. The contribution of the primary and secondary income accounts, reflecting inflows of Recovery and Resilience Facility (RRF) funds, has also been positive. However, these favourable developments were partly offset by an increase in imports of goods and services following the recovery in economic activity. Imports of goods grew more than exports to meet the needs of both rising industrial production and increased consumption and investment. Specifically, the surge in international fuel prices weighed heavily on the current account, owing to the larger fuel deficit. Lastly, despite a rise in the surplus of the sea transport balance, the increase in net other transport payments was stronger, resulting in a deterioration of the transport balance.

It is necessary to support the growth momentum that was observed in 2021 and is expected to continue in the period ahead, in order to increase the productive capacity of the economy and counteract the uncertainties associated with the evolution of the pandemic and heightened inflationary pressures. In this respect, it should be noted that:

(a) The absorption and utilisation of €72 billion from the EU's 2021-2027 long-term budget and the NextGenerationEU (NGEU) European recovery instrument should be accelerated, in order to achieve annual growth rates of over 3% on average. The importance of implementing relevant investment in order to close the investment gap created during the crisis decade and to enhance overall factor productivity is high. At the same time, it is essential to sustain and accelerate the privatisation programme with a view to ensuring a more efficient use of resources and productive infrastructure.

(b) Close monitoring of developments in inflationary pressures (see Box IV.4) and production costs, such as wage developments and energy costs, is key to maintaining the improvement in competitiveness achieved over the past decade. In the medium term, reforms aimed at further liberalising goods and services markets can contribute to enhancing competition and curbing inflationary pressures.

(c) During the pandemic, the emergence of twin deficits, i.e. external and fiscal, raised concerns. Nevertheless, there are strong indications that their re-emergence is temporary, suggesting rapid de-escalation (see Box IV.5). As regards the current account, it should be noted that, with imports expected to rise substantially in association with increased investment in the coming period, it is necessary to continue with structural changes that should help strengthen the openness and competitiveness of Greek enterprises so as to keep the current account deficit low.

According to Bank of Greece projections before Russia's invasion of Ukraine, real GDP was expected to grow at 4.8% in 2022. However, the war in Ukraine dampens economic growth and surrounds forecasts with high uncertainty. According to the latest Bank of Greece estimates (see Box IV. 1) and the baseline scenario incorporating most recent developments, economic

activity is projected to grow by 3.8% in 2022, as positive contributions are still expected from consumption, investment and the external sector, although revised downwards compared with the original projections; under the adverse scenario, economic growth is projected to decelerate by up to 2 percentage points, to stand at 2.8%. The evolution of the war in Ukraine with the resulting sharp rise in uncertainty, the intensity of inflationary pressures due to energy prices, supply-side constraints to production and consumption, and a possible slowdown in the recovery of tourism are risks that may further dampen economic growth. Under the baseline scenario, inflation is expected to accelerate to 5.2% in 2022, with a positive contribution from all components. Under the adverse scenario, inflation is projected to rise further to 7%.

Box IV.1

THE IMPLICATIONS OF THE WAR IN UKRAINE FOR THE GREEK ECONOMY

For the Greek economy, the war in Ukraine represents a severe negative supply-side shock, expected to dampen economic activity in the short term and to further increase inflation. In particular, the rise in energy, food and other commodity prices has heightened inflationary pressures and is anticipated to slow down economic expansion. Moreover, the imposition of severe economic sanctions on Russia threatens energy supply and international trade, while major disruptions in global value chains are generated, due to problems in the delivery of raw materials in key industrial sectors. As geopolitical tensions escalate, uncertainty is mounting and financial conditions are deteriorating, thereby increasing downside risks to growth. Since the war is in progress, it is difficult to accurately assess the economic implications of the Russia-Ukraine conflict, as these will depend on the duration of the conflict, its final outcome and fiscal and monetary policy decisions at European level.

Transmission channels of the impacts of the Russo-Ukrainian war on the Greek economy

The impact of the Russo-Ukrainian crisis on the Greek economy can be both direct –in so far as it affects Greece's bilateral economic relations with each of the two belligerent countries and dampens demand for Greek exports– and indirect, attributable to rising energy and other goods prices, as well as growing uncertainty worldwide. There are three main transmission channels of these impacts to the Greek economy: (a) rising energy and other commodity prices; (b) falling external demand for Greek goods and services; and (c) growing uncertainty and deteriorating financial conditions.

(a) Rising energy and other commodity prices

Greece's energy dependency is particularly high. Specifically, despite attempts to change the energy mix in favour of renewable energy sources, Greece continues to import more than 2/3 of its energy consumption, mainly oil and gas. 20% of oil imports and 40% of natural gas imports originate from Russia. Additionally, imports of intermediate goods directed to the food and basic metals industries are substantial. Surges in energy and other commodity prices exacerbate inflationary pressures, increasing the cost of living and reducing households' real disposable income. Moreover, there are significant disruptions in production, caused by higher production and transportation costs, with negative consequences for business investment (see Box II.1).

Supply chain disruptions could also affect the supply of intermediate and capital goods –with adverse effects on domestic economic activity– and generate further inflationary pressures.

Therefore, increases in energy and other commodity prices, the resulting supply chain disruptions and the slowdown in the global economy and international trade are expected to have a significant impact on economic activity in Greece. The magnitude of these effects will depend on how much and how fast domestic firms can source the above goods from markets other than Russia and Ukraine, as well as on globally available stocks to meet demand.

(b) Decrease in external demand for Greek goods and services

The direct impact on the Greek economy from the disruption –or even suspension– of trade between Greece and the belligerent countries will be limited, given that, excluding Greece's dependence on gas and oil imports from Russia, these transactions have a small share in Greece's total trade in goods and services.

According to data on trade in goods over the past four years (2018-21), Greece's exports to Russia have not exceeded 1% of total Greek exports, while imports from Russia –excluding fuel– account for a mere 1.4% of total Greek imports. Trade with Ukraine is even smaller (0.7% and 0.3% of total Greek exports and imports, respectively).

In total receipts from services, Russia's share was around 2%, while Ukraine only accounted for 0.6% in the four years before the pandemic (2016-19). In the case of Russia, over 50% of the exports of services referred to travel services and around 40% to transport (mainly sea transport) services. Regarding travel services, the overall share of Russia and Ukraine in 2019 stood below 3.5%, while in 2021 it was much lower. The negative impact from the suspension of trade with Russia on sea transport services is expected to be limited, as Russia accounts for a small share also in this sector (around 2%).

However, it should be noted that the drag from trade disruptions will be greater on certain sectors or activities with relatively heavier reliance on imports from Russia and Ukraine; these sectors should face shortages and increased import prices.[1,2]

(c) Heightened uncertainty and deteriorating international and domestic financial conditions

The war between Russia and Ukraine weighs on global confidence, driving up volatility in both the real and the financial sector. Heightened uncertainty is fuelling significant turbulence in international financial markets; as a result, financing conditions have deteriorated and investment positions are being reviewed worldwide, with potential negative consequences for investment projects underway, but also for liquidity in the Greek economy. Moreover, an increase in funding costs amid global repricing of risks leads to tighter financing conditions for banks, businesses and households, as well as for the Greek sovereign. Especially in the event of a protracted conflict, business confidence will be severely harmed, putting a hold on the implementation of investment plans.

Empirical assessment of the impact of the war in Ukraine on the Greek economy

The growth rate of the Greek economy in 2022, without taking into account the effects of the war in Ukraine, was initially projected to stand at 4.8%. A first assessment of the possible impact of the Ukrainian crisis on economic growth in Greece in 2022 is based on the Bank of Greece's annual macroeconomic model, through the application of shocks to exogenous variables of the model, which correspond, to the extent possible, to the above transmission channels. However, it should be noted that the implications of the war in Ukraine are difficult to assess with any accuracy, given the great uncertainty surrounding its severity and, above all, its duration.

To this end, two alternative scenarios are considered: (a) a baseline scenario and (b) an adverse scenario. The two scenarios differ in terms of shock intensity in 2022. Both the baseline and the adverse scenarios take into account assumptions of rising oil and gas prices, the direct and indirect negative effects on external demand for Greek goods and services and the impact of uncertainty on investment and consumption.

In particular, the baseline scenario assumes no permanent disruption in the euro area's energy supply and growing uncertainty in the economy, which negatively affects investment and consumption expenditure.

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1 In particular, in the metal product industries Greece relies heavily on aluminium and copper imports from Russia, which account for 22% and 27% of total relevant imports (but remain below 2.5% of total Greek imports). Moreover, imports of wheat from Russia and barley from Ukraine account for 22% and 12% of relevant imports (below 0.5% of total Greek imports). Overall, imports of intermediate goods from Ukraine and Russia directed to food industries represent around 10% of relevant imports and 2% of Greece's total imports.

2 Travel receipts from Russia are higher in some regions of the country (e.g. Central Macedonia) compared with the country average. However, even in these cases, the share does not exceed 5% of total travel receipts in these regions, according to 2019 data.

The adverse scenario assumes a more protracted disruption in the euro area's energy supply and in international supply chains in general, which also has a heavier impact on the Greek economy, and incorporates a stronger increase in uncertainty both in the real economy and in the financial sector, with even worse effects on investment and consumption expenditure.

The results of the simulations show that the Ukrainian crisis is expected to negatively affect GDP growth in 2022, which, according to the baseline scenario, could decelerate by up to 1 percentage point compared to the initial forecast, to stand at 3.8%, while under the adverse scenario it could slow by up to 2 percentage points to stand at 2.8%. Moreover, higher oil and gas prices are expected to lead to increased production costs and an elevated general level of prices. Under the baseline scenario, inflation in 2022 is projected to increase to 5.2%, while under the adverse scenario it is expected not to exceed 7.0%.

Specifically, the impact on economic activity should mainly originate from a drop in total exports and a decline in private consumption. The decrease in total exports mainly comes indirectly, driven by negative effects on the euro area economy that reduce external demand. The decrease in private consumption is due to a fall in real disposable income, owing to strong price increases and a deterioration in consumer confidence. Further negative effects stem from a decline in private investment, as a result of heightened uncertainty, disruptions in supply chains and a possible deterioration of financing conditions. Nevertheless, the decline in private investment is projected to have a relatively limited impact on economic activity, given the low weight of business investment in aggregate domestic demand. It should be noted that the negative implications on GDP are also mitigated by a drop in imports due to weaker domestic demand.

However, several uncertainties surround the two above scenarios, entailing a risk of additional negative effects on GDP and even higher inflation. Regarding trade in particular, fresh disruptions in global production chains that rely on Russian inputs could further reduce foreign demand from euro area countries, leading to less favourable conditions for the Greek economy. As regards commodities, there is always a risk of a larger disruption in the supply of Russian gas and oil to European countries. Given Russia's central role in Europe's energy supply, the impact could be significant, further strengthening upward trends in international gas and oil prices. Besides energy, which will be directly affected, this could also have an impact on other sectors that directly or indirectly rely heavily on commodities, such as base metals, mining industries, paper and printing, as well as chemicals. In this case, greater supply chain constraints and significant second-round supply side effects should be expected. Lastly, global confidence could take another hit if more severe sanctions were imposed on Russian banks, causing significant problems to the western banks most exposed to Russia and Ukraine. In turn, this could lead to an increase in risk premia and push up interest rates on bank loans, further weighing on the euro area and the Greek economy.

Conclusions

The economic implications of the war in Ukraine are particularly difficult to assess due to the current high uncertainty. This analysis identifies and assesses the main transmission channels of the crisis to the Greek economy and distinguishes between direct and indirect impacts. The former primarily concern bilateral economic relations and are relatively small (excluding Greece's reliance on natural gas and oil imports from Russia) in terms of both total Greek exports to Russia and travel receipts from Russia.

However, indirect impacts appear to be more substantial, as they are associated with growing energy and other commodity prices, as well as with a slowdown in global trade and supply chain disruptions. Indirect impacts also include higher uncertainty and its contribution to a deterioration of lending conditions. Elevated energy prices feed into inflation, leading to a decline in the purchasing power of households and a drop in consumption. In addition, a high uncertainty environment may potentially push firms to cancel investment initiatives.

In the empirical assessment of possible macroeconomic consequences of the war for the Greek economy, two alternative scenarios were used, a baseline and an adverse one. Importantly, even under the adverse scenario, the Greek economy maintains a sufficiently strong growth rate close to 3% for 2022.

Fiscal policy could –under certain conditions– contribute to supporting the real disposable income of households affected by high energy costs and the resulting rise in inflation. Targeted extraordinary policy measures should take into account the existence of sufficient fiscal space, factoring in the uncertainties that surround both budget implementation and the growth momentum of the economy. In the present environment, targeted and temporary measures in the form of benefits could be more effective in boosting disposable income than horizontal tax cuts, as they would lend more support to low-income households, which have a higher marginal propensity to consume (see Chapter V).

2 ECONOMIC ACTIVITY: DEVELOPMENTS AND PROSPECTS

2.1 Developments on the demand side

Increased exports of goods and services and a strong recovery of private consumption were key drivers of growth in 2021. Moreover, higher investment and public consumption supported domestic demand. By contrast, a dampening effect on growth came from an increase in imports of goods and services, which is attributable to higher industrial production and a recovery of private consumption and investment (see Chart IV.1 and Table IV.1).

Private consumption registered a strong recovery since the second quarter of the year, underpinned by an unwinding of households' pent-up demand and a rise in their real disposable income. According to the latest available data from the quarterly non-financial accounts of institutional sectors published by ELSTAT, the disposable income of households and non-profit institutions serving households (NPISHs) increased year-on-year by 5.7% (5.5% in real terms) on average in the nine-month period from January to September 2021, chiefly supported by a recovery in the gross operating surplus/gross income (mainly the income of the self-employed,

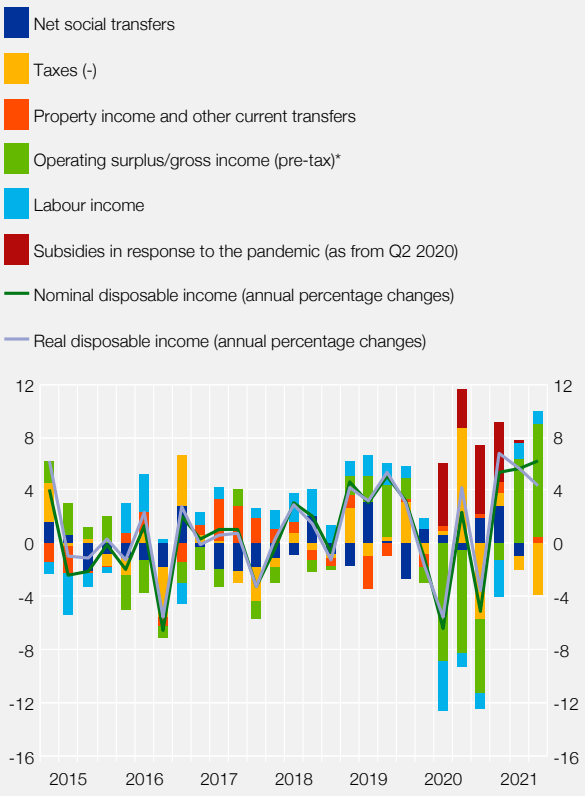
Table IV.1 Demand and GDP (2018-2021)

(annual percentage changes and percentage point contributions, at constant market prices of 2015)

	2018	2019	2020	2021	2021 (Q1)	2021 (Q2)	2021 (Q3)	2021 (Q4)
Private consumption	1.7 (1.2)	1.2 (0.8)	-7.3 (-5.0)	7.2 (5.3)	-4.5 (-3.2)	14.6 (10.2)	10.8 (7.5)	9.7 (6.7)
Public consumption	-3.3 (-0.7)	1.6 (0.3)	2.6 (0.5)	3.9 (0.8)	5.0 (1.0)	5.9 (1.4)	5.6 (1.2)	-0.8 (-0.2)
Gross fixed capital formation	-4.0 (-0.5)	-3.4 (-0.5)	0.4 (0.0)	19.3 (2.3)	14.6 (1.6)	19.3 (2.4)	19.3 (2.3)	24.1 (2.8)
Residential investment	22.9 (0.1)	16.9 (0.1)	13.8 (0.1)	27.0 (0.3)	28.7 (0.3)	11.6 (0.2)	70.2 (0.7)	5.9 (0.1)
Domestic final demand[1]	0.0 (0.0)	0.7 (0.7)	-4.6 (-4.6)	7.9 (8.4)	-0.6 (-0.6)	13.2 (13.9)	10.7 (11.1)	9.0 (9.3)
Inventories and statistical discrepancy (% of GDP)	1.7%	1.6%	3.2%	2.2%	2.3%	2.7%	0.8%	2.9%
Domestic demand	1.3 (1.0)	1.1 (1.1)	-3.3 (-3.5)	6.8 (7.4)	-2.7 (-2.8)	14.2 (15.4)	4.8 (5.4)	11.3 (11.6)
Exports of goods and services	9.1 (3.1)	4.9 (1.8)	-21.5 (-8.2)	21.9 (7.4)	-2.0 (-0.7)	25.9 (7.9)	49.4 (14.0)	24.1 (8.5)
Imports of goods and services	7.3 (-2.6)	3.1 (-1.2)	-7.8 (3.0)	16.4 (-6.6)	-5.4 (2.1)	20.9 (-8.2)	19.4 (-7.9)	33.2 (-12.4)
Foreign demand	… **(0.5)**	… **(0.6)**	… **(-5.2)**	… **(0.8)**	… **(1.4)**	… **(-0.3)**	… **(6.0)**	… **(-3.9)**
GDP at market prices	**1.5**	**1.8**	**-8.7**	**7.9**	**-1.4**	**15.1**	**11.4**	**7.7**

Source: ELSTAT, Quarterly National Accounts, 4 March 2022, seasonally adjusted data.
Note: Within parentheses: contributions in percentage points.
1 Excluding inventories and statistical discrepancy.

Chart IV.3 Contributions to changes in disposable income (Q1 2015 - Q3 2021)



Source: ELSTAT, quarterly non-financial accounts of institutional sectors. Bank of Greece calculations.
* Before subsidies in respose to the COVID-19 pandemic, as from Q2 2020.
Notes: Taxes = current income and wealth taxes + taxes on production and imports (incl. ENFIA).

contribution of +4.7 pp., excluding government subsidies) since the second quarter of the year due to the reopening of the economy. Moreover, government subsidies and transfers to support incomes affected by the pandemic amounted to €3.7 billion during the same period and continued to boost households' disposable income (contribution of +1.5 pp; see Chart IV.3).

Households' pent-up demand due to the pandemic-related containment measures, but also the prevailing uncertainty regarding households' future economic situation, as reflected in consumer confidence index developments (see Chart IV.5), resulted in a significant increase in household savings, mainly forced savings (see Box IV.2). The gradual lifting of the restrictive measures since the second quarter of the year led to a partial unwinding of pent-up demand, as evidenced by a strong recovery in the retail sales volume index, which stands at very high levels, especially in regard to durable goods, as well as by a significant increase in the sales of private vehicles (see Table IV.2). As a result, the high saving ratio declined somewhat. Nevertheless, it remains well above pre-pandemic levels (see Chart IV.4) and its gradual decrease is expected to contribute to a recovery in consumer spending by households.

Regarding the evolution of private consumption this year, developments in the real disposable income of households should be crucial. Before Russia's invasion of Ukraine, household income growth due to higher labour income[2] was expected to support private consumption. A recovery in economic activity in a number of sectors, assisted by the launch of investment projects and the implementation of reforms under the National Recovery and Resilience Plan, was anticipated to help boost employment. Moreover, an important contribution should come from an expansion of the government's fiscal measures to support household incomes in 2022, such as a three percentage point reduction in employers' contributions for private sector employees, as well as an increase in the minimum wage that is expected to support households' real disposable income. In addition, active employment policy programmes by the Greek Manpower Employment Organisation (OAED) and a subsidy on contributions for the recruitment of long-term unemployed persons with a view to creating 150,000 new jobs are tools that can help tackle unemployment and raise labour income. However, private consumption developments are surrounded by uncertainties related to (particularly energy and food) inflation, which has been fuelled by the Russian invasion of Ukraine. For households, inflation has a double negative effect, because it reduces both their real income and real returns on their deposits. Therefore, developments in private consumption this year will largely depend on the evolution of the war in Ukraine and, in particular, on the intensity of inflationary pressures.

2 According to Sideris, D. and G. Pavlou (2021), "Disaggregate income and wealth effects on private consumption in Greece", Bank of Greece Working Paper No. 293, November, labour income turns out to be the most important determinant of private consumption in Greece.

Table IV.2 Indicators of consumer and investment demand (2016-2022)

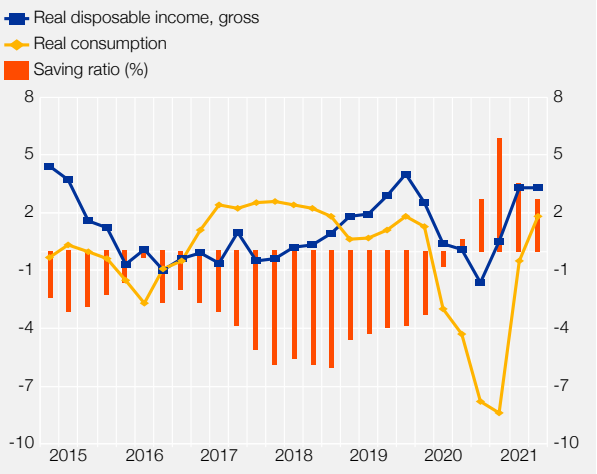
(annual percentage changes)[1]

	2016	2017	2018	2019	2020	2021	2022 (available period)
Volume of retail trade (overall index)	-0.6	1.2	1.5	0.8	-4.0	10.2	
Retail trade confidence indicator	20.9	-6.7	9.3	6.0	-20.6	15.2	9.5 (Jan.-Mar.)
Consumer confidence indicator	-62.9	-58.9	-44.0	-19.8	-31.2	-37.2	-46.6 (Mar.)
New private passenger car registrations	10.7	22.2	25.8	13.2	-26.6	22.2	15.3 (Jan.-Feb.)
Consumer credit[2]	-0.8 (Dec.)	-0.5 (Dec.)	-0.8 (Dec.)	-1.6 (Dec.)	-2.2 (Dec.)	-0.3 (Dec.)	0.0 (Feb.)
Capacity utilisation in the capital goods industry	65.5	64.1	69.4	69.8	70.1	74.7	70.8 (Jan.-Mar.)
Production of capital goods	-2.3	2.1	5.8	6.0	0.2	12.3	-4.9 (Jan.)
Public Investment Programme (PIP) disbursements	-1.8	-5.4	4.8	-9.5	88.7	-15.5	-20.8 (Jan.-Feb.)
Bank credit to non-financial corporations[2]	-0.1 (Dec.)	0.3 (Dec.)	0.2 (Dec.)	1.7 (Dec.)	9.8 (Dec.)	2.8 (Dec.)	2.0 (Feb.)
Housing credit[2]	-3.5 (Dec.)	-3.0 (Dec.)	-2.8 (Dec.)	-3.4 (Dec.)	-2.7 (Dec.)	-3.0 (Dec.)	-3.0 (Feb.)
Construction output index (at constant prices)	6.0	-18.2	-14.0	-6.0	-9.6	5.8	
Volume of building activity on the basis of permits	-6.8	19.5	21.4	9.8	5.9	45.9	
Construction confidence indicator	-1.1	-9.6	4.8	0.0	7.9	103.5	29.2 (Jan.-Mar.)

Sources: ELSTAT (retail trade, cars, production of capital goods, building volume, construction output); IOBE (confidence indicators, capacity utilisation); IOBE and European Commission (consumer confidence); and Bank of Greece (consumer and housing credit, business credit and IPI disbursements).
1 Excluding the consumer confidence indicator (weighted percentage balances of positive and negative answers) and the capacity utilisation in the capital goods industry (percentages).
2 The rates are changes in balances adjusted for write-offs/write-downs, impairments, exchange rate changes and reclassifications.

Chart IV.4 Private consumption, households' disposable income and saving ratio[1] (Q1 2015 - Q3 2021)

(annual percentage changes of private consumption and households' disposable income)



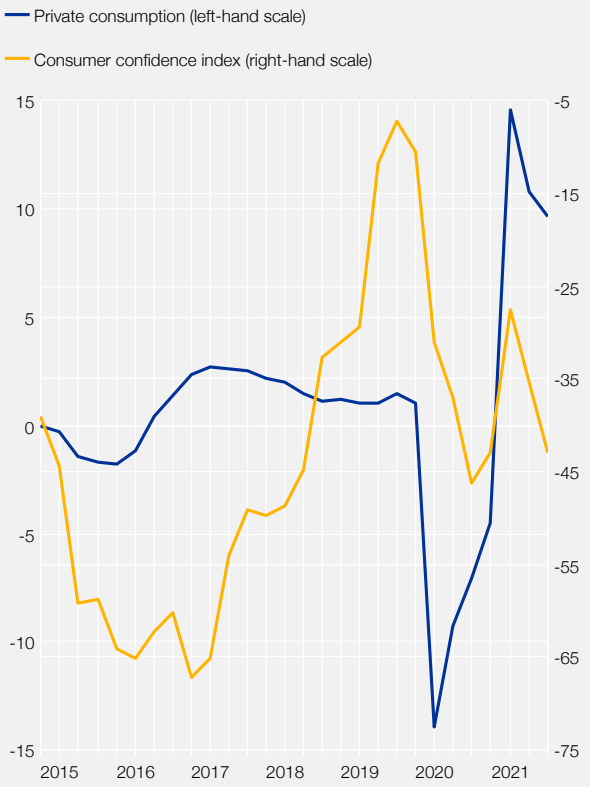
Source: ELSTAT, quarterly non-financial accounts of institutional sectors.
1 Four-quarter moving average.

Gross fixed capital formation grew substantially by 19.6% in 2021 compared with 2020. This improvement is mainly due to increased investment in all three categories of equipment. Machinery and weapon systems registered the strongest growth (+41.1%), as a result of a significant increase mainly in the fourth quarter. Investment in transport equipment and weapon systems improved appreciably (+31.9%) –largely due to base effects, as in 2020 this category had fallen by 30.2%– as did investment in information and communication technology (+18.1%). Residential investment rebounded significantly by 26.5% in 2021, while non-residential construction also increased, by 4.8%.

In the third quarter of 2021 (annualised data), private capital investment by the non-financial sector amounted to €22.9 billion or 12.9% of GDP, up from 9.7% of GDP in 2019, i.e. the last pre-pandemic year (see Chart IV.6). Moreover, the expansion of firms' productive capital base is intensifying, following the slowdown observed in the early stages of the pandemic.

Total private sector financing as a share of GDP remained at a particularly high level (21.9% of GDP) in the third quarter of 2021 (against 6.2% of GDP at end-2019), mainly owing to an increase in internal financing from own resources (by 9.9% of GDP), underpinned by fiscal support

Chart IV.5 Private consumption and consumer confidence (Q1 2015 - Q4 2021)



Sources: ELSTAT and European Commission (consumer confidence index).
Note: Private consumption: annual percentage changes; consumer confidence: weighted balances.

programmes, as well as to improved external financing (by 5.8% of GDP). Specifically, the external financing of firms grew substantially in the third quarter of 2021 compared with the end of 2019 (to €11.1 billion, from €3.8 billion, respectively). This improvement is accounted for by a strong increase in loans[3] (€3.5 billion, from €0.7 billion in 2019), heightened issuance of debt securities (€2.5 billion, against €0.2 billion in 2019) and the issuance of new shares (€4.3 billion, compared with €0.7 billion in 2019). Moreover, in the third quarter of 2021, internal financing (i.e. private savings available for investment) more than doubled, reaching 16.3% of GDP (from 6.4% in 2019), as targeted fiscal measures to support households and businesses were maintained (including special-purpose compensation, support to landlords, abolition of the solidarity levy in the private sector, reduction of social security contributions). Thus, in the third quarter of 2021, private sector internal savings more than covered the level of investment in the real economy (12.9% of GDP).

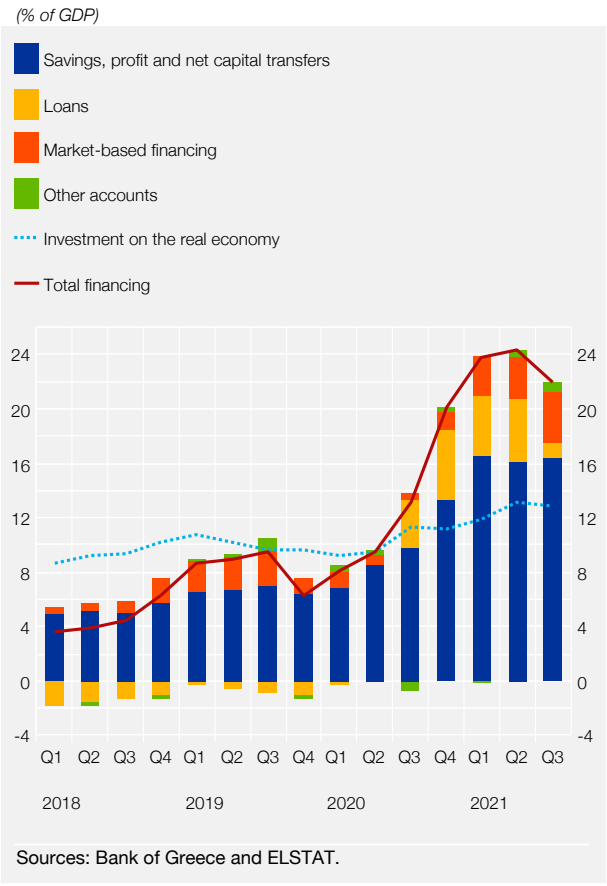
Additionally, in the third quarter of 2021, the rise in private sector investment in financial assets that had tentatively begun in 2019 continued, though at a more moderate pace (by 12.8% of GDP), halting the long-term divestment of financial wealth. This increase mainly reflects stronger private sector deposits. In the third quarter of 2021, private sector financial investment represented 13.5% of GDP, of which 9.4% of GDP concerned deposits, 2.6% mutual fund shares/units and 0.1% debt securities. The milder growth of private sector financial assets in the third quarter of 2021 reflects the lifting of the moratoria on tax, insurance and debt liabilities and the phasing-out of the repayable advance for vulnerable households and businesses. Nevertheless, the fact that part of bank loans –mostly business loans– are granted under some form of payment protection/facility (e.g. “Gefyra” (Bridge) programme; banks’ step-up programmes) is conducive to stronger financial investment.

To support long-term growth, it is necessary to accelerate investment, which should contribute to a sustainable growth model. The financial crisis of the past decade has significantly weighed on the level of both private and public investment. Characteristically, while in the 2001-10 decade Greece had a higher share of gross fixed capital formation in GDP than the euro area (23.0%, compared with 21.8% in the euro area), the share halved in the decade 2011-20, while in the euro area it declined slightly (11.4%, compared with 20.6% in the euro area).

Raising the level of investment calls for an increase in financing. An important source of investment financing in the medium term is the “Greece 2.0” National Recovery and Resilience Plan, which includes a set of 68 structural reforms and 106 investment projects and will be fi-

3 These include loans from both domestic and foreign monetary financial institutions (intra-group borrowing; bond issuance; bank lending by large corporations), other financial institutions (leasing/factoring), as well as from general government (mainly repayable advances).

Chart IV.6 Sources of financing to the private sector and real investment



Sources: Bank of Greece and ELSTAT.

nanced by €30.5 billion from the EU Recovery and Resilience Facility (RRF), with total investment resources expected to be mobilised amounting to around €60 billion. In January 2022, 55 projects were included in the RRF, drawing on a total budget of €3.35 billion, in addition to the 48 projects of €2.76 billion included in July and October 2021. The European Bank for Reconstruction and Development (EBRD) also provides substantial resources, with investment in Greece amounting to €838 million in 2021, compared with €797 million in 2020. Moreover, the European Investment Bank will support the Hellenic Development Bank with €400 million, to enhance financing of small and medium-sized enterprises across Greece. In addition, promoting strategic investment is an important pillar of economic growth. So far, the Interministerial Committee on Strategic Investments (DESE) approved the inclusion of 45 investment projects in the "fast-track" process for strategic investment.

Another important driver of investment is the privatisation programme. According to the Introductory Report on the 2022 Budget, public revenue from privatisations in 2021 reached €638.3 million, well below the original forecast, due to the pandemic-related uncertainty. However, a significant acceleration is expected for 2022: revenue is forecast to reach €2,204.2 million and should come mainly from the concession of the right to use and exploit Egnatia Odos, the sale of DEPA Infrastructure and the next instalment from the privatisation of the Elliniko property.

2.2 Developments on the supply side

Gross value added in the economy grew strongly by 7.2% in 2021, partly as a result of a base effect, but also due to the reopening of the economy in the second quarter of the year, following the lifting of the strict containment measures and the expansion of the vaccination programme. An increase in gross value added is largely attributable to a recovery of the services sector, mainly driven by tourism, as well as to the particularly positive performance of the industrial sector (see Table IV.3). The strong recovery in the output of the economy in 2021 is also reflected in a sharp increase of 21.1% in the turnover of enterprises in the Greek economy as a whole over the same period.

The performance of gross value added in the industrial sector including energy was particularly positive in 2021 (+10.3%). It should be noted that industrial output in 2021 was 12.9% higher than in 2019. This is in line with the pattern of the industrial production index, which has been on the rise for 14 consecutive months, increasing by 9.9% in 2021 (see Chart IV.7). Moreover, industrial capacity utilisation, as recorded by the IOBE surveys, recovered strongly in 2021, standing well above the 2020 levels (+5.8 points). Manufacturing production also grew significantly in 2021 (+8.8%), as suggested by the PMI index, which stands at historically high levels (see Chart IV.8). However, according to survey-based index data, manufacturing output is under negative pressure due to disruptions in global value chains –which cause raw material shortages– and the resulting price increases.

Table IV.3 Gross value added at basic prices (2019-2021)

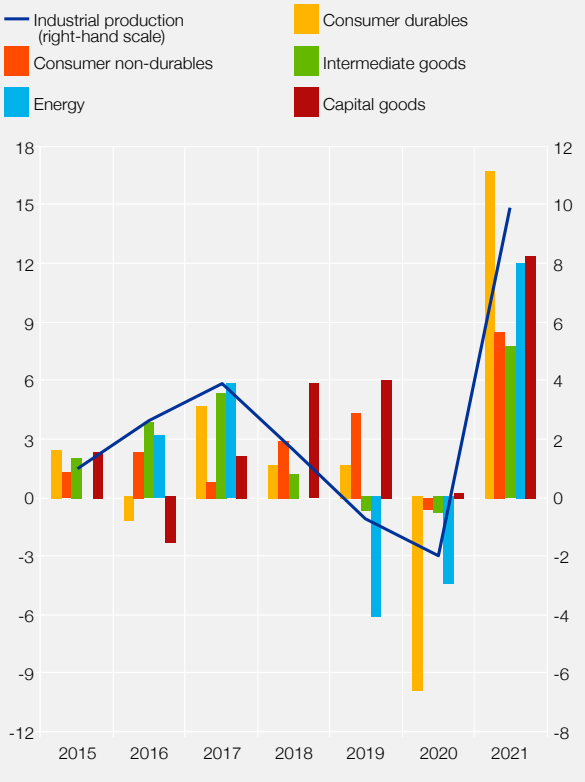
(annual percentage changes and sectoral contributions; at constant prices of 2015)

	2019	2020	2021	2021 (Q1)	2021 (Q2)	2021 (Q3)	2021 (Q4)
Agriculture, forestry and fishing	5.3 (0.2)	-4.2 (-0.2)	-8.4 (-0.4)	-7.3 (-0.3)	-1.6 (-0.1)	-13.3 (-0.6)	-11.6 (-0.5)
Secondary sector	1.5 (0.3)	2.3 (0.4)	10.3 (2.0)	7.3 (1.3)	15.6 (2.9)	11.1 (2.1)	7.8 (1.5)
Industry including energy	0.4 (0.1)	2.5 (0.4)	101 (1.7)	5.9 (0.9)	16.4 (2.7)	8.9 (1.5)	9.7 (1.6)
Construction	10.7 (0.2)	0.8 (0.0)	12.0 (0.3)	17.4 (0.4)	9.7 (0.2)	29.6 (0.6)	-7.2 (-0.2)
Tertiary sector	0.7 (0.5)	-10.6 (-8.3)	6.8 (5.5)	-3.2 (-2.5)	14.5 (11.1)	9.9 (7.5)	7.4 (5.6)
Trade, hotels and restaurants, transport and storage	1.6 (0.4)	-19.1 (-4.9)	16.7 (3.9)	-8.8 (-2.3)	34.7 (7.1)	28.0 (6.1)	21.4 (4.9)
Information and communication	3.4 (0.1)	1.5 (0.0)	6.9 (0.2)	5.4 (0.2)	13.2 (0.4)	9.4 (0.3)	0.3 (0.0)
Financial and insurance activities	-7.2 (-0.4)	-5.8 (-0.3)	-8.0 (-0.4)	1.1 (0.1)	2.3 (0.1)	-13.4 (-0.7)	-21.4 (-1.1)
Real estate activities	0.5 (0.1)	-10.3 (-1.8)	0.3 (0.0)	0.2 (0.0)	0.3 (0.0)	0.3 (0.0)	0.3 (0.0)
Professional, scientific and technical activities	4.1 (0.2)	-5.9 (-0.3)	12.0 (0.7)	-0.5 (-0.0)	25.0 (1.3)	17.1 (0.9)	9.2 (0.5)
Public administration and defence	-0.2 (-0.0)	-1.0 (-0.2)	2.9 (0.6)	3.2 (0.6)	4.3 (1.0)	2.4 (0.5)	1.7 (0.4)
Arts, entertainment and recreation	4.1 (0.1)	-25.3 (-0.9)	11.6 (0.4)	-28.1 (-1.1)	55.3 (1.2)	14.3 (0.4)	35.1 (0.9)
Gross value added at basic prices	1.1	-8.6	7.2	-0.9	13.3	10.8	6.6

Source: ELSTAT, Quarterly National Accounts, 4 March 2022, seasonally adjusted data.
Note: Within parentheses: contributions in percentage points.

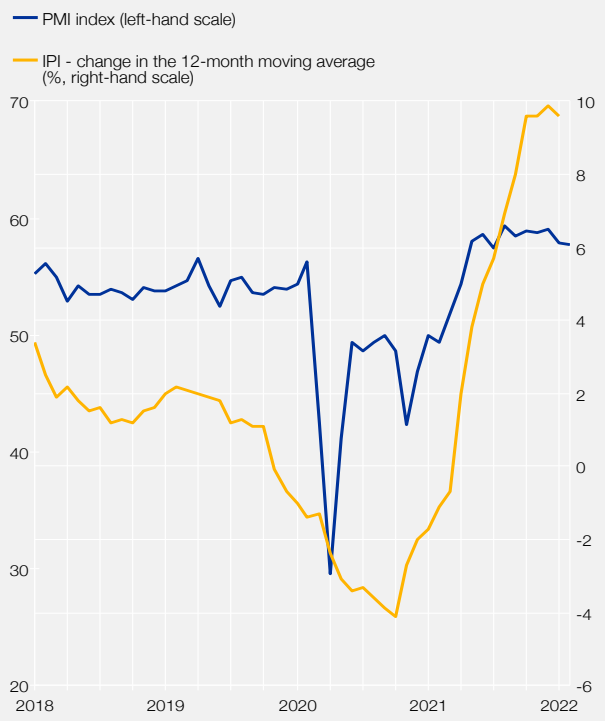
Chart IV.7 Industrial production (2015 - 2021)

(average rate of change %)



Source: ELSTAT.

Chart IV.8 Purchasing Managers' Index (PMI) and Industrial Production Index (IPI) (January 2018 - February 2022)



Sources: Markit Economics and Hellenic Institute of Purchasing and Supply Management for PMI and ELSTAT for IPI.
Note: IPI data refer to the January 2017-January 2022 period.
1 Seasonally adjusted index; a value of over 50 points to an increase.

Table IV.4 Activity indicators in the services sector (2016-2021)

(annual percentage changes)

	2016	2017	2018	2019	2020	2021
A. Services turnover indices						
1. Trade						
Wholesale trade	-1.6	3.7	6.9	-1.7	-10.9	19.4
Retail trade	-2.1	1.8	2.0	1.3	-3.9	11.4
Trade and repair of cars and motorcycles	7.2	6.3	10.8	8.4	-12.9	25.5
2. Transport						
Land transport	-2.3	10.9	-1.2	1.0	-17.8	11.4
Sea and coastal passenger transport	-4.6	-9.6	-0.2	6.3	-25.8	8.1
Air transport	3.9	10.4	-0.1	6.3	-65.9	58.7
Storage and supporting transport activities	8.2	8.0	9.0	10.2	-14.6	15.6
3. Hotels and restaurants						
Accomodation and food service activities	0.8	8.2	7.6	1.3	-62.7	82.0
4. Information and communication						
Telecommunications	0.5	-0.5	0.6	2.4	-2.6	7.4
Film, video and TV programme production, recordings and music products	-1.3	-5.0	9.0	-6.6	-17.5	14.9
Programming and broadcasting activities	-15.0	-3.7	14.1	6.1	0.4	1.2
5. Professional-scientific-technical activities						
Legal, accounting and management consulting services	-13.5	4.1	6.9	6.0	-2.9	13.7
Architectural and engineering services	-9.1	-8.4	-12.8	0.4	4.1	20.7
Advertising and market research	-5.9	3.9	-1.1	9.9	-8.6	12.0
Travel agencies and related activities	-4.7	9.1	25.6	3.1	-75.0	112.2
B. Passenger traffic						
Athens International Airport (AIA)	10.7	8.6	11.0	6.0	-68.4	52.8
Aegean Airlines[1]	7.0	6.0	5.7	7.3	-65.5	38.9
Piraeus Port (OLP)	-3.0	4.1	2.2	8.7	-59.3	34.7
C. Services confidence indicator	1.5	16.9	4.6	0.7	-22.2	137.8

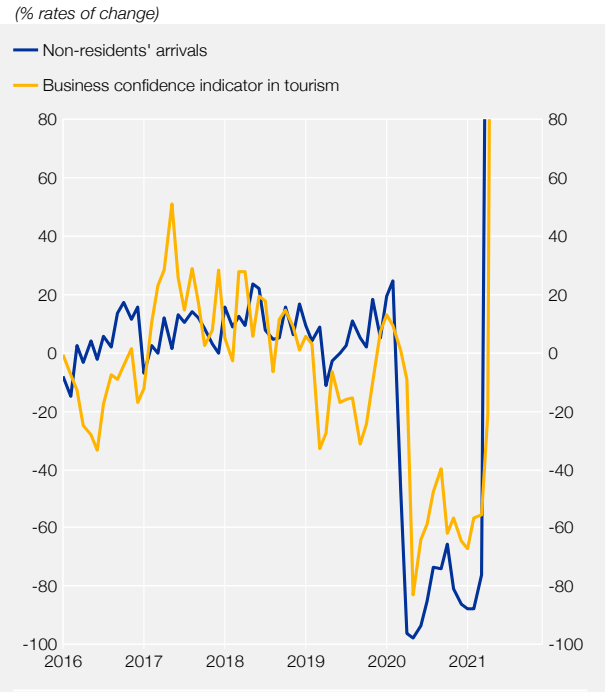
Sources: ELSTAT (services turnover); Athens International Airport, Aegean Airlines, Piraeus Port Authority and IOBE (services confidence).
1 Including charter flights.

The output in construction rose by 12% in 2021. The positive dynamics of this sector is also reflected in a significant increase in the volume of building permits (45.9%) and the construction confidence indicator (103.5%) in 2021 (see Table IV.2).

In 2021, the gross value added of the services sector grew at an annual rate of 6.8% and had a positive contribution of 5.5 pp to the change of total gross value added, reflecting a recovery in economic activity. Available information on the turnover in services at current prices for 2021 (see Table IV.4) confirms the continuously improving performance of the tertiary sector and a gradual return of the economy to normality. This is also reflected in business expectations in services, as the relevant indicator increased significantly in 2021.

Despite pandemic-related adverse effects on economic activity in the tertiary sector, the use of new technologies, combined with digital transformation and technological upgrading over the past two years, appears to have contributed to solid growth in the services sector. Moreover, digital transition is a priority for the EU and a key objective of the NGEU, together with green transition.

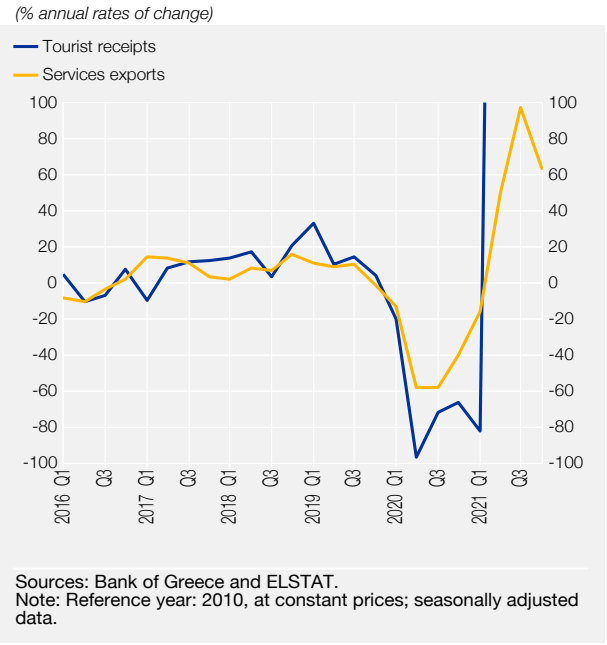
Chart IV.9 Inbound traveller flows and business confidence in tourism (January 2016 - December 2021)



Sources: Bank of Greece and IOBE (expectations).

Turning to tourism services, non-residents' arrivals and travel receipts for 2021 reached 47% and 59% of the corresponding 2019 figures (see Charts IV.9 and IV.10) and evolved in line with the most positive scenario. Foreign arrivals at the airports throughout the country were 97% higher on an annual basis, though falling short of their 2019 levels by 46.3%. In addition, the annual growth of foreign passenger traffic was more pronounced at the country's regional airports than at Greek airports as a whole, reaching 123.7% in 2021. Finally, business confidence in tourism-related industries (accommodation, food services) has returned to positive territory, indeed in some cases to prepandemic levels.

Chart IV.10 Tourist receipts and exports of services (Q1 2016 - Q4 2021)



Sources: Bank of Greece and ELSTAT.
Note: Reference year: 2010, at constant prices; seasonally adjusted data.

For 2022, Greek tourism should further improve its performance, aiming to return to 2019 levels. However, the current health crisis, coupled with increased uncertainty due to Russia's invasion of Ukraine and higher energy costs in recent months, is a drag on the recovery of tourism. Nevertheless, a possible gradual mitigation of seasonality, an expansion of tourism activity to more regions and an increase in average expenditure and length of stay per visitor might play an important role in achieving a positive performance in tourism.

Box IV.2

THE EFFECTS OF THE PANDEMIC ON GREEK HOUSEHOLD SAVINGS

To address the economic impact of the COVID-19 pandemic, governments, notably in developed economies, have used a wide range of fiscal measures to support businesses and employees in affected sectors so as to preserve existing jobs and disposable income. The implementation of lockdown measures during the pandemic forced households to abstain from consumption, which, coupled with government income support measures, has led to a large increase in private savings.[1]

1 See Dossche, M. and S. Zlatanos (2020), "COVID-19 and the increase in household savings: precautionary or forced?", ECB Economic Bulletin, Issue 6, and Smith, A.L. (2020), "Why are Americans saving so much of their income?", Kansas City FED Economic Bulletin.

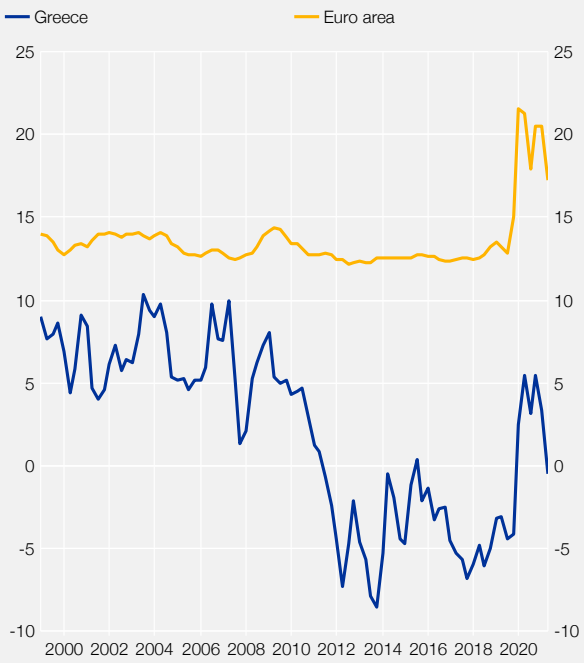
This box aims to examine the evolution of Greek households' savings during the pandemic, as well as their allocation among different forms of wealth. We also analyse the reasons for increased savings, focusing on two key factors. First, the implementation of containment measures has led to an abrupt interruption of economic activity in various sectors, thereby increasing employees' uncertainty about their employment in the future. Increased uncertainty has led to decreased consumption since, in times of crisis and severe disruptions, employees usually prefer to hold precautionary savings in order to protect themselves from a future drop in their income.[2] Second, because of the containment measures, consumers were forced to reduce many of their activities, which resulted in an involuntary decrease in consumption and inevitably in forced savings. The distinction between the two is important, as literature shows that an increase in precautionary savings has negative and long-term consequences.[3]

Savings during the pandemic

Chart A shows the pattern of savings in Greece and the euro area between 1999 and Q3 2021. Though Greek households' savings as a percentage of disposable income have been below the euro area average over time, they fell very strongly during the sovereign debt crisis and remained at negative levels between 2011 and 2020. Although the debt crisis led to a major adjustment in household behaviour, consumption expenditure fell less than disposable income, as Greek households used their savings to finance part of their consumption.[4] This household reaction is known in literature as "habit persistence" and stems from households' tendency to avoid major changes in their consumption habits.

Chart A Household savings

(% of disposable income, Q2 1999 - Q3 2021)



Sources: ELSTAT, Eurostat and Bank of Greece calculations.

Chart B1 shows the contribution of consumption and disposable income to the change in savings, as a percentage of disposable income, vis-à-vis Q4 2019. In 2020, the increase in savings was almost exclusively attributable to reduced consumption compared to the pre-pandemic period. Income growth only started to play a role in 2021. Characteristically, in Q1 2021, before consumption increased significantly in Q2, income was 3% higher than in Q4 2019, but consumption was 8.7% lower. The picture is very similar in the rest of the euro area.[5] It started to change in Q2 2021, when savings became negative for the first time since the onset of the pandemic, and was fully reversed in Q3 2021, when disposable income increased significantly, but consumption exceeded pre-pandemic levels.

Chart B2 shows the uses of Greek households' savings vis-à-vis the 2019 average based on the financial definition of savings, i.e. the interaction of investment and household debt.[6] It can be observed that the increase in

2 See Skinner, J. (1988), "Risky income, life cycle consumption, and precautionary savings", *Journal of Monetary Economics*, 22(2), 237-255, and Hurst, E., A. Lusardi, A. Kennickell and F. Torralba (2005), "Precautionary Savings and Entrepreneurship", NBER Working Paper No. 11731.

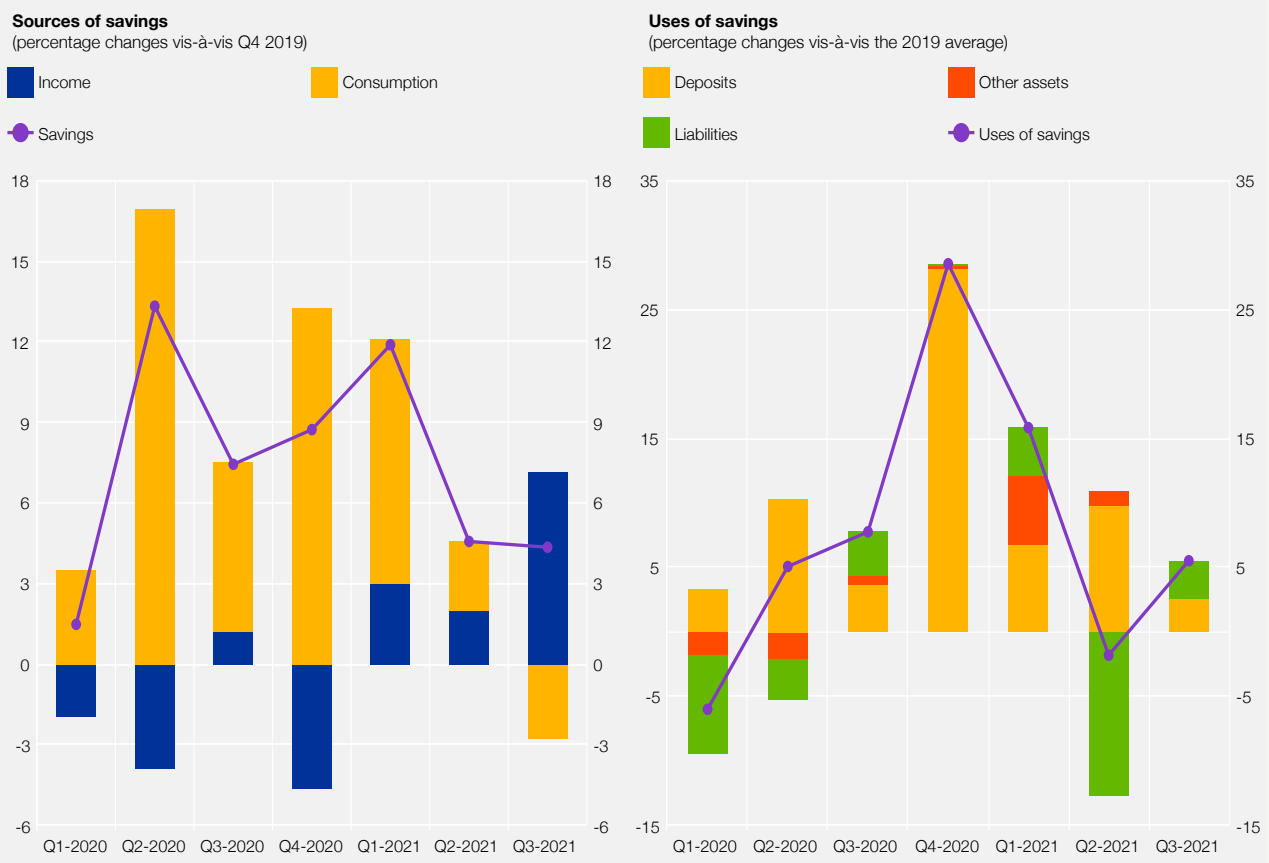
3 See Guerrieri, V. and G. Lorenzoni (2017), *Quarterly Journal of Economics,* 132(3), 1427-1467, and Degorce, V. & E. Monnet (2021), "The Great Depression as a Saving Glut", CEPR Discussion Paper No. 15287.

4 The estimation of consumption is presumed to be more accurate than the estimation of income, so savings are also likely to be underestimated. However, any measurement error relates to the level, and not the evolution of savings, and does not change the qualitative characteristics of the data presented.

5 See Dossche, M., G. Kurstev and S. Zlatanos (2021), "COVID-19 and the increase in household savings: an update", ECB, *Economic Bulletin*, Issue 5.

6 The financial definition of savings is derived from the financial accounts as follows: Savings = financial investment – borrowing + non-financial investment.

Chart B Sources and uses of savings



Sources: ELSTAT and Bank of Greece, Financial accounts. Bank of Greece calculations.

savings mainly relates to increased deposits (including banknote holdings) and, to a much lesser extent, other assets (bonds, shares or non-financial assets, such as real estate). Liabilities mainly relate to borrowing.

Savings ratio assessment model

In order to assess the factors that led to an increase in the savings ratio of Greek households during the pandemic, we construct an econometric model using quarterly data for the period Q1 1999 – Q3 2021, according to the equation:

$$SR_t = \alpha_0 + \alpha_1 UE_{12m} + \alpha_2 MOB_t + \alpha_3 \Delta \ln INC_{t+1} + \alpha_4 NFW_{t-1} + \alpha_5 Y_{1999\text{-}2009t} + \varepsilon_t$$

The savings ratio (SR), the dependent variable, is defined as gross savings (difference between disposable income and consumption) as a percentage of gross disposable income. The first independent variable, UE_{12m}, is household unemployment expectations over the next 12 months and is used as a measure of employment income uncertainty, i.e. it enables the estimation of households' precautionary savings.[7] The model comprises the expected rate of change in gross disposable income in the ensuing period t+1 ($\Delta \ln INC_{t+1}$) and the net financial wealth ratio in the previous period t-1 (NFW_{t-1}) as additional explanatory variables for the savings ratio. To estimate forced household savings during the pandemic, we use mobility (MOB) data during the pandemic (source: COVID-19 Google Community Mobility Reports), specifically data on citizens' movements to public transport hubs (available on a daily basis for 2020). As data for 2021 are not available, we apply a dynamic MOBt fore-

7 See Carroll, C.D., J. Slacalek and M. Sommer (2019), "Dissecting saving dynamics: Measuring wealth, precautionary and credit effects", NBER Working Paper No. 26131.

casting model.[8] The MOBt variable of the model is derived from the average weekly movements of passengers on public transport for each quarter.[9] Lastly, ε_t identifies the error.

The results obtained from the model estimation are presented in the table below and show the relative importance of precautionary and forced savings respectively. The UE_{12m} coefficient is positive and statistically significant, while passenger movements on public transport during the pandemic (MOBt) have a negative correlation with consumers' savings. Also, as expected, a decline in the expected growth rate of disposable income ($\Delta lnINC_{t+1}$) leads households to save more. The financial wealth coefficient (NFW_{t-1}) is positive, but not statistically significant.[10]

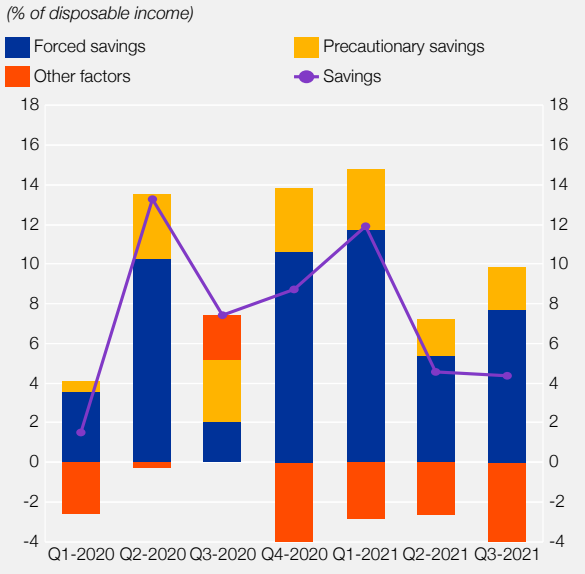
Results from the savings ratio assessment model

Determinants of the savings rate

Dependent variable	UE_{12m}	MOB_t	NFW_{t-1}	$\Delta lnINC_{t+1}$	$Y_{1999-2009t}$
SR_t	0.0414***	-0.2650***	0.1831	-0.5104***	0.1079***
	(2.64)	(-6.86)	(1.18)	(-5.91)	(17.17)
N	89				
R^2	0.78				

Notes: Quarterly ELSTAT data are used for gross savings, gross disposable income and net financial wealth. Household unemployment expectations in the coming 12 months (UE_{12m}) are derived from the EU Consumer Survey. Passenger movements on public transport MOB_t were compiled from the COVID-19 Google Community Mobility Reports. In parentheses: T-statistics. ***, ** and * indicate a level of significance of 1%, 5% and 10% respectively.

Chart C Contribution of forced and precautionary savings



Sources: ELSTAT and Bank of Greece Calculations.

This model helps us distinguish the respective contribution of precautionary and forced savings to the Greek households' savings ratio during the pandemic. As shown in Chart C, these are the two main factors that contributed more to the increase in the savings ratio throughout the pandemic compared to Q4 2019. In particular, the bulk of the sizeable increase in the savings ratio in Q2 2020, immediately after the outbreak of the pandemic, is attributed to the forced decrease in consumption due to lockdown and social distancing measures. The other factors, depicted in the red part of the bar, relate to the effect of the expected rate of change in disposable income, net financial wealth, as well as εt, i.e. all other factors that cannot be interpreted by the model.

In Q3 2020, the picture is reversed, with precautionary savings having a more decisive impact than forced savings.[11] From Q4 2020 to Q3 2021, forced savings had a greater impact than precautionary savings, and this relationship is maintained in Q3 2021, when the savings ratio declined significantly. Overall, around 70% of the

8 Specifically, the forecast is made using the Oxford Government Response Tracker sub-index, which records the stringency index. Weekly 2020 data are used, integrating two time lags of the MOBt and the two sub-indices.

9 The model's pseudo-variable $Y_{1999-2009t}$ takes the value of 1 for the period 1999-2009, i.e. before the financial crisis, and 0 for the period 2010-2021. The rate of change in income is added to isolate income uncertainty in the variable UE_{12m}.

10 The pseudo-variable $Y_{1999-2009t}$ coefficient is positive and statistically significant, since Greek households have substantially reduced their savings during the financial crisis; see Charalambakis, E. (2017), "How did the Greek financial crisis impact on households? A comparison between the two waves of the HFCS", Bank of Greece, *Economic Bulletin*, 45, 37-53.

11 This may be due to the fact that household concerns about potential loss of employment in the future remained high, possibly due to the uncertainty at the time about whether pandemic-related measures to support the Greek economy would continue.

total increase in savings during the pandemic is attributed to forced savings and 30% to precautionary savings (without taking other factors into account). The impact of the other factors is significant, especially in Q4 2020 and Q3 2021. The bulk of this impact stems from the anticipated rate of change in disposable income.

Conclusions

The increase in savings during the pandemic is, from an accounting point of view, mainly due to decreased consumption and, secondarily, to increased disposable income. A simple linear model has shown that around 70% of the overall increase in savings during the pandemic is attributable to forced savings and 30% to precautionary savings. The smaller role of precautionary savings is likely to be due to the crucial role of fiscal measures to support businesses and households, which have preserved existing jobs by reducing the risk of future income loss and the households' need for precautionary savings.

The decline in private consumption during the pandemic was largely due to the lockdown measures. On the other hand, the large contribution of forced savings to the households' savings ratio throughout the pandemic is an encouraging signal of the potential of private consumption to support growth in the medium term, especially since disposable income has been rising significantly since Q2 2021. Increasing private consumption in the medium term will be of paramount importance, especially when support measures are withdrawn, including through the provision of incentives to firms in order to prevent layoffs.

Box IV.3

HOUSEHOLDS' CONSUMPTION BEHAVIOUR DURING THE PANDEMIC

Depending on the phase of the economic cycle, consumer spending components (durable, semidurable goods and services)[1] exhibit a different financial behaviour.[2] Spending on durables plays a key role in total consumption developments, as apparently it functions as a leading indicator for economic activity and is associated with the concept of pent-up demand.[3] Nevertheless, in countries that rely heavily on tourism, such as Greece, spending on services is a decisive factor in shaping total consumption.

This box analyses the components of domestic consumer spending in Greece, i.e. on goods and services, during the COVID-19 pandemic. It is a valuable analysis, as it highlights the relative contributions of individual components to changes in consumption and indicates the special role played by durables.

During the pandemic, owing to the extraordinary conditions prevailing and heightened uncertainty, consumption behaviour changed, reflecting changes in consumption patterns.[4] A study of the characteristics of the current

1 Households' domestic consumer spending includes consumption expenditure of non-resident households (tourists) in the economic territory of Greece, while excluding consumption expenditure of resident households abroad. Thus, it is not equal to national consumption, a GDP component net of tourists' consumer spending. Domestic consumption is the sum of services and nondurable and semidurable goods (breakdown by purpose). Durables and nondurables are distinguished on the basis of service life and purchase price. Durable goods (automobiles, furniture, computers, jewellery, etc.) can be used repeatedly or continuously for over 5 years and are more expensive; by contrast, nondurables can be used only once and their purchase price is lower (food, hygiene-related products, detergents, fuel, tobacco, newspapers, pets, plants, etc.) Semidurable goods differ from durable goods in that their expected service life lies between 1 and 5 years and their purchase price is lower (clothes, games and toys, books, electrical appliances for personal use, etc.).

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

3 Beraja, M. and C.K. Wolf (2021), "Demand composition and the strength of recoveries", National Bureau of Economic Research, NBER Working Paper No. 29304.

4 ECB (2020), "Consumption of durable goods in the euro area", *Economic Bulletin*, Issue 5, and Farrokhnia, R.A., S.R. Baker, M. Pagel, C. Yannelis and S. Meyer (2020), "How does household spending respond to an epidemic? Consumption during the 2020 COVID-19 pandemic", National Bureau of Economic Research, NBER Working Paper No. 26949.

crisis established that, in contrast with previous economic crises, (a) consumer spending registered a remarkable shift towards goods (with a focus on durables) at the expense of services and (b) there was an unusually strong increase in savings, due to fiscal income support measures and an involuntary cutback of consumption during the lockdown, which however mostly concerned higherincome households with a lower marginal propensity to consume.[5]

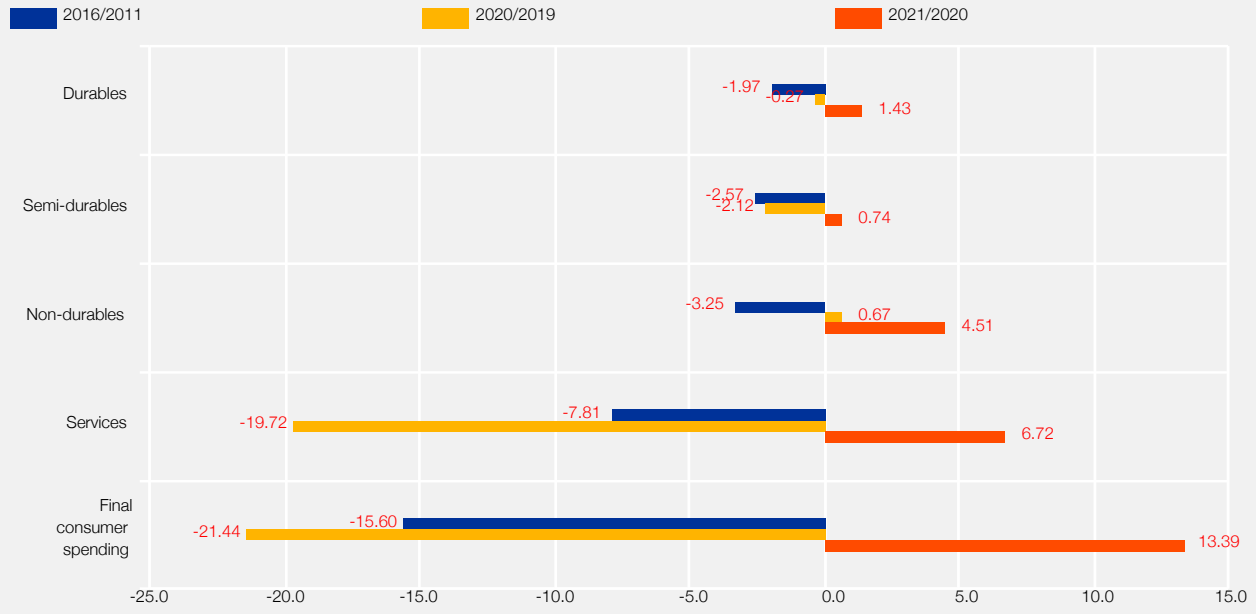
Nevertheless, during the ongoing pandemic savings continue to increase and are expected to support consumption when pent-up demand is released. Several studies highlight the fact that excess savings are extremely heterogeneous across the income distribution, with the largest part of excess wealth concentrating in the top quartile. In the United Kingdom,[6] almost half of the increase in savings during the pandemic stemmed from well-off households, while in the European Union and in France,[7] worse-off households saw a decrease in consumption and savings and an increase in debt. Lastly, other surveys suggest that households are likely to draw down excess savings gradually rather than suddenly[8] as the economy recovers.

Developments in consumer spending by purpose during the pandemic

Despite the fact that real disposable income in Greece grew by 1.3%[9] in 2020, consumer spending at constant previous year prices fell by €21.4 billion or by 15.4% (see Chart A). A key feature of this period both in Greece and internationally was a substantial decrease in spending mostly on services (€19.7 billion), which accounted for 92% of the total decline in consumer spending, against 50% during the previous financial crisis (between 2011 and

Chart A Change in consumer expenditure over 2021-2020, 2020-2019 and 2016-2011

(at constant previous year prices; billion euro)



Source: ELSTAT.

5 Levell, P. (2021), *Consumption spending in the wake of the pandemic*, The Institute for Fiscal Studies.
6 HacıoğluHoke, S., D.R. Känzig and P. Surico (2021), "The distributional impact of the pandemic", *European Economic Review*, 134.
7 European Commission (2021), *European Economic Forecast,* Spring 2021, Institutional Paper No. 149, p. 53, and Bounie, D., Y. Camara, E. Fize, J. Galbraith, C. Landais, C. Lavest, T. Pazem and B. Savatier (2020), "Consumption Dynamics in the COVID Crisis: Real Time Insights from French Transaction & Bank Data", *Covid Economics, Vetted and RealTime Papers,* Issue 59.
8 Bank of England (2021), "How have households' spending expectations changed since last year?" and European Commission (2021), "Will consumers save the EU recovery? Insights from the Commission's consumer survey", SUERF Policy Note No. 237.
9 At constant 2015 prices =100.

2016).[10] The strict lockdown measures implemented to contain the spread of the pandemic led to a drop in consumer spending, mostly in sectors such as tourism, travel, transport, food services and entertainment.

During the same period, a slight rise (of €0.7 billion) in spending on nondurables was recorded, as many households increased specific inelastic expenses, such as food, detergents etc., owing to the particular nature of the health crisis, which called for staying at home as a result of the lockdown and the implementation of teleworking. This, combined with household income support measures and households' familiarity with online shopping, explains the resilience of durables, which only recorded a slight decrease (€0.3 billion), compared with the sharp drop they registered during earlier recessions. Specifically, significant changes brought about by the pandemic in labour and education pushed some households to purchase or upgrade technological and household equipment in order to cope with the new requirements and set up special athome office spaces. Lastly, semidurables, which are not included in necessities, dropped by €2.1 billion in 2020.

In 2021, as the Greek economy rebounded strongly, posting an annual growth rate of 8.3%, consumer spending at constant previous year prices increased by €13.4 billion or 11.4%, falling short of pre-pandemic levels by 5.8%. Consumption growth was primarily fuelled by a substantial recovery in tourism, which led to an increase in spending on services (€6.7 billion or 11.4%) compared with 2020. Moreover, the reopening of the economy in May, when travel restrictions were lifted and food services reopened, boosted consumption of nondurables, which grew by €4.5 billion or 9.8%. The strong increase in durables (€1.4 billion or 22.3%) was particularly interesting, reflecting the release of significant part of the previous year's pent-up demand for these goods. It should be noted that this represented almost 11% of consumption growth in 2021, despite the very small share of durables (6.0%) in total consumer spending. Lastly, semidurables also registered a substantial increase (€0.7 billion or 11.8%), following a similar pattern as durables and also releasing part of the previous year's pent-up demand.

Change in the composition of consumer spending

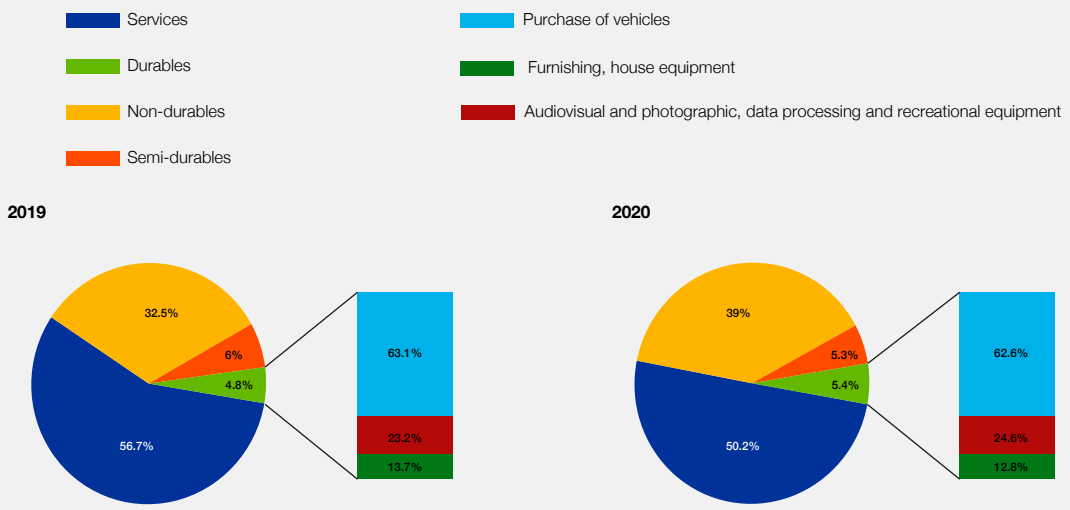
A shift of consumer spending towards goods at the expense of services reflects a change in households' consumption patterns during the pandemic. In 2020, the share of services in total expenditure fell to 50.2% (from 56.7% in 2019), while the share of nondurables grew remarkably to 39% (from 32.5% in 2019) and the share of durables rose to 5.4% (from 4.8% in 2019) (see Chart B).[11]

Between 2019 and 2020, the share of audio-visual equipment grew from 23.2% to 24.6%, reflecting the purchases of technology, e.g. computers and printers, which became necessary owing to the particular conditions prevailing during the pandemic. By contrast, the share of purchases of both motor vehicles and home appliances declined slightly (from 63.1% to 62.6% and from 13.7% to 12.8%, respectively), while only specific products of the latter category showed an increase (such as washing machines and dishwashers), which covered special needs due to the protracted staying-at-home conditions (see Chart B). In 2021, i.e. the year when economic activity recovered, the percentage shares in consumer spending were almost unchanged compared with 2020. The shares of services and semidurable goods in total spending remained the same. By contrast, an increase in the share of durables to 6% was noted (from 5.4% in 2020), at the expense of nondurables (which dropped to 38.5%, from 39.0% in 2020).

Durables are the most volatile and procyclical component of consumption, due to their unique characteristics, which render them similar to investment. These goods feature high purchase prices and a long-lasting nature, yielding utility over time, while their purchase may be postponed in times of great uncertainty.[12] Chart C shows that durables are more volatile, presenting significant variations throughout the year compared with other consumer spending components. Specifically, consumer spending on durables grew faster than total consumption

10 In the period 2011-16, GDP fell by 9.6% in real terms.
11 In the euro area, in 2018, the share of both services (53.7%) and nondurables (29.1%) was smaller compared with the respective shares for Greece, while the share of durables was almost double that of Greece (9%). ECB (2020), "Consumption of durable goods in the euro area", Economic Bulletin, Issue 5.
12 ECB (2014), "Recent developments in the consumption of durable goods in the euro area", *Monthly Bulletin*, Box 6, May.

Chart B Percentage composition of consumer spending by purpose and composition of durables

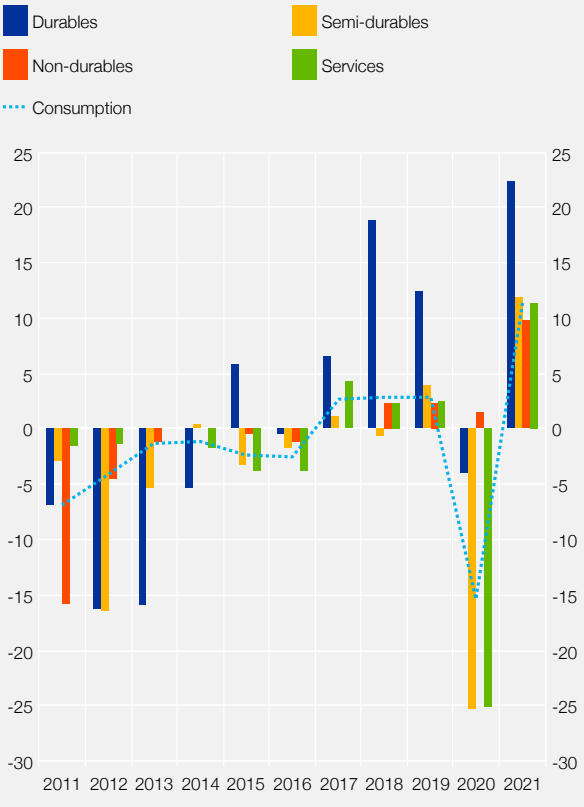


Source: ELSTAT.

during periods of economic expansion (20172019)[13] and declined more than consumption during recessions (20122013). However, owing to the unique conditions prevailing in the current health crisis and contrary to the past, consumption of durables was resilient, falling markedly less (4.0%) than total consumer spending. By contrast, services and semidurables dropped by 25.1% and 25.4%, respectively, while nondurables registered a small increase (1.5%). In 2020, the annual decrease of consumer spending by 15.4% was mainly attributable to services (by 14.2 pp) and secondarily to semidurables (by 1.5 pp), while durables had a very small negative contribution (0.2 pp). By contrast, nondurables had a countervailing effect, with a 0.5 pp positive contribution. In 2021, durables grew much faster (22.3%) than total consumption (11.4%) and other consumption components, with a positive contribution of 1.2 pp to this increase. Lastly, the contribution of other components to consumption spending growth was 5.7 pp for services, 3.8 pp for nondurables and 0.6 pp for semidurables.

Chart C Consumer spending components

(at constant previous year prices; annual percentage changes)



Source: ELSTAT.

Durable goods and pent-up demand

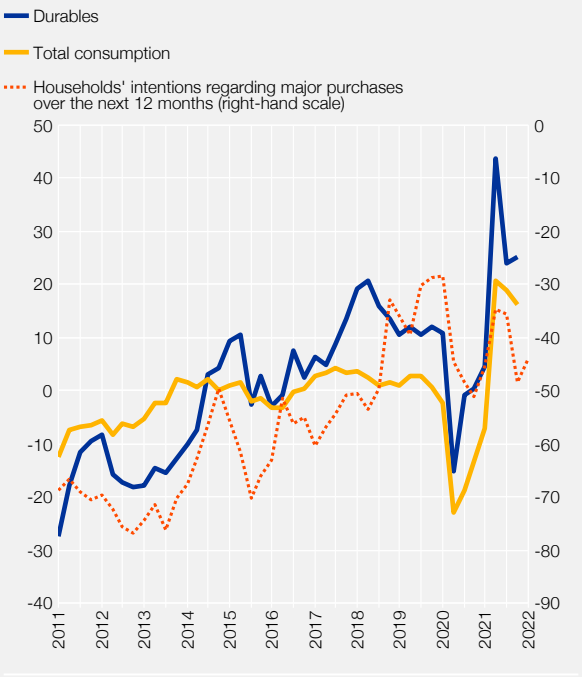
Consumer durables are more closely linked with the concept of pent-up demand compared with services.[14] This is because in periods of economic uncertainty, spending on durables is put off (intertemporal substitution), to be realised when economic conditions allow, while unrealised spending on services is either lost, i.e. it cannot

13 In the 201819 period, on average, durables represented almost 1/4 of the increase in consumption, despite their small share (4.6%) in total consumer spending.

14 ECB (2021), "The implications of savings accumulated during the pandemic for the global economic outlook", *Economic Bulletin*, Issue 5.

Chart D Total consumption, consumption of durables in Greece and intentions regarding major purchases over the next 12 months

(annual % change at constant 2015 prices=100 and balance of responses; quarterly data)



Sources: ELSTAT, Eurostat and European Commission.

be made up for or replaced by other spending (e.g. eating in restaurants is replaced by eating at home). In the fourth quarter of 2020, spending on durables in Greece started to recover, releasing part of the two previous quarters' pent-up demand (see Chart D). In fact, this recovery preceded the rebound in total consumption and GDP by half a year. Subsequently, in the second quarter of 2021, the recovery in spending on durables accelerated and was clearly stronger than total consumer spending, while in the third and fourth quarters it settled at higher rates compared with prepandemic levels.

The positive course of durables was boosted by households' improved confidence and optimism, as reflected in households' intentions regarding major purchases over the next twelve months[15] (see Chart D). This improved substantially in January-September 2021, before falling again in the fourth quarter, reflecting a deterioration in household confidence and an increase in uncertainty, due to the resurgence of the pandemic, with the emergence of the Omicron variant, and inflationary pressures.

Conclusions

In 2020, the year that saw the onset of the pandemic, consumer spending at constant prices in Greece dropped substantially by 15.4% or €21.4 billion. A distinct feature of this period was a strong decline in spending on services, due to the lockdown measures implemented to contain the spread of the pandemic, while at the same time spending shifted towards goods. Specifically, spending on nondurable goods increased, while on durable goods it was resilient and registered a remarkably smaller decline compared with the previous financial crisis. In 2021, the Greek economy rebounded strongly, largely reflecting the growth momentum of consumption, on the back of increases in services and all categories of goods (durables, semidurables, nondurables). Specifically, the upward course of services was fuelled by a recovery of a substantial part of losses in tourism, while the increase in durables and semidurables was supported by a release of a substantial part of the previous year's pent-up demand.

However, pent-up demand underpinning services consumption is relatively limited compared to pent-up demand for durables. For Greece, which is highly reliant on services, a full rebound of this component would be key to further consumption growth. Within this context, excess savings created by the pandemic are expected to gradually rather than suddenly translate into higher consumption.

15 Households' intentions regarding major purchases over the next twelve months is a household consumer confidence subindicator, under the European Commission's consumer survey, with good predictive accuracy for future spending on durables in the euro area. See ECB (2015), "Recent developments in the consumption of durable goods in the euro area", *Monthly Bulletin*, Issue 3.

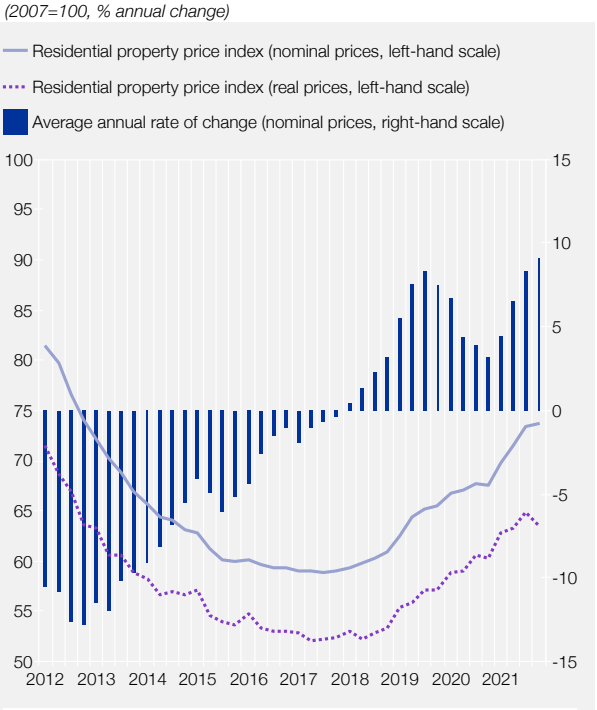
3 DEVELOPMENTS AND PROSPECTS IN THE REAL ESTATE MARKET

After experiencing strong volatility, during 2021 and in the first quarter of 2022 the Greek real estate market went through a period of positive expectations for normalisation and further growth. However, new uncertainties are caused by the fact that the functioning of the market continues to be partly affected by the current health crisis, coupled with recent geopolitical de-

velopments and the substantial turmoil caused in recent months by higher energy costs and increased prices. The repercussions on the real estate market, which are currently to a large extent absorbed by investors, owners and constructors, may gradually begin to be reflected in new real estate projects and prices, especially if it becomes apparent that the duration of the impact will affect the medium-term valuation of real estate.

Chart IV.11 Residential property price index (Q1 2012 - Q4 2021)

(2007=100, % annual change)



Source: Bank of Greece.

According to the apartment price indices published by the Bank of Greece, the rates of increase in housing market prices accelerated gradually compared with the previous year. In more detail, on the basis of data collected by credit institutions in Greece, in 2021, for the fourth consecutive year, apartment prices (in nominal terms) rose by 7.1% (4.5% in 2020). As regards quarterly developments, there is a significant gradual acceleration in the annual rate of increase in prices (4.5%, 6.5%, 8.3% and 9.1% in the first, second, third and fourth quarters, respectively) (see Chart IV.11). Prices of "new" apartments in 2021 rose at an annual rate of 7.4%, slightly stronger than the rate for "old" apartments (6.9%). Developments by geographical area suggest that the highest annual rates of increase in apartment prices were recorded in Athens (9.1%) and Thessaloniki (6.9%), while these rates were quite lower in the country's other major cities and other semi-urban and rural areas (5.4% and 4.6%, respectively).

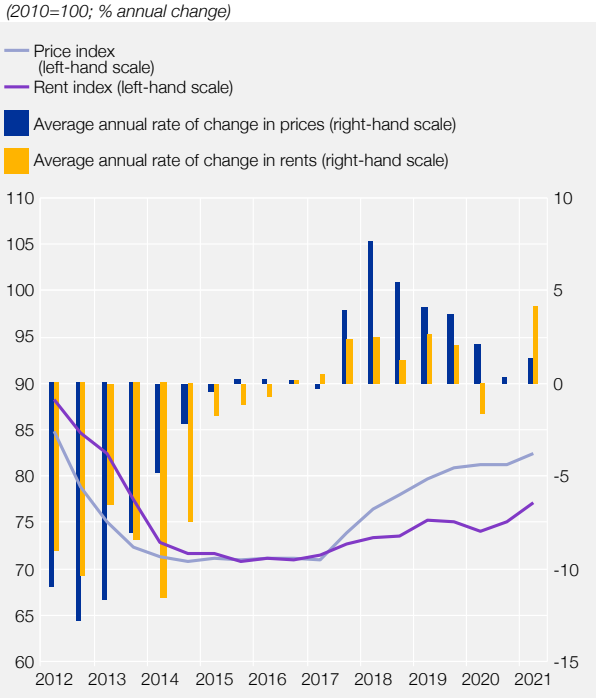
Housing market dynamics in 2021 are confirmed by relevant individual indicators. Specifically, according to ELSTAT data, in 2021 residential construction activity continued to increase at country level in comparison with 2020, in terms of both number of new building permits and volume of new construction (47.6% and 54.1% respectively), while the rates of increase in Attica were markedly higher (64.1% and 70.5% respectively).

In 2021, housing investment (at constant prices) grew significantly by 26.5% (14.6% in 2020), but remained low as a percentage of GDP (1.3%). On the basis of Bank of Greece data, in 2021 net foreign direct investment in Greece for the purchase of real estate amounted to €1,176.1 million (up by 34.4% on an annual basis), with Golden Visa transactions for 2021 being slightly higher than in 2020 (10.3% for residence permits granted to investors-real estate buyers), though still falling short of pre-pandemic levels. Lastly, in 2021, IOBE's residential construction confidence indicator improved significantly (54.4%), having declined in 2020 (-19.9%).

In commercial real estate, based on the data collected by the Bank of Greece, in the first half of 2021 prime office prices increased by 1.4% compared with the previous six months, while prime retail prices rose by 1.1% (see Charts IV.12 and IV.13). In Athens, the corresponding rate of increase in office prices was considerably higher (3.2%), reflecting strong investor interest in this market, unlike Thessaloniki (0.9%) and mainly the rest of Greece (-0.6%), where investor demand for offices was limited. On the other hand, for prime retail, the highest rates of increase were recorded in the price index for the rest of Greece (2.1%), mainly due to new transactions recorded in tourist destinations at the high end of the market. In Athens and Thessaloniki, the corresponding rates of increase were moderate (0.7% and 0.3% respectively). Lastly, office

Chart IV.12 Office price indices (first half of 2012 - first half of 2021)

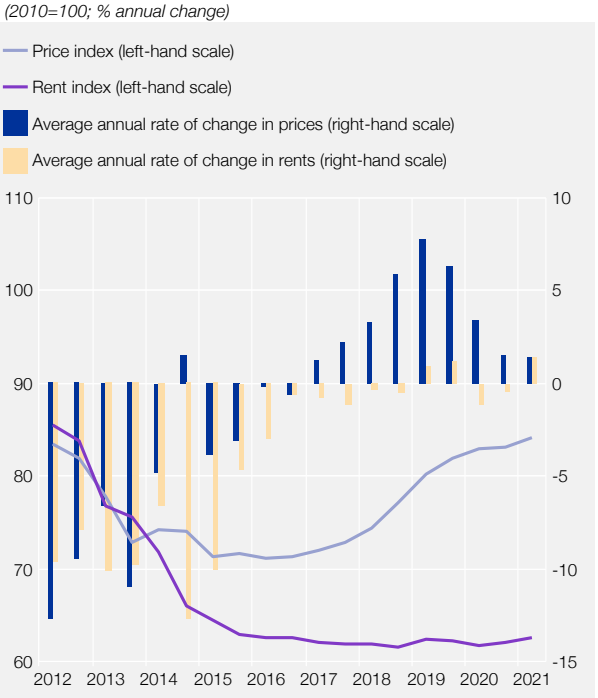
(2010=100; % annual change)



Source: Bank of Greece.

Chart IV.13 Retail price indices (first half of 2012 - first half of 2021)

(2010=100; % annual change)



Source: Bank of Greece.

and retail rents increased by 2.7% and 0.9%, compared with the end of the second half of 2020. Specifically in Athens, office rents rose by 1.4% and retail rents by 1.0%, registering a marginal acceleration compared with the previous half-year period (1.2% and 0.9%, respectively).

In 2021, building activity for commercial use (ELSTAT data) recorded high positive rates,[4] after a year of significant deceleration in building activity, which was attributable to both the uncertainty and the temporary suspension of operations of relevant government services in the first half of 2020. In this context, the number of new permits compared with 2020 increased by 29.7% for offices, 67.9% for retail property and 51.2% for hotels.

In the course of 2021, Real Estate Investment Companies (REICs) invested over €550 million, some of which at very low yields. It is estimated that around 80% of REIC investment funds have already been or are intended to be directed to the Greek market. Around 36% of such funds was invested in offices, 30% in retail property, 12% in hotels and 10% in business warehouses, while the remaining share was invested in other commercial property or land for development. With regard to the geographical breakdown of investment, it is estimated that only 59% of the funds were directed to the Attica prefecture, which represents a significant divergence from previous years, when the vast majority of investment (over 70%) was attracted by Attica. There is also a significant variation in the dispersion of investment within the greater capital region, as investment concerns commercial property not only in the city and the northern and southern suburbs, but also locations in the periphery of the capital and on the borders of the prefecture of Attica. As regards the activities of other investment portfolios, real estate development companies and business networks, a significant number of investment projects is recorded in the city of Athens and in popular tourist islands and destinations across Greece for

4 In the course of 2021, new building permits for commercial property increased, on an annual basis, by 41.4% in terms of number and by 37.4% in terms of volume of new construction.

the development or reconstruction of prime hotel properties and at the greater Athens and Thessaloniki regions for the purchase or development of business warehouses, as well as the development of retail branch networks.

The outlook of the Greek real estate market, while remaining positive for its prime properties segment, now appears to be affected by heightened uncertainty. If geopolitical developments and the substantial increase in energy and material costs persist, they should lead to a drop in net returns on investment and squeeze the capital gains margin for investors and owners. In these circumstances, it is imperative to compensate for burdens and slowdowns by implementing reforms to support the real estate market. The involvement of a large number of government services, procedures and documentation in real estate transfers, as well as delays in court proceedings and the resolution of legal issues, have over the years led to suspension or delays in investment projects and need to be addressed immediately and effectively. Despite the progress made in recent years towards the digital transformation of the State, further significant steps are needed in the field of real estate transfers and investment to simplify and speed up procedures, in order to make the market more investor-friendly, especially in times of increased uncertainty.

4 EMPLOYMENT AND UNEMPLOYMENT: DEVELOPMENTS AND PROSPECTS

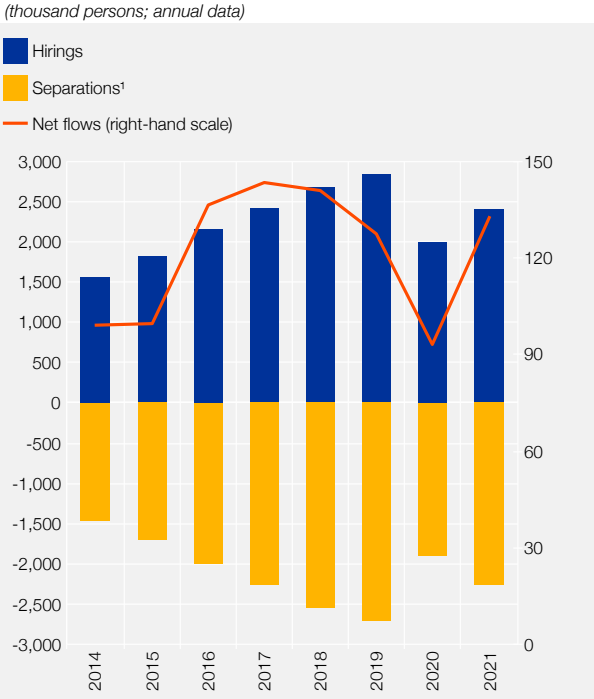
The impact of the health crisis on the labour market was limited compared with the decline in economic activity in 2020, as a result of the fiscal measures on employment protection taken early enough by the government. The negative outcome in the labour market persisted in the first four months of 2021. Since May, when most pandemic-related restrictions were lifted, the vaccination programme was expanded and the tourist season took off, the labour market has been recording positive rates of change in employment (1.4% in 2021) and a significant drop in the unemployment rate. Moreover, employment prospects remain positive and net employment flows in the private sector in 2021 matched pre-pandemic levels.

Data from the ERGANI system reflect positive developments in the labour market, as the balance of dependent employment flows in the private sector is positive, while registering higher levels than in 2020 and the pre-pandemic period. More specifically, 133,082 new jobs were created in 2021, against 93 thousand and 127.6 thousand new jobs in 2020 and 2019, respectively (see Chart IV.14), while the improved balance is mostly a result of increased hirings (+20.6%). As regards individual sectors of economic activity, the largest increase was seen in tourism-related activities, as the tourist season expanded compared with 2020. Lastly, full-time employment contracts reached 53.4% of the total, while part-time and rotational employment contracts stood at 46.6% (against 51.5% and 48.5%, respectively, in 2020).

Data from the annual report of the ERGANI system show an increase in both the number of

Chart IV.14 Dependent employment flows in the private sector (2014 - 2021)

(thousand persons; annual data)

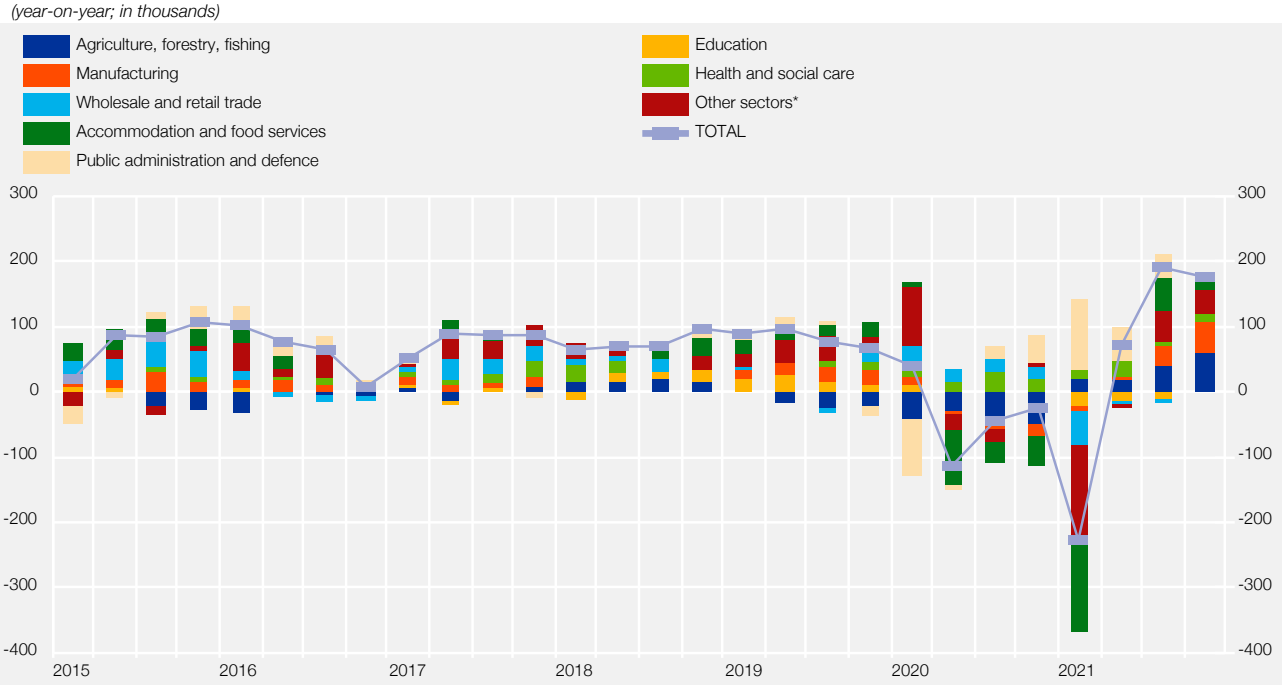


Sources: Manpower Employment Organisation (OAED) and "ERGANI" system.
1 Including termination and expiration of contracts and voluntary quits.

Chart IV.15 Changes in the number of the employed: total and by sector of the economy

(Q1 2015 - Q4 2021)

(year-on-year; in thousands)



Source: ELSTAT, Labour Force Survey.
* Including sectors with less than 6% contribution to total employment.

employees and the number of enterprises, despite the negative impact of the pandemic.[5] More specifically, the number of employees under private law contracts increased by 5.5% in 2021 on an annual basis, while the number of enterprises with employees grew by 4.5%. 56.3% of employees worked in micro, small and medium-sized enterprises (i.e. with up to 49 employees). In particular, 16.7% of employees work in micro enterprises (with fewer than 5 employees), which represent 72.4% of total enterprises; 12.1% in enterprises with 5-9 employees (14.5% of the total); 27.6% in enterprises with 10-49 employees (11.4% of the total); 17.8% in enterprises with 50-249 employees (1.4% of the total); and 25.9% of the employees work in enterprises with over 250 employees, which however represent a very small share (only 0.2%) of total enterprises.

According to ELSTAT Labour Force Survey (LFS) data, in 2021 the number of employees per sector of economic activity increased in the primary and the secondary sector (8.3% and 3.2%, respectively) and remained stable in the tertiary sector compared with 2020. At a sectoral level, employment growth over the same period was driven by an increase in the number of persons employed in manufacturing (5.1%, from -1.6% in 2020), public administration and defence (9.5%, from 2.7%), professional, scientific and technical activities (10.1%, from 5.2%) and human health and social welfare activities (5.2%, from 8.3%). By contrast, the number of persons employed declined in tourism-related activities (-5.6%, from -10.0%), reflecting the adverse –albeit milder– impact of the pandemic on this sector, in wholesale and retail trade (-2.4%, from +3.2%), in transport and storage (-0.1%) and in financial and insurance activities (-10.6%) (see Chart IV.15).

5 ERGANI, *Special Annual Issue, SEPE – OAED – EFKA, Electronic registration of enterprises and employees/wage earners under private law – Processing of notifications submitted from 1 October to 30 November 2021*, 21.2.2022.

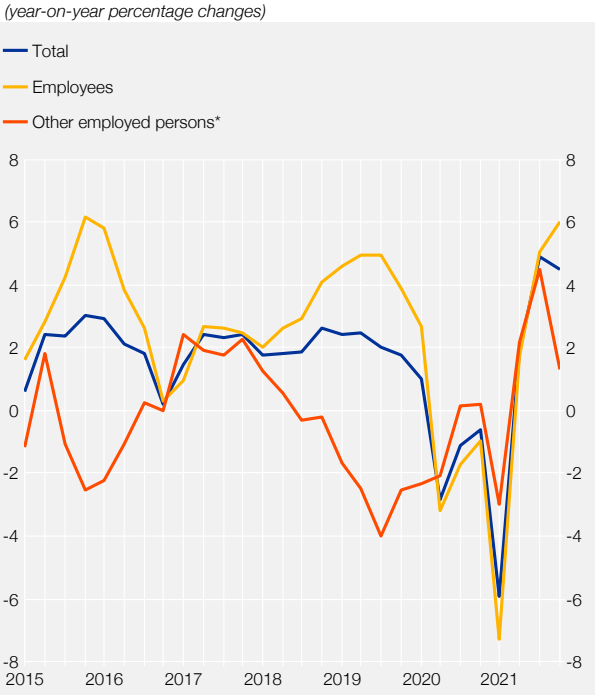
A breakdown of employment by age group reveals that in 2021 the over-45 age group recorded an increase in employment, with the largest positive change seen in those aged 45-64 (5.2%), contributing to an increase in the share of this age group (47.6%) in total employment. By contrast, the 20-24 and 30-44 age groups registered the largest declines (-1.3% and -3.9%, respectively), reducing their shares in total employment (3.3% and 37.4%, respectively). A breakdown by gender shows that both male and female employment increased by 1.6% and 1.0%, respectively, leaving their corresponding shares in total employment almost unchanged (57.8% and 42.2%, respectively). In terms of employment developments by educational level, the employed with upper secondary, post-secondary and tertiary education recorded positive rates of change.

Dependent employment in 2021 increased on an annual basis (1.4%, compared with -0.9% in 2020), while the number of other employees grew by 1.3%, reflecting increases in, primarily, the self-employed with staff and family workers and, secondarily, the self-employed without staff (see Chart IV.16).

Chart IV.16 Employment

(Q1 2015 - Q4 2021)

(year-on-year percentage changes)



Source: ELSTAT, Labour Force Survey.
* Other employed = self-employed with employees (employers) + self-employed without employees + contributing family members.

In 2021, the part-time employment rate dropped to 8.3% of total employees (8.7% in 2020), reaching its lowest level (7.8%) in the first quarter of 2021, which reflected the contribution of support measures, since many of the associated actions helped protect and create full-time jobs.

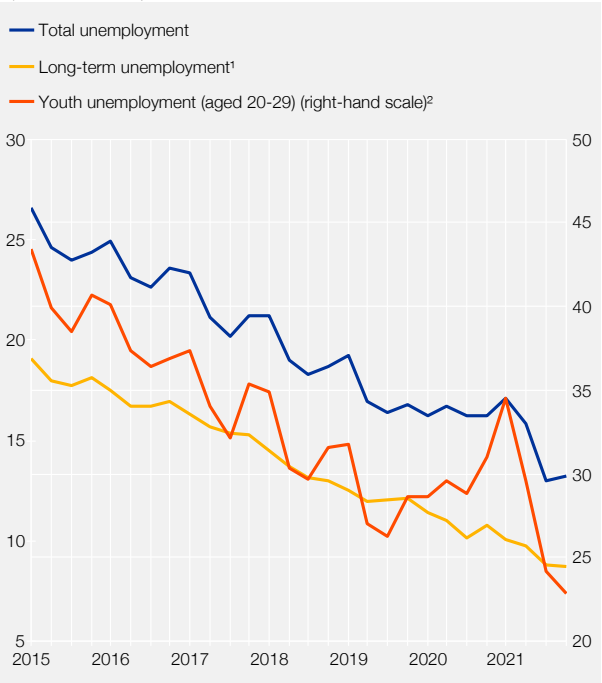
The labour force participation rate for the 15-64 age group in 2021 fell marginally (to 67.3%, from 67.4% in 2020), reflecting a marginal increase in the female labour force participation rate and a marginal decrease in the corresponding male rate. Labour force participation rates of different age groups present a mixed picture. The health crisis weighed heavily on younger age groups. Specifically, the participation rate of the 25-29 and 30-44 age groups fell significantly by 1.0 and 1.9 pp, respectively, while the participation rate of older ages in the labour force (45-64) continued to increase (by 1.9 pp). However, male, female and, especially, youth participation in the labour force is of particular importance, as an ageing population may undermine the sustainability of social security systems. Policies promoting reconciliation of family and work life and investing in the education and training of human capital, along with tax system reforms and the removal of incentives to early retirement, are important in this respect, as they help to reintegrate and keep more workers in the labour market. In addition, active integration and retention policies remain essential for supporting younger workers.

The unemployment rate in 2021 dropped to 14.7% (from 16.3% in 2020), declining for both men and women. Nevertheless, the distance from the European average remains wide. The female unemployment rate in 2021 fell to 18.9%, but remained clearly above the male unemployment rate (11.4%). The long-term unemployment rate also fell (to 9.3%, from 10.8% in 2020). However, the unemployment rate for the young (aged 20-29 years) stood at 27.7% (29.5% in 2020), as it rose substantially year-on-year in the first quarter of 2021 (see Chart IV.17). Protracted youth unemployment has long-term negative effects on youth employment prospects and earnings and increases the chances of exiting the domestic market and seeking

Chart IV.17 Unemployment rates

(Q1 2015 - Q4 2021)

(% of labour force)



Source: ELSTAT, Labour Force Survey.
1 For 12 months or over.
2 As a percentage of the labour force of this age group.

work abroad. Youth employment and participation in the labour market benefit from strengthening demand for this age group in sectors and jobs with high added value, attracting foreign direct investment and increasing the openness of the Greek economy. Lastly, teleworking is expected to help maintain jobs in Greek businesses as it should reduce operating costs, giving businesses additional competitive advantages through easy access to skilled labour, mostly offered by younger age groups.

As part of actions to boost employment and supporting income, the measures listed below will be implemented in 2022:[6] (a) extension of the SYN-ERGASIA programme until March 2022; (b) expansion of furlough schemes in catering, sports and culture (January 2022); and (c) extension of the 3 pp reduction in social security contributions. In addition, following up on the 2% increase in the minimum wage as from 1st January 2022 (from €650 to €663 per month), a further rise is expected as of 1st May 2022,[7] which should improve the income of lower-wage earners and boost disposable income and private consumption. As regards active employment policies, subsidised new jobs will increase from 100,000 to 150,000.[8] Moreover, in order to tackle unemployment for young persons of up to 29 years of age without work experience, support will be provided to their first full-time job amounting to a maximum of €1,200 for a period of 6 months. Lastly, overhauling training programmes so that they align more closely with labour market needs, matching education with the needs of the real economy and enhancing workers' digital skills are becoming the mainstay of employment policies in a changing labour market environment.

The anticipated positive growth rates of the economy, combined with the new measures, are expected to have a positive effect on the labour market. Nevertheless, the unfolding of the war in Ukraine, heightened uncertainty and the extent of inflationary pressures are projected to dampen economic activity. Accelerating the absorption of funds under the "Greece 2.0" National Recovery and Resilience Plan will help create new, highly skilled jobs and maintain positive employment growth rates. Moreover, continued implementation of structural reforms (combating undeclared and underdeclared work)[9] with a view to increasing employment, reducing unemployment, protecting workers and supporting the social security system remains particularly relevant. Additionally, actions to support vulnerable groups, i.e. the long-term unemployed, youth and women, should also be further promoted to achieve inclusive growth.

6 See Ministry of Labour and Social Affairs, press releases: 29.12.2021, 30.12.2021, 31.12.2021 and 14.1.2022.
7 See Ministry of Labour and Social Affairs, press release: 19.1.2022.
8 In 2022, OAED, through its employment, work experience and entrepreneurship programmes, will create 86,000 new jobs (Ministry of Labour and Social Affairs, press release: 18.1.2022).
9 Under Law 4808/2021 on the protection of labour, the Register of Trade Unions of Employees and Employers starts operating as of 1st February 2022. Lastly, in June 2022, in a drive to combat undeclared and under-declared work, the Digital Work Card is expected to be implemented in the banking and supermarket sectors, to be later extended to all sectors, large and small enterprises (Ministry of Labour and Social Affairs, press release: 27.1.2022).

5 INFLATION, WAGES AND BUSINESS PROFITS: DEVELOPMENTS AND PROSPECTS – INCOME INEQUALITY AND POVERTY

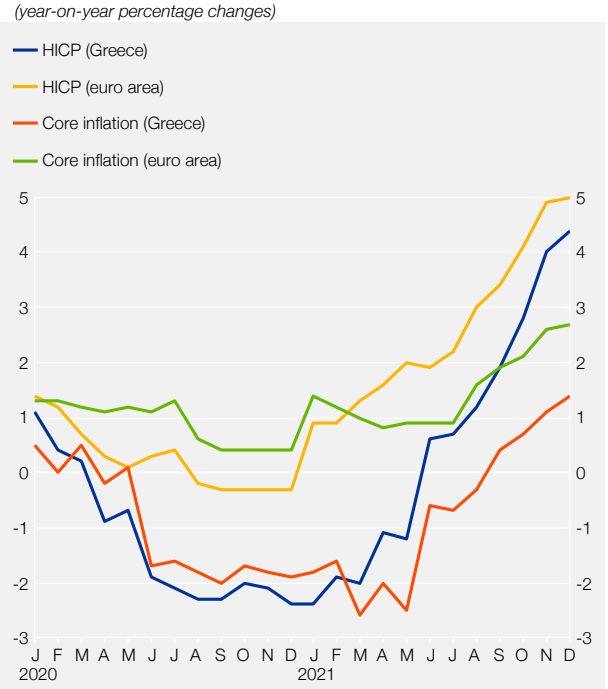
5.1 Inflation rates

Inflation, as measured by the Harmonised Index of Consumer Prices (HICP), returned to positive territory in 2021 to record an average annual rate of 0.6%, following a sharp decline in 2020 (-1.3%). By contrast, core inflation (HICP excluding unprocessed food and energy) declined to -1.0% in 2020 and remained in negative territory also in 2021, only partly recovering (-0.7%) (see Table IV.5 and Chart IV.18). The average annual HICP rate in 2021 was driven by negative annual rates during the first five months of the year and increasing positive rates over the remaining seven months, reflecting the dynamic changes of inflation in the second half of 2021 and early 2022.

Demand collapsed in 2020, due to administrative measures limiting economic activity in response to the COVID-19 pandemic, which led to a drop in the average price level and was clearly reflected mostly in energy (-9.8%) and services (-1.4%). Unlike 2020, positive average annual inflation rates in 2021 are attributable to the energy component (12.4%), as well as the food component (1.2%, see Tables IV.5 and IV.6).

Chart IV.18 Harmonised index of consumer prices (HICP) and core inflation in Greece and the euro area

(year-on-year percentage changes)



Sources: Eurostat, ELSTAT and calculations based on ELSTAT data.

In early 2021, owing to administrative measures limiting economic activity, which were launched in November 2020 and maintained until April 2021, annual rates of harmonised inflation remained negative. Although the energy component returned to positive annual rates in March 2021, headline inflation did not turn positive before June 2021 as food prices started to rise. However, the key driver of headline inflation was the steep upward trend of energy goods. The energy component recorded an average annual rate of 12.4% and contributed 0.79 pp to the increase in headline inflation. Turning to unprocessed and processed foods, in 2021 the average annual rate of change was 2.2% and 0.7%, with contributions of 0.17 and 0.12 pp, respectively.

More specifically, the sub-indices of the energy component that recorded large increases and their respective contributions to headline inflation were heating oil (with an average increase of 20.0% and a contribution of 0.18 pp), motor fuel (13.5% and 0.32 pp), electricity (8.3% and 0.23 pp) and natural gas (68.3% and 0.05 pp) (see Chart IV.19).

Regarding food products, which had a 0.29 pp contribution to headline inflation, the most important contributors were oils and fats (6.5%), fresh vegetables (3.7%), fish (4.5%), cheese (2.5%), meat (1.3%) and bread (1.3%).

In contrast with food and energy, the contribution of both services and non-energy industrial goods to headline inflation was negative in 2021 (-0.39 and -0.12 pp, respectively). Both HICP components followed a similar path, dropping to negative territory between June 2020 and August 2021. The reopening of the economy in May 2021 led to a gradual deceleration of the negative annual rates. For services in particular, the relatively good tourist season led to a partial recovery in specific tourism-related services. Although in the last four months of 2021 the serv-

Table IV.5 Price developments in Greece and the euro area

(annual percentage changes)

	2017	2018	2019	2020	2021
A. Euro area					
Harmonised Index of Consumer Prices (HICP) and its components					
Overall index	**1.5**	**1.8**	**1.2**	**0.3**	**2.6**
Goods	1.6	2.0	1.0	-0.4	3.4
Food	1.8	2.2	1.8	2.3	1.5
Processed food[1]	1.5	2.1	1.9	1.8	1.5
Unprocessed food	2.4	2.3	1.4	4.0	1.6
Industrial goods	1.5	1.9	0.5	-1.8	4.5
Non-energy industrial goods	0.3	0.3	0.3	0.2	1.5
Energy	4.9	6.4	1.1	-6.8	13.0
Services	1.4	1.5	1.5	1.0	1.5
Overall index excluding energy and unprocessed food	**1.1**	**1.2**	**1.2**	**0.9**	**1.5**
B. Greece					
Harmonised Index of Consumer Prices (HICP) and its components					
Overall index	**1.1**	**0.8**	**0.5**	**-1.3**	**0.6**
Goods	1.0	0.7	-0.3	-1.1	2.0
Food	1.5	0.9	0.0	1.3	1.2
Processed food[1]	1.7	1.0	-0.8	-0.1	0.7
Unprocessed food	1.2	0.5	2.0	4.5	2.2
Industrial goods	0.7	0.5	-0.5	-3.3	2.7
Non-energy industrial goods	-2.3	-1.2	-0.4	-0.4	-0.7
Energy	8.5	3.9	-0.3	-9.8	12.4
Services	1.2	0.9	1.3	-1.4	-1.0
Overall index excluding energy and unprocessed food	**0.6**	**0.5**	**0.5**	**-1.0**	**-0.7**

Sources: Eurostat, ELSTAT and ELSTAT data.
1 Including alcoholic beverages and tobacco.

Table IV.6 Price indices

(annual percentage changes)

	Consumer Price Index							
		Sub-indices						
Year	Overall index	Goods	Services	CPI excluding fresh fruit & vegetables and fuel	CPI excluding food & fuel	Food and non-alcoholic beverages	Fresh fruit and vegetables	Fuel
2017	1.1	1.0	1.2	0.2	0.3	0.3	4.1	10.8
2018	0.6	0.7	0.5	0.1	0.1	0.4	1.7	5.1
2019	0.3	-0.4	1.2	0.1	0.4	-0.1	5.6	0.4
2020	-1.2	-1.6	-0.8	-0.4	-0.6	1.4	6.5	-12.3
2021	1.2	2.4	-0.5	0.2	-0.1	1.4	1.2	14.9

Year	Industrial Producer Price Index						Import price index in industry	
	Domestic market				External market			
		Sub-indices						
	Overall index	Overall index excl. energy	Intermediate goods	Consumer goods	Overall index	Overall index excl. energy	Overall index	Overall index excl. energy
2017	4.2	0.5	1.1	0.1	9.1	2.7	5.9	0.7
2018	3.3	0.1	1.2	-0.8	7.6	0.6	6.6	0.1
2019	0.6	0.3	1.1	-0.3	-0.6	-0.5	3.0	0.0
2020	-4.6	-0.1	-0.6	0.2	-15.5	-0.3	-10.8	-0.9
2021	11.9	2.3	4.1	0.8	20.0	5.5	20.0	2.8

Source: ELSTAT and calculations based on ELSTAT data.

ices component rebounded, returning to positive territory, the average annual rate of change of the relevant prices remained negative for the second consecutive year (-1.0%). The services sub-indices that kept this component in negative territory in 2021 were transport (-3.9%), accommodation (0.7%), telephone services (2.2%), cultural activities (-0.6%) and paramedical services (-0.4%) (see Chart IV.20).

Non-energy industrial goods, just like services, remained deflated for 15 consecutive months. As a result of international supply bottlenecks, high costs of raw materials, delays and shortages, the corresponding inflation components registered positive annual rates in the last four months of the year, although average annual rates remained negative (-0.7%). This was also attributable to clothing and footwear (-2.3%) and consumer durables (-1.7%).

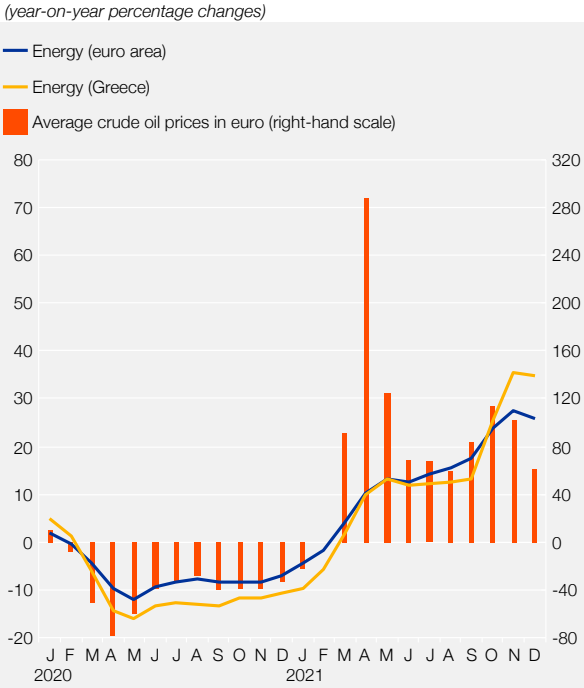
Developments in services and industrial goods prices largely determined also the course of core inflation, since both key components remained in negative territory in the first eight months of the year; as a result, core inflation registered a negative average annual rate for the second consecutive year (-0.7%).

Inflation trends varied within 2021, with deflation in the first five months of the year and a return to positive annual rates thereafter. Energy goods and food remained the drivers of high inflation rates at the end of 2021 and in early 2022. Energy is driven by large increases mainly in electricity and gas, as well as rises in international oil prices. In light of new data and the overall developments in Ukraine, energy goods inflation is expected to escalate further. Food prices are affected by extreme weather, high transport costs and various supply chain disruptions. The war is also expected to have an impact on the cost of food, as the two belligerent countries are Europe's granary and key food commodity producers (see Box IV.1).

The upward course of services and non-energy industrial goods prices at the end of 2021 pushes upwards not only core inflation, but also headline inflation (for the macroeconomic impact of shocks in import and services prices see Box IV.4). Moreover, the scheduled return of VAT rates to regular levels (from the reduced rates applicable until now) for specific services

Chart IV.19 Evolution of energy prices in the euro area and in Greece and of Brent crude oil prices in euro (January 2020 - December 2021)

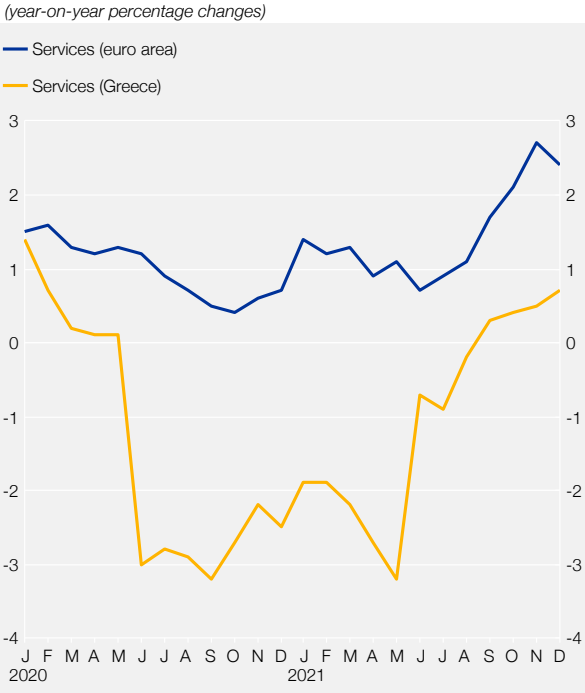
(year-on-year percentage changes)



Sources: Eurostat; calculations based on ELSTAT data; for crude oil prices (UK Brent), calculations based on ECB data.

Chart IV.20 Evolution of services prices in euro area and in Greece (January 2020 - December 2021)

(year-on-year percentage changes)



Sources: Eurostat and calculations based on ELSTAT data.

and goods, if implemented, should also have an inflationary impact as from mid-2022. Thus, harmonised inflation, with the momentum developed at the end of 2021 and in early 2022 and under the weight of new data, is expected to record a high average annual rate in 2022.

Box IV.4

MACROECONOMIC EFFECTS OF SHOCKS TO IMPORT AND SERVICES SECTOR PRICES

In Greece, like in most advanced economies, the import price index in industry, as well as the import price index of goods and services, has increased since mid-2021.[1] To the extent that rising import prices drive up the cost of inputs used in domestic production, it is likely that firms will pass some of the costs to output prices in order to protect their margins, thereby generating inflationary pressures.[2] As regards the services sector, activity in Greece expanded significantly following the easing of pandemicrelated restrictions. While pricing pressures in the services sector were muted until mid-2021, due to the implementation of strict containment measures, the relatively high mark-ups in the services sector in Greece, combined with rising demand, raise concerns about stronger inflationary pressures in the future.[3]

Against this background, the aim of this box is to investigate the macroeconomic effects of inflationary cost-push shocks that originate from the imports and services sectors. The analysis is based on the Dynamic Stochastic General Equilibrium (DSGE) model of the Bank of Greece, which incorporates key features of the Greek economy.[4] More specifically, the following scenarios are examined: (a) a temporary costpush shock to the import sector that increases the inflation rate of imports by 1 percentage point (pp) and (b) a temporary cost-push shock to the services sector that increases the inflation rate of this sector by 1 pp. To account for the uncertainty surrounding the persistence of the inflation drivers, the analysis investigates the effects for different degrees of persistence of the inflationary shocks. In the "baseline" scenario, the persistence of the shocks is set so that the respective inflation rates gradually return to their initial levels after four quarters. In the "high-persistence" scenario, the persistence of the shocks is set so that the respective inflation rates gradually return to their initial levels after five quarters.[5] The calibration of the size and persistence of the shocks is indicative and aims to draw conclusions about the sensitivity of macroeconomic variables to price developments in the imports and services sectors.

The effects of import price increases

Chart A shows the effects of the import price inflation shock on the domestic Consumer Price Index (CPI) and GDP under the baseline and the high-persistence scenarios. Real GDP is expressed as percentage deviations

1 For a description of the recent evolution of these indicators for the Greek economy, see Papageorgiou, D. (2021), "Macroeconomic effects of shocks to import and services sector prices", Bank of Greece, *Economic Bulletin*, No. 54.

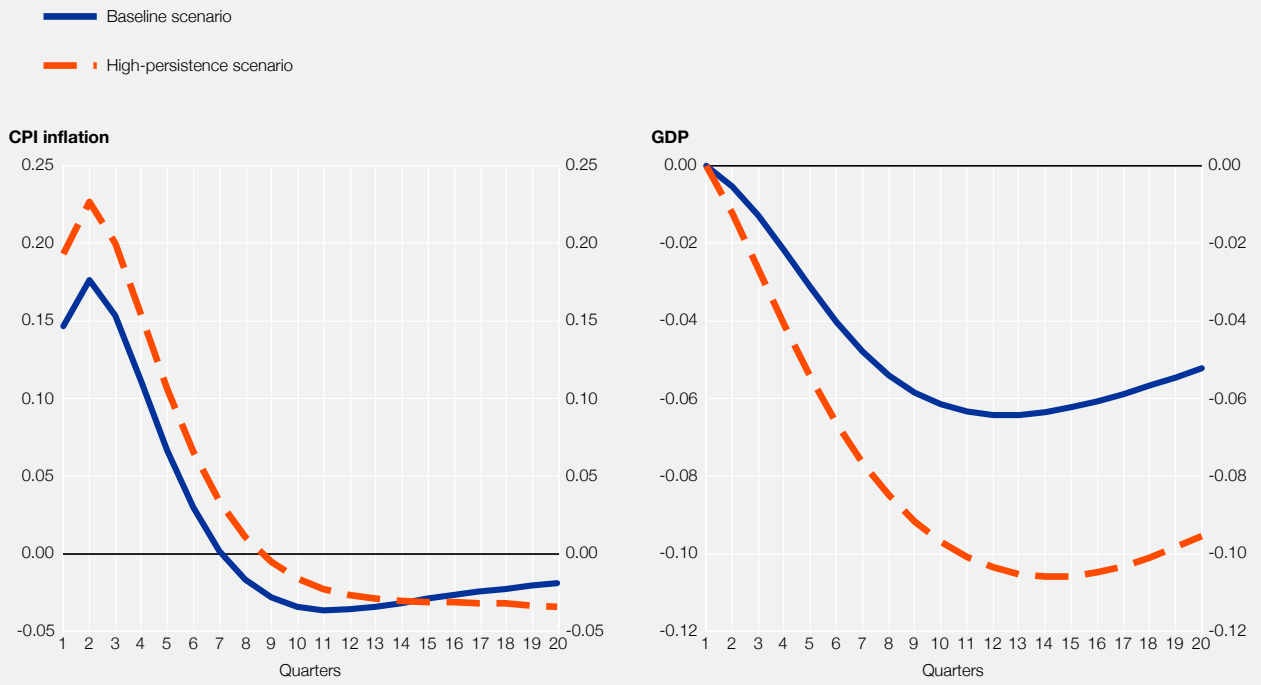
2 See Schnabel, I. (2021), "Escaping low inflation?", Speech at the Petersberger Sommerdialog, 3 July. The Consumer Price Index for goods in Greece has been increasing since mid2021, which indicates a partial passthrough of higher input costs to consumer prices (see Papageorgiou (2021), op. cit.).

3 For the recent developments in the services sector, see *Monetary Policy – Interim Report 2021*, Chapter IV, December 2021 [in Greek]. For an estimation of profit mark-ups in the services sector, see ThumThysen, A. and E. Canton (2015), "Estimation of service sector markups determined by structural reform indicators", European Commission, *European Economy*, Economic Paper No. 547.

4 The model incorporates an import sector and two sectors of production, namely a tradeable and a nontradeable (services) sector, which allows examining the implications of sector-specific shocks. As regards imports, the model assumes that the imported intermediate goods are supplied as inputs to the production of domestic goods. Therefore, any changes in import prices affect the production costs of domestically produced goods and the prices set by firms. For a detailed description of the model, see Papageorgiou, D. and E. Vourvachaki (2017), "Macroeconomic effects of structural reforms and fiscal consolidations: Tradeoffs and complementarities", *European Journal of Political Economy*, 48, 5473; and Papageorgiou, D. (2014), "BoGGEM: A dynamic stochastic general equilibrium model for policy simulations", Bank of Greece Working Paper No. 182.

5 The shocks examined are cost-push shocks that affect the relationship between marginal cost and the output gap in the Phillips curves of the imports and services sectors, thereby leading to price and inflation changes in the respective sectors.

Chart A Dynamic effects of an increase in import prices



Source: Bank of Greece estimates.
Note: GDP: percentage deviations from the steady state; CPI inflation: percentage point changes (annualised) from the steady state.

from the steady state and CPI inflation is expressed as percentage point changes (annualised) from the steady state. Regarding the propagation mechanism following the shock, the results suggest:

First, an increase in import prices causes a rise in the production costs of domestically produced consumption and investment goods, which in turn triggers an increase in the respective prices, resulting in higher CPI inflation. As regards the pass-through to domestic prices in the impact period, it is estimated that a 1 pp increase of import price inflation raises domestic CPI and the GDP deflator by 0.147 pp and 0.1 pp, respectively.[6]

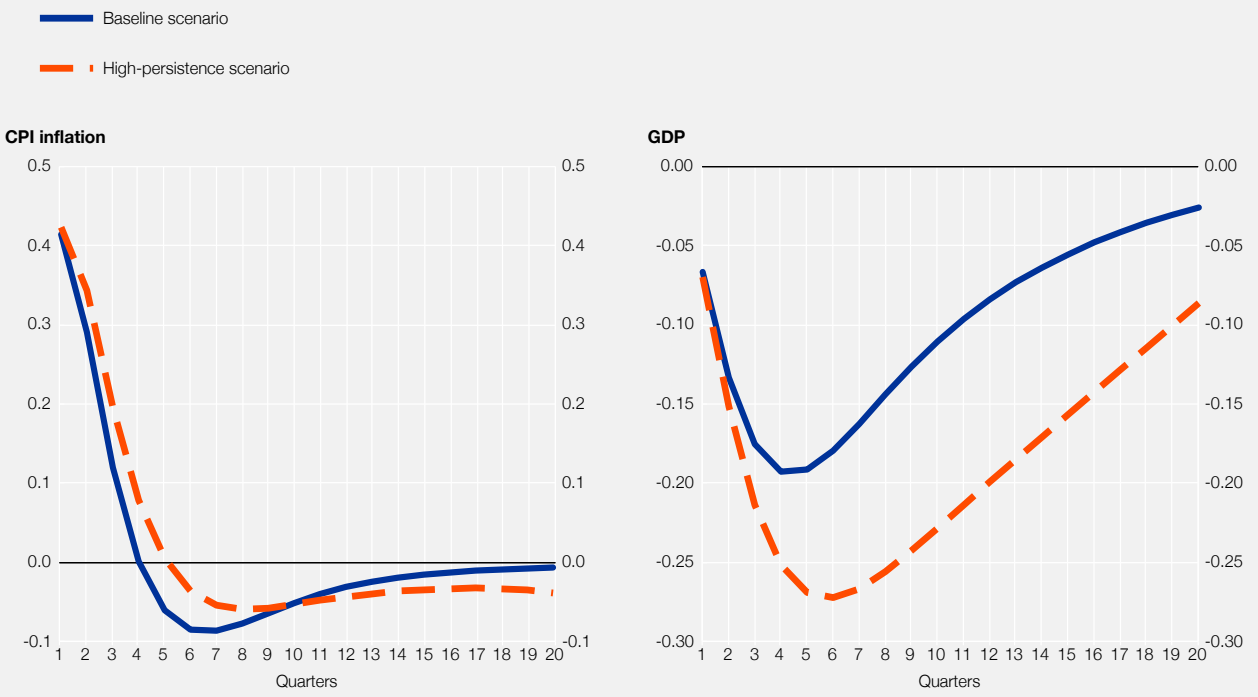
Second, turning to the impact on GDP, the largest losses occur in the medium term, since in the short run the adverse effects are dampened by: (a) the presence of price rigidities in domestic markets, which result in a gradual and incomplete pass-through of import prices to domestic prices, and (b) an import substitution effect. More specifically, imported goods are more expensive in the short run, which leads to expenditure shifting towards domestically produced consumption and investment goods and reduces the negative effects on domestic demand and GDP. In the medium term, the pass-through of import prices to domestic prices increases, dampening the demand for consumption, investment and exports and causing a decline in GDP.[7] In particular, real GDP declines by around 0.02% and 0.06% after four and eight quarters, respectively.

Third, the persistence of the rise in the price of imports matters decisively for the macroeconomic effects. The higher the persistence of import price inflation (see high-persistency scenario), the larger the output losses in the medium term. An increase in the persistence of import inflation by one more quarter relative to the baseline

6 These results are consistent with previous findings in the relevant literature. See e.g. Ortega, E. and C. Osbat (eds.) (2020), "Exchange rate passthrough in the euro area and EU countries", ECB, *Occasional Paper Series*, No. 241, who use a DSGE model calibrated for the euro area and find that an increase of around 4 pp in import prices is followed by an increase of approximately 0.5 pp in consumer prices.

7 The increase in prices induces a negative wealth effect on households, leading them to reduce consumption and investment demand. At the same time, it reduces the competitiveness of the economy, dampening exports.

Chart B Dynamic effects of an increase in services prices



Source: Bank of Greece estimates.
Note: GDP: percentage deviations from the steady state; CPI inflation: percentage point changes (annualised) from the steady state.

scenario produces an additional cumulative loss in output equal to around 0.14% in the first eight quarters. This is because the pass-through of import price increases to domestic prices is higher relative to the baseline scenario, inducing a larger decline in domestic demand and exports in the medium term.[8]

Effects of price increases in the services sector

Chart B shows the effects of a shock that increases the inflation rate of the services sector under the baseline scenario and the high-persistence scenario. The results suggest the following:

First, the pass-through of higher services sector prices to the CPI is much stronger than that of the import price shock. It is estimated that an increase of 1 pp in the inflation rate of the services sector raises domestic CPI inflation and the GDP deflator by 0.414 and 0.573 pp, respectively. The higher prices have a negative effect on the income of households, forcing them to reduce demand for consumption and investment. In turn, the rise in domestic prices has an adverse effect on the country's competitiveness, leading to a reduction in demand for exports and a deterioration in the trade balance. Consequently, real GDP falls by 0.2% after four quarters. It is worth noting that lower aggregate demand forces firms to reduce labour demand, thereby generating downward wage pressures.

Second, a more persistent increase in the prices of the services sector (see the high-persistence scenario) has a stronger negative effect on GDP as compared to the baseline scenario. This is mainly explained by the larger decline in investment and exports, which results in a 0.25% decrease in GDP after four quarters. An increase in the persistence of the inflation rate by one more quarter relative to the baseline scenario produces an additional cumulative loss in output equal to around 0.49% in the first eight quarters.[9]

8 Firms expect that their future marginal costs will be higher than in the baseline scenario and choose to set higher prices. The increase in CPI is estimated at 0.194 pp in the impact period.

Conclusions and policy proposals

The results suggest that, if the observed import price inflation in Greece persists, it might force domestic firms to pass on the higher costs to consumer prices in order to protect their profit margins, thereby triggering further inflationary pressures. While the adverse effects on economic activity appear to be limited in the short run, a more persistent rise in import price inflation may cause significant losses in economic activity in the medium term. Moreover, the results highlight the need to contain rising inflationary pressures in sectors featuring high profit margins, such as the services sector, to avoid dampening the ongoing economic recovery.

On the basis of our findings, measures aiming to reduce firms' production and operating costs can stem domestic inflationary pressures by limiting firms' incentives to pass on higher production costs to consumer prices. The promotion and timely implementation of the structural reforms included in the Greek Recovery and Resilience Plan can also help control inflationary pressures. Specifically, structural reforms on the supply side can enhance competitiveness in the product and services markets and spur productivity growth in the medium term, thus allowing for increased production at a lower cost. An important advantage of these reforms is that they entail no budgetary costs; on the contrary, they may also generate tax revenues.[10] Finally, it is important to adopt targeted fiscal measures to support the income of households that are most affected by inflation –especially low-income households with a high marginal propensity to consume– in order to alleviate the adverse effects on domestic demand.

9 It is worth mentioning that a possible contributor to future price developments in the services sector is the growing demand for services observed after the easing of the pandemicrelated restrictions. Model-based estimates suggest that a shock that increases demand for services has a positive effect on GDP and generates inflationary pressures. This is explained by the fact that firms in the services sector, in order to meet higher demand, increase employment, which results in a rise in wage costs, part of which passes through to consumer prices. For instance, a 1% rise in demand for services causes a 0.12 pp increase in the CPI. These results are consistent with the study of Bobeica, E., M. Ciccarelli and I. Vansteenkiste (2019), "The link between labour cost and inflation in the euro area", ECB Working Paper No. 2235.

10 For estimates on the impact of the structural reforms included in the Greek Recovery and Resilience Plan on the Greek economy, see Malliaropulos, D., D. Papageorgiou, M. Vasardani and E. Vourvachaki (2021), "The impact of the recovery and resilience facility on the Greek economy", Bank of Greece, *Economic Bulletin*, No. 53.

5.2 Labour costs

In 2021, fewer containment measures (as well as furlough schemes to prevent layoffs) were implemented, while economic activity registered a remarkable recovery. As a result, the number of employees rose marginally and employees' per capita wages grew moderately, resulting in a 1.7% increase in total compensation of employees. Moreover, productivity registered an impressive recovery and unit labour costs declined substantially (see Table IV.7). Thus, all indicators moved in the desired direction.

Wage costs in the business sector decreased at an annual rate of 0.8% in the first nine months of 2021, according to ELSTAT quarterly data, showing a clear improvement year on year (4.5%). Furthermore, based on the ERGANI information system, 180 new firmlevel agreements were concluded in the business sector in 2021, covering 152,077 employees. Of these contracts, 33 provide for salary increases and 8 for reductions, while for the rest wages remain unchanged, with the average increase standing at 1%. Moderate increases are also envisaged in a number of industry-level and occupation-level collective agreements.[10]

10 For instance, an increase of 1% under the biennial contract (18.2.2021) for electric shop electricians as from 1st January 2021, 1% under the biennial contract (31.3.2021) for tobacco industry workers as from 1st January 2021, 2.5% under the biennial contract (24.5.2021) for tourist and food retail as from 22 February 2021, 0.9% under the biennial contract (26.5.2021) for bakery workers as from 6.3.2021 and 4% under the 15-month contract (6.9.2021) for shipyard workers as from 1st October 2021 (compared with wages at end-2018).

Table IV.7 Compensation of employees and labour cost (2019-2022)

(annual percentage changes)

	2019	2020	2021
Total compensation of employees	2.4	-2.5	1.7
Compensation per employee	0.6	-0.7	1.4
Labour productivity (GDP/total employment)	0.9	-7.9	7.8
Unit labour cost (total economy)	0.3	7.8	-5.9
Total compensation of employees in the general government	0.8	1.6	0.5 (Jan.-Sept.)
Total compensation of employees in the business sector	3.2	-4.5	-0.8 (Jan.-Sept.)

Sources: For 2019-2021: ELSTAT, revised data of annual and quarterly national accounts and accounts of institutional sectors, 26.1-4.3.2022.

In general government, the wage bill grew at an annual rate of 0.5% in the January-September period of 2021 (ELSTAT data), while –according to the cash data reported by the Ministry of Finance– the wage bill increased by 2.5% over the 12-month period from January to December 2021.

In 2021, inequality of wage distribution in the private sector declined slightly, according to ERGANI data.[11] These show that the share of low-wage workers (i.e. with gross monthly pay below €800, including part-timers) dropped compared with 2020 levels (to 47.0%, from 48.0%). In particular, 18.3% of employees were paid less than €500 (2020: 20.0%), 3.0% were paid between €500 and €600 (2020: 3.1%), while 25.8% were paid between €600 and €800 (2020: 24.9%).

In 2022, total compensation of employees is expected to increase markedly, reflecting a sizeable rise in dependent employment and a moderate increase in compensation per employee. As economic activity will continue to grow (though –as expected– more sluggishly than in 2021, when the strong pace also reflected base effects), productivity is expected to increase moderately, which should also lead to a small decrease in unit labour costs. Additionally, it should be noted that the minimum wage was raised by 2% as from 1.1.2022, while a second increase as from May is on the legislative agenda, as announced by the government.[12]

5.3 Business profits

Data from the non-financial accounts of the institutional sectors in the first nine months of 2021 published by the ELSTAT show a significant year-on-year increase in business profits. The lifting of the containment measures that were in place throughout the first months of 2021, as well as a strong recovery in almost all sectors of the Greek economy, mainly tourism and manufacturing, helped Greek businesses to recover substantially. More specifically, the gross operating surplus of enterprises increased by 45.8% in the first nine months of 2021 (against a decrease of 18.9% in the same period of 2020). This development is mainly due to a 17.8% rise in gross value added, as well as a 1.0% decline in compensation of employees. By contrast, the impact of taxes less subsidies on production was negative.

The share of net profit (defined as the ratio of net operating surplus to net value added) increased significantly in the first nine months of 2021 to 40.0%, from 25.35% in the corresponding period of 2020.

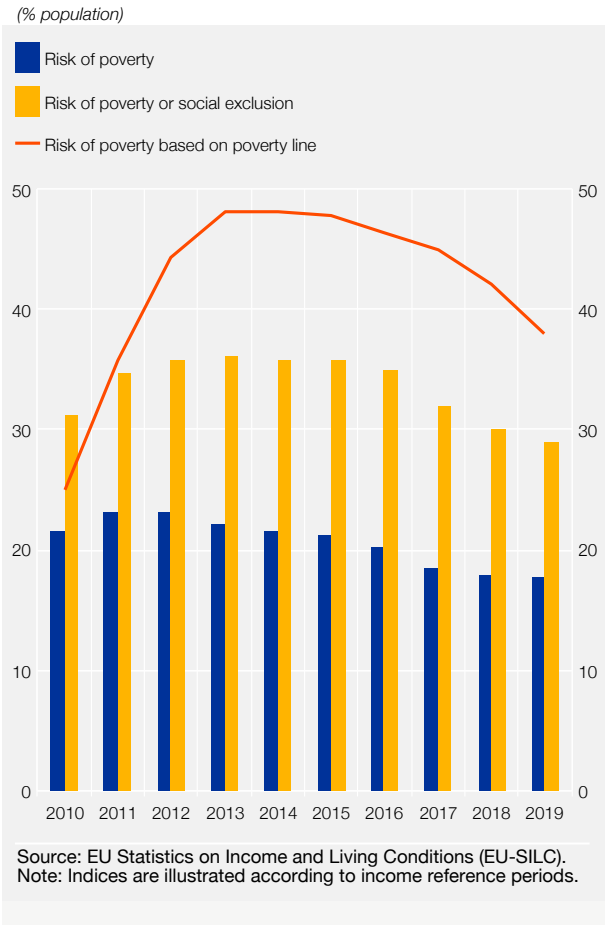
5.4 Income inequality and poverty

The most recent annual data on inequality, poverty, social exclusion and living conditions in Greece come from ELSTAT, specifically from the 2020 Income and Living Conditions of House-

11 ERGANI, *Special Annual Issue, SEPE – OAED – EFKA, Electronic reporting data for total enterprises and employees/wage-earners on private law contracts – Processing of data submitted from 1 October to 30 November 2021*, 21.2.2022.

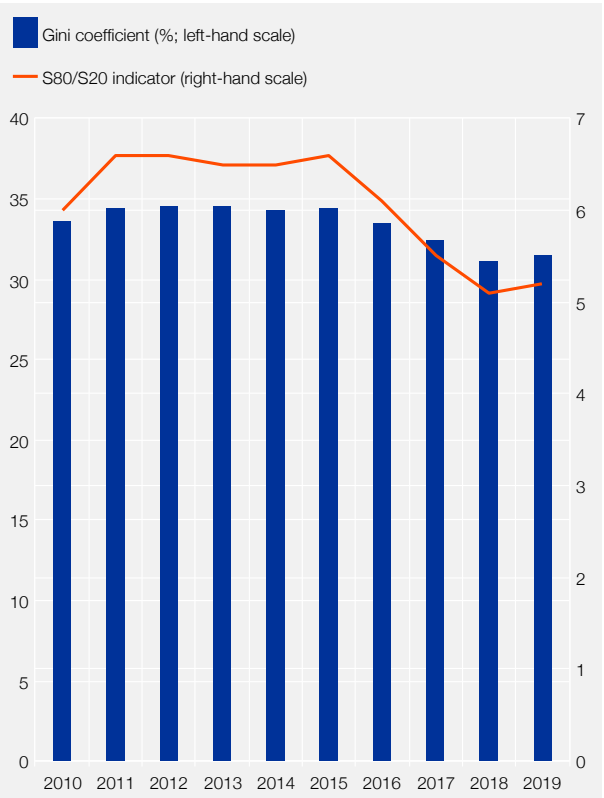
12 See Ministry of Labour and Social Affairs, press releases: 26.7.2021 and 19.1.2022.

Chart IV.21 Risk of poverty (EU-SILC)



Source: EU Statistics on Income and Living Conditions (EU-SILC).
Note: Indices are illustrated according to income reference periods.

Chart IV.22 Income inequality index (EU-SILC)



Source: European Union Statistics on Income and Living Conditions (EU-SILC).
Note: The indices are illustrated according to income reference periods.

holds (EUSILC) Survey for 2019 incomes and the 2020 Household Budget Survey for consumer spending in 2020. These paint a mixed picture regarding the evolution of relevant figures in recent years.

Specifically, data on household incomes in 2019 derived from the EU-SILC 2020 survey show positive changes for the following poverty indicators (see Chart IV.21):

(a) The at-risk-of-poverty rate decreased to 17.7%, from 17.9% for 2018 incomes (EU-SILC 2019),[13] continuing the downward trend observed in recent years. However, the relative risk of poverty in Greece remains above the EU-27 average (17.1%) and is the ninth highest in the EU-27.

(b) The Greek population living at risk of poverty or in social exclusion, i.e. living in material deprivation or in households with very low work intensity, decreased to 28.9% (or 3,044 thousand persons) from 30% in 2018 and 31.8% in 2017. According to the same survey, compared to the other EU-27 countries, Greece registered the third highest risk of poverty or social exclusion in 2019. The EU-27 average was 21.9%.

13 The relative poverty line, which helps calculate the risk of poverty, changes in line with the population's average living standards and is set at 60% of the median equivalised disposable income of all households (Eurostat definition). To calculate the equivalised household income, the first adult is given a weight of 1.0, the second and each subsequent person aged 14 and over are given a weight of 0.5 and each child under 14 is given a weight of 0.3. In the 2020 survey, the relative poverty threshold was set at €5,269 for a single-person household and €11,064 for a four-person household with two adults and two children under 14.

(c) The poverty indicator in absolute terms, which refers to a consistent poverty line set in terms of real purchasing power for 2008, decreased to 37.9% for 2019 incomes (from 42% for 2018 incomes). However, the risk of poverty measured on the basis of the above poverty line has increased sharply over the past ten years (it was only 18.9% for 2008 incomes), while during the same period the corresponding EU indicator has been decreasing and stands well below the Greek indicator (14.8% for 2018 incomes, according to the latest available data).

By contrast, the gap or depth of relative poverty[14] increased to 27.3% in 2019, from 27% for 2018 incomes.

According to the same survey, income inequality indicators in Greece deteriorated marginally in 2019 (see Chart IV.22), though remaining close to the EU-27 average. The Gini inequality coefficient rose to 31.4% for 2019 incomes, from 31% for 2018 incomes (EU-27: 30.2%). The S80/S20 ratio also increased, from 5.1 for 2018 incomes to 5.2 for 2019 incomes (EU-27: 5.2).[15] At the beginning of the financial crisis (2008 incomes), the two inequality indicators stood at 33.1% and 5.8, respectively.

The 2019 policy measures overall raised household disposable income. Key measures were a rise in the minimum wage, a weighted average 22% reduction in the unified property tax (ENFIA), as well as the granting of a 13th pension and, on a means test basis, a social dividend, which however was distributed on a much smaller scale than in previous years. Lastly, a new housing benefit was established in 2019.

A closer look at the 2020 EU-SILC data also highlights the need to better target social policy, as specific population groups are at a higher risk of poverty: the unemployed (45.3%), the economically inactive population excluding pensioners (25.1%), households with dependent children (20.1%) –especially large families (27.4%)– and children of up to 17 years of age (20.9%).[16] These findings are consistent with another conclusion drawn from the survey results, namely that the main contribution of social policy to reducing the poverty rate comes from pensions[17] (by 24.8 pp), while social benefits contributed to reducing the poverty rate by only 5.8 pp.

Some progress was made compared with the survey results of the three previous years, when the contribution of social benefits to reducing the poverty rate was much smaller (e.g. 3.8 pp in 2016). This development is also associated with a reorientation of social protection expenditure from 2017 onwards[18] – from old age to family expenditure and the fight against social exclusion. In particular, the reform of family allowances in 2018 appears to have had a positive impact, as in 2019, relative to the 2018 results of the EU-SILC, the risk of poverty decreased for households with dependent children (from 22.8% to 20.1%), particularly for single-parent households (from 32.8% to 24%) and for children (from 22.7% to 20.9%). The introduction of a means-

14 The poverty gap measures the difference between the median income of the poor and the poverty line as a percentage of the latter, i.e. it provides the average income deficit of the poor.

15 The Gini coefficient receives values between 0% –when the national income is equally distributed (i.e. the poorest x% of the population receives x% of national income for $0<x\leq100$)– to 100% when the national income is distributed to a single person. The S80/S20 indicator refers to the ratio of total income received by the 20% of the country's population with the highest income to that received by the 20% of the country's population with the lowest income. Both indicators receive higher values as income inequality increases. However, the Gini coefficient takes into account the whole spectrum of income inequality, while the S80/S20 index focuses on differences in the extremes of the income distribution.

16 Greece is among the OECD countries with high child poverty. On policies to end child poverty, see the National Academies (US) Webinar on "Ending Child Poverty – Examining Poverty Trends and Policy Implications" (4.5.2021).

17 The contribution of pensions to household income support is also highlighted in a survey by the Small Enterprises Institute of the Hellenic Confederation of Professionals, Craftsmen and Merchants (IME-GSEVEE) "Household income-expenditure 2020" (January 2021), which finds that in 2020 in Greece pensions were the main source of income for 44.3% of households.

18 According to data from the European System of integrated Social PROtection Statistics (ESSPROS).

tested housing allowance as from 2019 also appears to be in the right direction, as the risk of poverty for tenants of rental property shows a marked decrease in 2019 compared with 2018 (18.5%, from 20.9%).

However, significant failings remain in protection, e.g. with regard to the unemployed, as previously mentioned,[19] but also to very poor households, only 1/3 of which receive the guaranteed minimum income.[20] Therefore, eligibility for the guaranteed minimum income could be expanded and effective access to complementary social services (which are currently underperforming) should be ensured; also, the successful functioning of the activation services launched in April 2021 with the aim to facilitate the integration or reintegration of beneficiaries into the labour market should be ensured. For instance, according to the OECD, a 25% increase in the guaranteed minimum income would mainly benefit the lowest income decile and, combined with a rise in labour income that is excluded from the declared income for purposes of calculation of the benefit, it would reduce the risk of poverty by almost 2 percentage points.[21]

In addition, a reorientation is necessary towards a "social investment state",[22] which would create conditions for equal opportunities by facilitating social mobility, protect citizens from life's misfortunes and help balance work and family; thus, it would function proactively to tackle poverty and income inequality by investing in human capital, e.g. in education and healthcare.[23] Under these conditions, social policy is also beneficial to strong and sustainable growth.[24]

The above policy proposals are of particular relevance in the current juncture. The COVID-19 pandemic and the resulting health-related and economic crisis have exacerbated inequalities at a global level,[25] disproportionately affecting the poor, who are mainly employed in contact-intensive occupations. Therefore, the role of social policy and targeted fiscal policy measures is becoming increasingly important and the need for targeting, effectiveness and redistribution becomes imperative.[26] It is worth noting that EU Council of Ministers reached an agreement on 6 December 2021 on the European Commission's Proposal for a directive "to promote adequate minimum wages across the EU". In Greece, the minimum wage was raised by 2% as from 1.1.2022[27] and is expected to increase further in May.[28]

19 Characteristically, according to ELSTAT's quarterly data on the number of unemployed persons and OAED monthly data on the number of subsidised unemployed persons, the average coverage rate for the unemployed stood at 21.7% in January-September 2021 (from 35.1% in 2010 as a whole).

20 Marini, A., M.D. Zini, E. Kanavitsa, N. Millan, Ch. Leventi and N. Umapathi (2019), A Quantitative Evaluation of the Greek Social Solidarity Income (English), Washington, DC: World Bank Group.

21 OECD (2020), *OECD Economic Surveys:* Greece 2020.

22 Matsaganis, M. (2021), "The welfare state as an accelerator of sustainable growth", *diaNEOsis* (in Greek).

23 Regarding growth-enhancing benefits from reforming the Greek educational system, see Bank of Greece, *Annual Report 2019*, Box IV.2, p. 120-125 (available in Greek). The establishment of the National System for Vocational Education and Training and Lifelong Learning by Law 4763/2020 may also contribute in this direction.

24 See Aiyar et al. (2017), Euro Area Policies, Selected Issues, *IMF Country report 17/236*. See also (a) OECD (2018), "Opportunities for all: OECD Framework for Policy Action on Inclusive Growth"; (b) OECD (2018), *A Broken Social Elevator? How to Promote Social Mobility*, OECD Publishing, Paris; (c) Hufe, P., R. Kanbur and A. Peichl 2018), "Measuring Unfair Inequality: Reconciling Equality of Opportunity and Freedom from Poverty", CESifo Working paper; and (d) World Bank (2018), *Growing United – Upgrading Europe's Convergence Machine*, World Bank Report on the European Union.

25 See IMF (2021), *Fiscal Monitor 2021*, Sánchez Páramo, C. et al. (2021), "Covid-19 leaves a legacy of rising poverty and widening inequality" (https://blogs.worldbank.org/developmenttalk/covid-19-leaves-legacy-rising-poverty-and-widening-inequality), Credit Suisse (2021), *The Global Wealth Report 2021*, και European Trade Union Institute (2021), *Benchmarking Working Europe 2021*: Unequal Europe.

26 Regarding the redistributive impact of the policy response to the pandemic in Greece in 2020, see Bank of Greece, *Annual Report 2020*, Box IV.4, p. 141-143 (available in Greek).

27 As decided by the Cabinet in July 2021, following the completion of the legislative process.

28 On 19.1.2022, an amendment was tabled that accelerates the procedure under Law 4172/2013 and allows the Minister of Labour to recommend to the Cabinet at the end of April a second increase within the year.

The 2020 Household Budget Survey provides the first available data covering the pandemic period in Greece, which are quite encouraging: on the basis of 2020 consumer spending, the data show a decline in the risk of poverty, in terms of both purchases by households (15.6% from 17.1% in 2019) and total consumption expenditure (11.9% from 12.2% in 2019), including the monetary value of goods and services received by households in kind (by own production, own retail shop, from employer or otherwise). A similar trend emerges from the S80/S20 inequality ratio in terms of both household purchases and total consumption expenditure, which decreased (to 4.8 and to 3.5, respectively, from 5.4 and 4.2 in 2019).

Lastly, it should be recognised that Greece has an excellent opportunity at the current juncture, as it can tap funding available under the European Recovery and Resilience Facility for actions associated with employment, skills and social cohesion. It is important to ensure effective absorption and utilisation of available resources by 2026. With 21 projects approved by January 2022 on a general budget of €1 billion, out of a total of €5.2 billion, the outlook is arguably quite positive. In addition, in June 2021, the Ministry of Labour prepared and launched a public consultation on the "National Strategy for Social Inclusion and Poverty Reduction", which includes 282 actions under four pillars, with a view to making better use of national and European resources in 2021-27.

6 COMPETITIVENESS

The international competitiveness of the Greek economy is estimated to have improved significantly in 2021, fully offsetting the losses incurred in 2020. In terms of relative prices and labour costs, the impact on competitiveness from the continued appreciation of the euro in 2021 was more than offset by domestic developments in prices and unit labour costs, which rose at a significantly slower pace than for Greece's main trading partners. At the same time, in terms of structural competitiveness, it is estimated that progress continues in multiple areas –such as the digital transformation of the economy and a reduction in tax rates– and is expected to carry on in 2022, also supported by RRF resources.

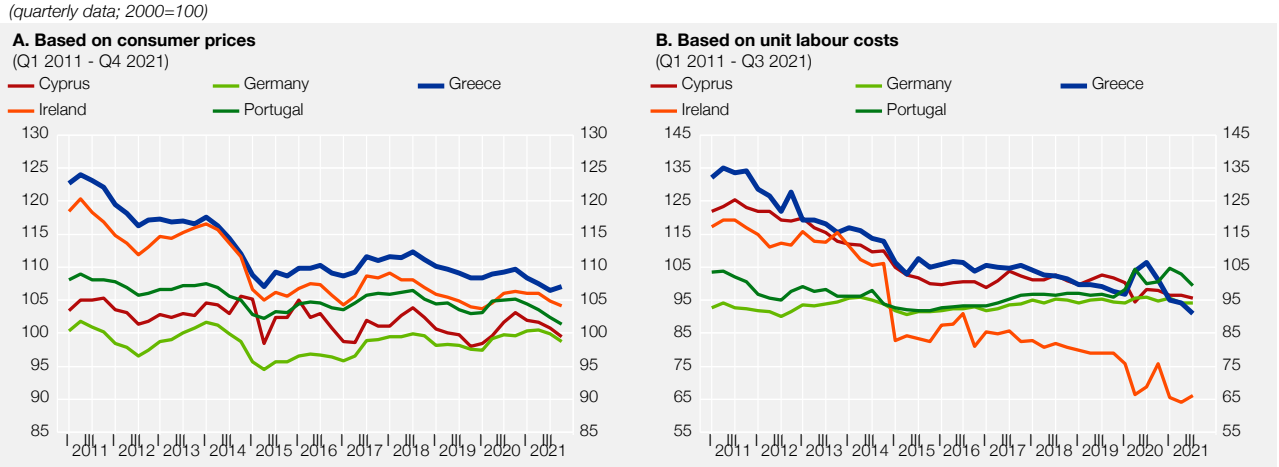
Competitiveness developments in Greece and its trading partners in 2021 were marked by a strong rise in energy prices, which passed on to headline inflation in most economies, as well as by the gradual withdrawal of emergency lockdown and labour-support measures associated with the pandemic, which led to substantial labour productivity growth and a moderation or even decline in unit labour costs.

The rate of increase of the HICP for Greece remained below the euro area average also in 2021 (0.6%, compared with 2.6%). Despite the projected rise in inflation in all economies in 2022, the domestic HICP is expected to remain below that of the euro area and other major trading partners. Unit labour costs are estimated to have declined substantially in Greece in 2021, due to a strong increase in labour productivity, following the gradual withdrawal of the containment measures dictated by the exceptional pandemic-related circumstances. In this respect, base effects should also be taken into account, since the containment measures caused a drop in output in 2020, though employment and/or wages did not decline commensurately. The decrease in unit labour costs in the economy as a whole is estimated to have been stronger in Greece than in the euro area (-5.9%, compared with 0.2%). For 2022, the estimate for labour costs will largely depend on the total amount of the announced increase in the minimum wage and the relevant pass-through rate to the general level of per capita earnings, coupled with real GDP growth and, therefore, labour productivity.

In more detail, the nominal effective exchange rate increased (appreciation) by 1.1% in 2021, against 1.5% in 2020, according to the relevant indicators calculated for the Greek economy by the Bank of Greece. The continued appreciation of the euro vis-à-vis the currencies of ad-

Chart IV.23 Harmonised competitiveness indicators (real effective exchange rates)

(quarterly data; 2000=100)



Source: ECB, Statistical Data Warehouse.
Notes: An increase (decrease) suggests a deterioration (improvement) of competitiveness. Changes in the HCI for Ireland reflect a revision in the method of calculation of national accounts data.

vanced and emerging economies is related to mounting international uncertainty due to the pandemic and risk aversion, and has had a varying impact across euro area economies. In 2021, the euro appreciated significantly against the US dollar, the Japanese yen and the Turkish lira and declined slightly against the pound sterling, the Swedish krona, the Norwegian krone and the Australian dollar. Despite the appreciation of the euro, the national harmonised competitiveness indicators compiled by the ECB also improved (decreased), both for Greece and for other euro area countries (see Chart IV.23).

The broader real effective exchange rate based on relative unit labour costs for the economy as a whole is estimated to have declined (i.e. improved) substantially by 6.3% in Greece in 2021, against an increase (i.e. deterioration) of 4.6% in 2020. Stronger labour productivity growth in Greece compared with the euro area (5.9%, against 4.2%) and with other partners reversed last year's competitiveness loss. Unit labour costs in Greece decreased strongly, while they increased for Greece's main trading partners (+0.8%). The real effective exchange rate based on relevant consumer price indices (CPI) continued to decline (i.e. improve) for the third consecutive year, by 1.3% in 2021, despite the ongoing appreciation of the euro, returning to levels last seen during the euro accession period, as the inflation differential vis-à-vis the main trading partners remained favourable for Greece for the 10th consecutive year (see Table IV.8).

The structural competitiveness of the Greek economy, while remaining comparatively low at a European and international level, improved in 2021. Among the main drivers of this development are reduced business costs in terms of taxation and employers' contributions, faster approval of investment plans and increased efficiency of the public sector. The speed of delivery of justice has not improved, while during the pandemic –and despite the accelerated digitalisation of public sector services– the problem of pockets of inefficiency and delays (e.g. tax authorities) in handling citizens' and businesses' issues deteriorated.

Shock and risk factors in the international macroeconomic environment due to rising energy costs and international supply bottlenecks are common, although their impact on individual countries varies and, therefore, their relative rankings according to the main composite global competitiveness indicators are not significantly affected.

According to the IMD World Competitiveness Ranking (World Competitiveness Ranking, 17.6.2021), Greece's position improved by 3 notches in 2020, with the country ranking 46th out

Table IV.8 Nominal and real effective exchange rate (EER) indices for Greece

(index: 2000=100)

	Nominal EER		Real EER					
	Broad EER[1]		Broad EER[1]				EER-euro area	
			CPI-deflated		ULCT-deflated*		CPI-deflated	ULCT-deflated*
Year		Percentage change		Percentage change		Percentage change	Percentage change	Percentage change
2000	100.0		100.0		100.0		100.0	100,0
2009	115.7	1.2	119.3	1.3	12.5	1.2	109.2	1.0	118.3	2.2
2010	112.4	-2.8	119.0	-0.3	126.2	0.6	112.6	3.1	118.7	0.3
2011	112.9	0.5	119.5	0.4	127.7	1.2	113.0	0.4	121.4	2.3
2012	110.7	-1.9	115.2	-3.6	123.2	-3.5	111.3	-1.6	118.1	-2.8
2013	112.9	1.9	114.2	-0.9	114.0	-7.5	108.7	-2.3	109.1	-7.6
2014	113.7	0.8	112.0	-1.9	111.6	-2.1	106.7	-1.8	106.7	-2.2
2015	110.6	-2.7	106.7	-4.7	106.9	-4.2	105.3	-1.3	103.4	-3.1
2016	112.0	1.3	107.1	0.4	103.2	-3.5	105.1	-0.2	102.8	-0.5
2017	113.6	1.4	107.8	0.7	102.2	-1.0	104.7	-0.4	102.1	-0.7
2018	116.0	2.1	108.8	0.9	100.2	-2.0	103.7	-0.9	98.9	-3.2
2019	115.8	-0.2	107.4	-1.3	98.0	-2.2	103.0	-0.7	96.7	-2.2
2020	117.4	1.5	106.5	-0.8	102.5	4.6	101.4	-1.5	99.9	3.3
2021**	118.7	1.1	105.1	-1.3	96.1	-6.3	99.5	-1.9	92.2	-7.7

Sources: Indices are calculated by the Bank of Greece based on ECB and European Commission data. An increase (decrease) in EER indices suggests a deterioration (improvement) of competitiveness. Data on exchange rates, consumer prices (CPI) and unit labour costs in total economy are provided by the ECB and the European Commission.
* The index is subject to regular revisions.
** Estimates.
1 Broad real EER indices include Greece's 28 major European or non-European trading partners. Weighs are calculated on the basis of imports and exports of manufacturing goods (SITC 5-8).

of 64 economies, between Russia and Poland. Improvements were recorded in corporate efficiency (44th from 51st) and macroeconomic performance (52nd from 55th), while the other sub-indicators remained constant. According to the IMD, the most important challenges are associated with mitigating –through specific policies– the socio-economic impact of the pandemic; expanding the productive base by boosting investment in manufacturing; improving companies' access to finance; and promoting policies that facilitate and accelerate the digital transformation of businesses and the broader public sector.

On the basis of the Tax Foundation's International Tax Competitiveness Index (18.10.2021), which examines over 40 tax policy variables, Greece ranked again 29th out of 36 countries in 2021, same as in 2020. However, Greece's performance improved marginally in absolute terms, following further cuts in the corporate income tax rate (from 24% to 22%), an expansion of R&D tax subsidies and a small reduction in the top statutory individual income tax rate. Comparative advantages for Greece are the 5 pp lower dividend tax rates compared with OECD countries, the low complexity of labour law and soft rules for foreign-controlled enterprises mostly involving passive income. By contrast, Greece's disadvantages are that businesses cannot offset losses against tax liabilities, as well as the high value added tax (at 24%) on a rather limited taxable amount.

Lastly, Greece climbed one place up (58th out of 180 countries) in the Transparency International's Corruption Perceptions Index (25.1.2022); access to information and the funding of political parties are mentioned as the main areas for improvement. Despite ranking low among

European countries, Greece and Italy recorded the greatest progress in tackling corruption over the past decade, adopting important reforms.

7 BALANCE OF PAYMENTS: DEVELOPMENTS AND PROSPECTS

According to Bank of Greece data, the current account deficit in 2021 improved slightly compared with the previous year, standing at €10.6 billion (5.8% of GDP), from €11.0 billion in 2020 (6.6% of GDP). The main drivers of this development were a continued upward course of the exports of goods, a recovery in tourist activity and the associated receipts, as well as an increase in net sea transport receipts (see Table IV.9).

The primary and secondary income accounts also made a positive contribution, as a result of the disbursement of a pre-financing payment under the Recovery and Resilience Facility (RRF).

Nevertheless, these developments were partly offset by an increase in imports of goods and services that followed the recovery in economic activity. In particular, non-oil imports of goods grew faster than the corresponding exports, in order to meet production needs, but also to cater for increased consumption and investment. In addition, the rise in international oil prices weighed heavily on the current account, due to a widening of the oil deficit. Moreover, despite an increase in the sea transport surplus, the rise in net other transport payments was stronger, which resulted in a deterioration of the transport balance.

In 2022, the current account as a percentage of GDP is expected to improve (see Box IV.5), although in absolute terms should remain close to the previous year's levels. The ongoing recovery of the global economy and international trade, coupled with increased competitiveness, should have a positive impact on Greek exports of goods and on receipts from services, in particular travel and transport, while the recovery in domestic demand, most notably investment, should increase imports of goods. High oil prices still weigh heavily on the oil balance, leading to a deterioration of the current account.

It appears that Russia's invasion of Ukraine should not reverse these trends, although it should still have a negative impact on the figures. The direct effects on the current account are mainly associated with oil and gas imports from Russia, which account for 20% and 40% of Greece's respective total imports. Even if these flows are not disrupted, a further rise in prices should add to the oil deficit. Otherwise, trade between Greece and Russia/Ukraine is thin (see Box IV.1). Moreover, rising international oil and other commodity prices should reduce households' disposable income and consumption, while investment is likely to be negatively affected by prevailing uncertainty, which should result in a decline in both foreign and domestic demand, with negative implications for exports and imports of goods and services.

Beyond geopolitical developments, exports of goods, which have gained considerable momentum, are expected to continue to increase in response to the rise in external demand, albeit at a slower pace than in 2021. On the other hand, imports of goods should grow, possibly faster than exports, at least in the short term. This should cause an increase in the deficit of the balance of goods in 2022.

By contrast, the services balance is expected to improve, as it appears that travel receipts should continue to increase in 2022, coming even closer to 2019 levels. The outlook for sea transport receipts is favourable, as global economic growth is expected to continue (see Chapter II) and the world fleet is expected to grow slower than global trade, leading to higher freight rates. Air transport receipts are also expected to increase, reflecting developments in tourist arrivals. However, the expected rise in other transport payments –due to the transport costs of imports of goods– should limit the positive impact of the above developments.

EU funding, under both the remainder of the 2014-2020 Partnership Agreement and the new 2021-2027 Multiannual Financial Framework, as well as under the temporary recovery instrument NGEU insofar as grants are concerned, should have a direct positive impact on the current account, through the primary and the secondary income accounts. Moreover, a substantial part of the grants are treated as capital transfers and recorded under the capital account, thus reducing the overall financing needs of the economy, while financing in the form of loans is registered under the financial account. Lastly, the financing of the current account should also be assisted by foreign direct investment, which is expected to be boosted by accelerated privatisations,[29] inflows from European funds, as well as the concomitant improvement in competitiveness and the business climate.

7.1 Balance of goods

The deficit of the balance of goods grew by €7.1 billion in 2021, as imports of goods rose more than exports (see Table IV.9). Increases in the exports and imports of goods are largely associated with a rise in international oil and other energy prices. Exports of goods continued to increase, not only in the sectors that showed relative resilience to the decline in external demand in 2020 (foods, pharmaceuticals), but also in the other sectors, which recovered dynamically. Overall, exports of goods at constant prices rose by 12.7%. Specifically, oil exports at constant prices increased by 8.1% and non-oil exports by 20.2%, with a larger contribution from the food, beverages and tobacco sectors, as well as basic metals and metal products (see Chart IV.24). Greek exports to EU Member States and other advanced economies performed better than total exports (see Chart IV.25). Imports of goods, at constant prices, increased by 13.6%, but non-oil imports grew by 24.2%, i.e. faster than total imports and the corresponding exports. In addition to the continued upward course of the imports of intermediate goods, other capital and consumer goods also followed an upward path (see Chart IV.26). Moreover, oil imports increased by 6.4% at constant prices.

7.2 Balance of services

In 2021, the surplus of the services balance improved substantially by 80.5%, due to a rise in net travel receipts, which more than offset a deterioration in the balances of transport and other services and was the main driver of an improvement in the current account. After the lifting of lockdown measures, Greece regained its share in the Mediterranean market, keeping the 4th position among competitive destinations, in terms of both receipts and arrivals.[30] In fact, travel restrictions to other destinations (e.g. Asia) had a positive effect on the Mediterranean market in general.

Travel receipts in 2021 increased by 146.7% compared with 2020 and amounted to €10.7 billion (58.6% of receipts in 2019). This was mainly attributable to a rise in non-residents' arrivals and less so to an increase in the average length of stay, while the rise in average expenditure per overnight stay was moderate (see Chart IV.27). As a result, the average expenditure per trip rose by 22.1%, reflecting, to some extent, an appeal to higher-income travellers. Arrivals increased by 99.4% to stand at 47% of their 2019 levels, with arrivals from euro area countries making the largest contribution, reaching 66.5% of the 2019 figure. Moreover, according to January-September 2021 Border Survey data, in the island regions of the Southern Aegean (Cyclades and Dodecanese), Crete and the Ionian Islands, which are popular tourist destinations, receipts and visits reached 51.8% and 43.2%, respectively, of their corresponding levels in 2019 (compared with 45.7% and 34.3%, respectively, for the country as a whole). Receipts and visits registered in the Attica region reached 36.3% and 29.5% of their levels in the corresponding period of 2019.

The surplus of the transport balance contracted, as an increase in net sea transport receipts only partially offset a deterioration in the other transport balance. Higher other transport payments reflect

29 2022 Budget Report, Ministry of Finance, November 2021.
30 Bank of Greece, *Monetary Policy – Interim Report 2021*, December 2021, Chart IV.21 [in Greek].

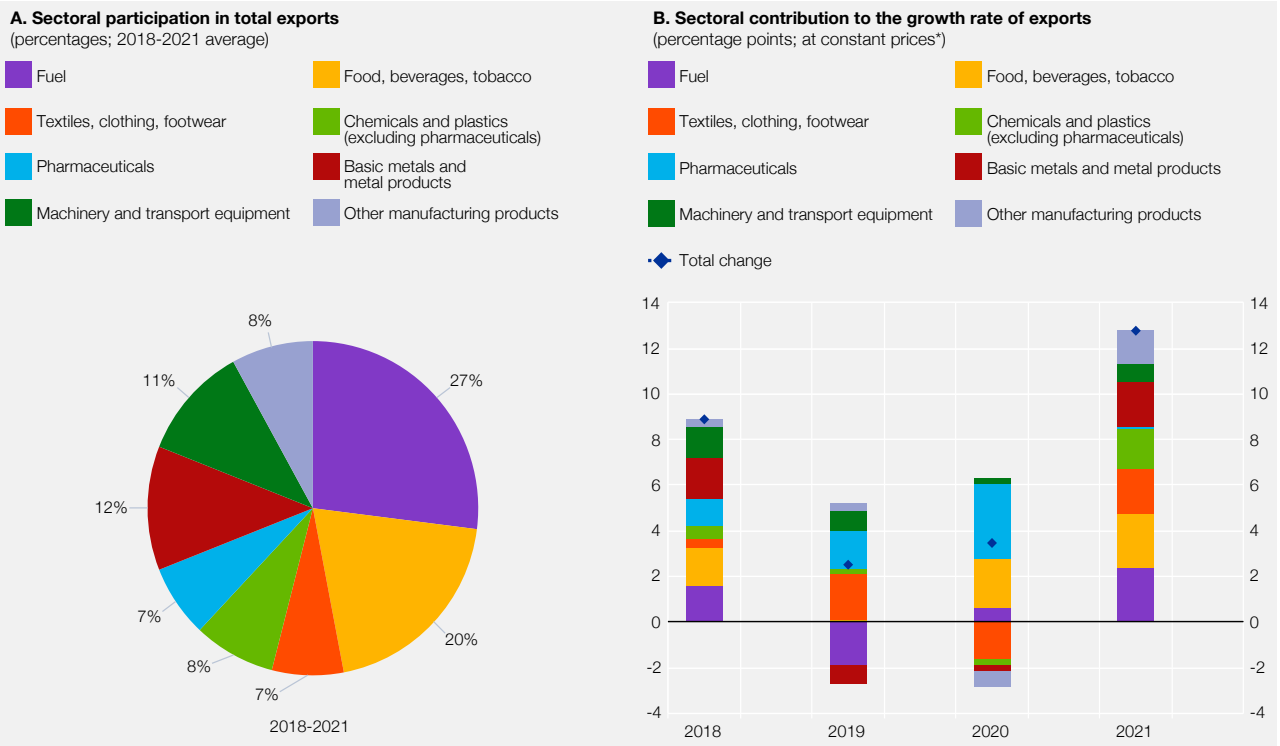
Table IV.9 Balance of payments

(EUR millions)

	2018	2019	2020	2021
I CURRENT ACCOUNT (I.A + I.B + I.C + I.D)	**-5,232.2**	**-2,725.5**	**-10,964.4**	**-10,607.8**
I.A GOODS (I.A.1 - I.A.2)	**-22,489.1**	**-22,833.3**	**-18,528.1**	**-25,623.2**
I.A.1 Exports of goods	*32,372.8*	*32,433.6*	*28,904.4*	*39,079.8*
Oil	10,016.9	9,078.8	6,102.5	10,142.8
I.A.2 Imports of goods	*54,861.9*	*55,266.9*	*47,432.5*	*64,703.0*
Oil	15,197.5	14,119.3	9,298.4	16,019.3
I.B SERVICES (I.B.1 - I.B.2)	**19,304.4**	**21,115.9**	**7,278.3**	**13,134.3**
I.B.1 Receipts	*37,159.3*	*40,162.6*	*22,711.3*	*35,152.1*
Travel	16,085.8	18,178.8	4,318.8	10,653.1
Transport	16,629.9	17,303.1	13,814.2	18,728.1
I.B.2 Payments	*17,854.9*	*19,046.8*	*15,433.0*	*22,017.8*
Travel	2,191.0	2,743.8	792.9	1,119.2
Transport	11,044.3	11,377.4	9,873.0	15,022.1
I.C PRIMARY INCOME (I.C.1 - I.C.2)	**-1,726.4**	**-1,591.6**	**-275.9**	**643.2**
I.C.1 Receipts	*6,058.5*	*6,202.9*	*6,324.1*	*7,009.9*
Labour (wages, salaries)	223.0	246.9	201.4	220.2
Investment (interest, dividents, profits)	2,731.4	3,046.7	2,942.0	3,421.0
I.C.2 Payments	*7,784.9*	*7,794.5*	*6,599.9*	*6,366.7*
Labour (wages, salaries)	1,363.7	1,411.6	1,336.4	1,309.7
Investment (interest, dividends, profits)	6,019.1	5,975.9	4,838.8	4,560.5
I.D SECONDARY INCOME (I.D.1 - I.D.2)	**-321.1**	**583.5**	**561.2**	**1,237.8**
I.D.1 Receipts	2,177.6	3,827.9	4,064.5	5,008.2
General government	*1,034.7*	*2,361.2*	*2,452.7*	*3,561.7*
I.D.2 Payments	2,498.8	3,244.5	3,503.4	3,770.3
General government	*1,702.8*	*1,830.3*	*1,914.9*	*2,297.1*
II CAPITAL ACCOUNT (II.1 - II.2)	**353.2**	**679.8**	**2,733.6**	**4,000.9**
II.1 Receipts	1,007.4	1,178.7	3,124.5	4,915.0
General government	*627.5*	*1,023.0*	*2,932.0*	*4,055.5*
II.2 Πληρωμές	654.2	498.9	390.9	914.1
General government	*4.1*	*4.9*	*4.4*	*5.0*
III FINANCIAL ACCOUNT (III.A + III.B + III.C + III.D)	**-3,923.7**	**-2,247.0**	**-7,747.7**	**-5,657.9**
III.A DIRECT INVESTMENT[1]	**-2,960.7**	**-3,910.5**	**-2,332.3**	**-4,062.9**
Assets	437.8	562.4	568.6	992.9
Liabilities	3,398.5	4,472.9	2,900.9	5,055.9
III.B PORTFOLIO INVESTMENT[1]	**73.8**	**24,231.5**	**48,339.5**	**23,829.9**
Assets	1,377.7	25,927.1	35,443.0	27,316.7
Liabilities	1,303.9	1,695.6	-12,896.5	3,486.7
III.C OTHER INVESTMENT[1]	**-966.8**	**-22,652.0**	**-55,291.1**	**-27,960.9**
Assets	-3,050.8	-3,605.6	2,362.1	4,613.7
Liabilities	-2,084.0	19,046.4	57,653.2	32,574.6
(Loans of general government)	19,555.0	-4,444.8	1,342.6	-957.9
III.D CHANGE IN RESERVE ASSETS[2]	**-70.0**	**84.0**	**1,536.2**	**2,536.0**
IV BALANCING ITEM (I + II - III + IV = 0)	**955.4**	**-201.3**	**483.2**	**949.0**
RESERVE ASSETS (STOCK)	**6,625**	**7,571**	**9,739**	**12,480**

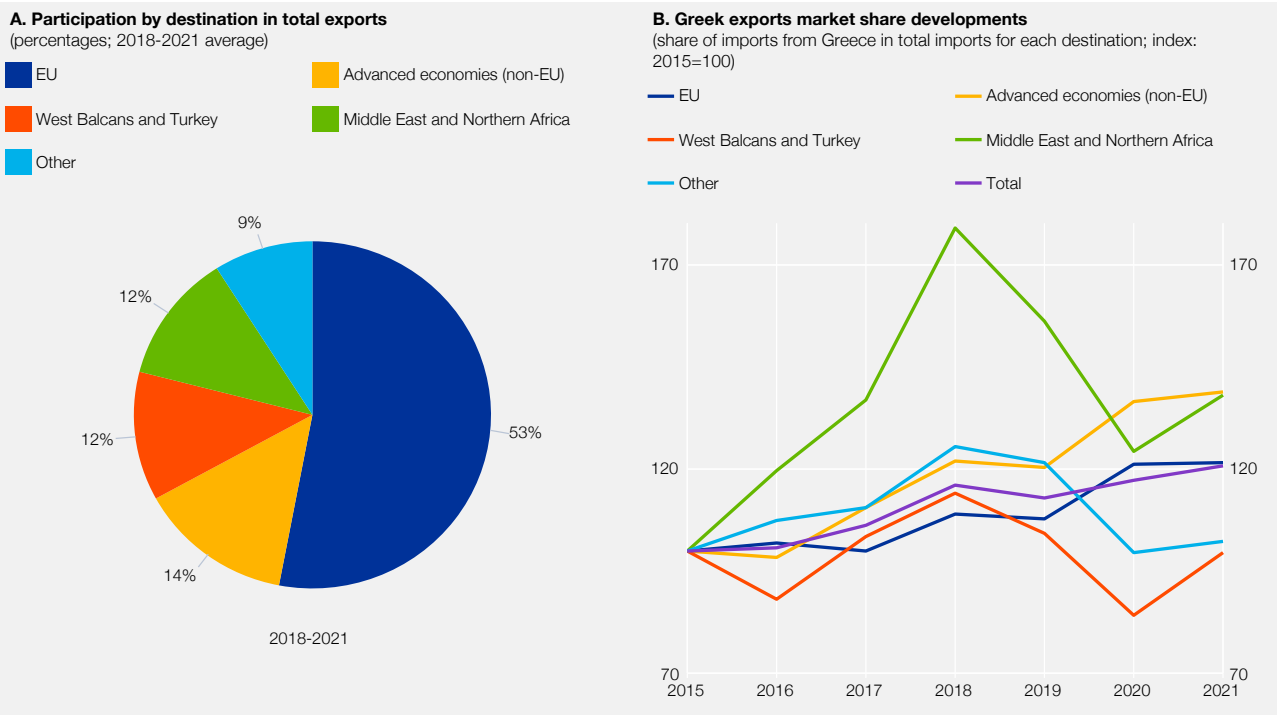
Source: Bank of Greece.
1 (+) net inflow, (-) net outflow.
2 (+) decrease, (-) increase.

Chart IV.24 Exports of goods by sector



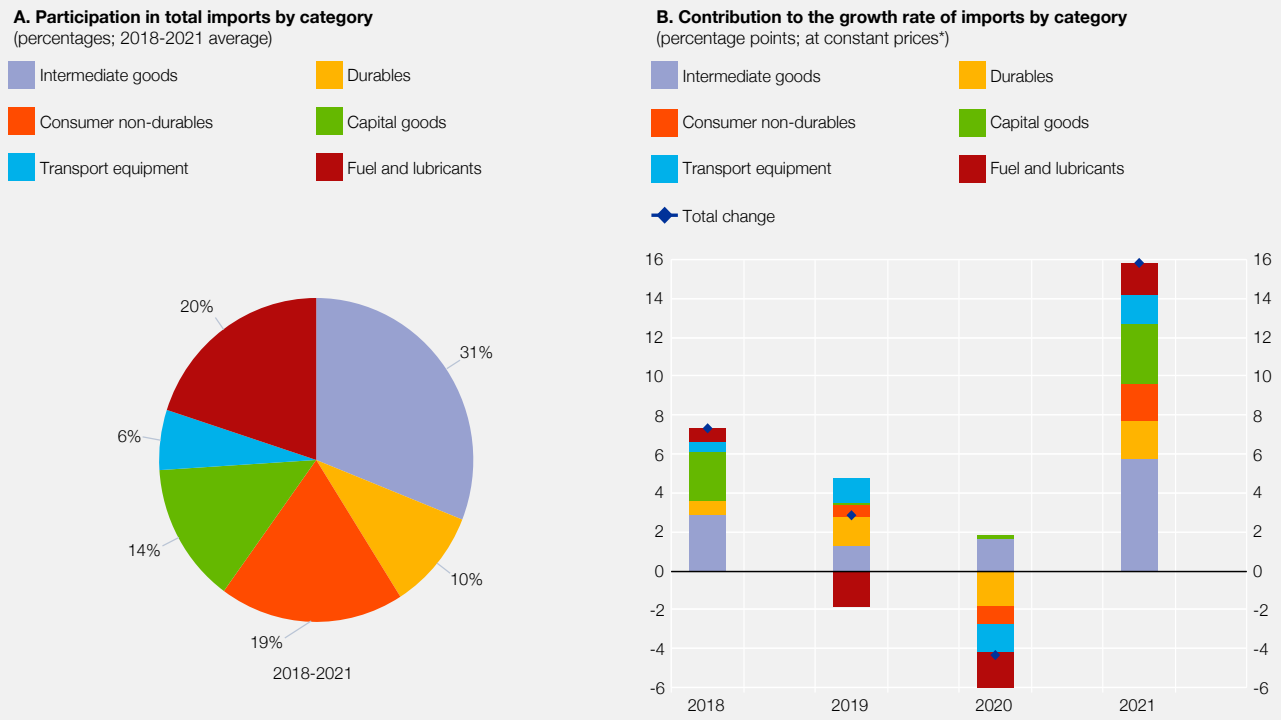
Source: Eurostat trade statistics, COMEXT database.
* Figures are deflated by the ELSTAT producer price index in exports.

Chart IV.25 Exports of goods by destination



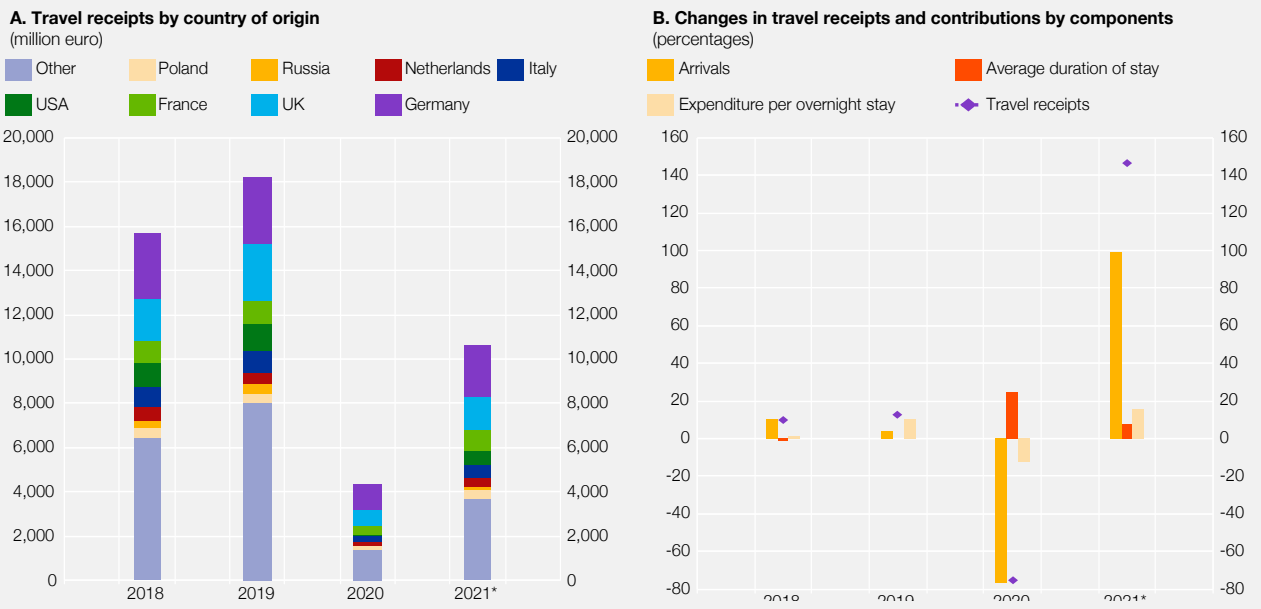
Sources: Eurostat trade statistics (COMEXT database) and IMF (DOTS).

Chart IV.26 Imports of goods by use



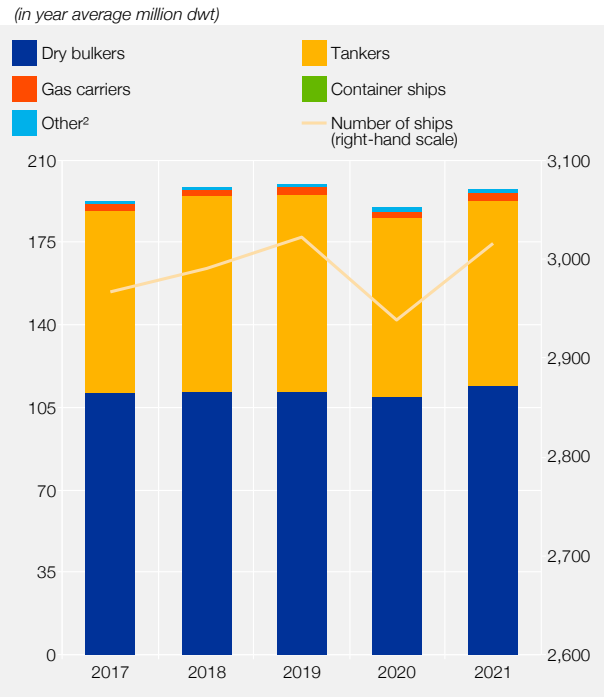
Source: Eurostat trade statistics, COMEXT database.
* Figures are deflated by the ELSTAT import price index.

Chart IV.27 Breakdown of and changes in travel services (2018 - 2021)



Source: Bank of Greece, Border Survey.
* Provisional data (excluding cruises).

Chart IV.28 Developments in the merchant fleet[1] managed by companies located in Greece



Source: Bank of Greece calculations. For the set-up methdology of the fleet managed by Greece, see Papaspyrou, M. and A. Petralias (2019), "The Greek shipping estimation model", Bank of Greece, Economic Bulletin, No. 49, July.
1 Merchant ships in operation (excluding recreational and fishing) with gross tonnage of over 100.
2 Including passenger ships, barges etc.

transport costs of goods imports, which grew substantially.[31] Regarding sea transport services, although receipts rose by 37.5%, a faster increase in the corresponding payments helped improve the balance by only 10.9%.[32] Developments in receipts reflect a rise on the one hand in freight rates –as captured by the ClarkSea Index– by around 93% compared with 2020 and, on the other, in the active commercial fleet managed in Greece (see Chart IV.28). By contrast, the appreciation of the euro vis-a-vis the US dollar contained the rise in sea transport receipts.[33] Freight rates in the dry bulk and oil tanker sectors, i.e. this fleet's key sectors of activity, moved in opposite directions, with the former growing by 185%[34] and the latter dropping by 71%.[35]

Lastly, the other services balance improved compared with 2020, as an amelioration in the telecommunications and IT and financial services balances was partly offset by a rise in net payments for insurance services, which was also attributable to insurance costs for imported goods.

7.3 Primary and secondary income accounts – Capital account

In 2021, the primary and secondary income accounts improved. The former registered a surplus, against a deficit in 2020, while the latter's surplus more than doubled compared with 2020, mainly as a result of higher general government net receipts.[36] The capital account also improved, as its surplus increased substantially compared with 2020, reflecting a rise in general government receipts. Underlying these developments was a 13% prefinancing payment from the NGEU (in the form of a grant), with €1.0 billion as a direct transfer to the secondary income account (i.e. the general government account) and €1.3 billion to the capital account (for fixed capital formation), thus boosting the current account financing.[37]

Inflows from the EU structural and investment funds, recorded under the primary and secondary income accounts, amounted to €2.4 billion in 2021, and inflows of direct agricultural subsidies under the Common Agricultural Policy to €2.2 billion.[38] The disbursement of NGEU funding is con-

31 In the balance of payments, the value of imports is registered in f.o.b. (free on board) terms. The value of imports in c.i.f. (cost, insurance, freight) terms is converted into f.o.b. by applying a fixed rate of 5%, which represents the amount for transport and insurance services on these imports. This amount is split in 4/5 and 1/5 in the payment accounts of the respective services.
32 Sea transport payments also include net freight rate income payments by ship management companies in Greece to shipping companies abroad.
33 The US dollar is the main trading currency in the merchant shipping industry.
34 The remarkable rise in dry bulk freight rates reflects higher demand for imports of raw materials, mainly from China, port congestion and the low level of freight rates in 2020 due to the pandemic.
35 The fall in oil tankers' freight rates reflects, on the one hand, a small recovery in demand and, on the other hand, the high levels of relevant freight rates, mainly in the second quarter of 2020.
36 An ESM transfer of €1.3 billion of ANFA/SMP profits to the Greek government (in two tranches) and a €103 million reimbursement of the step-up interest rate margin were registered under the secondary income account.
37 A further €1.7 billion was disbursed in the form of loans and recorded under the financial account.
38 Based on Bank of Greece data on cash inflows from EU structural funds (provisional data). Structural funds include the European Regional Development Fund, the European Social Fund and the Cohesion Fund.

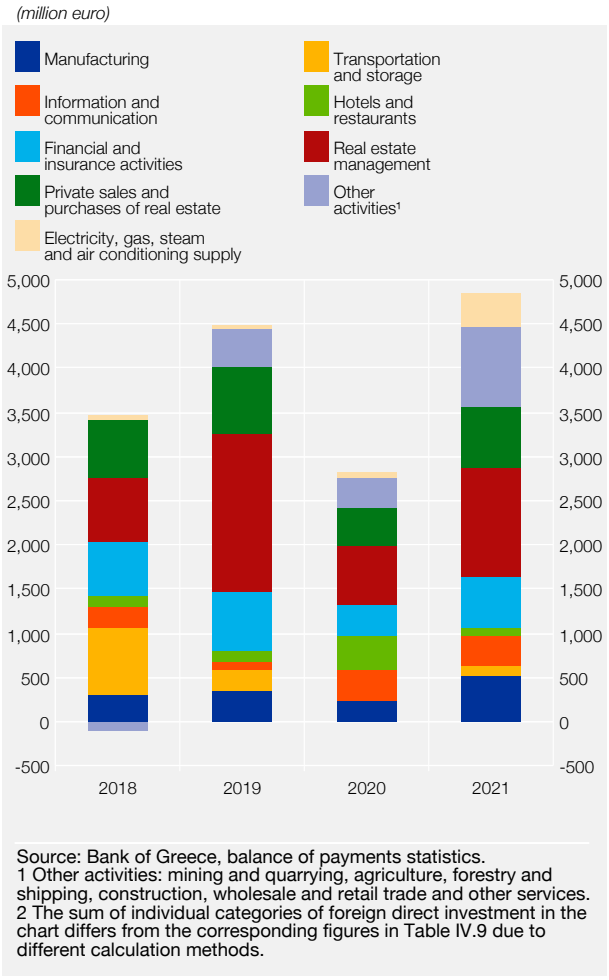
ditional on reaching certain project implementation milestones.[39] Specifically, the request for the disbursement of the first tranche was submitted in December 2021 and approved in February 2022, following the implementation of relevant prior actions, with a total of two tranches to be disbursed under the NGEU in the course of the year. So far, NGEU projects account for 46.8% of funding in the form of grants. As regards the absorption of funds under the 2014-2020 Partnership Agreement, by the end of 2021 Greece had absorbed almost 77% of the allocated amount (compared with 63% at end-2020). To ensure full absorption, decisions have already been made on projects more than exceeding the remaining amount, combined with an acceleration typically observed at the end of a programming period. Moreover, the new NSRF 2021-2027 is expected to be launched in 2022.[40] Lastly, €933 million were disbursed under the REACT-EU programme, covering about half of the allocated amount, while under the SURE European instrument Greece received the total amount of loans allocated to the country (€5.3 billion).

7.4 Financial account

Under direct investment, residents' external assets, which represent direct investment abroad, increased by €992.9 million in 2021 and were directed primarily to real estate and financial activities, with Cyprus and Luxembourg as the main destination countries. Residents' external liabilities, which represent net inflows of foreign direct investment into Greece, followed an upward trend in line with global direct investment.[41]

Foreign direct investment in Greece grew significantly in 2021, particularly since May (thus registering the second strongest recovery in the past decade, with the first strongest recorded in 2019) and stood at €5.1 billion (2.8% of GDP). These primarily include the extension of intragroup loans and investment in capital increases of subsidiaries in Greece and, secondarily, investment in real estate.[42] Total inflows are mostly directed to real estate management, financial activities, information and communication, electricity, gas, steam and air conditioning supply, as well as manufacturing (see Chart IV.29).

Chart IV.29 Breakdown of foreign direct investment flows



Source: Bank of Greece, balance of payments statistics.
1 Other activities: mining and quarrying, agriculture, forestry and shipping, construction, wholesale and retail trade and other services.
2 The sum of individual categories of foreign direct investment in the chart differs from the corresponding figures in Table IV.9 due to different calculation methods.

39 The timelines of the projects are set out in the Annex to the Proposal for a Council Implementing Decision on the approval of the assessment of the recovery and resilience plan for Greece (COM 328, 17.6.2021).

40 Also expected in 2022 are payments of the ESM's last two tranches of ANFA/SMP profits and the step-up interest rate margin.

41 According to United Nations estimates in January 2022 (UNCTAD, *Investment Trends Monitor*, https://unctad.org/news/global-foreign-direct-investment-rebounded-strongly-2021-recovery-highly-uneven), global foreign direct investment rebounded strongly in 2021. They increased by 8% in the EU, while they remained below pre-pandemic levels in major economies.

42 For instance, the sale of "Ellinikon S.A." and its transfer by the Hellenic Republic Asset Development Fund (HRADF) to Hellinikon Global I S.A. (a subsidiary of Lamda Development) was completed in June. Other important transactions are: (a) the sale of shares of GEK TERNA by Reggeborgh Invest BV; (b) the participation of Paulson & Co. in the capital increase of Piraeus Financial Holdings S.A.; (c) a loan by OTE PLC to OTE S.A.; (d) the conclusion of the acquisition of Piraeus Port Authority S.A. by Cosco Shipping Co Ltd; (e) the 10% participation of Selath Holdings s.a.r.l. (Luxembourg), controlled by CVC Capital Partners SICAV-FIS S.A., in the capital increase of Public Power Corporation S.A.; and (f) the acquisition by Strix Holdings L.P. (Ireland) of Euroterra S.A., Rebikat S.A., ETVA VIPE S.A. and EVROAK S.A. owned by Piraeus Bank S.A.

Countries of origin are mainly France, Luxembourg, the USA, Switzerland, Germany and the United Kingdom.

Under portfolio investment, an increase in residents' external assets is chiefly attributable to a rise of €24.2 billion in residents' holdings of foreign bonds and Treasury bills. A rise in residents' external liabilities is due to increases of €2.1 billion in non-residents' holdings of shares of Greek firms and of €1.4 billion in non-residents' holdings of Greek government bonds and Treasury bills. Under other investment, a rise in residents' external assets reflects an increase of €2.6 billion in loans extended to non-residents and a statistical adjustment of €4.4 billion associated with the issuance of banknotes, which were partly offset by a decrease of €2.7 billion in residents' deposit and repo holdings abroad. An increase in their liabilities represents mainly a rise of €18.1 billion in non-residents' deposit and repo holdings in Greece (the TARGET account included). At end-December 2021, Greece's reserve assets stood at €12.8 billion, compared with €9.7 billion at end-2020, mainly due to the new allocation of SDRs by the International Monetary Fund (IMF).

Box IV.5

TWIN DEFICITS DURING THE PANDEMIC: A TEMPORARY OR PERMANENT RE-EMERGENCE?

Over the past ten years in Greece, a considerable effort was undertaken to reduce the fiscal and the current account deficit. The fiscal deficit, which stood at 10.2% of GDP in 2008, turned into a surplus of 1.1% of GDP by 2019, while the current account deficit decreased from 15.1% of GDP in 2008 to 1.5% of GDP at end-2019. However, the outbreak of the COVID-19 pandemic in 2020 abruptly halted the ongoing improvement. The emergency fiscal policy response to the pandemic with the introduction of support measures, which started in 2020 and continued into 2021, finally weighed on the budget balance in both years. More specifically, the general government budget balance, according to the 2022 Budget Report, turned into a deficit of 10.1% of GDP in 2020 and remained elevated at around 9.6% of GDP in 2021. Meanwhile, the current account deficit widened sharply to above 6.6% of Greece's GDP in 2020, mainly on account of reduced travel receipts, and remained high at around 6% of GDP in 2021. Against this backdrop, the recent re-emergence of the twin deficits, i.e. the external deficit and the fiscal deficit, inevitably raises the question whether the Greek economy will return to its pre-pandemic state and resume its path to further improvement once the pandemic is over.

The current analysis presents the main factors behind the re-emergence of the twin deficits during the pandemic and explores the extent to which they are temporary. In this respect, an empirical investigation of the twin deficits hypothesis is presented for the Greek economy, which examines to what extent the fiscal deficit is contributing to the current account deficit, quantifying also how this correlation evolved, before and during the pandemic, based on the latest available data.

The twin deficits

According to the system of national accounts, the current account deficit can be associated with the general government deficit via the gap between saving and investment as follows:[1,2]

1 For an analysis of developments in the current account balance from a saving and investment perspective over the 2000-18 period, see Bank of Greece, *Annual Report 2019*, Box IV.4.

2 Gross domestic product (GDP) is defined as: GDP = C + G + I + X - M, where C and G are private and public consumer spending, respectively, I is the gross capital formation (investment) of the private and the public sector, X and M are exports and imports of goods and services, respectively, with the differential X - M reflecting the goods and services balance. The current account balance (CA) is defined as: CA = X - M + NY + NCT, where NY and NCT are net income and net current transfers from abroad. Given that gross national disposable income (GNDI) is defined as: GNDI = C + G + I + CA and gross saving is defined as: S = GNDI - C - G, CA can be expressed as the difference between saving and investment. For a detailed calculation of CA based on equation (1), see IMF (2009), *Balance of Payments and International Investment Position Manual*, Sixth edition (BPM6), Chapter 14.

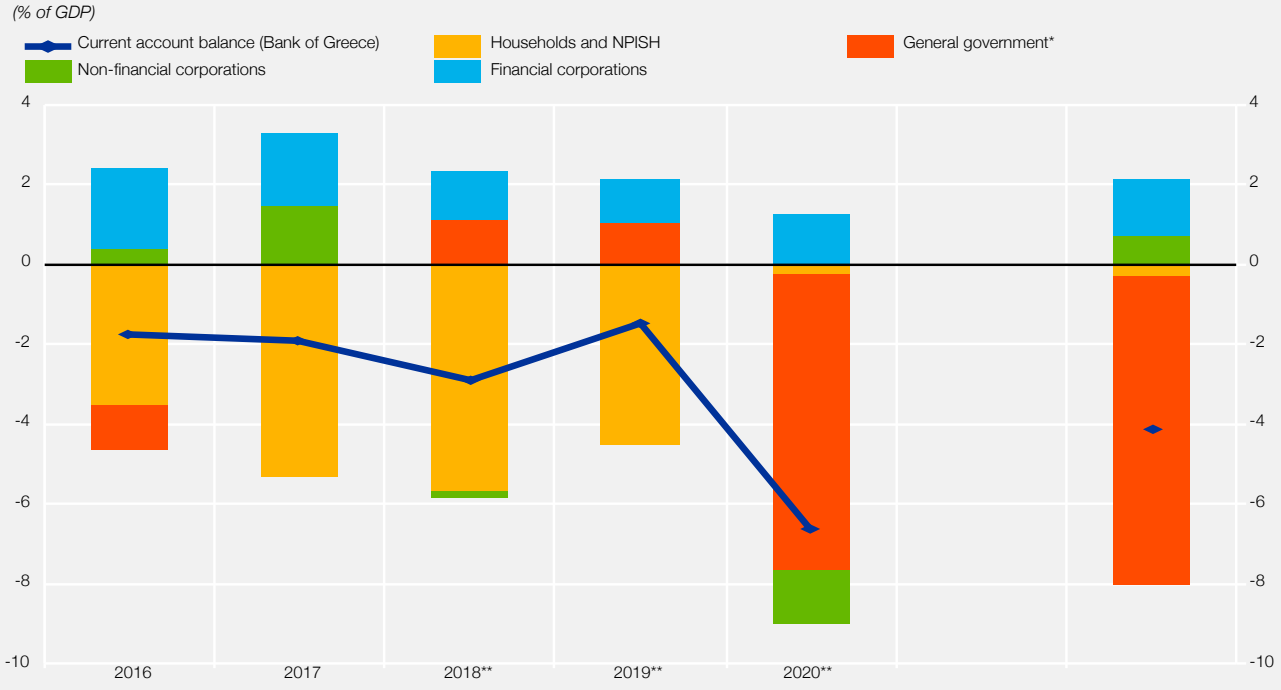
$$CA = S - I = (S_p - I_p) + (S_g - I_g) \quad (1)$$

where S is gross saving and I is gross capital formation (investment) of the private (p) and the public (g) sector.

The two terms of the sum denote the saving gap of the private sector (households and firms) and of general government, respectively. Thus, equation (1) links the budget balance, (Sg - Ig), with the current account balance (CA).[3] More specifically, a widening in the saving gap of general government, unless covered by the private sector, will lead to a worsening in the current account balance.

In 2020 the saving-investment gap of general government turned negative, from positive over 2018-19. This development is almost entirely due to lower general government saving and reflects the fiscal measures in response to the COVID-19 pandemic, as well as reduced tax revenue as a result of weaker economic activity. The saving gap of households followed an opposite path and, albeit still negative, narrowed considerably in 2020, since household saving increased. This is primarily associated with lower consumption and higher household savings on account of the lockdown measures, coupled with the fiscal policy measures that from the outset aimed at maintaining disposable income and employment. The increase in household saving, which was also observed across the euro area,[4] is linked on the one hand with forced saving, as households during lockdowns could not consume certain goods and services (e.g. food services, travel and entertainment), and on the other hand with precautionary saving amid uncertainty related to the pandemic (see also

Chart A The evolution of the current account balance and the saving gap (S-I)



Sources: Bank of Greece for b.o.p. data, ELSTAT for saving-investment data and Bank of Greece calculations.
* The saving gap of general government aproximates the budget balance.
** Provisional data.
*** Provisional data, referring to the first three quarters of 2021.
Note: Due to different data sources, the saving gap is not identical to the current account balance.

3 Following the saving-investment gap-based approach, saving takes a positive sign and investment takes a negative sign. However, this does not mean that higher investment has a negative impact on the economy, given that investment is a positive component of GDP and disposable income, as defined above. The equation implies that if domestic saving does not meet investment activity, the current account balance is negatively affected, as this gap must be covered by the external sector of the economy.

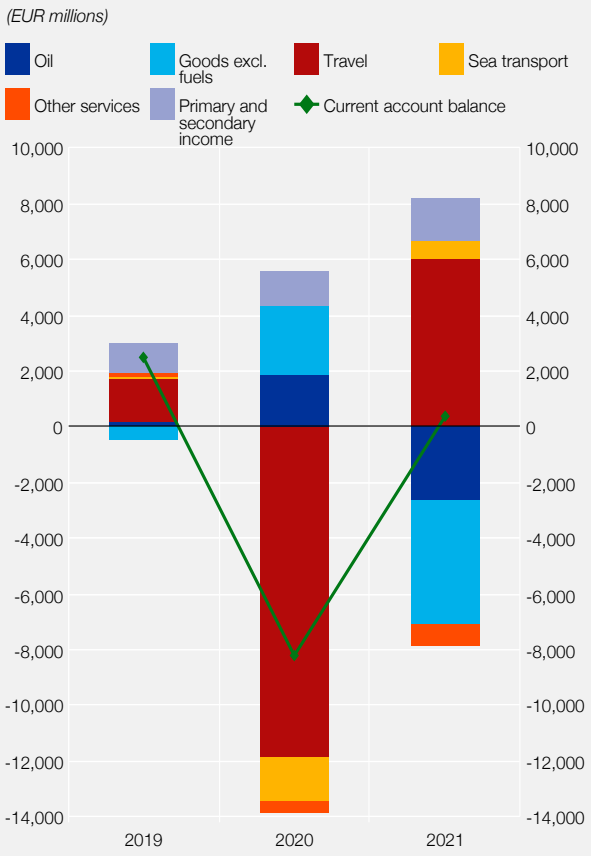
4 See ECB (2021), *Economic Bulletin*, Issue 5, Box 4 "COVID-19 and the increase in household savings: an update".

Box IV.2). Overall, the widening of the general government saving gap was offset only in part by the narrowing of the household saving gap, leading to a deterioration in the current account balance and therefore to the return of the twin deficits. The above developments continued into the first three quarters of 2021 (see Chart A).[5]

The impact of the pandemic on the current account balance

The outbreak of the COVID-19 pandemic in 2020 halted the ongoing improvement of Greece's current account balance. In particular, the deterioration that was recorded in 2020 was largely due to a drop in travel receipts, owing to mobility restrictions. By contrast, the improvement of the current account balance in 2021 –despite the negative effect from higher imports of goods– is mainly associated with a rise in travel receipts, as the pandemic-induced travel restrictions eased. This development highlights the –mostly– temporary nature of the worsening of external imbalances. With travel services returning to their pre-pandemic level, the current account balance is expected to improve further (see Chart B). In addition, the improvement of the country's international competitiveness observed during the past ten years, coupled with the resilience of Greek exports of goods, as mirrored in their rise (at constant prices) both in 2020 and 2021, acts as a catalyst for a further shift of the Greek economy to exports. Yet, rising fuel prices and higher imports of non-fuel (mostly intermediate) goods since late 2021 are expected to weigh on the current account balance. The expected increase in imports of –capital and intermediate– goods for investment purposes in the context of the NGEU, although partly counterbalanced by the corresponding receipts in the form of direct transfers in the secondary income account, will have a negative effect on the current account balance in the short term. However, the improved competitiveness of the Greek economy, driven by investment, in tandem with the continuation of structural reforms for supporting the export orientation of Greek businesses,[6] is expected to contribute to higher exports and a subsequent improvement of the current account balance over the medium term (see Section IV.7).[7]

Chart B Contributions to the annual change in the current account balance



Source: Bank of Greece.

The emergency fiscal policy response during the pandemic

In order to mitigate the negative effects of the pandemic on the real economy in 2020 and 2021, fiscal policy became expansionary. Given the high reliance of the Greek economy on tourism, compared to other European

5 The data used in the analysis are drawn from the annual non-financial accounts of institutional sectors (published by ELSTAT), i.e. the household sector (households and non-profit institutions serving households (NPISH) – S.1M); the corporate sector (non-financial corporations – S.11 and financial corporations – S.12); general government (S.13); and the external sector (rest of the world – S.2).

6 See for instance the Growth Plan for the Greek Economy (final report by the Pissarides Committee), 14.11.2020.

7 According to the estimation of the Dynamic Stochastic General Equilibrium (DSGE) model of the Bank of Greece (see Malliaropulos, D. et al. (2021), "The impact of the Recovery and Resilience Facility on the Greek economy", Bank of Greece, *Economic Bulletin*, No. 53), the implementation of the National Recovery and Resilience Plan will have a positive impact on the balance of goods and the overall current account balance over the medium term.

economies, and the pandemic-induced downturn, a sizeable –temporary– fiscal support package (amounting to around 10.8% of GDP in 2020 and 9.5% of GDP in 2021) was deemed necessary to contain the adverse economic effects. As a result, sizeable primary deficits were generated (7.1% of GDP in 2020 and an estimated 7% of GDP for 2021).[8] In 2020, the EU-level decisions on the suspension of fiscal rules until the end of 2022 have provided all euro area country-members with the fiscal space needed.

The orientation and timing of the government response had the ultimate objective of minimising the impact of the pandemic on both the demand and the supply side. This was pursued mainly by schemes to support workers' disposable income[9] and firms' liquidity, for as long as economic activity was subject to restrictions, and by ensuring the reopening of businesses once the restrictive measures were lifted, so as to avert any scarring effects on business activity (see Chapter V).

With the easing of the pandemic and the recovery of the economy, the support measures are being withdrawn, while fiscal neutrality is expected to start gradually being restored from 2022, as the primary deficit in Greece is estimated to reach 1.4% of GDP according to the 2022 Budget. The recent geopolitical crisis should be expected to delay this rebalancing process (see Box IV.1).

An empirical investigation of the twin deficits hypothesis

The twin deficits hypothesis explores the extent to which the fiscal deficit contributes to a deterioration of the current account deficit. The investigation is based on equation (1) above. Previous studies on the Greek economy empirically confirm the validity of the twin deficits hypothesis, examining different periods in time.[10] Nevertheless, it should be noted that, as suggested by those studies, the estimated long-run correlation of the two deficits proves to be positive, yet not too high (around 0.25).[11]

An updated estimation of a VECM, which covers the period before and during the pandemic for the Greek economy, reveals that the long-run correlation of the two deficits is slightly higher and stands at 0.4. Furthermore, a fiscal balance shock of one standard deviation is estimated to lead, in the short term, to a higher impact and statistically significant responses of the

Chart C Impact on the current account balance from a budget balance shock (of one standard deviation) over a time horizon of 15 quarters

Source: Bank of Greece calculations.

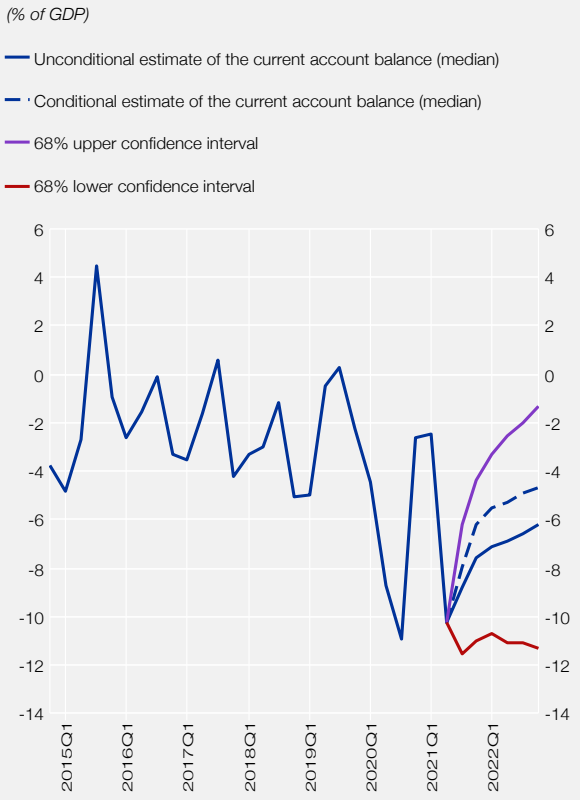
8 In terms of enhanced surveillance, the general government primary balance for 2020, 2021 and 2022 amounts to 7.9%, 7.3% (estimate) and 1.2% (forecast) of GDP, respectively.

9 According to available data, households' disposable income in 2020 stood at a similar level as in 2019.

10 See Chronis, P. and G. Palaiodimos (2014), "Optimal Fiscal Policy Mix and Current Account Imbalances: the case of Greek Economy", *Fiscal Policy and Macroeconomic Imbalances*, 285-307; Paparas, D., C. Richter and H. Mu (2016), "An econometric analysis of the twin deficits hypothesis in Greece during the period 1960-2014", *Applied Economics Quarterly*, 62(4), 341-360; Litsios, I. and K. Pilbeam (2017), "An empirical analysis of the nexus between investment, fiscal balances and current account balances in Greece, Portugal and Spain", *Economic Modelling*, 63, 143-152; and Trachanas, E. and C. Katrakilidis (2013), "The dynamic linkages of fiscal and current account deficits: New evidence from five highly indebted European countries accounting for regime shifts and asymmetries", *Economic Modelling*, 31, 502-510.

11 The estimated pass-through is about 0.25, i.e. an improvement (deterioration) of 1 percentage point (pp) of GDP in the fiscal balance leads to an improvement (deterioration) of 0.25 pp in the current account balance.

Chart D Estimation of the current account balance, assuming that part of the support measures adopted during the pandemic is withdrawn in 2022



Source: Bank of Greece calculations.

Chart E Estimated impact of the budget balance on the current account balance using a 6-year and an 8-year rolling window

Source: Bank of Greece.

current account balance (see Chart C).[12,13] These short-term estimates are broadly confirmed by a similar BVAR model, under which the estimated current account responses are slightly weaker. Under the same model, it is estimated that, starting from 2022, the partial withdrawal of the fiscal measures that were adopted during the pandemic will lead to an improvement in the current account balance on the back of an improved fiscal balance (see Chart D).[14] Finally, using an alternative linear time series model,[15] it is estimated that,

12 A small-scale vector error correction model (VECM) was employed with four lags across the quarterly variables of: current account balance (% of GDP); budget balance (% of GDP); credit to the private sector (% of GDP); and real effective exchange rate, covering the period from the first quarter of 2002 to the third quarter of 2021. Net private saving has been omitted, as it is a function of credit to the private sector that has already been included in the model (see Chronis and Palaiodimos 2014). The variables under review prove to be cointegrated, with the first two variables adjusted for seasonality. The above impacts were computed using a Generalised Impulse Response analysis. On the basis of this model, a budget balance shock of one standard deviation leads in the short term to statistically significant shocks –equal to about 0.8 times the standard deviations– for a period of up to two quarters, which quickly revert to their long-run level.

13 These estimates are also confirmed by similar Bayesian Vector Autoregressive (BVAR) models using the same variables and time lags. Namely, a BVAR model with four time lags across the quarterly variables of: current account balance (% of GDP); fiscal balance (% of GDP); credit to the private sector (% of GDP); and real effective exchange rate. Likewise, the above impacts were estimated using a Generalised Impulse Response analysis and Normal-Wishart priors.

14 The conditional forecast of the current account balance rests on the assumption that the fiscal deficit declines and stabilises at 1.4% of GDP from the third quarter of 2021 until the fourth quarter of 2022.

15 A linear autoregressive model for the quarterly variables of: current account balance (% of GDP); fiscal balance (% of GDP); credit to the private sector (% of GDP); and real effective exchange rate, is employed assuming causality from the fiscal balance to the current account balance using Fully Modified OLS estimators (given that the series are non-stationary and cointegrated). The rolling-window estimates of this model suggest that the period following the adoption of the economic adjustment programme was accompanied by a lower correlation between the fiscal and the external balance, namely the current account balance.

after the initial strong correlation between the fiscal deficit and the current account deficit seen in the first phase of the pandemic, some early signs of convergence towards historical averages emerge thereafter (see Chart E).

Overall, the above empirical findings are supportive of the temporary nature of the twin deficits observed in the Greek economy during the pandemic. From the analysis it also transpires that the withdrawal of the temporary fiscal measures and the return of the Greek economy to primary fiscal surpluses will lead, *ceteris paribus*, to a corresponding improvement in the current account balance both in the short and in the long run. Conversely, the prolongation of these measures is expected to contribute to persistent current account deficits.

Conclusions

The outbreak of the COVID-19 pandemic has contributed to a re-surfacing of the twin deficits, which, on the basis of recent data releases, should be seen as temporary, as it is largely associated with the fiscal expansion that took place over that same period. This conclusion is confirmed by the empirical analysis, which reveals that the withdrawal of the emergency fiscal policy measures during 2022 and the gradual return to fiscal sustainability will lead, *ceteris paribus*, to a corresponding improvement in the current account balance. On the other hand, any delays in the withdrawal of the fiscal measures are set to stall the anticipated improvement of the current account balance in the following quarters. In this direction, the adoption of further structural policies, aimed at maintaining high and rising fiscal surpluses over the medium term through an effective control on spending and a broadening of the tax base, will also help to improve the current account balance.

The easing of mobility restrictions in 2021 has already contributed to a considerable rise in travel receipts, which came to about 60% of the 2019 travel receipts, thereby leading to a concomitant reduction in the current account deficit. The outlook for travel receipts in 2022 is positive and therefore an improvement can be expected in the current account balance, although the Russian invasion of Ukraine should have a negative effect (see Box IV.1). With regard to the other factors affecting the current account balance, despite the fact that the structural reforms in the context of the economic adjustment programmes have borne fruit and indeed raised the international competitiveness of the Greek economy, there is no room for complacency once the fiscal deficits start improving on the back of fiscal policy tightening. In particular, raising the competitiveness and trade openness of the Greek economy calls for the continuation of structural reforms, with a view to enhancing the competitiveness of Greek businesses and the share of Greek goods and services in foreign markets. The effective and timely utilisation of the NGEU funds, even though it may weigh on the current account balance in the short term via imports of capital goods for investment purposes, should be in line with the objective of improving Greece's international competitiveness and trade openness.

8 INTERNATIONAL INVESTMENT POSITION AND EXTERNAL DEBT

At end-2021, the country's net external liabilities stood at €320 billion (175% of GDP), having grown by €31 billion year-on-year.[43] This deterioration reflects an increase in the net liabilities mainly of the other sectors of the economy, which were partly offset by a decline in the net liabilities of other financial institutions under other investment (see Table IV.10). Nevertheless, due to the substantial growth of nominal GDP, the net IIP-to-GDP ratio remained almost unchanged, despite deteriorating in absolute terms.

43 It should be noted that changes in net IIP reflect not only changes in non-residents' investment in Greece and residents' investment abroad, i.e. current account flows, but also changes in the valuation of such investment. These are difficult to calculate, as they are associated with changes in assets' market prices (mainly bonds and shares) that make up the country's external assets and liabilities, as well as with exchange rate fluctuations.

Table IV.10 Greece's international investment position by type of investment and sector

(EUR millions)

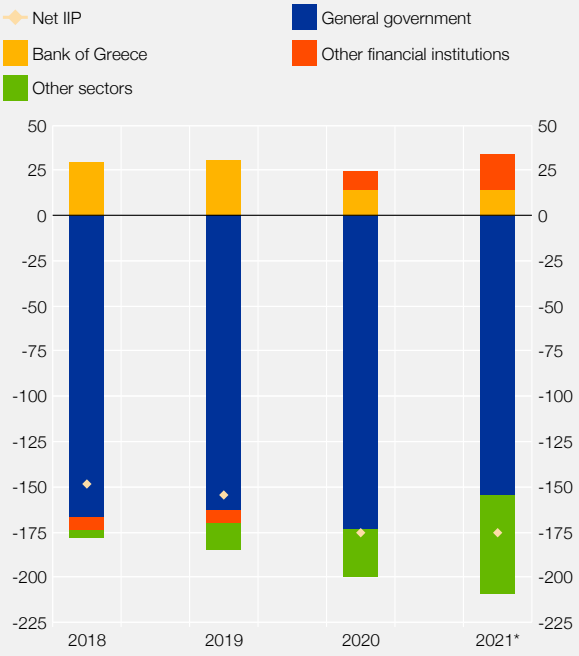
	2018	2019	2020	2021*
I. DIRECT INVESTMENT	**-14,183**	**-23,071**	**-22,458**	**-28,040**
I.1 Abroad by residents	20,595	20,508	16,207	17,332
I.2 In Greece by non-residents	34,778	43,579	38,665	45,371
II. PORTFOLIO INVSTMENT[1]	**51,483**	**65,468**	**112,997**	**139,967**
II.1 Assets	105,330	132,222	165,044	192,622
II.2 Liabilities	53,847	66,754	52,047	52,655
1. General government	**-36,862**	**-40,811**	**-27,202**	**-21,553**
1.1 Assets	33	45	663	906
1.2 Liabilities	36,895	40,856	27,865	22,459
2. Bank of Greece	**71,645**	**70,290**	**90,286**	**112,955**
2.1 Assets	71,645	70,290	90,286	112,955
2.2 Liabilities	0	0	0	0
3. Other financial institutions	**8,500**	**28,741**	**42,247**	**44,765**
3.1 Assets	16,677	43,517	54,719	55,498
3.2 Liabilities	8,177	14,776	12,472	10,733
4. Other sectors	**8,200**	**7,247**	**7,665**	**3,800**
4.1 Assets	16,975	18,370	19,376	23,263
4.2 Liabilities	8,775	11,123	11,710	19,463
III. OTHER INVESTMENT	**-310,818**	**-332,498**	**-389,586**	**-445,089**
III.1 Assets	61,518	65,747	68,173	73,214
III.2 Liabilities	372,336	398,245	457,759	518,304
1. General government	**-262,792**	**-258,578**	**-259,755**	**-261,842**
1.1 Assets	2,439	2,439	2,439	2,424
1.2 Liabilities	265,230	261,016	262,193	264,265
2. Bank of Greece	**-25,403**	**-21,548**	**-76,368**	**-99,993**
2.1 Assets	6,086	10,309	12,904	17,225
2.2 Liabilities	31,489	31,857	89,272	117,218
3. Other financial institutions	**-24,198**	**-44,743**	**-27,549**	**-11,001**
3.1 Assets	16,819	20,650	22,124	24,841
3.2 Liabilities	41,016	65,393	49,672	35,842
4. Other sectors	**1,574**	**-7,629**	**-25,914**	**-72,253**
4.1 Assets	36,174	32,350	30,707	28,725
4.2 Liabilities	34,600	39,979	56,621	100,978
IV. RESERVE ASSETS	**6,625**	**7,571**	**9,739**	**12,770**
NET INTERNATIONAL INVESTMENT POSITION (I+II+III+IV)	**-266,893**	**-282,530**	**-289,308**	**-320,392**
Net IIP as a % of GDP	**-148.6**	**-154.2**	**-175.0**	**-175.2**

Source: Bank of Greece.
* Bank of Greece estimates on the basis of provisional balance of payments and IIP data.
1 Portfolio investment includes financial derivatives.

Although in 2020 Greece recorded the highest negative net international investment position (net IIP)[44] as a percentage of GDP in the EU,[45] the risks facing the country are currently contained, as the negative net IIP of the general government (155% of GDP), which is the main component of the country's negative net IIP, is accounted for by general government low-interest, long-term loans from the support mechanism. However, in recent years the other sectors of the economy have also registered an increase in net liabilities, mainly reflecting the sale of relevant loans (mostly of corporations and households), which were transferred to foreign financial institutions. Achieving the necessary improvement in the net IIP over the medium term requires either strong economic growth, capable of more than offsetting deficits in the current account, or adequate and permanent current account surpluses.

Chart IV.30 Net international investment position by sector

(percentage of GDP)



Source: Bank of Greece.
* Bank of Greece estimates based on provisional balance of payments and IIP data.

Under direct investment, net liabilities grew, reflecting an increase in foreign direct investment inflows into Greece, after sluggish activity in 2020 (see also section 7.4 above). Under portfolio investment,[46] net assets rose by €27 billion, which is almost entirely attributable to a decrease in Bank of Greece's net assets. This development also reflects Bank of Greece's transactions in the context of monetary policy implementation through asset purchases under the ECB's pandemic emergency purchase programme (PEPP, see also Chapter III).

Under other investment, the negative net position deteriorated by €56 billion in 2021, due to an increase in the net liabilities primarily of the other sectors of the economy and, secondarily, of the Bank of Greece (including the TARGET account). This was partly offset by a decrease in the net liabilities of other financial institutions as a result of securitisation-related transactions. The above increase in the liabilities of the other sectors of the economy (mainly enterprises and households), which became more pronounced in 2021, reflects the sale of relevant loans, which were transferred to foreign credit institutions.[47] Lastly, foreign reserve assets rose, primarily in the context of a new allocation of Special Drawing Rights (SDR) by the IMF and secondarily due to their valuation.

A sectoral breakdown (see Chart IV.30) reveals that the deterioration of the net IIP in 2021 is primarily associated with an increase in the net liabilities of the other sectors of the economy; how-

44 The net IIP is the difference between a country's assets and liabilities vis-à-vis non-residents. Depending on a positive or negative sign, the country is classified as a net creditor or debtor, respectively, vis-à-vis the rest of the world. The IIP reflects, at a given point in time, the level of a country's assets and liabilities vis-à-vis non-residents. Assets and liabilities are broken down by main category into direct investment, portfolio investment, other investment and foreign reserve assets, as well as by sector of the economy, into general government, Bank of Greece, other financial institutions and other sectors. It should be noted that, in compliance with international reporting requirements, direct investment, bonds and equities are valued at market price as at the last day of the reference period.

45 European Commission, *Alert Mechanism Report 2022*, November 2021.

46 This category includes IIP financial derivatives.

47 The IIP records the nominal value of the loans transferred. Credit servicers have been entrusted with the management of these loans under Law 4354/2015.

Table IV.11 Gross and net external debt (current prices)

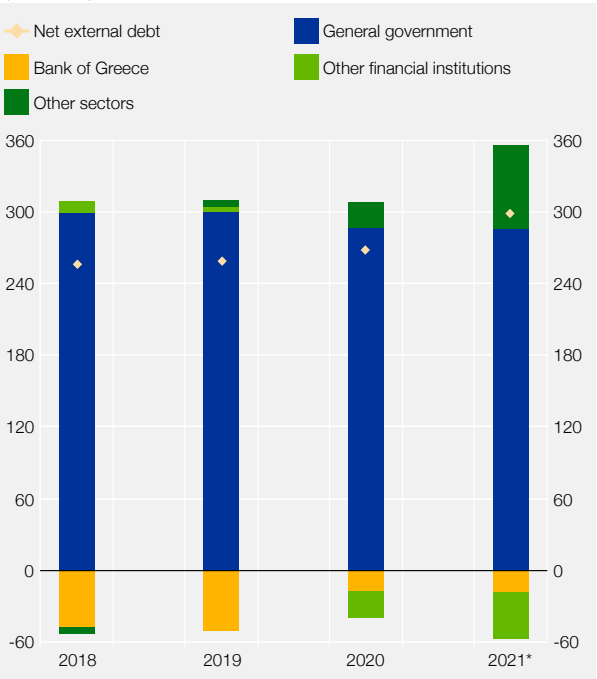
(EUR millions)

	2018	2019	2020	2021*
A. General government	298,325	298,955	286,398	285,347
B. Bank of Greece	31,489	31,857	89,272	117,218
C. Other financial institutions	43,152	68,362	52,912	40,394
D. Other sectors	34,639	40,059	57,645	103,951
E. Direct investment – total economy	8,958	9,264	8,289	9,511
Gross external debt (A+B+C+D+E)	**416,564**	**448,497**	**494,517**	**556,422**
Gross external debt as a % of GDP	232.0	244.7	299.1	304.3
Gross external debt of the general government as a % of GDP	166.1	163.1	173.2	156.1
Net external debt	**255,920**	**258,726**	**267,823**	**297,973**
Net external debt as a % of GDP	142.5	141.2	162.0	163.0

Source: Bank of Greece.
* Bank of Greece estimates on the basis of provisional balance of payments and IIP data.

Chart IV.31 Net external debt by sector

(billion euro)



Source: Bank of Greece.
* Bank of Greece estimates based on provisional balance of payments and IIP data.
Note: Negative values represent assets.

ever, this was partly offset by an improvement in the net position of other financial institutions. The net position of the general government improved, as a decline in its liabilities under portfolio investment more than offset an increase in its corresponding liabilities under other investment.

Greece's gross external debt[48] at current prices grew by €62 billion to €556 billion (304% of GDP) at end-2021, due to increased liabilities of the other sectors of the economy and of the Bank of Greece. This was partly offset by a decline in the liabilities mainly of other financial institutions (see Table IV.11). It should be noted that the gross external debt-to-GDP ratio deteriorated only slightly, owing to a significant rise in nominal GDP in 2021.

The net external debt[49] stood at €298 billion (163% of GDP), registering an increase of €30 billion in 2021, which is associated with a deterioration in the net position of the other sectors of the economy. This was partly offset by an improvement in the net position of other financial institutions and the Bank of Greece (see Chart IV.31).

48 A country's gross external debt equals IIP liabilities minus the liabilities in equity and financial derivatives.
49 The net external debt equals the net IIP minus the net position in equity from direct investment and portfolio investment, as well as the net position in derivatives, gold and equity included in reserve assets.

Box IV.6

THE IMPORTANCE OF OPEN DATA

In the era of digital transformation and Open Information, "Open Data"[1] are a driver of economic growth and provide great economic and social benefits. They promote system interoperability, ensure transparency of decisions, generate new innovative ideas and enhance efficiency in the use of resources.

Open Data in Europe and Greece for 2021

Open data availability is a European priority in the context of digital transformation and many EU Member States are moving in this direction. According to the open data maturity report,[2] European countries (34 in total, including the EU-27 Member States) are classified in four categories according to the degree of open data availability as follows: "trend-setters", "fast-trackers", "followers" and "beginners".

According to the 2021 report,[3] most European countries rank in the higher end of the spectrum. In particular, "trend-setters" comprise France, Ireland, Spain, Poland, Estonia and Ukraine. The nine countries included in the fast-tracker cluster show highly similar scores, as the cluster is concentrated on a range of 3%. Greece scored 82% on the open data maturity index for 2021 and ranked as a "follower".

Among the countries participating in the maturity survey, 85% report that open data are used in the policy-making processes in their country and 89% report that open data are used in decision-making processes, for example public administrations making use of open data in their daily operations.

It was clear in 2021 that many Member States seek to implement the European Open Data Directive.[4] Coupled with actions to provide information about the COVID-19 pandemic, the merits of open data for society are continuously highlighted. Many EU countries, including Greece,[5] have developed national dashboards to record the evolution of the pandemic and vaccinations.

The Open Data Portal of the Bank of Greece

The Bank of Greece launched its Open Data Portal (opendata.bankofgreece.gr) in 2018. It was one of the first central banks to realise early on that it was important to provide researchers and the public at large with data in a format that can be easily read and processed by computers, in conformity with international open data standards. Through the Portal, information is available in the form of "Open Data", thereby facilitating its use and processing, allowing interested parties easy, fast and efficient access to the information they are looking for.

Since the launch of the Portal in July 2018, 51 datasets have been made available and more than 3,000 files have been uploaded. Currently available datasets are provided by the Departments of Statistics, Economic Analysis and Research, and Financial Operations and the Bank's Centre for Culture, Research and Documentation, accredited with the Silver Certificate by the Open Data Institute. By July 2021, the Portal has had 40,000 visits and over 11,000 file downloads. According to estimates using special software,[6] over 30% of the visitors came from abroad.

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1 Data made available under a certain licence so that anyone can use, re-use, modify and share them, subject only to requirements that preserve provenance and openness under the same terms as the original (https://opendefinition.org/).
2 https://data.europa.eu/en/impact-studies/open-data-maturity.
3 *Open Data Maturity Report 2021*, p. 5.
4 Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information, OJ L 172/56 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32019L1024&from=EN.
5 For instance, https://covid19.gov.gr/covid19-live-analytics and https://covid19.gov.gr/covid-map.
6 SmarterStats and Google Analytics.

The Portal enables users to have access not only to the most recent update of the data they are interested in, but also to complete historical datasets, i.e. from earlier dates.[7]

In the near future, the Bank plans to further enrich the Open Data Portal with new datasets.

"Open Banking Technologies" conference

As part of its outward-looking activity, in March 2022 the Bank of Greece and the Open Technologies Alliance (GFOSS) jointly organised an online conference on "Open Banking Technologies: FinTech – Open Banking Protocols", whose topics comprised the Open Data Portal. The speakers were important business executives and academics involved in the field of Open Data and innovation, as well as Bank of Greece officials.

Among the next steps, the Bank intends to organise a Datathon to gather and develop innovative ideas and solutions by liaising the Bank's Open Data with other open data and systems.

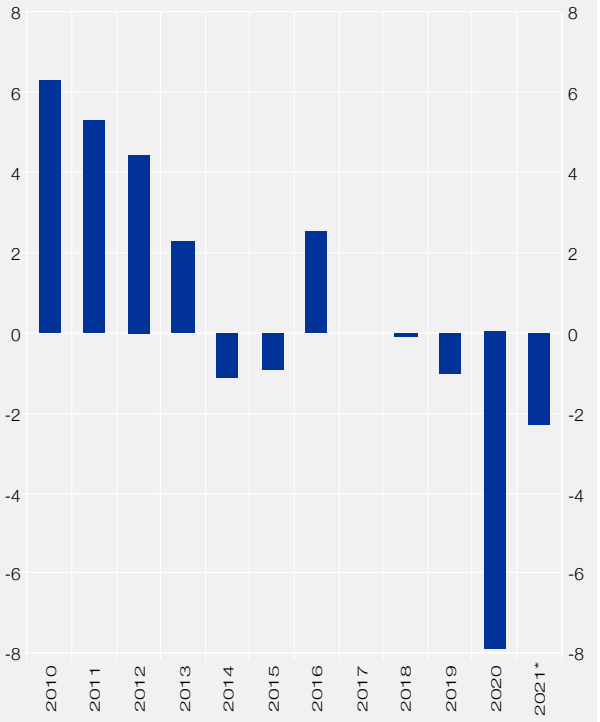
7 This is particularly important for data provided at short intervals, such as the Price Bulletins for Gold and Gold Coins that are issued daily, as users can consult any date to find valid prices for any legitimate use and rely on the validity of a certain price.

V FISCAL DEVELOPMENTS AND PROSPECTS

In 2021, fiscal aggregates continued to be burdened by the implementation of support measures due to heightened uncertainty regarding the evolution of the pandemic in the first part of the year. However, as the economy started to recover vigorously, support measures were scaled down, while as from 2022 a gradual restoration of fiscal equilibrium is expected. Emergency fiscal measures were facilitated by the coordinated action of the ECB's single monetary policy, which contributed to keeping borrowing costs at historically low levels, but also by maintaining –in 2021 too– the suspension of fiscal rules across the EU. However, in 2022 uncertainty returned as a result of the economic impact of Russia's invasion of Ukraine, undermining global security and stability and posing risks to the growth prospects of the economies of the EU Member States. At such a negative conjuncture, any deviation of fiscal policy from its initial course presupposes the existence of sufficient fiscal space, taking into account the broader uncertainties surrounding both the implementation of the budget and the growth momentum of the economy in 2022. Possible emergency income support measures should be targeted and temporary, so as to safeguard the restoration of fiscal equilibrium. Timely utilisation of the funds of the European Recovery Instrument NextGenerationEU (NGEU), observation of the rules of the new European fiscal framework and continuation of structural reforms are key to ensuring the downward momentum of public debt, which is reinforced by its features, such as its composition and repayment profile. In this way, fiscal policy credibility is safeguarded, as a condition for sustainable economic growth and for a further upgrade of the credit rating of the Greek economy and, ultimately, for regaining investment grade, also in view of Greece's exit from enhanced surveillance.

Chart V.1 Change in the cyclically adjusted primary balance of the general government

(% of potential GDP)



Source: Bank of Greece.
*Forecast.
Notes: The cyclically adjusted primary balance of the general government is calculated on the basis of the Eurosystem methodology. Excluding the support to the financial sector and including NGEU expenditure.

1 OVERVIEW OF DEVELOPMENTS AND PROSPECTS[1]

In the first months of 2021, the third wave of the pandemic made it necessary to continue with the severe restriction of activities and led to the extension of the fiscal measures taken

1 The cut-off date for data and information used in this chapter was 28 March 2022.

in 2020, as well as the adoption of new ones. The fiscal policy of 2021, as described in the Introductory Report on the 2021 Budget, was complemented with additional expansionary measures, which burdened the fiscal balance and public debt. As from the second quarter of the year, as the vaccine rollout quickened and the restrictive measures were gradually lifted, the economy recovered, actually at a stronger pace than initially expected. As a result, in the second half of 2021 support measures were partly withdrawn. Consequently, in 2021 fiscal policy remained expansionary, but to a lesser extent than in 2020 (see Chart V.1), in order to contain the negative effects of the pandemic on real economy. Nevertheless, owing to the recovery of economic activity in 2021, both the deficit and public debt are expected to improve as a percentage of GDP in relation to 2020. In 2022, fiscal policy is expected to tighten, due to the withdrawal of the largest part of fiscal measures, and fiscal equilibrium should gradually start being restored.

As also in 2020, coordinated action by the European Central Bank (ECB) and the European Union (EU) to enhance liquidity, provide the maximum possible fiscal flexibility to Member States and activate new financial instruments contributed to keeping Greek government borrowing costs very low. Consequently, in 2021 the government continued to tap the international markets at constantly declining interest rates, which allowed it to comfortably finance emergency expenditure, as well as to maintain high cash buffers.

The downward path of public debt as a percentage of GDP budgeted prior to the pandemic, although halted in 2020, is expected to resume as from 2021, due to the strong impact of economic recovery. According to the debt sustainability analysis of the Bank of Greece, the downward path of public debt is expected to continue in the long run, while gross financing needs are not forecast to exceed the sustainability ceiling of 15% of GDP. However, the increase in debt, in absolute terms, for the financing of the requisite measures to deal with the pandemic considerably leaves little room for further fiscal relaxation. For this reason, Greece must return as soon as possible to primary surpluses and take full advantage of the fiscal stimulus from the utilisation of the resources of the European Recovery and Resilience Facility (RRF). Moreover, it is in Greece's interest to continue with structural reforms in order for the fundamentals of the economy to improve, in view of the fact that as from end-March 2022 the Pandemic Emergency Purchase Programme (PEPP) of the ECB ends and monetary conditions are expected to tighten, but also the fact that Greece's anticipated exit from enhanced surveillance in 2022 will imply that Greece will have to comply with the fiscal rules, as these will be formulated following the completion of the consultation that began in October 2021.

The epidemiological situation severely deteriorated in the last quarter of 2021 due to the emergence of the new Omicron variant across the globe. The imposition of more severe restrictive measures, especially on unvaccinated citizens, was deemed necessary in order to avoid imposing an across-the-board lockdown, which would have made it necessary to maintain for a longer period the existing economic support measures, or even reintroduce measures that had been withdrawn or introduce new ones.

The rise in inflation, which is mainly attributable to high energy costs and is escalating as a result of the surge of energy costs following Russia's invasion of Ukraine, puts pressures on policymakers to adopt additional fiscal measures, over and above those already budgeted, aimed at further supporting disposable income so as to mitigate the impacts of price increases. Before deciding on any emergency measures, policymakers should consider whether there is sufficient fiscal space, as well as take into account the broader uncertainties surrounding both the implementation of the budget and the growth momentum of the economy in 2022. Any extraordinary economic support measures should be targeted and temporary. The most effective and viable way to permanently enhance income in the medium and the long term is to ensure sustainable economic growth through investment and structural reforms.

2 FISCAL DEVELOPMENTS IN 2021

In 2021, data on the fiscal balance and public debt of 2020 were notified, which recorded a significant deterioration, reflecting the fiscal expansion that was deemed necessary to contain the impact of the pandemic on economic activity. Specifically, according to the second notification of fiscal data for the period 2017-2020 by the Hellenic Statistical Authority (ELSTAT) under the excessive deficit procedure in October 2021, the general government primary deficit for 2020 stood at 7.1% of GDP and the public debt-to-GDP ratio came to 206.3%. The primary balance has been burdened by an amount of €1.8 billion (or 1.1% of GDP), which relates to calls on guarantees of previous years, which had been fully recorded in the balance of 2020, without, however, affecting debt in 2020. The corresponding cash payments[2] will be calculated in public debt over the next five years. According to the enhanced surveillance methodology,[3] the primary balance of general government in 2020 is estimated at a deficit of 7.9% of GDP (see Table V.1).

In 2021, both the primary deficit (according to the enhanced surveillance methodology) and public debt of general government are expected to increase in nominal terms compared to 2020, driven by an expansionary fiscal policy. Nevertheless, as a percentage of GDP both aggregates are expected to improve as a result of the recovery of economic activity.

In the 2020-21 period, the cost of measures to address the consequences of the pandemic totalled €34.1 billion. The composition and timing of implementation of government measures aimed at bolstering workers' disposable income and firms' liquidity and, at the same time, protecting employment, for as long as economic activity was subject to restrictions, and facilitating firms' reopening following the lifting of the lockdown, so that business activity was not permanently impaired.

More specifically, during 2020 targeted fiscal measures amounting to €17.4 billion (or 10.5% of GDP) were introduced; the largest shares were accounted for by repayable advances and work subsidisation, followed by the provision of guarantees and tax reliefs.[4]

Table V.1 General government balances

(% of GDP)

	2018	2019	2020	2021*
General government balance[1] *(national accounts data – convergence criterion)*	**0.7**	**1.1**	**-10.1**	**-9.6**
– Central government	-1.3	0.4	-10.5	
– Social security funds, local government authorities and legal entities in public law	2.2	0.7	0.4	
General government primary balance	4.3	4.1	-7.1	-7.0
General government primary balance according to the enhanced surveillance methodology	4.2	3.6	-7.9	-7.3
Enhanced surveillance target[2]	3.5	3.5	-	-

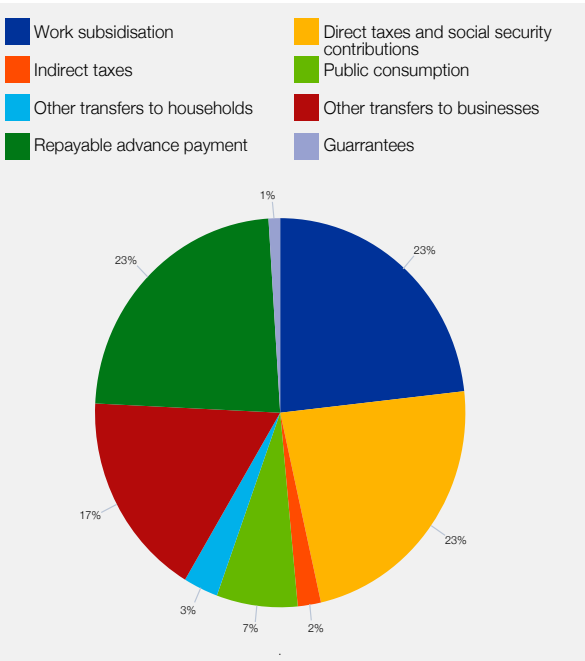
Sources: Ministry of Finance and ELSTAT.
* Forecast (State General Accounting Office, Introductory Report on the 2022 Budget).
1 ELSTAT data, as notified to the European Commission (Excessive Deficit Procedure). Totals/subtotals may not add up due to rounding.
2 The target for the primary surplus does not apply for the years 2020-2022, due to the suspension of the EU fiscal rules on account of the pandemic.

2 The amount of €1.8 billion has been planned to be gradually repaid by the Greek State to commercial banks in the period 2020-24. However, it was decided that it will be fully recorded in the national accounts balance in 2020, when the assumption of the liability by the Greek State was recognised. Public debt is affected only by the amount paid in cash every year.

3 On the basis of the enhanced surveillance methodology, the primary balance of 2020 does not include certain privatisation proceeds, the impact from the prompt clearing of tax refund claims, ANFA and SMP revenue transfers and certain costs related to migration flows.

4 See Bank of Greece, *Annual Report 2020*, Chapter V, April 2021.

Chart V.2 Composition of fiscal measures to address the pandemic in 2021



Source: Bank of Greece.

In the first months of 2021, fiscal expansion continued by extending and broadening the scope of certain employer and employee support measures that had already been taken in 2020. Gradually over the year, the type and nature of the support measures changed. The measures became more targeted, while their composition shifted to provision of working capital with a view to facilitating firms' reopening. In the second half of 2021, as a result of the recovery of economic activity, measures were scaled down. Liquidity provision to affected businesses under a repayable advance scheme, government support to landlords, tax and social security moratoria were terminated, and special-purpose compensations to employees and the self-employed with the government covering their social security contributions were considerably curtailed. Measures in 2021 totalled €16.7 billion (or 9.4% of GDP) (For a comprehensive review of fiscal policy measures, see the Annex to this chapter).

Specifically, as a percentage of total measures, the provision of liquidity to affected businesses in the form of repayable advances was limited to 23%, from 32% in 2020, while work subsidies through the payment of special-purpose compensations to employees and the self-employed and the coverage of their social security contributions were maintained at 23%. Another 23%, from 16% in 2020, regarded direct taxation relief including a reduction of the business advance tax rate, a moratorium on the special solidarity levy and a reduction of social security contributions by 3 percentage points in the private sector, financial support to landlords who received reduced rents and the tax moratoria for both employees and businesses. The percentage of other transfers to businesses increased to 17%, from 2% in 2020, and mostly concerned support to businesses in their reopening (provision of working capital); subsidies to tourism, catering, gyms and children's leisure facilities; extension of the "Gefyra" (Bridge) programmes for natural persons and businesses; subsidisation of interest payments on loans of small and medium-sized enterprises; and subsidisation of jobs (see Chart V.2).

The requisite fiscal response affected, as was to be expected, Greece's fiscal position on both the revenue and the expenditure side. Thus, the 2021 Budget forecasts were revised downwards in May, under the Stability Programme 2021 that was submitted to the European Commission, and further in November in the 2022 Budget, with a parallel upward revision of the projected macroeconomic aggregates.

In particular, in the 2022 Budget, the general government primary deficit (based on the definition of enhanced surveillance) is estimated to come to 7.3% of GDP in 2021, down from 7.9% of GDP in 2020, and public debt is expected to decline to 197.1% of GDP, from 206.3% of GDP in 2020 (see also section 6). Nevertheless, according to available data on the implementation of the state budget and the cash data of the general government in 2021, the primary balance is estimated to have improved (compared to the estimate in the Budget 2022), on the back of increased tax revenues and reduced non-investment primary expenditure (see also section 5). According to the revised forecast of the Bank of Greece, which also includes the latest available

data for a better than expected path of GDP in 2021,[5] the primary balance of the general government in 2021, on the basis of the enhanced surveillance methodology, is expected to turn out a deficit of 6.2% of GDP, and public debt should stand at 193% of GDP.

In 2021, international markets' confidence in Greece's creditworthiness improved, a trend already observed since 2020. Greek government bond yields remained low, as a result of the exceptionally favourable international financial conditions, coupled with the better than expected performance of the Greek economy. Domestic economic developments were, among other things, underpinned by: (i) the inclusion of Greek bonds in the ECB's pandemic emergency purchase programme (PEPP);[6] (ii) estimates of a return of the debt-to-GDP ratio to a downward path as from 2021; (iii) the prospect of fund raising for investment and reforms under the European Recovery Instrument NextGenerationEU (NGEU); and (iv) the reduction of the stock of non-performing loans as well as the improvement of the stability of the banking system.

Specifically, the inclusion of Greek bonds in the PEPP decisively contributed to a decline of yields. According to a relevant analysis conducted for 11 countries of the euro area, it is estimated that during 2020 the asset purchase programmes contributed to a decline of 10-year bond yields by 76 basis points (average of examined countries), more than offsetting the upward effects exerted mainly by the amount of public debt, with the largest decline being estimated for Greece.[7]

The aforementioned factors contributed to maintaining international investor confidence in the growth prospects of the Greek economy. Overall, in 2021 two credit rating agencies (S&P, DBRS) upgraded the prospects of the Greek economy, while three (Scope Ratings, S&P, DBRS) upgraded Greece's credit standing. Specifically, on 23 January 2021, Fitch maintained Greece's credit rating at "BB", with a stable outlook. On 19 March 2021, DBRS confirmed Greece's creditworthiness at "BB (low)" with a stable trend, underlining in particular the country's fiscal capacity to address the impact of the pandemic crisis, as a result of fiscal overachievement for a number of years before 2020, in conjunction with high cash reserves. On 23 April 2021, S&P upgraded the credit rating of the Greek sovereign by one notch (to "BB" from "BB-"), while improving Greece's outlook from "stable" to "positive". This development sent a strong message that boosted confidence in the prospects of the Greek economy and further reduced the distance of the country's credit rating from investment grade. In July 2021, Fitch revised upwards its forecasts regarding the growth rate of the economy in 2021, confirming the "BB" rating (with a stable outlook). In September 2021, Scope Ratings upgraded Greece's credit rating to "BB+" (with a stable outlook) from "BB" (with a positive outlook), bringing Greece one notch short of investment grade. In the same month, DBRS upgraded Greece's credit rating to "BB" from "BB (low)", revising upwards the prospects of the Greek economy (and changing the trend from stable to positive).

These developments allowed the Greek government uninterrupted access to markets as a regular issuer of government bonds. Specifically, on 27 January 2021, the Public Debt Management Agency (PDMA) issued a new 10-year bond, raising €3.5 billion at a historically low yield of 0.807%. Furthermore, with a view to achieving the public debt portfolio management objectives, in January 2021 the PDMA completed the buyback and reopening operations for outstanding Greek government bond issues with the Greek systemic banks, which it had launched in 2020, increasing cash reserves by €2.1 billion.

On 17 March 2021, the PDMA issued a new 30-year bond, raising €2.5 billion at a yield of 1.956% after attracting impressive demand by institutional investors. The issuance of a bond

5 According to provisional data of the quarterly national accounts, real GDP growth rate in 2021 stood at 8.3%, exceeding the projected rate of 6.9% in the 2022 Budget.

6 See Hondroyiannis, G. and D. Papaoikonomou (2022), "The effect of Eurosystem asset purchase programmes on euro area sovereign bond yields during the COVID-19 pandemic", *Empirical Economics*, forthcoming.

7 See Bank of Greece, *Monetary Policy 2020-2021*, Box V.1, June 2021.

of such a long maturity represents a milestone as, on the one hand, the yield curve of Greek securities is completed and, on the other hand, market confidence in the long-term outlook of the Greek economy is confirmed.

On 4 May 2021, the PDMA launched a new 5-year bond, raising €3 billion at a yield of 0.172%, the lowest ever achieved in a syndicated issuance, irrespective of maturity. Finally, on 9 June 2021 the PDMA reopened the 10-year bond issued in January, raising €2.5 billion at a yield of 0.888%.

Moreover, in September €2.5 billion was raised through the reopening of the 5-year and the 30-year bond (of May and March respectively), at more favourable terms compared with the initial issues (yields of 0.020% and 1.675% respectively, which constitute new historical lows for the maturities concerned), recording a high coverage ratio. It is the first time that two bonds, of short and long maturity, are reopened at the same time, so that the shape of the yield curve does not change, targeting investors with a different investment horizon. This action aimed at enhancing the liquidity of the secondary market –more specifically of the benchmark bonds– and meeting the strong demand for Greek government securities, as these are eligible for purchase by the ECB under the PEPP programme. With a view to achieving the public debt portfolio management objectives, on 17 December the PDMA conducted an exchange of PSI bonds (maturing between 2023 and 2042), which had not been included in the PSI and were not part of the exchange operation of 2017, for existing bonds and cash. By this action the PDMA effected an early repayment of debt amounting to €1.2 billion, at the same time achieving an extension of the debt repayment period, an increase in liquidity of the Greek bonds' yield curve and an increase in the fixed-rate debt share.

In parallel, the Greek government continued to draw short-term funding through Treasury bill issues with maturities of 13, 26 and 52 weeks, which kept recording negative yields in 2021, as well as through cash liquidity management operations in the form of repurchase agreements (repos), which are concluded mainly with general government bodies so as to utilise their available funds (see Table V.2).

It is worth noting that on 18 March 2021, the second early repayment of IMF loans amounting to €3.35 billion was completed, following a similar early repayment in November 2019. This move further improves the qualitative debt management indices through interest payment savings and the reduction of interest rate risk and exchange rate risk; above all, it conveys a strong signal of credibility.

Furthermore, cash reserves increased as a result of the disbursement of €3.3 billion from the EU SURE programme in February and May, the payment of ANFA and SMP profits amounting to €1.7 billion in April, July and December, as well as privatisation proceeds of €653.5 million, which mainly concern rights of use of radio frequencies and the development of the former Hellinikon international airport. Finally, in August the disbursement of a pre-financing payment of €4 billion was effected by the RRF, of which €1.7 billion concerns loans and €2.3 billion concerns grants.

Favourable conditions in international markets allowed for the smooth financing of the expanded cash deficit also in 2021, while keeping cash reserves high and the risk of public debt refinancing low. At end-2021, the cash reserves of the Greek government stood at €17.3 billion (from €18 billion at end-2020).

In spite of the improvement of public finance management in recent years through the implementation of major fiscal reforms, tax evasion remains one of the most significant problems in the formulation of economic policy. This phenomenon is particularly marked in the field of VAT. In Greece the problem is more acute in comparison with other EU economies. Specifically, ac-

Table V.2 Sources covering the State Budget net cash deficit

(changes in EUR millions)

	2018	2019	2020	2021
Greek government Treasury bills	336	-2,667	-812	-1
Greek government bonds	1,072	4,354	11,815	14,800
Greek government cash buffers[1] ("-" shows an increase)	-25,870	3,305	5,477	696
Short-term loans (repos)	9,598	4,600	6,453	1,601
External borrowing[2]	-2,656	-9,115	1,205	-1,215
Borrowing from the European Support Mechanism (ESM)	21,700			
Total	**4,180**	**477**	**24,138**	**15,880**

Sources: Bank of Greece and PDMA (Public Debt Bulletins).
1 Including the changes in the central government accounts with the Bank of Greece and credit institutions and the change in the debt management account, and excluding the change in the OPEKEPE account.
2 Including loans and securities abroad in any currency (European Investment Bank, SURE programme, Recovery and Resilience Facility). Excluding domestically issued securities held by non-residents.

cording to the European Parliament's recent reports, for 2019, the VAT "deficit" or "gap" in Greece was almost 2.5 times larger than the EU-28 average. The main factors behind VAT revenue losses are the quality of tax administration, the complexity of legislation and its frequent changes, as well as the lack of, on the one hand, transparency during tax audits and, on the other hand, a tax compliance culture. Furthermore, the size of VAT revenue losses in cross-border transactions is also of relevance. For these reasons, narrowing the VAT gap requires a three-pronged policy: simplifying the tax legislation and the tax system so as to reduce administrative cost and compliance cost; digitising processes and payments; and promoting closer cooperation between the tax authorities of the EU Member States so as to detect fraud in cross-border transactions (see Box V.1).

Tax and social security moratoria widened the already large stock of arrears to the government. Specifically, instalment payments of social security contribution arrears payable from January to June 2021 and tax arrears payable from January to July 2021 were suspended for businesses in the directly affected sectors and furloughed employees. At end-2021, the outstanding debt to the tax administration increased by about €3 billion compared with 2020, reaching €111.4 billion. Furthermore, the stock of arrears to social security funds in the first nine months of 2021 increased by €1.3 billion compared with 2020, to €38.8 billion.

At the same time, the clearance of general government arrears to suppliers continues to represent a challenge for fiscal policy. Their stock at end-2021 was around €1.9 billion, almost unchanged in relation to 2020. By contrast, progress was made with awarding pending pensions as, according to data of the "ATLAS" IT system, the amount corresponding to pending applications for final main pensions at end-November 2021 was reduced to €290 million (from €619 million at end-2020), of which €278 million correspond to overdue applications. This favourable development is attributable to the intense efforts, since the beginning of 2021, of the Ministry of Labour and Social Affairs to clear pension arrears, including the establishment of a dedicated Working Group, with actions such as the creation of a task force for consecutive pensions, the operation of a digital "Control Tower" for monitoring the performance of departments and rapporteurs, and the training, certification and participation of freelance lawyers and accountants in the pension awarding process.

Additionally, in 2021 emphasis was placed on reinforcing Greece's defence capability through the upgrading of military equipment. To this end, in September 2021 an agreement was signed between Greece and France on the establishment of a strategic partnership regarding defence and security cooperation. The agreement provides for, *inter alia*, the procurement of frigates, fighter jets and their equipment for the period 2021-27 and is expected to lead in the medium

term to an increase in armaments expenditure, as this expenditure burdens the budget balance at the time of delivery of the defence equipment (on an accrual basis). For 2021, it is estimated that Greece's total defence spending stood at 3.82% of GDP (up from 2.4% of GDP on average in the period 2014-20), the highest among NATO member countries and higher than NATO's defence spending benchmark of 2% of GDP.[8] It should be noted that in the period 2014-20 Greece was the EU country with the highest defence expenditure (as a percentage of GDP) among NATO Member States (after the United States).

In the earlier part of 2022, interest rates rose globally due to the less accommodative monetary policy of the major central banks in an effort to contain strong inflationary pressures. In the context of this generalised phenomenon, Greek bond yields increased, displaying higher sensitivity to global volatility in comparison with the corresponding bonds of other European countries, due to their lower credit rating but also the shallowness of the Greek bond market (see also Chapter IX). Nevertheless, on 14 January 2022 Fitch confirmed Greece's credit rating at "BB", improving Greece's outlook from "stable" to "positive", and on 19 January 2022 the PDMA launched a new 10-year bond, raising €3 billion at a yield of 1.836%. In comparison with the corresponding new issue of January 2021, borrowing costs were up by about 100 basis points, a fact primarily attributable to an increase in risk internationally and only partly to domestic factors, but were half of those in the corresponding issue of March 2019. In February, Scope Ratings confirmed its rating just one notch below investment grade, at "BB+" (with a stable outlook). Finally, in March DBRS upgraded anew Greece's credit rating to "BB (high)" (with a stable outlook), also bringing it one notch short of investment grade. This is a particularly positive development, as the aforementioned rating agency is one of the four recognised by the ECB (along with S&P, Moody's and Fitch).

8 NATO press release, *Defence Expenditure of NATO Countries (2014-2021)*, June 2021.

Box V.1

VAT REVENUE LOSS: KEY INSIGHTS AND POLICY IMPLICATIONS

One of the major causes of systematic loss of tax revenue worldwide is tax evasion.[1] In Greece, the problem of tax evasion is substantial and chronic.[2] It is associated with low levels of tax compliance and tax administration efficiency. The problem is particularly acute in the field of VAT, although the widespread use of electronic payment instruments since 2015 has reduced it and has boosted tax revenues. However, it has not been able to eliminate it.[3] Specific features of the structure of the Greek economy, such as the very large number of small enterprises and self-employed, create a heavy administrative burden. In addition, shortcomings in the technological infrastructures of audit mechanisms provide more opportunities for tax evasion. Moreover, institutional factors –such as the large number and complexity of tax laws, which undergo frequent amendments and envisage multiple tax rates– cause administrative difficulties and provide taxpayers with incentives not to comply. Lastly, very high tax rates provide more incentives to shift to the shadow economy. The end result is a large loss of VAT revenue, described by the VAT gap.

This box seeks to highlight the importance of the problem of the VAT gap in Greece. It is of particular importance because, on the one hand, VAT accounts for a large share of total tax revenue and, on the other, the loss

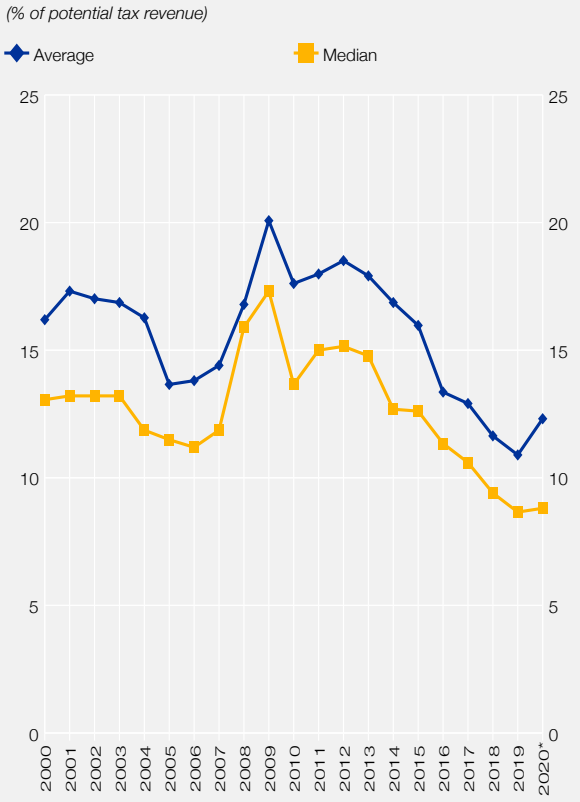
1 See *The State of Tax Justice 2021*, Tax Justice Network, PSI, Global Alliance for Tax Justice, November; and Medina, L. and F. Schneider (2017), "Shadow economies around the world: New results for 158 countries over 1992-2015", Johannes Kepler University of Linz, Working Paper No. 1710, July, http://www.econ.jku.at/papers/2017/wp1710.pdf.
2 For the case of Greece, see diaNEOsis (2016), "Tax evasion in Greece. Causes, extent and proposals to combat it" (in Greek), Ernst & Young, https://www.dianeosis.org/wp-content/uploads/2016/06/tex_evasion_version_240616_2.pdf.
3 See Hondroyiannis, G. and D. Papaoikonomou (2017), "The effect of card payments on VAT revenue: New evidence from Greece", *Economic Letters*, 157, 17-20.

recorded is historically one of the largest among the EU-28 Member States. To this end, we present the extent of the problem using the indicator applied by the European Commission,[4] analyse its determinants and propose ways to tackle it.

Definition and measurement

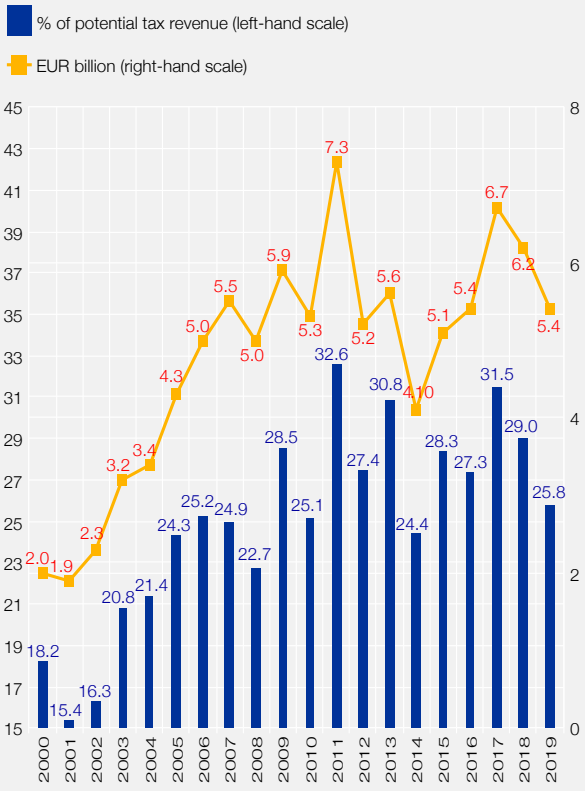
The VAT gap measures the VAT revenue loss. It reflects the degree of tax compliance and tax administration efficiency. In other words, it incorporates all factors contributing to the loss of tax revenue, such as cross-border fraud, tax evasion, financial insolvency, bankruptcy or maladministration, as well as miscalculations, administrative errors and legal tax optimisation (legally optimising and reducing the tax burden for business and personal finances). Based on the European Commission's indicator, the VAT gap is defined as the difference between VAT collections and the amount theoretically due, i.e. VAT Total Tax Liability (VTTL).[5]

Chart A VAT gap in the EU



Source: Bank of Greece calculations based on European Commission data (VAT Gap in the EU: Report 2021).
Note: Up to and including 2014: EU26, 2015-2019: EU28.
* Indicative estimate for 18 EU countries only.

Chart B VAT gap in Greece



Source: European Commission.

4 See European Commission (2021), *VAT Gap in the EU: Report 2021, DG Taxation and Customs Union*, September.

5 The VAT total tax liability (VTTL), or potential or theoretical revenue, is the total amount of estimated VAT payments on the basis of national accounts aggregates and the existing structure of rates and exemptions. It is composed of four separate components: Household Consumption Liability (the amount of VAT that is due on account of household and NPISH consumption); Unrecoverable VAT on Intermediate Consumption (the amount of VAT paid on inputs by industries that cannot claim a credit because their sales are exempt from VAT); Unrecoverable VAT on inputs to Gross Fixed Capital Formation (GFCF) (the amount of VAT paid on inputs to GFCF activities of industries that cannot claim a credit because their sales are exempt from VAT); and Unrecoverable VAT on Government Consumption (amount of VAT on inputs on government consumption that cannot be recovered because most government activities are exempt from VAT). . In other words, For details, see European Commission (2013), *Study to quantify and analyse the VAT Gap in the EU-27 Member States. Final Report*, Box 3.1, p. 27, and Appendix A, pp. 101-105, DGTAXUD/2012/DE/316, CASE and CPB, July.

VAT is an important source of revenue for the EU economies.[6] It is an indirect consumption tax levied on the value added at each stage of production and applies to the majority of goods and services intended for consumption. As European VAT laws are complicated, including many amendments and exceptions and multiple rates, the assessment and collection of VAT is an extremely difficult process, whose effectiveness depends on the quality of tax accounting systems.

At the EU level, the VAT gap has narrowed in recent years, although it remains high and shows upward trends for 2020 (see Chart A). In 2019, the average VAT gap in the EU-28 was 10.9% of potential revenues, i.e. for every €10 due under the current tax system, more than €1 was not collected.

In Greece, the VAT gap, though on a declining path in recent years, has been one of the largest in the EU-28 over time (see Chart B). In 2019, it was almost 2.5 times the EU-28 average (25.8% vs. 10.9%), i.e. for every €3 due, almost €1 was not collected.

An example of the magnitude of the problem is that, if the VAT gap converged with the EU-28 average, VAT revenues –at the existing rates and under the current system– would increase by €3.2 billion.

Determinants

In general, the VAT gap determinants are institutional and macroeconomic.[7] Institutional determinants comprise all factors that shape the taxpayer's compliance costs and determine the administrative tax collection costs, i.e. the quality of the tax administration, the complexity of laws and frequent changes thereto, transparency in tax audits, as well as the lack of tax compliance culture. Macroeconomic factors relate to the position of the economy in the economic cycle and its structure, which largely determine the size of the shadow economy.[8]

Proposals to reduce the VAT gap

As regards the institutional framework, the VAT gap can be reduced in three ways: (i) tax legislation and tax system simplification to reduce administrative and compliance costs; (ii) digitalisation of procedures and payments; and (iii) closer cooperation between the tax authorities of the EU Member States to detect fraud in cross-border transactions.

The process of filling out documents, calculating tax and refunds, as well as compliance during the tax audit are the two major interactions between taxpayers and the tax authority, which determine the degree of efficiency and transparency of the tax system. The latter is negatively affected by the complexity of the procedure, the long waiting period for tax refunds, the lack of transparency during the audit and the long delay in obtaining the audit outcome. Therefore, adopting an automated tax refund process, ensuring tax audit transparency and fast processing are key to improving compliance. In addition, reducing the variance of tax rates across geographical areas and categories of goods and services (other than necessities) would reduce both compliance costs and distortions in the consumption of specific goods and services and would foster healthy competition.[9]

The digital transformation of tax administration by using new technologies, such as artificial intelligence, big data and blockchain, would simplify and accelerate the tax return filing process and significantly reduce compliance

6 In 2019, VAT revenue accounted for 17% of total general government tax revenue in the EU-28 and 20% in Greece.

7 See Agha, A. and J. Haughton (1996), "Designing VAT systems: Some efficiency considerations", *Review of Economics and Statistics*, 78, 303-308.

8 For details on how the structure of the economy affects the size of the VAT gap, see Ueda, J. (2017), "The Evolution of Potential VAT Revenues and C-Efficiency in Advanced Economies", IMF, WP/17/158. For the case of Greece in particular, see Missiakoulis, E., S. Papadakis and D. Vassiliou (2021), "Greek tax reality and the VAT gap: Influential factors", *Journal of Accounting and Taxation*, 13, 28-44.

9 See European Parliament (2021), *VAT gap, reduced VAT rates and their impact on compliance costs for businesses and on consumers. European Implementation Assessment*, European Parliamentary Research Service, https://www.europarl.europa.eu/RegData/etudes/STUD/2021/694215/EPRS_STU(2021)694215_EN.pdf.

costs.[10,11] In particular, the use of advanced tax software, real-time reporting systems and data analytics would enhance the capacities of the tax administration. A more functional tax system would reduce the time needed to meet tax liabilities, i.e. the hours needed to prepare and file tax returns and make tax payments, as well as the number of payments within one year, and would contribute to citizens' tax compliance. At the same time, it would enhance the effectiveness of audits while improving the skills of the tax administration's human resources. This includes the recently imposed obligation to maintain online tax records and invoices through the AADE MyData application. This digital service allows the tax administration to automatically check and cross-check invoices, as it enables daily, real-time VAT recording. In addition, it reduces taxpayers' compliance costs by relieving them of bureaucratic procedures, such as filing aggregated statements.

In addition, the widespread use of electronic means of payment in all areas of economic activity, coupled with the completion of the cash registers/tax administration interface, will broaden the tax base and help reduce the VAT gap.[12]

At the same time, enhanced administrative collaboration in the field of VAT between the tax authorities of the EU Member States will help identify businesses that commit fraud in cross-border transactions. Closer cooperation in collecting and exchanging payment data will contribute to addressing fraud in cross-border retail transactions and in the import of goods through e-commerce.[13]

10 For instance, with the adoption of online document filing for tax purposes, the time required to fill out and file tax statements decreased from 193 to 143 hours on average between 2006-19 in developed high-income countries. There was a corresponding decrease in Greece: from 264 hours in 2006 to 193 hours in 2019. See PwC (2020), "Paying taxes 2020. The changing landscape of tax policy and administration across 190 economies", PwC and World Bank Group, https://www.pwc.com/gx/en/paying-taxes/pdf/pwc-paying-taxes-2020.pdf.

11 On the benefits of the digital State for public finances, see Bank of Greece (2021), *Monetary Policy – Interim Report 2021*, Box V.2, "The digital transformation of public administration: recent Greek experience and the outlook for NextGeneration EU", December.

12 See e.g. Alognon, A., A. Koumpias and J. Martínez-Vázquez (2020), "The Impact of Plastic Money Use on VAT Compliance: Evidence from EU Countries", International Center for Public Policy, Working paper 20-04, March, https://icepp.gsu.edu/files/2020/04/paper2004.pdf; and Hondroyiannis, G. and D. Papaoikonomou (2020), "The effect of card payments on VAT revenue in the euro area: evidence from a panel VECM", *Journal of Economic Studies*, 47, 1281-1306.

13 By means of various directives, the EU has taken important steps to enhance administrative cooperation to combat fraud. See European Commission (2020), "Action plan for fair and simple taxation supporting the recovery strategy", COM(2020) 312 final; and the recent European Commission initiative "Communication on the VAT Gap: Mind the VAT Gap", Staff working document, to be published in 2022.

3 INSTITUTIONAL FRAMEWORK AND FISCAL REFORMS

In 2021, along with the measures to address the pandemic, actions were taken to continue the tax reform that had been launched in 2019 and had slowed down in 2020 as a result of the pandemic. Moreover, measures were adopted to support those affected by natural disasters; structural interventions were instituted for the post-pandemic period, regarding mainly tax reliefs; and measures were taken to support households against the impacts of energy price increases with fiscally neutral financing. In parallel, a social security reform was implemented, introducing elements of a defined-contribution funded system into the supplementary ("auxiliary") insurance of newly insured individuals (see the Annex to this chapter).

In early 2022, the deterioration of the epidemiological situation, in conjunction with the surge of the prices of energy and other commodities and services, made it necessary to maintain in force some of the support measures, always in keeping however with the need not to jeopardise Greece's fiscal performance. Also, in January 2022 the adjustment of all real estate administrative values was came into force and in March a reform was adopted in real estate taxation aimed at rationalising the unified property tax (ENFIA), improving its collectability and reducing

the tax burden on households. The envisaged changes include, among other things, a new tax calculation scale with lower rates, merger of the additional and principal income tax for individuals, larger rebates and payment of income tax in 10 instalments.

Continued fiscal expansion in 2021 with a view to stemming the impact of the pandemic on the real economy, coupled with the continuation of reform efforts in line with the commitments under the enhanced surveillance framework, was recognised as necessary in the European Commission regular assessments. Specifically, during 2021 four European Commission reports (9th-12th) were published, which positively assessed the implementation of the government's expansionary fiscal policy in the current juncture and concluded that the risks to public debt sustainability remained under control.

Specifically, in February 2021, the 9th enhanced surveillance report was published by the European Commission, which concluded that, although Greece has made sufficient progress in promoting certain reforms, overall reform efforts recorded a slowdown which, however, was attributable to the particular pandemic conditions. On the basis of the 9th report, the Eurogroup of 15 March 2021 confirmed the successful completion of the 9th review for Greece. At the same time, the maintenance of certain support measures also in 2022 and the rapid disbursement of NGEU funds, on the basis of specific reform milestones and investment plans, were agreed upon as priorities, in order for recovery to take hold.

In May 2021, the European Commission *Ageing Report 2021* was published, which includes projections of pension spending in the EU countries in the period 2019-70. These projections are based on the Eurostat projections of 2019 concerning the evolution of the population (EUROPOP 2019), as well as on the macroeconomic assumptions developed by the European Commission in November 2020. In the case of Greece, for which the measures adopted until July 2020 are taken into account, the results of the analysis suggest a decline in pension expenditure as a percentage of GDP by 3.8 percentage points in the period 2019-70 (from 15.7% of GDP in 2019 to 11.9% of GDP in 2070). This is the largest decline among the EU Member States, which brings pension expenditure in Greece, as a percentage of GDP, to levels corresponding to the EU average after 2050. The analysis shows that the reforms implemented in recent years safeguard the sustainability of the pension system, in spite of the adverse demographic developments.

In June, the 10th enhanced surveillance report was published by the European Commission, which concluded that Greece, in spite of the adverse conditions as a result of the pandemic, had taken the required actions to complete its reform commitments, making progress in structural fiscal reforms and taking steps to deal with delays attributable to the pandemic. In terms of debt sustainability, in the updated baseline scenario of the report it is recognised that, despite the short-term deterioration, the debt-to-GDP ratio will return to a downward trajectory as from 2021. The report constituted the basis for the release of the fifth tranche of medium-term debt relief measures, amounting to €748 million, in July 2021.

In the same month, the suspension of the EU fiscal rules was extended also for 2022 and the maintenance of certain support measures in 2022 and the swift disbursement of the NGEU resources were confirmed as priorities.

The European Commission, in the 11th and the 12th enhanced surveillance report,[9] which were published in September and in November 2021 respectively, concluded that, despite the adverse conditions attributable to both the pandemic and the disastrous wildfires of August, Greece had achieved remarkable progress towards completing its reform commitments. On

9 European Commission, *Enhanced Surveillance Report – Greece*, September and November 2021.

the basis of the 12th enhanced surveillance report, the Eurogroup meeting of 6 December 2021 approved the sixth tranche of medium-term debt relief measures amounting to €767 million.

In February 2022, the 13th enhanced surveillance report was published by the European Commission, verifying that Greece had recovered rapidly from the pandemic and had positive prospects which, however, were subject to high uncertainty mainly related to the evolution of the pandemic and the rise in energy prices. As also in the previous reports, the European Commission concluded anew that Greece had made satisfactory progress towards completing its reform commitments while also urging it to step up efforts to address the delays caused mainly by the pandemic. The Eurogroup of 14 March 2022 confirmed the successful completion of the 13th review.

In 2022, Greece is expected to exit the enhanced surveillance regime. Subsequently, while being subject to regular monitoring by the European Commission, Greece will be also under regular post-programme surveillance, until the repayment of at least 75% of the financial support it has received from the other Member States, the European Financial Stabilisation Mechanism, the European Stability Mechanism (ESM) or the European Financial Stability Facility (EFSF).[10] The purpose of post-programme surveillance is to ensure that a Member State is able to repay the financial support it has received. The European Commission, in consultation with the ECB, conducts regular inspection missions in the Member State which is under post-programme surveillance, in order to periodically assess its economic, fiscal and financial situation. It communicates its findings to the competent committee of the European Parliament, the Economic and Financial Committee, as well as to the Parliament of the Member State, along with its recommendations, if any, for the adoption of necessary structural measures. At the same time, the ESM has created an early warning system (EWS) to identify any likely inability of debt repayment, which concerns also EFSF loans.

4 POLICY PROPOSALS

On the way out of the enhanced surveillance regime, 2022 constitutes a crucial year for fiscal policy and the preservation of fiscal credibility that was achieved in the pre-pandemic period. Greece's fiscal performance and its public finance sustainability represent critical factors of the credit rating of the Greek economy, much more than for other European countries, as Greece is still below investment grade and consequently displays a comparatively higher sensitivity to market volatility. Therefore, the fiscal burden of the emergency support measures and the increased stock of public debt need to be addressed, taking also into account the fact that cheap financing conditions are gradually being reversed. Consequently, as the economy is returning to full capacity and lockdown measures constraining economic activity are gradually being lifted, safeguarding fiscal sustainability through the elimination of primary deficits is a primary concern for economic policy. Restoring fiscal equilibrium also hinges on improving the current account balance, which recorded a substantial deficit during the pandemic (see Box IV.5).

It is, however, worth noting that, in terms of this effort, Greece is better placed than the other indebted countries of the euro area, also as a result of the large structural fiscal consolidation achieved during the economic adjustment programmes, having recorded high primary surpluses prior to the health crisis. Thus, by achieving strong sustainable growth, Greece can return to sustainable primary surpluses in the post-pandemic period, without adopting restrictive fiscal measures, provided that fiscal policy remains counter-cyclical so as to stabilise the economic cycle. In this way, fiscal policy credibility and a return to fiscal stability will be secured, making the economy more resilient to adverse shocks. For this reason, the structural consolidation of

10 Regulation (EU) No 472/2013 of the European Parliament and the Council of 21st May 2013.

public finances achieved in the period 2010-19 should be safeguarded, while at the same time the fiscal stance pursued should be more counter-cyclical than in the past, implying the accumulation of buffers in good times.

Greece's transition to the new regular post-programme surveillance regime will automatically result in its becoming subject to the Stability and Growth Pact (SGP) fiscal rules, as they will be formulated following the completion of the public consultation that began in October 2021. Credible adherence to the rules is a prerequisite for both ensuring public finance sustainability and the Greek government's uninterrupted access to international markets. Greece's ability to comply with the rules of the current European fiscal framework was considerably enhanced in the previous decade, as a result of the structural fiscal reforms that were implemented.

In the post-pandemic period, restoring fiscal equilibrium by eliminating large primary deficits and reducing public debt should top the agenda of the governments of the EU Member States. Consequently, the new EU fiscal governance framework should be more effective towards the achievement of these objectives, by providing more flexibility to Member States so as to avoid episodes of procyclical fiscal adjustment which exacerbate instead of smoothing out the fluctuations of the economic cycle. The new fiscal rules should take advantage of the merits of the last SGP (2011-13) reforms, address shortcomings and failures and adapt to the new economic reality. On the basis of the experience gained from the economic crises of the last 20 years, discussions on the revision of fiscal rules focus on three key areas: (i) their simplification, so that they become more easily understood, user-friendly, realistic and politically acceptable; (ii) the safeguarding of public investment; and (iii) the creation of a permanent central fiscal capacity for addressing external shocks more effectively, better coordination of fiscal policies among Member States and faster convergence of the economies (see the Special Feature in this chapter).

The rise in inflation due to the high cost of energy and food, which is fuelled by Russia's invasion of Ukraine, pushes the government to adopt additional fiscal measures, over and above the emergency support to vulnerable social groups in 2021 and the measures already envisaged in the 2022 Budget, with a view to further enhancing households' disposable income so as to mitigate the impact of higher (in particular energy) prices on the most vulnerable households. The adoption of fiscal measures should be part of broader medium-term reform planning. Any tax rate cuts, given the high dependence of tax revenue on indirect taxes, should be combined with structural interventions to broaden the tax base and strengthen tax collectability, so that fiscal equilibrium is safeguarded. In any case, the decision to adopt extraordinary policy measures should take into account the existence of sufficient fiscal space, in the light of broader uncertainties surrounding both budget implementation and the growth dynamics of the economy. Any additional income support measures should: (i) target vulnerable population groups; (ii) be temporary, for as long as turbulence in the energy market lasts; and (iii) not undermine the ambitious environmental targets set, to the extent that they are financed by the Energy Transition Fund, the resources of which are earmarked for the completion of the green transition. In the current juncture, targeted measures in the form of allowances could be more effective in boosting disposable income than horizontal tax rate cuts, as they lend more support to low-income households, which have a higher marginal propensity to consume.

The most effective and viable way to support income in the medium and the long term is economic growth through investment and structural reforms. Thus, emphasis should be placed on the implementation of the actions provided for in the National Recovery and Resilience Plan "Greece 2.0" and the efficient use of RRF funds. Specifically, with regard to structural reforms, one of the best opportunities created by the pandemic crisis was the acceleration of the digital transformation of public administration. The timely completion of digital transition implies major benefits, as digital transformation boosts the effectiveness of existing fiscal policies by enhancing tax compliance and improving spending management, while at the same

time creating mechanisms for controlling the shadow economy and combating tax and contribution evasion.[11]

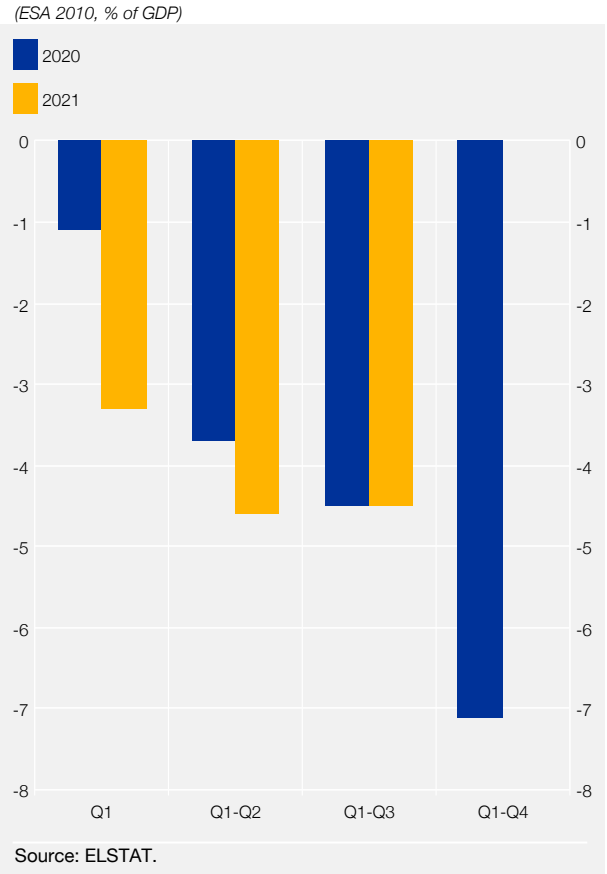
The transformation of the productive model of the Greek economy has already started. Gross fixed capital formation in the first nine months of 2021 increased to 12.5% of GDP, recording the best performance since 2011 and significantly increasing its contribution to the growth rate of the period. In the coming years, both the public and private investments that will be funded by the RRF are expected to contribute decisively to economic growth. Therefore, the utilisation of RRF funds creates a favourable macroeconomic environment, which facilitates the restoration of fiscal equilibrium and enhances public debt sustainability.

5 THE EVOLUTION OF FISCAL AGGREGATES IN 2021

5.1 General government (national accounts data – ELSTAT)

According to the national accounts data of the general government for the first nine months of 2021, the general government primary balance remained stable year on year at a deficit of 4.5% of GDP, as the shares of revenue and expenditure both declined by 0.1 pp of GDP (see Chart V.3).

Chart V.3 General government primary balance on a national accounts basis



Source: ELSTAT.

In absolute terms, revenue grew by 7.2% year on year, reflecting mainly the improvement of economic activity, but also base effects due to the fact that the tax moratorium of 2020 had included a larger amount of tax liabilities. Specifically, an increase was recorded in revenue from indirect taxes, mainly VAT, and from direct taxes, in social security contributions due to employment growth and in sales revenue. Moreover, capital receipts also rose, as a result of increased transfers from the EU for financing measures to address the pandemic. By contrast, other current revenue decreased.

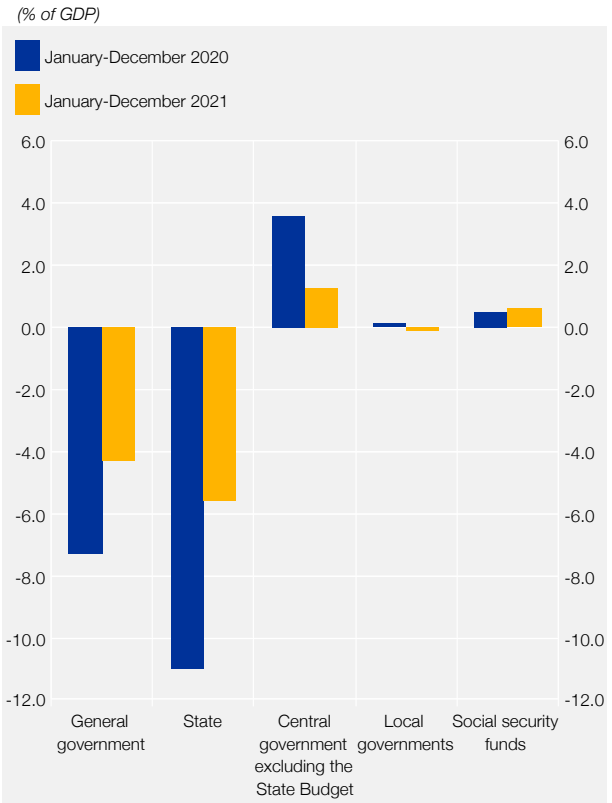
Primary expenditure rose by 7.3% year on year. Increases were observed in: (i) capital expenditure; (ii) public investment, partly due to increased deliveries of military equipment; (iii) subsidies, mainly in the form of special-purpose compensations to wage earners, scientists, undertakings and the self-employed and support to landlords; (iv) social allowances as a result of an increase in pension spending (advance payments for pending pensions and retroactive payments for increased replacement rates) and social benefits; (v) intermediate consumption; and, marginally, (vi) wages. By contrast, other current expenditure decreased.

5.2 General government (State General Accounting Office data)

According to general government cash data collected by the State General Accounting Office, in the period January-December 2021 the general government cash balance improved, posting

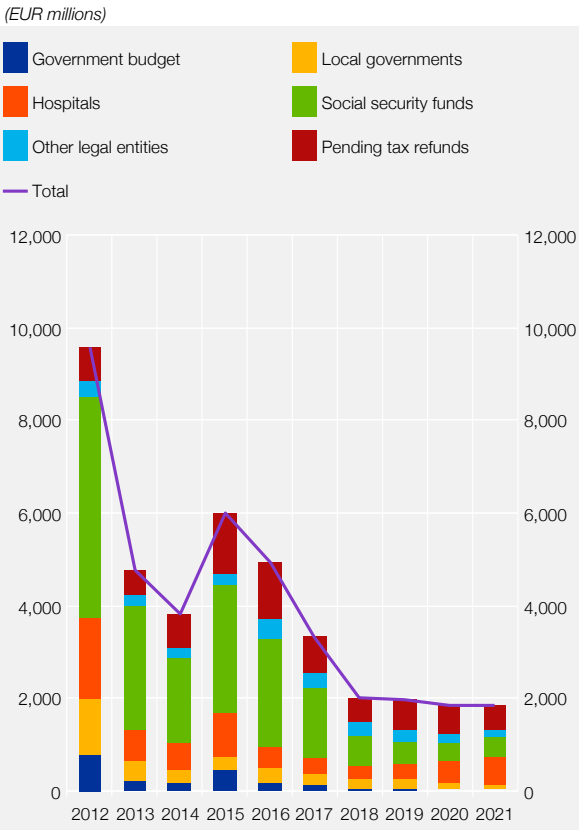
11 Βλ. Bank of Greece, *Monetary Policy – Interim Report 2021*, Box V.2, December 2021.

Chart V.4 General government primary balance on a cash basis



Source: Ministry of Finance, State General Accounting Office.
Note: The general government primary balance results from the consolidation of intragovernmental transactions. Thus, it differs from the sum total of the primary balances of individual sectors of the general government.

Chart V.5 General government arrears



Source: Ministry of Finance, State General Accounting Office.

a deficit of 6.6% of GDP, from a deficit of 9.8% of GDP in the corresponding period of 2020. Furthermore, the primary balance improved and stood at a deficit of 4.3% of GDP, from a deficit of 7.3% of GDP in 2020.

The determinants of the primary balance in 2021 were the following: (i) a decline in the State Budget primary deficit by 5.4 pp of GDP (see section 5.3); (ii) a reduction of the primary surplus of the legal entities of central government by 2.3 pp of GDP, due to reduced transfers from the State Budget; (iii) a marginal decline of the primary surplus of social security funds by 0.1 pp of GDP; and (iv) a reduction by 0.2 pp of GDP of the primary surplus of regional and local governments (see Chart V.4).

Total general government arrears at end-2021 (including tax refunds, but excluding pending retirement applications) fell marginally by €11 million compared to end-2020 (general government arrears to suppliers increased by €73 million and tax refund arrears decreased by €84 million). The total amount of arrears stood at €1.9 billion (of which €1.3 billion is owed to suppliers and €0.6 billion concern tax refunds). Hospitals have the highest amount of liabilities (46.7% of the debt to suppliers). It should be noted that the amounts of clawbacks have not been deducted from hospital arrears (see Chart V.5).

5.3 State Budget (modified cash basis)

In the period January-December 2021 the State Budget showed an improved balance compared with 2020. Specifically, it posted a deficit of 8.4% of GDP, from a deficit of 13.8% of GDP in

Table V.3 State Budget balances (State General Accounting Office – modified cash basis)

(EUR millions)

	January-December		Percentage change (%)	Deviation from the annual targets of 2021[1]
	2020	2021	2021/2020	
1. State Budget net revenue (a-b)	**47,364**	**54,878**	**15.9**	**1,458**
a. State Budget revenue (I+II+III+IV)	**53,035**	**59,981**	**13.1**	**1,900**
I. Taxes	43,198	48,126	11.4	1,266
II. Transfers	6,537	8,690	32.9	513
III. Sales of goods and services	507	611	20.5	21
IV. Other revenue	2,793	2,554	-8.6	100
b. Tax refunds	**5,672**	**5,103**	**-10.0**	**443**
Information: Revenue from the Publlic Investment Programme and the Recovery and Resilience Facility[2]	5,542	6,879	24.1	-224
2. State Budget expenditure (I+II+III+IV+V+VI+VII)	**70,170**	**69,750**	**-0.6**	**-1,157**
State Budget primary expenditure (2-VI)	**65,396**	**64,877**	**-0.8**	**-1,229**
I. Employee benefits	13,335	13,494	1.2	22
II. Transfers	38,751	37,038	-4.4	-567
III. Purchases of goods and services	1,618	1,992	23.1	-52
IV. Acquisitions of fixed assets	631	2,672	323.5	15
V. Other primary expenditure	414	680	64.3	-697
VI. Interest payments (on a gross basis)	4,774	4,873	2.1	72
VII. Public Investment Programme and Recovery and Resilience Facility expenditure	10,647	9,001	-15.5	51
3. State budget balance (1-2)	**-22,806**	**-14,872**		**2,615**
% of GDP	*-13.8*	*-8.4*		
4. State Budget primary balance (3+2.V)	**-18,195**	**-10,327**		**2,618**
% of GDP	*-11.0*	*-5.8*		

Source: Ministry of Finance, State General Accounting Office, State Budget Execution Bulletin, December 2021.
1 Deviation from the annual targets of 2021, adjusted to the total estimates of the Introductory Report on the 2022 Budget.
2 Revenue from the Public Investment Programme and the Recovery and Resilience Facility is included in the "Transfers" and "Other revenue" categories.

2020 (see Table V.3). The primary balance of the State Budget also improved and stood at a deficit of 5.8% of GDP, from a deficit of 11% of GDP in 2020.

The improvement of the primary balance is attributable primarily to an increase in State Budget revenue (by 13.1%) and, secondarily, to a marginal decrease in government budget primary expenditure (by 0.8%). Higher revenue resulted mainly from increased tax receipts and transfers from the RRF. State budget expenditure is lower than in 2020, in spite of increased payments for armament programmes, as a result of reduced spending for addressing the health crisis.

Compared with the revised target in the Introductory Report on the 2022 Budget, the State Budget primary balance recorded an overachievement by €2.6 billion, mainly as a result of: (i) a considerable overperformance of tax revenue due to conservative targeting and a faster than expected recovery of the economy; (ii) a noticeable overshooting of transfers due to the receipt of ANFA revenue that had not been budgeted; (iii) underspending on transfers; (iv) a smaller than expected absorption of credit under allocation; and (v) a delay in payments financed by the RRF. By contrast, the primary balance was burdened mainly by the shortfall of revenue from the Public Investment Programme, tax refund overspending and expenditure overruns under the Public Investment Programme. In order, however, to assess more accurately revenue

performance against the targets, two adjustments need to be made, which regard the 2022 road taxes, as their payment was deferred to 2022, and the receipt of ANFA revenue that had not been budgeted. If the relevant adjustments are made, the overachievement is reduced to €2.3 billion.

In more detail, the improvement of State Budget revenue is attributable to increased tax revenue, partly as a result of an increase in consumption and income support, as well as higher employment. Furthermore, tax receipts of 2021 include the last instalments of income taxes and the unified property tax (ENFIA) of 2020, a substantial part of the road taxes of 2021, as well as the considerably higher clearance of corporate income tax of 2021. Underlying the improvement were, in addition to increased tax revenue, also transfers from the RRF. The target was overshot by €1.9 billion due to conservative targeting, the faster than expected recovery of the economy and the receipt of ANFA revenue that had not been budgeted.

Specifically, based on available disaggregated data, the evolution of the main categories of State Budget revenue compared to 2020 is as follows:

Tax revenue recorded an increase of 11.4%, which stemmed from all individual categories (see Table V.4). The target was overshot by €1.3 billion, as a result of overperformance in almost all categories excluding road taxes. In particular:

– Revenue from taxes on goods and services rose by 11.7% compared to 2020, due to an increase in consumption and price hikes in goods (particularly oil products) and services. Specifically, revenue from VAT on oil products grew noticeably, due to the steep rise in oil prices. Increased performance of VAT and excise duties on other products is attributable to higher consumption as a result of the strong tourism performance and the economic recovery. The target was overshot by €625 million, which is mainly attributable to the overperformance of VAT on other products, as a result of the faster than expected recovery of the economy and price hikes in goods and services.

– Revenue from regular property taxes rose by 9.3% compared to 2020, mainly reflecting higher ENFIA revenue as a result of a change in the 2020 ENFIA payment profile, featuring an increase in the number of instalments and their extension until February 2021 (instead of January, as was the case with the 2019 ENFIA). This specific category of revenue slightly overshot the target by €103 million.

– Revenue from income tax rose by 8.2%. This came as a result of a change in the 2020 individual and corporate income tax instalment profile, featuring an increase in the number of instalments and their extension until February 2021, which led to two more instalments being added to the 2021 receipts. Moreover, the corporate income tax assessed in 2021 was considerably higher than in 2020, as corporates had paid lower advance income tax in 2020. The revenue of this category was negatively affected by the special solidarity levy moratorium in the private sector. The target was overshot by €722 million due to conservative targeting.

– Taxes on financial and capital transactions[12] rose by 38.9%, on account of increased real estate transfers in anticipation of a scheduled hike in objective administrative values in 2022 and the repeal of the tax on parental donations of movable and immovable property of up to €800,000. The target was overshot by €55 million.

– Other current taxes[13] increased by 40.7%, on account of higher receipts of road taxes in 2021 in comparison with 2020, as it was the first time that such a large extension had been

12 They are included in the category “Other taxes”.
13 They are included in the category “Other taxes”.

Table V.4 State Budget tax revenue

(EUR millions)

	January-December		Percentage change (%)	Deviation from the annual targets of 2021[1]
	2020	2021	2021/2020	
Total taxes (A+B+C+D)	**43,198**	**48,126**	**11.4**	**1,266**
A. Taxes on goods and services	**23,945**	**26,736**	**11.7**	**625**
of which: 1. VAT (1.a + 1.b + 1.c)	15,008	17,431	16.1	395
1.a VAT on oil products and their derivatives	1,428	1,749	22.5	63
1.b VAT on tobacco products	633	658	3.9	-5
1.c VAT on other goods and services	12,947	15,024	16.0	337
2. Excise duties (2.a + 2.b + 2.c)	6,427	6,659	3.6	119
2.a Excise duty on energy	3,828	3,940	2.9	112
2.b Excise duty on tobacco products	2,097	2,130	1.6	-17
2.c Excise duty on other	502	589	17.3	24
B. Regular property taxes	**2,427**	**2,652**	**9.3**	**103**
of which: ENFIA	2,379	2,615	9.9	100
C. Income tax	**13,589**	**14,697**	**8.2**	**722**
of which: 1. Income tax payable by natural persons	10,155	10,173	0.2	521
2. Income tax payable by legal entities	2,361	3,374	42.9	207
D. Other taxes	**3,237**	**4,041**	**24.8**	**-184**

Source: Ministry of Finance, State General Accounting Office, Government Budget Execution Bulletin, December 2021.
1 Deviation from the annual targets of 2021, adjusted to the total estimates of the Introductory Report on the 2022 Budget.

granted for the payment of road taxes (until the end of February 2021), which resulted in substantial cash flows being added to the 2021 revenue. A shortfall of €271 million against the target was recorded, due to the two-month extension of payment of the 2022 road taxes.

– Revenue from transfers rose by a substantial 32.9% in relation to the previous year, due to transfer receipts from the RRF (€2.3 billion). This category includes also transfers from the EU to address the pandemic. The specific category overshot the target by €513 million, as a result of the receipt in December of ANFA revenue (amounting to €644 million) that had not been budgeted.

– Revenue from sales of goods and services showed a small increase of 20.5% on an annual basis, slightly overshooting the target by €21 million.

– Overall, revenue from the Public Investment Programme[14] recorded an annual decrease of 17.6%, due to reduced transfers from the EU to tackle the pandemic, falling short of the target by €224 million.

– Finally, in 2021 tax refunds were lower by 10% in comparison to 2020 and overshot the target by €443 million.

State Budget primary expenditure fell in 2021 by 0.8% on an annual basis, in spite of increased payments for armament programmes, mainly owing to lower spending to address the health crisis. State Budget primary expenditure stood €1.2 billion lower than the annual target, due to

14 Revenue from the Public Investment Programme is included in the "Transfers" and "Other revenue" categories.

under-execution of expenditure for the pandemic (category "Transfers"), lower than budgeted absorption of credit under allocation and delays in payments financed by the RRF (see Table V.3). Based on available disaggregated data, the evolution of the main categories of State Budget primary expenditure was as follows:

– Employee benefits recorded a small increase of 1.2% in comparison with 2020 and slightly exceeded the annual target by €22 million.

– Spending on transfers recorded an annual decrease of 4.4%, which is attributable mainly to reduced measures to cope with the pandemic (2021: €6.4 billion, 2020: €8.1 billion). These measures most importantly included: (i) special-purpose compensations (to employees and scientists); (ii) support to businesses in the form of repayable advances; (iii) state compensation to landlords for the reduced rents they receive; (iv) an extraordinary grant to the National Social Security Fund (EFKA), the Electronic National Social Security Fund (e-EFKA) and the National Organisation for Health Care (EOPYY) to cover the shortfall in revenue from reduced social security contributions; (v) extraordinary grants to regional and local governments; (vi) a grant to the Organisation of Welfare Benefits and Social Solidarity (OPEKA) for the repayment of loans of borrowers affected by the pandemic ("Gefyra 1"); and (vii) a grant to the Manpower Employment Organisation (OAED). Transfers were by €567 million lower than the target.

– Purchases of goods and services rose by 23.1% on an annual basis, as a result of increased operating expenses of ministries and spending in response to emergencies, including natural disasters. They were by €52 million lower than the target.

– Expenditure for the acquisition of fixed assets recorded a large hike of about €2 billion, as a result of increased spending on armament programmes of the Ministry of National Defence, as budgeted.

– Finally, expenditure under the Public Investment Programme and the RRF was noticeably lower by 15.5% compared to 2020, mainly as a result of reduced measures to tackle the pandemic (2021: €3.1 billion, 2020: €4.6 billion). These measures most importantly included: support to businesses in the form of repayable advances; subsidisation of interest payments on loans to small and medium-sized enterprises; expenditure related to the Business Guarantee Fund; support to small and micro enterprises; subsidisation of working capital in food services undertakings and tourist businesses, etc. It should be noted that June 2021 saw the start of payments financed by the RRF, which amounted to €307 million over the year. Excluding expenditure to address the pandemic, expenditure under the Public Investment Programme and RRF funds together stood at €5.9 billion, from €6.1 billion in 2020, down by 3.6%. A small overrun of €51 million was recorded against the target, which stems from under-execution of RRF expenditure by €293 million and a €345 million expenditure overrun under the Public Investment Programme.

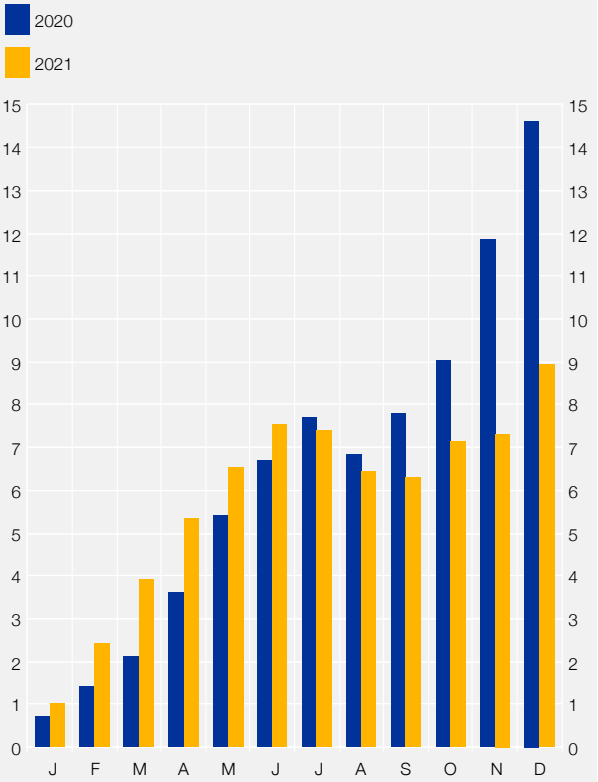
5.4 State Budget on a cash basis

The net cash balance of the State Budget in 2021 improved in relation to the previous year and turned out a deficit of 8.9% of GDP, from a deficit of 14.6% of GDP in 2020 (see Table V.5 and Chart V.6). The evolution of monthly data reflects an improvement of the cash balance in the second half of the year, with the gradual withdrawal of emergency support measures and the reopening of the economy. Moreover, the net primary cash balance of the State Budget improved and turned out a deficit of 5.5% of GDP, against a deficit of 10.8% of GDP in 2020.

The Regular Budget improved in comparison with the previous year, due to increased revenue as a result of the improvement of economic activity, the receipt of revenue from the RRF, but also increased tax revenue. The increase in primary expenditure had a countervailing effect, in

Chart V.6 Central government net borrowing needs on a cash basis (January 2020 - December 2021)

(% of GDP)



Source: Bank of Greece.
Notes: "Monthly" data refer to cumulative percentages from the beginning of the year. Excluding the balance of the OPEKEPE (Payment and Control Agency for Guidance and Guarantee Community Aid).

spite of reduced spending for the pandemic, mainly on account of increased expenditure for armament programmes.

The Public Investment Budget improved, as revenue increased, mainly due to revenue from the RRF, and expenditure decreased, as a result of reduced spending to deal with the pandemic.

5.5 General government debt

On the basis of the 2022 Budget forecasts, public debt is expected to increase in 2021 in nominal terms (by about €9 billion, to €350 billion), on account of the expansionary fiscal policy and indebtedness from RRF loans. However, the public debt-to-GDP ratio is forecast to decline to 197.1% of GDP in 2021[15] (from 206.3% of GDP in 2020), due to the negative contribution of the snowball effect and, secondarily, other adjustments (including increased proceeds from privatisations), which more than offset the upward effect of the primary deficit.[16] The contribution of the snowball effect to the reduction of the debt-to-GDP ratio is estimated at 11.6 percentage points, mainly reflecting the estimated growth of nominal GDP (see Table V.6).

The phasing-out of emergency support measures should reverse the fiscal stance in 2022, when fiscal tightening is expected. Nevertheless, the fiscal stimulus from these measures during the two-year period 2020-21 is forecast to be replaced by stimulus from investment, both public and private, which will be financed by RRF funds. Consequently, from 2022 onwards, a further decline of the debt-to-GDP ratio is expected, along with a reduction of debt in absolute terms, reflecting both the downward effect of strong growth

Table V.5 State Budget net balance on a cash basis

(EUR millions)

	2018	2019	2020	2021
State Budget[1]	**-4,180**	**-477**	**-24,138**	**-15,880**
% of GDP	-2.3	-0.3	-14.6	-8.9
– Ordinary budget	-516	2,376	-19,043	-13,780
– Public Investment Budget	-3,664	-2,853	-5,095	-2,100

Source: Bank of Greece.
1 As shown by movements in the respective accounts with the Bank of Greece and credit institutions. Including movements in public debt management accounts. Excluding movements in the OPEKEPE account.

15 On the basis of the larger increase in GDP according to the provisional data of quarterly national accounts published in March 2022, public debt in 2021 is estimated at 193% of GDP. Thus, the decline of the debt-to-GDP ratio in 2021 covers almost half of the increase that was observed in 2020.

16 On the basis of available national accounts data (ESA 2010), the general government debt at the end of the third quarter of 2021 stood at €357.3 billion (or 201.2% of GDP).

Table V.6 Decomposition of changes in the general government debt-to-GDP ratio[1]

(percentage points of GDP)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022*
General government debt-to-GDP ratio	162.0	178.2	180.3	176.7	180.5	179.5	186.4	180.7	206.3	197.1	189.6
Changes in the general government debt-to-GDP ratio	-13.3	16.2	2.2	-3.6	3.8	-1.1	6.9	-5.7	25.6	-9.2	-7.5
- Effect of the primary balance	3.7	9.2	-0.4	2.3	-3.5	-3.7	-4.3	-4.1	7.1	7.0	1.4
- Contribution of the snowball effect	19.2	11.8	6.7	4.4	5.1	0.7	0.7	-0.8	22.6	-11.6	-7.6
- Deficit-debt adjustment[2]	-36.2	-4.8	-4.1	-10.4	2.1	2.0	10.5	-0.9	-4.0	-4.6	-1.3

Sources: Introductory Report on the 2022 Budget and ELSTAT.
* Forecasts.
1 The mathematical relationship used for the decomposition of changes in the public debt-to-GDP ratio is the following:

$$\left[\frac{D_t}{Y_t} - \frac{D_{t-1}}{Y_{t-1}}\right] = \frac{PB_t}{Y_t} + \left[\frac{D_{t-1}}{Y_{t-1}} * \frac{i_t - g_t}{1+g_t}\right] + \frac{SF_t}{Y_t}$$

Where D_t = general government debt
PB_t = primary balance (deficit (+) or surplus (-))
Y_t = GDP at current prices
g_t = nominal GDP growth rate
i_t = average nominal interest rate on government debt
SF_t = deficit-debt adjustment
2 The "deficit-debt adjustment" includes expenditure or liabilities that do not affect the deficit, but increase debt, as well as receipts (e.g. from privatisations) that do not affect the deficit but reduce debt.

rates and the improvement of the primary balance. Specifically, according to the Introductory Report on the Budget, in 2022 the public debt ratio is forecast to fall to 189.6% of GDP.

The explicit reference to Greece in the ECB's December 2021 announcements is a major event and a strong message of confidence in the Greek economy. Effectively, the ECB's decisions provide support to Greek government bonds, until they obtain the requisite investment grade rating, via three channels: (1) their continued eligibility for purchase during the PEPP reinvestment period, which was extended by one year until the end of 2024; (2) the flexibility of PEPP reinvestments (providing, subject to conditions, the possibility of reinvestment in Greek bonds in excess of the redemption amounts, so that the smooth transmission of monetary policy is not impaired); and (3) a possible resumption of net purchases under the PEPP, if deemed necessary.

According to its decision of 24 March 2022, the ECB continues to allow national central banks to accept as eligible collateral in Eurosystem refinancing operations Greek government bonds that do not satisfy the Eurosystem's minimum credit quality requirements, but fulfil all other applicable eligibility criteria, for at least as long as reinvestments of these bonds under the PEPP continue. Additionally, the Governing Council of the ECB reserves the right to deviate also in the future from credit rating agencies' ratings if warranted, in line with its discretion under the monetary policy framework, thereby avoiding mechanistic reliance on these ratings.

The Public Debt Management Agency (PDMA) strategy has preserved the favourable features of the composition of public debt, despite the adverse economic conjuncture and increased financing needs globally. In particular: (i) the share of fixed-rate liabilities increased at the end of December 2021 to 98.9% of the central government debt, from 96.7% at the end of December 2020 (see Table V.7), leading to a commensurate reduction of interest rate risk;[17] (ii) the implicit interest rate (on a national accounts basis) on general government debt declined to 1.4% at the end of 2021 from 1.5% in 2020; (iii) the weighted average residual maturity of central government debt remains exceptionally long, 18.65 years in December 2021 (from 19.4 years in December

17 See PDMA, Public Debt Bulletins 100 and 104, December 2020 and December 2021 respectively.

Table V.7 General government consolidated debt[1]

(EUR millions)

	2017	2018	2019	2020
Short-term liabilities	16,297	13,385	14,019	13,372
– securities	*14,261*	*11,144*	*11,752*	*11,122*
– loans	*2,036*	*2,241*	*2,267*	*2,250*
Medium- and long-term liabilities	295,179	315,091	310,489	321,133
– securities	*40,677*	*41,738*	*46,102*	*56,065*
– loans	*254,499*	*273,353*	*264,387*	*265,068*
Coins and deposits	6,008	6,245	6,583	6,581
Total	**317,481**	**334,721**	**331,091**	**341,086**
% of GDP	***179.5***	***186.4***	***180.7***	***206.3***
– euro-denominated debt	308,840	327,287	327,333	336,920
of which:				
to the Bank of Greece	*(2,838)*	*(2,367)*	*(1,895)*	*(1,421)*
to the Support Mechanism	*(224,365)*	*(245,714)*	*(245,294)*	*(244,133)*
– non-euro-denominated debt[2]	8,641	7,434	3,758	4,166
of which: to the Support Mechanism	*(8,594)*	*(7,391)*	*(3,716)*	*(4,128)*

Sources: ELSTAT and PDMA.
1 According to the Maastricht Treaty definition.
2 Valuation based on the foreign exchange rates prevailing on 31 December of each year.

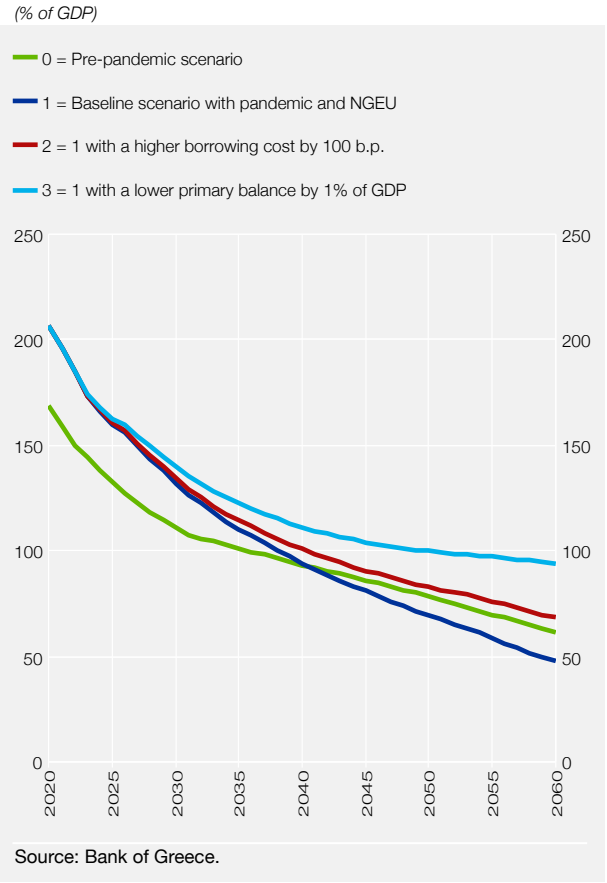
2020). The aforementioned features can ensure reduced interest rate risk and low refinancing risk over the next decade, making public debt resilient to the risks posed by the rise in inflation.

However, the current favourable characteristics of Greek debt are not of a permanent nature. In the coming years, the debt held by the official sector (which has long maturity and low interest rates, and is not marketable and thus not exposed to market volatility) will be gradually replaced by marketable debt to the private sector, with shorter maturities and higher interest rates. Hence, despite the expected considerable decline in debt as a percentage of GDP, the favourable factors that currently make it resilient to adverse shocks will gradually unwind, as a growing part of the debt becomes subject to market risk.

On the basis of the Bank of Greece's updated debt sustainability analysis,[18] public debt long-term sustainability is not threatened, on condition that the fiscal deterioration that was required to mitigate the implications of the pandemic is of a temporary nature and the RRF funds are efficiently utilised. The aforementioned conditions make it possible for the debt-to-GDP ratio to return to its pre-pandemic trajectory over a 20-year[19] horizon and to regain the 2019 level already from 2023, and to decline further subsequently. Nevertheless, although the debt-to-GDP ratio is projected to steadily decline in the coming years, the gross financing needs are expected to remain in the medium term significantly higher than before the pandemic. It is estimated that, under the burden of additional borrowing during the pandemic, any room for easing the agreed targets for permanent primary surpluses of about 2% of GDP has by and large been eliminated (see Charts V.7 and V.8).

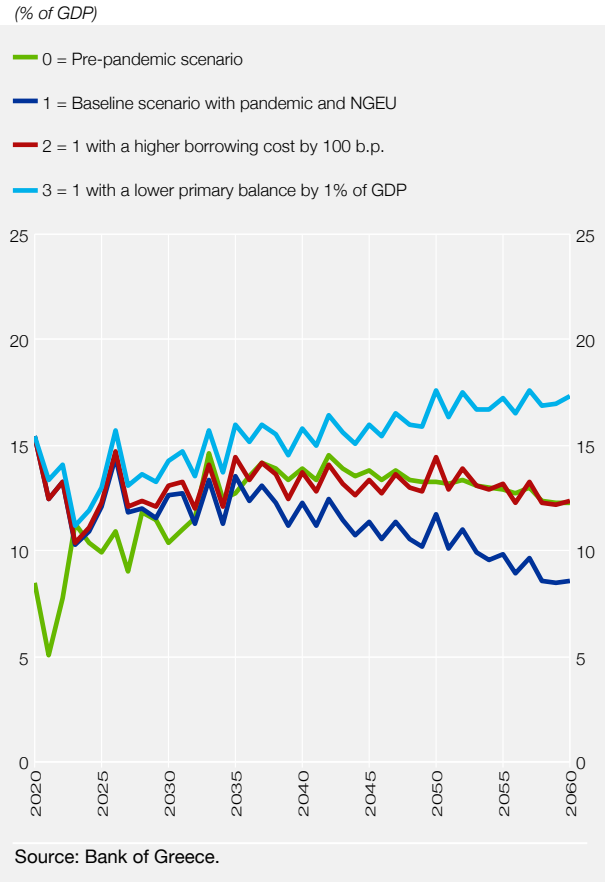
18 The baseline scenario relies on the macroeconomic and fiscal forecasts of the Bank of Greece of December 2021 and takes into account the evolution of Greek government bond yields until 4 February 2022. It also incorporates the positive impact on potential growth of the utilisation of NGEU funds and assumes a return to permanent primary surpluses of 2.2% of GDP as from 2024. Scenario 2 assumes a permanent increase in market refinancing costs by 100 basis points in 2022 compared with the baseline scenario, while scenario 3 assumes a lower primary surplus by 1% of GDP in all years against the baseline scenario.
19 Five years earlier than in the corresponding analysis of December 2020, mainly because of the faster recovery of the Greek economy in 2021.

Chart V.7 Public debt



Source: Bank of Greece.

Chart V.8 Gross financing needs



Source: Bank of Greece.

Public debt sustainability analysis is subject to high uncertainties, which mainly relate to: (i) the protracted turbulence in international markets as a result of geopolitical tensions and in view of the termination of the PEPP and for as long as Greek bonds are below investment grade; (ii) the increase in borrowing costs and the gradual reversal of the accommodative monetary policy; (iii) progress in the implementation of projects and reforms under the NGEU and, consequently, the full utilisation of available funds; and (iv) possible pressures for additional fiscal measures due to a potential prolongation of the pandemic and/or increased inflation undermining the economic recovery. Despite heightened uncertainty, debt sustainability risks remain limited until the early 2030s, as a result of the favourable repayment profile, as well as the composition of debt.

6 THE 2022 BUDGET

In November 2021, the Introductory Report on the 2022 Budget was submitted, which provides for the phasing-out, in 2022, of the majority of the measures to tackle the pandemic and the adoption of new measures with a positive growth sign.

In more detail, for 2022 it is projected that the general government primary deficit, according to the enhanced surveillance methodology, will amount to 1.2% of GDP, against a primary deficit of 7.3% of GDP in 2021. These estimates are based on a forecast recovery of economic activity in 2022 at a real GDP growth rate of 4.5%. The improvement in comparison with 2021 is based on the withdrawal of the majority of emergency measures adopted in 2021 to address the health crisis, as well as the estimated improvement of economic activity, which is also supported by

the absorption of the European RRF funds. Specifically, it is expected that all components of domestic demand will increase, excluding public consumption, which is forecast to decline by 2.8% on an annual basis. Private consumption is forecast to increase by 3%, while gross fixed capital formation is expected to rise by 21.9%.

The 2022 Budget forecasts a reduction of the primary deficit in 2022 by 5.6 pp of GDP through a set of targeted growth-oriented fiscal interventions. These most importantly include an extension of the special solidarity levy moratorium for the private sector and a reduction of employees' social security contributions in the private sector by 3 pp also in 2022, as well as a permanent decrease of the business advance tax rate (to 80% from 100%) and the corporate income tax rate (to 22% from 24%).

Furthermore, due to the protracted duration of the pandemic, it was deemed necessary, in order to support households and businesses, to extend certain measures to address it, at least for a part of 2022, such as the subsidisation of fixed costs for enterprises; reduced VAT in the tourism package; the "SYNERGASIA" programme; furlough schemes and special-purpose compensations; the moratorium on payments of arrears to the government; and the "Gefyra 2" programme. Overall, fiscal measures aimed at addressing the economic impact of the pandemic have been budgeted at €3.4 billion for 2022 (or 1.5% of GDP, against 9.5% of GDP in 2021), while an amount of €1 billion is earmarked for any further measures to tackle the COVID-19 pandemic.

It is worth noting that for 2022 measures (amounting €200 million) have been included to support those affected by natural disasters and emphasis has been placed on national defence and security, as shown by increased payments for armament programmes (by €529 billion).

Moreover, European funds amounting to €5.0 billion (or 2.7% of GDP) will be absorbed from the RRF in 2022, of which €3.2 billion will be used for grants and €1.8 billion for loans. The contribution to growth of the aforementioned funds is expected to reach 2.9% of GDP in 2022.

In terms of privatisations revenue, receipts of €2.2 billion are expected for 2022, almost entirely from contracted projects, mostly the contract granting the right to use and exploit the Egnatia Highway (€1,496 million).

Public debt in 2022 is forecast to decline to 189.6% of GDP, mainly owing to the negative contribution of the snowball effect, which is estimated at 7.6 percentage points, reflecting an estimated increase in nominal GDP by 5.4% (see Table V.6). In nominal terms it is forecast to increase by €5 billion, partly on account of RRF loans.

Nevertheless, a deterioration of the epidemiological situation and a further rise in inflation and particularly energy prices in the first months of 2022 led to the maintenance of some of the measures to support employees and businesses that were adopted in the 2020-2021 period. Additionally, a further cut of ENFIA tax rates was decided as part of an overhaul of real estate taxation. At the same time, energy subsidisation was extended, but on the basis of more targeted criteria and subject to adjustment of financial support on a monthly basis. This expenditure is not expected to burden the fiscal balance, as it will be financed by additional revenue of the Energy Transition Fund resulting from the increase in energy prices. To the extent that the additional measures are in line with the budget forecasts for extraordinary measures of €1 billion, they are not expected to put fiscal forecasts at risk.

CHAPTER V SPECIAL FEATURE

PROPOSALS FOR THE REFORM OF THE EU FISCAL RULES

The objective of fiscal rules is to introduce incentives and restrictions on discretionary fiscal policy in order to promote policies that ensure the sustainability of public finances. The main reasons for using fiscal rules are: (1) the increase in budget deficits and public debt recorded in most advanced economies in recent decades and (2) the tendency of economic policymakers to implement procyclical fiscal policies leading to instability and significant macroeconomic imbalances. Ideally, fiscal rules should be designed to promote in tandem fiscal discipline and macroeconomic stabilisation. Their design should also include key elements such as monitoring and compliance mechanisms, a framework of sanctions and appropriate procedures for correcting potential deviations in order to ensure their credibility and effectiveness.

The consultation on the reform of the EU fiscal rules is a process initiated before the outbreak of the pandemic. The pandemic crisis prompted a temporary suspension of the Stability and Growth Pact (SGP) rules and the activation of the General Escape Clause, leading to a sharp increase in public debt due to the expansionary fiscal policy and the increased borrowing required to finance emergency measures, coupled with a decline in economic activity. A prompt return to the strict implementation of the current European fiscal framework would require excessive fiscal consolidation, especially in countries with high debt levels, in order to avoid entering the Excessive Deficit Procedure. Therefore, following the lifting of the SGP General Escape Clause, it is necessary to adapt the current fiscal rules to the new economic conditions.

This Special Feature contributes to the ongoing debate regarding the reform of the EU fiscal framework, drawing on lessons learnt from past experience, the conclusions of relevant studies and the analysis of future economic challenges.[1] To this end, the key principles of the current SGP are presented (section 1) and then assessed (section 2), with particular focus on compliance with the existing fiscal rules (section 3). Follows a summary of the main public proposals for the reform of the SGP (section 4). In the longer term, there is an urgent need to strengthen public debt sustainability, and the outlook for Greece vis-à-vis other high-debt euro area countries is analysed in this respect (section 5). In addition, a similar comparison is made as regards the implications of applying the current debt rule in these countries (section 6). The combined results of this analysis lead to proposed guidelines for the reform of the European fiscal rules (section 7).

1 KEY PRINCIPLES OF THE CURRENT STABILITY AND GROWTH PACT (SGP)

The SGP was introduced at the same time as the single currency, with a view to ensuring sound public finances in the euro area. However, before the financial crisis it had limited success in preventing the emergence of severe fiscal imbalances in some Member States. During the euro area debt crisis, the SGP was reformed by introducing a stricter framework of common rules through the Six Pack (2011) and the Two Pack (2013), which brought significant changes to the fiscal framework and the way these rules were enforced.[2] These rules were further en-

1 For a similar analysis, see the Special Feature "European fiscal rules: achievements, weaknesses and proposal for their improvement", Bank of Greece, *Annual Report* 2019, March 2020.

2 For more details, see European Commission, EU Economic governance: monitoring, prevention, correction, and Legal basis of the Stability and Growth Pact.

hanced by the Fiscal Compact,[3] introduced in 2013. The current SGP includes five main restrictions and rules and a monitoring framework:

1) Two medium-term targets: budget deficit of less than 3% of GDP and debt of less than 60% of GDP.

2) Two fiscal rules relating to the "Preventive Arm" of the SGP: (i) The first is the Structural Budget Balance Rule.[4] It concerns the convergence of the structural balance towards the Medium-Term Budgetary Objective (MTO), i.e. a relatively balanced budget in structural terms, giving Member States sufficient flexibility to use the available fiscal space without exceeding the deficit threshold of 3% of GDP. For convergence towards the MTO, the structural budget balance should improve by 0.5% of GDP per year or by the remaining distance from the MTO if this is less than 0.5% of GDP. If a country's fiscal position is above its MTO, then the structural balance cannot fall short of the MTO. (ii) The second is the Debt Rule, which was introduced to ensure convergence of debt-to-GDP ratios towards the medium-term benchmark. According to the debt rule, the debt-to-GDP ratio should decrease by 1/20 of the distance between the current debt/GDP level and the benchmark value per year, on average over a 3-year period.[5]

3) A ceiling on the increase in primary expenditure. The European expenditure rule provides that the annual growth rate of primary government expenditure must not exceed the medium-term growth rate of potential GDP in nominal terms (10-year average) minus the margin necessary for the adjustment of the structural budget balance (in line with the corresponding rule), unless the excess is combined with revenue measures. The current 'expenditure limit' is not a "rule" in the sense of other budgetary constraints, but is primarily designed to indicate to government authorities what is needed in order to meet the requirements based on the MTO.[6]

4) Fiscal policies are monitored using multiple indicators, which inevitably often lead to conflicting conclusions. Compliance is therefore assessed using a critical approach, weighing the strengths and weaknesses of the various indicators.

5) A complex regulatory framework allows for Member State flexibility (depending on the cyclical fluctuations of the economy), enabling them to negotiate the size of the required fiscal adjustment.

6) An escalating system of warnings and sanctions for non-compliance. This is the "Corrective Arm" of the SGP, which sets out two procedures: (i) the Significant Deviation Procedure

3 Treaty on Stability, Coordination and Governance in the Economic and Monetary Union, TSCG. According to this Treaty, the medium-term budgetary objectives (MTOs) should be transposed into national law with a clear structural deficit limit of 0.5% of GDP (or 1% of GDP in exceptional circumstances). The MTOs are different for each country, depending on the level of debt and the estimated cost of population ageing. The Treaty also provides for automatic correction mechanisms in case the structural deficit threshold is breached. The MTOs may be revised when a major structural reform is undertaken or every 3 years, on the occasion of the publication of projections allowing for an update of the estimated population ageing costs. For Greece, the MTO is set at 0.25% of GDP.

4 In 2005, a cyclically-adjusted operational indicator, the structural budget balance, was introduced into the SGP, which removes from the fiscal balance the effects of both the economic cycle and one-off measures. It is therefore a measure of the intensity of the fiscal adjustment effort. Its level is a target in the SGP's preventive arm and indicates whether there is need for fiscal adjustment.

5 In practice, the activation of the Excessive Deficit Procedure was based more on the structural budget balance rule and convergence towards the MTO, rather than on the debt rule.

6 Although the European Commission is carrying out a comprehensive assessment based on both the structural budget balance rule and the expenditure rule to determine whether or not a country complies with the SGP preventive arm, significantly less attention has so far been paid to the expenditure rule than to the structural budget balance rule. The Vade Mecum on the SGP describes the expenditure rule as a "complement to structural fiscal adjustment", suggesting a kind of implicit hierarchy between the rules within the preventive arm.

(SDP) and (ii) the Excessive Deficit Procedure (EDP). These procedures are triggered when a country breaches the Preventive Arm or the fiscal targets of the SGP respectively and indicate concrete actions that countries need to take to correct their fiscal imbalances and avoid sanctions.

2 ASSESSMENT OF THE CURRENT SGP

Before the pandemic crisis, fiscal performance in the euro area as a whole showed that the reformed fiscal framework contributed to the sustainability of public finances, leading to lower deficits and improved debt dynamics. The achievement of the MTOs created fiscal buffers in most Member States. At the same time, it has been possible to identify fiscal risks early and coordinate fiscal policies through the European Semester process, in which Member States' Stability and National Reform Programmes are submitted and assessed, and the resulting recommendations are taken into account in the preparation of the Draft Budgetary Plans.

The consultation on the reform of fiscal rules in the EU is a process initiated before the pandemic, since some weaknesses of the current fiscal framework were already evident, despite the progress in strengthening economic governance[7]. These weaknesses included:

(i) The procyclicality of fiscal policy, especially in countries with high public debt.[8] Procyclicality led to limited accumulation of fiscal buffers in good times on the one hand and, on the other hand, to self-defeating effects on public debt dynamics as the size of the recession caused by the required sharp fiscal adjustment cancelled part of the positive contribution of the budget balance, weighing on its dynamics.[9] At the same time, procyclical national fiscal policies have resulted in a number of countries marginally complying with the 3% deficit criterion, but not converging in structural terms towards the MTOs.[10]

(ii) The fact that the SGP has become a complex and confusing set of rules. Through the various revisions of the SGP, the number of monitoring rules and indicators, together with the implementation procedures and exceptions, increased significantly, making the fiscal framework complex and onerous. In addition, the national fiscal rules linked to the Fiscal Compact were found to be inconsistent.[11] Lastly, the use of non-observable variables, such as the output gap, has been accompanied by frequent revisions, complicating the comprehension and, thus, the political ownership of fiscal rules.[12]

(iii) The difficulty of practical implementation and compliance by Member States, undermining the credibility of the fiscal framework. Compliance with the fiscal framework has been largely heterogeneous across countries, periods and rules, including compliance with the MTOs, even in good times. According to the European Network of EU Independent Fiscal Institutions, the revision of some SGP rules was seen as optimistic, the main example being the debt rule. While the SGP's debt rule was initially designed as a counterbalance to the observed fiscal policy

7 European Commission (2020), "European governance review", Staff Working Document; Pisani-Ferry, J. (2018), "Euro area reform: An Anatomy of the debate", *VoxEU.org*; Feld, L., C. Schmidt, I. Schnabel and V. Wieland (2018), "Refocusing the European fiscal framework", *VoxEU.org*; and Blanchard, O., A. Leandro and J. Zettelmeyer (2021), "Redesigning EU fiscal rules: from rules to standards", Peterson Institute for International Economics, Working Paper 21-1.

8 European Fiscal Board (2019), *Assessment of EU fiscal rules with a focus on the six and two-pack legislation*.

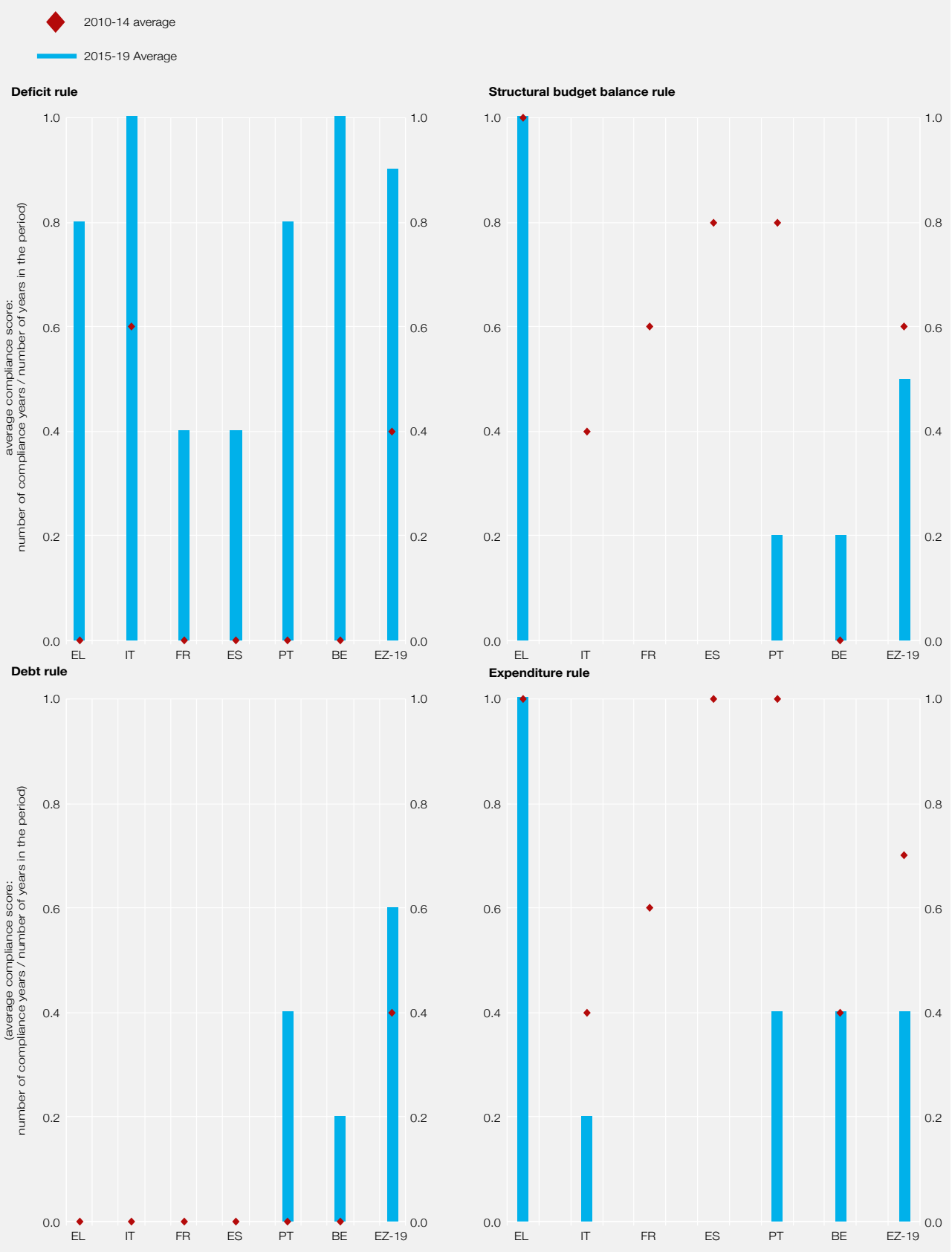
9 Attinasi, M.G. and L. Metelli (2016), "Is fiscal consolidation self-defeating? A panel-VAR analysis for the euro area countries", ECB Working Paper No. 1883.

10 Mainly countries with high public debt or countries subject to Excessive Deficit Procedure (EDP). See European Commission (2020), *op. cit.*, footnote 7, and Caselli, F. and P. Wingender (2018), 'Bunching at 3 Percent: The Maastricht Fiscal Criterion and Government Deficits', IMF Working Paper No. 18/182.

11 Deroose, S., N. Carnot, L.R. Pench and G. Mourre (2018), "EU fiscal rules: Root causes of its complexity", *VoxEU.org*.

12 European Commission (2020), op. cit., footnote 7.

Chart A Compliance scores - Fiscal rules (EA-19, selected countries)



Source: EFB Compliance Tracker Datasett.

procyclicality in the euro area, ultimately it led to limited compliance by Member States with high debt, which resorted to the available flexibility as a way to avoid an EDP.[13]

3 COMPLIANCE WITH THE CURRENT FISCAL RULES[14]

- **Deficit rule:** The assessment of the fiscal performance of EU Member States in recent years has mainly focused on the deficit rule,[15] in order to avoid sanctions and country surveillance. According to the European Commission's indicators, compliance with this fiscal rule increased significantly in 2015-19 compared with the previous period 2010-14 on average in the euro area (EA-19), with all high-debt countries improving their performance due to fiscal adjustment (see Chart A). Among the high-debt countries, Greece recorded on average the largest annual target overachievement during the 2015-19 period (by around 2 p.p. of GDP), the second largest improvement at EU level compared to 2010-14.

- **Structural budget balance rule:** Fiscal adjustment in most countries mainly relied on one-off measures, as compliance with the structural budget balance rule in 2015-19 remained moderate and marginally deteriorated compared to 2010-14 on average in the EA-19. Among high-debt countries with increased debt sustainability risks, Greece is an exception due to the large structural fiscal adjustment in 2010-19, fully complying with this fiscal rule (see Chart A) and even recording the largest target overachievement (by 4 p.p. of GDP) among all EA-19 countries on average per year.

- **Debt rule:** Compliance with the deficit rule resulted in greater compliance with the debt rule at EA-19 level, but not in most countries with high debt/GDP levels and high sustainability risks. On average, high-debt countries have breached this fiscal rule, showing significant underperformance, which means that they have not managed to reduce the debt-to-GDP ratio at the required pace (see Chart A).[16] Over time, Greece has the largest negative deviations from this rule on average per year, despite some improvement in 2015-19.

- **Expenditure rule:** The compliance score for the expenditure rule shows that, on average, compliance deteriorated in 2015-19 (compared to fiscal performance in 2010-14) for most EA-19 countries. From 2011 onwards, the balance between the EA-19 compliant and non-compliant countries with regard to this fiscal rule started to deteriorate in favour of the latter, while in 2016-19 non-compliant countries outnumbered compliant countries. Greece is one of only two EU countries that fully complied with this rule throughout the period 2010-19, while the other high-debt euro area countries saw a sharp deterioration in their compliance. It is worth noting that Greece had the highest target overachievement among EA-19 countries as a result of the strong fiscal adjustment during this period.[17]

13 Larch, M. and S. Santacroce (2020), "Numerical compliance with EU fiscal rules: The compliance database of the Secretariat of the European Fiscal Board"; May, Darvas, Z., P. Martin and X. Ragot (2018), "European fiscal rules require a major overhaul", *Policy Contribution*, No. 18; and De Jong, J. and N.D. Gilbert (2018), "Fiscal Discipline in EMU? Testing the Effectiveness of the Excessive Deficit Procedure", De Nederlandsche Bank Working Paper No. 607.

14 The fiscal rules Compliance Scores (see Chart A) are compiled by the European Fiscal Board. These are dummy variables that take the value of 1 for each year if a country is compliant with each EU fiscal rule and 0 if it is not.

15 A country is deemed to comply with the deficit rule if: (i) the general government deficit is equal to or below 3% of GDP or (ii) the 3% of GDP threshold has been exceeded, but the deviation remains small (up to 0.5% of GDP) and is limited to a single year.

16 This is because (i) some countries did not carry out the required fiscal adjustment; (ii) the implementation of fiscal rules and, in some cases, large overachievement of the targets set in the SGP have led to procyclical policies. As a result, debt dynamics deteriorated, as the recessionary impact of excessively tight fiscal policy in downturns effectively cancelled part of the positive contribution of primary deficit reduction; and (iii) support to the financial sector in 2010-19 weighed heavily on public debt dynamics in some countries.

17 Specifically, in Greece the average annual rate of reduction in primary expenditure over the period 2010-14 was around 6% (6.2 p.p. higher than the "expenditure limit" set by the fiscal rule), whereas in 2015-19 this rate remained unchanged (3.9 p.p. higher than the "expenditure limit" set by the fiscal rule).

4 MAIN PROPOSALS FOR THE REFORM OF THE SGP

In order to be more effective and resilient, the fiscal governance framework in the post-pandemic period must not only correct pre-existing failings, but also adapt to the new macroeconomic and fiscal reality. It should therefore address a number of crucial issues for the euro area, such as high public debt levels, the need to finance investment for the green and digital transformation of the economy, and the prevention of economic divergence among Member States. With the publication of the European Commission's views in the first half of 2022, many authors and researchers propose concrete changes to the SGP, aiming to reduce the number of rules and revise the debt rule, with stronger emphasis on the growth rate of primary expenditure as the main operational tool to achieve the fiscal targets.

The European Fiscal Board (EFB) (2018, 2019, 2020)[18] recommends setting country-specific debt adjustment rates towards a long-term target (debt rule). The rate of convergence towards the long-term target[19] will depend on a set of fundamental variables,[20] promoting debt reduction in good times. The EFB's proposals are also based on a ceiling on government expenditure growth (expenditure rule) to strengthen fiscal policy countercyclicality, which is equal to the 3-year average growth rate of potential output.

The European Stability Mechanism (ESM),[21] with a view to simplifying fiscal rules, proposes a two-pillar approach, the first one relating to the 3% of GDP deficit threshold and the second one setting a new debt benchmark of 100% of GDP. The proposal includes a debt rule whereby countries with public debt over 100% of GDP would have to converge towards this benchmark ratio by 1/20 of their deviation annually, and an operational expenditure rule to replace the MTO (in structural terms), setting the 3-year trend in nominal GDP growth as their growth limit. Exceptions to the debt rule are allowed in cases of major crises, recessions and significant investment gaps. The 3% of GDP budget deficit threshold remains binding and the EDP is maintained, while stressing the need for a stronger focus on public investment in the light of the green transition needs. This proposal differs from that of the EFB in that it sets a common rate of government debt reduction for all countries but suggests a new debt benchmark value.

5 THE NEED TO STRENGTHEN THE SUSTAINABILITY OF PUBLIC DEBT

In the post-pandemic period, the adoption of credible and effective fiscal policies aimed at public debt sustainability is more urgent than ever. One of the fundamental weaknesses of the European economy is the high level of public debt, which: (i) limits the room for flexibility to address future challenges, (ii) makes public finances vulnerable to interest rate increases and (iii) undermines the ECB's ability to respond to rising inflationary pressures. Lower public debt also contributes to reducing divergences between Member States, as debt ratio differentials lead to variations in the fiscal space available to each country to stabilise the economy after a shock and to finance growth-enhancing expenditure. Therefore, in such an uncertain economic environment, it is imperative to strengthen fiscal sustainability and increase the resilience of public finances to adverse shocks.

18 European Fiscal Board, *Annual Reports* 2018, 2019, 2020.

19 Although the EFB proposal is 60% of GDP as a benchmark for debt convergence, it is explicitly stated that, after the end of the pandemic, this threshold has become impracticable.

20 For instance, the level of government debt as a percentage of GDP or the difference between the servicing costs of public debt and the growth rate (r-g).

21 See Francová, O, E. Hitaj, J. Goossen, R. Kraemer, A. Lenarčič and G. Palaiodimos (2021), "EU fiscal rules: reform considerations", ESM Discussion Paper No. 17.

Greece's public debt, despite its high level, displays increased resilience over the medium term (until around 2030) under several adverse macroeconomic and fiscal scenarios, much higher than in other high-debt euro area countries. According to Eurosystem analyses, the Greek public debt is stabilising and is expected to reach pre-crisis levels earlier than in other high-debt countries, recording the largest drop in the debt-to-GDP ratio by 2030, both in the baseline and in various alternative scenarios. The strong resilience of Greek public debt dynamics vis-à-vis other countries is attributed to the following factors:

(i) The specific characteristics of the Greek public debt,[22] which ensure relatively low interest rate and refinancing risks over the next ten years.

(ii) Greece's fiscal position, as a result of structural fiscal surpluses. This means that, after the pandemic-related emergency support measures are lifted and in the absence of new permanent expansionary fiscal measures, Greece will return to structural primary surpluses, which will reinforce downward public debt dynamics without a need for further fiscal adjustment measures. This is the outcome of the structural fiscal adjustment that has taken place in previous years, as a result of which Greece has outperformed other high-debt countries.

(iii) The positive contribution of the snowball effect, i.e. the difference between the implicit borrowing rate and the nominal GDP growth rate. The snowball effect is a key driver of the rate of change in the debt-to-GDP ratio and reflects, inter alia, the impact of the macroeconomic environment on debt dynamics. Compared with other countries, the contribution of this effect to debt reduction is expected to be more than double in the case of Greece, because of the disproportionally high debt level[23] and due to the anticipated large GDP gains from the utilisation of the Recovery and Resilience Facility (RRF) resources.[24]

However, improving the sustainability of public debt and reinforcing its downward trend should be a priority of fiscal policy in the coming years in order to prevent another debt crisis. Besides, the long maturity of EFSF and ESM loans (over 30 years) calls for a long-term perspective on Greek public debt sustainability, well beyond the medium-term 10-year horizon. It should also be taken into account that the stock of public debt is projected to slightly increase after 2032, once the interest deferral period on the EFSF loan has expired. The main reason for fiscal policy focusing on accelerating debt reduction is that the debt's resilience to future adverse shocks will be comparatively weaker, despite its projected lower level. More specifically:

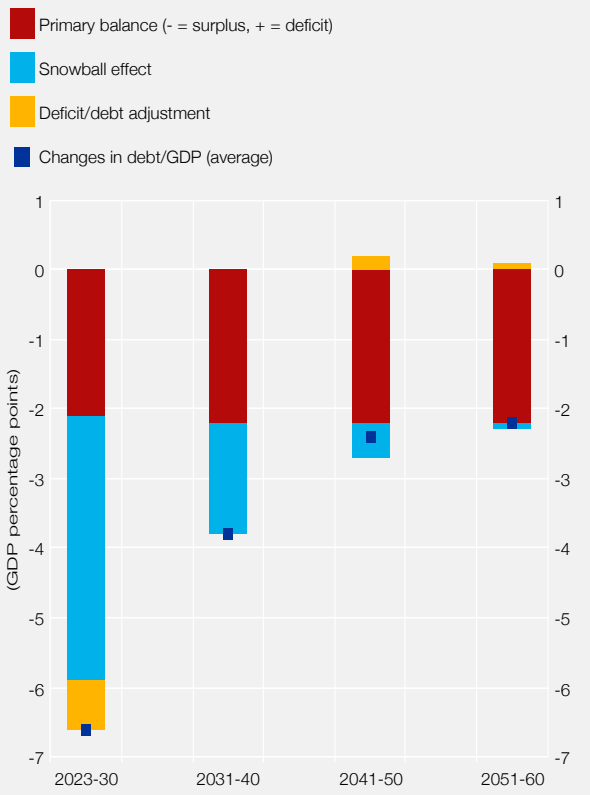
(i) The current favourable characteristics of Greek debt are not of a permanent nature. In the coming years, official sector debt (which is not marketable and thus not exposed to market volatility, has long maturity and carries low interest rates) will be gradually replaced by marketable debt to the private sector, with relatively shorter maturities and higher interest rates. Thus, despite its expected significant de-escalation as a share of GDP, the factors that make Greek debt resilient to negative shocks will gradually weaken in 10 years, as an increasing part of the debt will be subject to market risk.

22 Specifically, according to the latest available data (PDMA February 2022), in December 2021: (a) 77% of public debt consisted of liabilities to the official sector (including ESM/EFSF loans and GLF loans under the first economic adjustment programme); (b) the share of fixed-rate liabilities amounted to 98.9% of central government debt; (c) the weighted average remaining maturity of the general government debt is 20.58 years; (d) the effect of the two previous indicators is that the weighted average time to the next re-fixing of general government debt is 19.76 years; (e) the estimated implicit interest rate of 1.4%, one of the lowest among euro area countries, will therefore remain essentially unchanged over the next 20 years.

23 The size of government debt algebraically amplifies the impact of the difference between the implicit nominal interest rate and the nominal GDP growth rate.

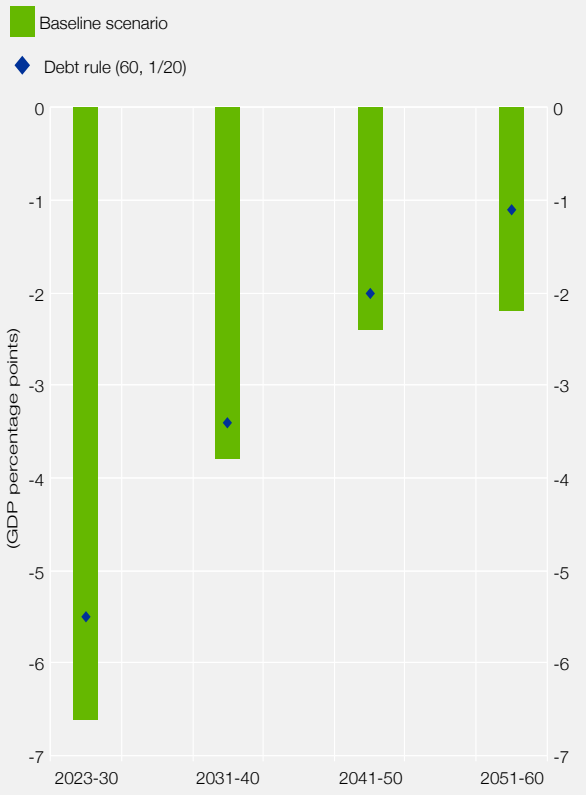
24 The output gap in the economy, i.e. the difference between actual and potential output, is estimated to be positive over the 10-year projection period.

Chart B Drivers of annual rate of change in debt/GDP (2023-60 average) (Greece) – Baseline scenario



Source: Bank of Greece estimates.

Chart C Annual rate of change in debt/GDP (2023-60 average) - Baseline scenario and debt rule (Greece)



Source: Bank of Greece estimates.

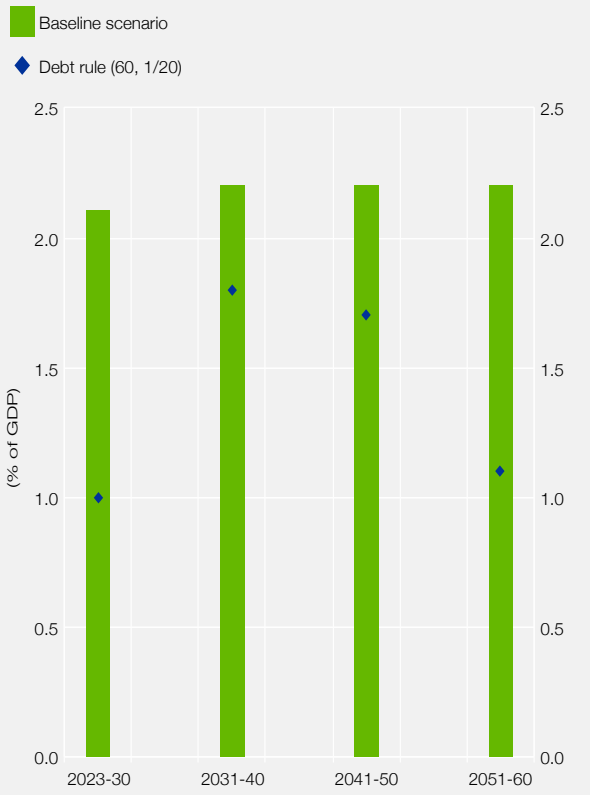
(ii) The focus should be on annual gross financing needs. In the case of Greece, where the bulk of the debt has not been accumulated on market terms, but rather through official sector low-interest loans with a very long repayment period, a grace period and deferral of interest payments for many years, focusing exclusively on the debt-to-GDP ratio would be misleading. As a result, the sustainability of public finances is also assessed on the basis of the annual gross financing needs criterion for the period up to 2060. In particular, a cap of 15% of GDP in the medium term and 20% of GDP in the long term were introduced.[25] Despite the expected steady de-escalation of the debt-to-GDP ratio in the coming years, gross financing needs are estimated to remain significantly higher in the medium term vis-à-vis pre-pandemic levels, due to the additional borrowing that was required to finance the fiscal deficits during the health crisis.

(iii) The significant debt-reducing contribution of the snowball effect is expected to decrease over time. The key factors underlying this development will be both the changing macroeconomic environment, with more moderate growth and higher borrowing rates expected in the long term, and the mechanical effect of gradually decreasing debt levels. Accordingly, in the long run, fiscal policy will face growing pressures to contribute more to debt reduction by achieving primary surpluses.

Therefore, in the context of the upcoming reform of the fiscal rules, regardless of the direction it may take, Greece should put particular emphasis on reducing public debt through sustainable

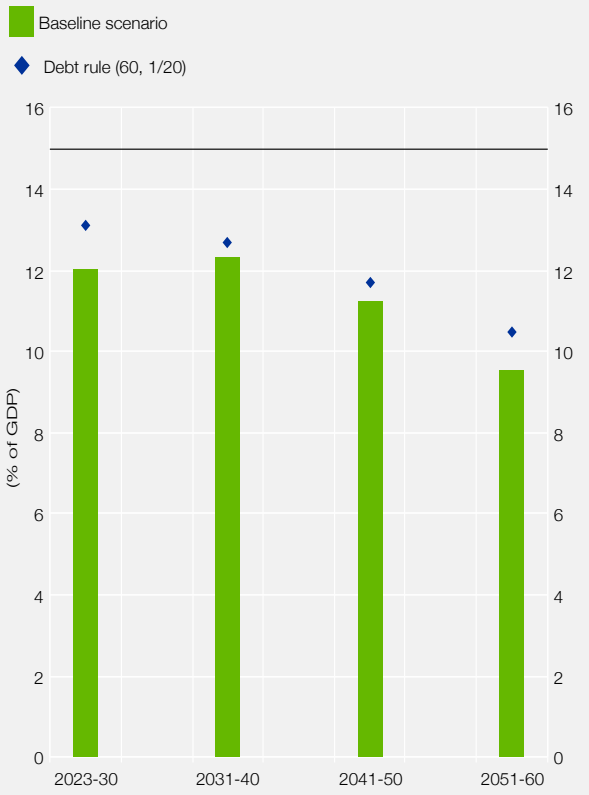
25 The criteria for annual gross financing needs were also confirmed in the Eurogroup communication of 22 June 2018 on Greece.

Chart D Primary surplus (annual basis) (2023-60 average)- Baseline scenario and debt rule (Greece)



Source: Bank of Greece estimates.

Chart E Gross financing needs (2023-60 average) - Baseline scenario and debt rule (Greece)



Source: Bank of Greece estimates.

budget surpluses in order to make it less vulnerable to future crises. The favourable economic environment in the post-pandemic period makes fiscal adjustment easier, while preserving its countercyclicality and strengthening fiscal credibility.

6 THE APPLICATION OF THE CURRENT DEBT RULE IN GREECE AND COMPARISON WITH OTHER HIGH-DEBT EURO AREA COUNTRIES[26]

According to the baseline scenario of the Bank of Greece's public debt sustainability analysis, which assumes a primary surplus of 2.2% of GDP on average over the period 2024-60 according to the Eurogroup decisions of June 2018,[27] the average annual rate of public debt reduction is around 6.6 p.p. of GDP in 2023-30 (see Chart B). When comparing the respective

26 The following analysis relies on sovereign debt sustainability analysis models, which are partial equilibrium models and tend to underestimate the interaction between macroeconomic and fiscal variables. However, these models are a key tool for designing fiscal strategies and are widely used by public, private and credit rating agencies to identify and assess macroeconomic and fiscal risks.

27 The analysis takes into account the updated macroeconomic and fiscal assumptions of the Bank of Greece. In particular, the baseline scenario incorporates the impact of the pandemic on fiscal aggregates and economic activity. The general government primary balance is assumed to turn to surplus in 2023 and come to 2.2% of GDP on average in 2024-60 (assuming broad compliance with the SGP's structural budget balance rule). The real GDP growth rate converges to 1.7% over the long term, incorporating the positive impact of the utilisation of NGEU funds on the potential growth rate of the Greek economy. The refinancing rate is 2.8% on average in 2023-60 and the weighted average maturity of new issues is around 7 years.

variables for other high-debt euro area countries,[28] we observe that for 2023-30 the average annual rate of public debt reduction in Greece is much higher than that of the other countries, with a much larger positive contribution from both the broader macroeconomic environment and budgetary surpluses. According to the Bank of Greece's long-term projections, the rate of reduction in the Greek debt ratio gradually decelerates over the coming decades. However, the share of the fiscal balance in debt downward dynamics gradually increases, as the contribution of the snowball effect is fading. This means that, from 2030 onwards, although debt will decrease as a percentage of GDP, its downward dynamics will increasingly rely on the build-up of fiscal surpluses.

The implementation of the current debt rule (60, 1/20 hereafter)[29] in high-debt euro area countries implies a strengthening of downward debt dynamics, increasing the requirements for fiscal primary surpluses for all countries except Greece. According to the baseline assumptions, Greece will comply with the current debt rule until 2060. The required primary surpluses come to around 2% of GDP on average annually[30] (see Charts C, D and E), while gross financing needs remain manageable, below the 15% of GDP benchmark. On the other hand, the application of the current debt rule is likely to lead to significant fiscal adjustment needs for countries such as Spain, Italy, France and Belgium, as the primary balance requirement compared to the baseline scenario is significantly higher.

In conclusion, according to the above analysis, Greece appears to comply with the current debt rule foreseen in the SGP over the medium term. In the long term, however, it could benefit from any flexibility, observing under all circumstances the principle of countercyclicality. Any easing of fiscal targets over the medium term will worsen its debt dynamics, increasing future sustainability risks, gross financing needs and market refinancing risk. By contrast, in the medium term, efforts should be made to strengthen the country's fiscal credibility by reducing the distance from other euro area countries as quickly as possible. The favourable macroeconomic environment of the next decade would accommodate a further strengthening of fiscal consolidation, provided that the principle of countercyclicality is not breached. On the contrary, over a long-term horizon, when fiscal performance will play a more prominent role in debt-reducing dynamics, Greece could benefit from a possible flexibility of the debt rule to avoid a procyclical fiscal policy.

7 PROPOSED GUIDELINES FOR THE REFORM OF THE EUROPEAN FISCAL RULES

The fiscal footprint of the pandemic crisis and the threat of increased divergence among euro area economies warrant a reform of the European fiscal rules, with debt sustainability as a priority. The new fiscal framework should aim at increasing the capacity of fiscal policies to stabilise the economic cycle, thereby contributing to monetary policy normalisation. Therefore, the new rules should take into account the new macroeconomic environment and the uncertainties that accompany it, in order to achieve a more effective coordination of national fiscal policies.

The fiscal framework could be revised towards:

28 Comparison is made with Belgium, Spain, Italy, France and Portugal.

29 For the implementation of the debt rule, the following assumptions are made: The annual rate of reduction in the debt-to-GDP ratio is 1/20 of the distance between the ratio of the previous period and the 60% benchmark level and is revised every three years. By maintaining the baseline assumptions on the snowball effect, we use the debt accumulation accounting equation to calculate the primary surplus requirements to comply with this rule.

30 At the level foreseen in the Eurogroup decisions of June 2018.

(i) Strengthening the countercyclicality of fiscal policy.[31] Retrenchment in good times and expansion in downturns are particularly important for both macroeconomic stabilisation and fiscal sustainability.

(ii) Setting a debt anchor as a medium-term fiscal objective, combined with a single operational expenditure rule: At the current conjuncture, as shown by the above analysis, ensuring public debt sustainability becomes a key medium- to long-term fiscal policy objective. The operational rule to achieve this objective should be to control the rate of change in government primary expenditure, since it has been regarded as a rule of fiscal discipline that enhances the countercyclicality of fiscal policy and promotes an effective mix of adjustment measures when necessary.[32] However, an expenditure rule alone is not capable of preventing deficits and increases in public debt originating on the revenue side. This is why it should apply alongside other rules (e.g. minimum revenue thresholds) to ensure fiscal discipline.

(iii) Maintaining current benchmark levels,[33] with flexibility in the rate of adjustment where appropriate: Although they seem outdated in the current economic context, current benchmark levels are enshrined in European treaties, which are difficult to amend and require broader consensus among Member States and lengthy procedures. The pace of debt reduction is easier to modify, so as to ensure a sustainable downward path through a realistic and credible fiscal adjustment, which would take into account the broader macroeconomic environment and fiscal position of each country, while maintaining the principle of countercyclicality. Changing the reduction rate of public debt would require unanimity on amendments to secondary EU legislation, through a set of agreements among countries.

Changes in the pace of adjustment to the current debt rule could be limited, as its application already assumes a differentiated fiscal path for each country, depending on the different economic conditions and fiscal position of each Member State (heterogeneity across countries).[34] Furthermore, differentiated rules and various exceptions do not help simplify and enhance the credibility of the fiscal framework. Therefore, flexibility should depend on whether the fiscal adjustment required to comply with the debt rule is procyclical.

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31 Larch, M., E. Orseau and W. van der Wielen (2021), "Do EU fiscal rules support or hinder counter-cyclical fiscal policy?", *Journal of International Money and Finance*, 112; Debrun, X., L. Moulin, A. Turrini, J. Ayuso-i-Casals and M. Kumar (2008), "Tied to the mast? The role of national fiscal rules in the European Union", *Economic Policy*, 23, 298-362; and Thygesen, N., R. Beetsma, M. Bordignon, X. Debrun, M. Szczurek, M. Larch, M. Busse, M. Gabrijelcic, L. Jankovics and J. Malzubris (2021), "The EU fiscal framework: A flanking reform is more preferable than quick fixes", *VoxEU.org*.

32 European Fiscal Board (2018), Annual Report, και European Fiscal Board (2019), *Assessment of European fiscal rules with a focus on the six and two-pack legislation*. The expenditure rule has also been favoured by other economists in the public debate on the reform of the SGP: Barnes, S. and E. Casey (2019), "Euro area budget rules on spending must avoid the pro-cyclicality trap", VoxEU.org; Bénassy-Quéré, A., M. Brunnermeier, H. Enderlein, E. Farhi, M. Fratzscher, C. Fuest, P. Gourinchas, P. Martin, J. Pisani-Ferry, H. Rey, I. Schnabel, N. Véron, B. Weder di Mauro and J. Zettelmeyer (2018), "How to reconcile risk sharing and market discipline in the euro area", *VoxEU.org*; and Darvas, Z., P. Martin and X. Ragot (2018), "The economic case for an expenditure rule in Europe", *VoxEU.org*.

33 Deficit: 3% of GDP, debt: 60% of GDP. Although there are many studies suggesting that there is no single "public debt limit" for all countries beyond which economic growth is slowing, most agree that high debt levels are associated with low growth and increased volatility. For more details, see Caner, M., T. Grennes and F. Koehler-Geib (2010), "Finding the Tipping Point – When Sovereign Debt turns Bad", World Bank, Policy Research Working Paper 5391; and Pescatori, A., D. Sandri and J. Simon (2014), 'Debt and Growth: Is There a Magic Threshold?", IMF Working Paper No. 14/34.

34 The smaller the snowball effect, the larger the primary surplus needed to achieve the same debt reduction and thus the need for fiscal adjustment (depending on the fiscal position of each country). Therefore, the primary surplus requirement needed to comply with the current rule in high-debt countries may be lower than in countries with relatively lower debt levels if the contribution of the snowball effect in the former is significantly higher than in the latter. Therefore, countries with a high debt level do not necessarily require a high primary surplus to comply with this rule. Also, the fiscal adjustment needs of countries with a structural fiscal position in surplus are smaller than those with structural primary deficits. Lastly, when the current debt rule was introduced, it did not aim at the convergence of Member States' debt-to-GDP ratios to 60% of GDP in 20 years (since the adjustment rate is revised every 3 years, depending on the debt level and its distance from the benchmark), but mainly at promoting fiscal adjustment in high-debt countries, ensuring a permanent debt-reducing path and asymptomatic convergence to the benchmark.

(iv) Simplification: The structure of the new framework should be simple and transparent. To this end, the new rules should be less dependent on non-observable variables that complicate their comprehension and effective monitoring. The proposed operational expenditure rule relies on the rate of change in potential output, which is less subject to measurement problems.

(v) An effective and reliable mechanism for surveilling the implementation of the new framework: Governments' compliance with the new rules is essential for their sustainable implementation and credibility. Improving the institutional set-up for surveilling compliance with fiscal rules is all the more necessary if more flexibility is granted to take into account country-specific circumstances. It is therefore proposed to strengthen national independent fiscal institutions (e.g. fiscal councils). Alongside the European institutions, national fiscal councils could contribute to better compliance with the rules and to more effective policy surveillance and evaluation, strengthening fiscal credibility and ownership of the new fiscal framework.

(vi) Safeguarding public investment: Given the pressing needs for green and digital transformation of the economies in the coming years, the practice of cutting investment spending as a means of achieving fiscal targets should come to an end.[35] The priority given to public debt reduction as a fiscal policy objective does not allow for investment expenditure financed by new borrowing to be excluded from the new fiscal rules and, in particular, from the debt rule. Targeted investment expenditure could be financed through a system of transfers, which would be financed through the issuance of common European debt by a permanent European mechanism (see below). In any case, excluding various expenditure categories –the classification of which is complex in any event– from the fiscal rules would hamper the simplification and credibility of the fiscal framework.

(vii) The new NGEU instrument should become permanent so as to function as central fiscal capacity to increase public investment. By issuing common European debt, the NGEU is instrumental to creating fiscal space and enhancing convergence among European economies, as the high-debt countries benefit more from the available funds. NGEU financial support will help reduce the investment gap and support the growth of European economies in the coming years. Combined with a low interest-rate environment in the medium term, NGEU resources will help countries improve their debt dynamics by making the required fiscal adjustment easier.

Therefore, the objective of boosting (green, digital) public investment could be achieved by making the NGEU a permanent central mechanism for fiscal transfers beyond 2026. Although it is still developing, its operational design is a model for the future of economic governance of the euro area by combining fiscal transfers with fiscal responsibility at a transnational level.[36]

35 The practice of cutting public investment in the past, with negative effects on the growth rate of the economy, is not a weakness of the current fiscal rules, but a common policy option for governments that refused to promote structural fiscal measures to achieve the targets.

36 As the NGEU is centrally organised, there are fewer incentives to classify all investments as "green" or "digital" in order to be exempt from fiscal rules.

ANNEX TO CHAPTER V
FISCAL POLICY MEASURES

In the first months of 2021,[1] fiscal policy actions aimed at extending and expanding the scope of certain measures taken in 2020 to support employers and employees. The type and nature of support measures have gradually changed. In particular, on the expenditure side, measures in the second half of 2021 were mostly geared towards supporting businesses to reopen, subsidising tourism, prolonging the "Gefyra" programme for individuals and extending it to enterprises ("Geryfa 2"), and subsidising interest payments on SME loans. On the revenue side, tax and social security reliefs and grants to enterprises continued in the form of credit to their tax and social security liabilities. Step by step, with the gradual reopening of the economy, liquidity provision to affected businesses under a repayable advance scheme and government support to landlords were terminated, tax and social security moratoria ended and special-purpose compensations for employees and the self-employed with coverage of their social security contributions were considerably curtailed. At the same time, non-pandemic-related measures were adopted, notably the continuation of the tax reform, which had started in 2019 but slowed down in 2020 due to the pandemic; measures to support those affected by natural disasters; structural interventions for the post-pandemic period; and measures to support households against energy price increases. Finally, a social security reform was launched, which introduced elements of a defined contribution funded scheme into the supplementary insurance of the newly insured.

The protection of social groups affected by the health and energy crises continued in the first months of 2022, while focusing on safeguarding the country's fiscal performance. In particular, the moratorium on the social solidarity levy in the private sector and the payment of reduced social security contributions continued in 2022, reduced VAT rates on specific products and services, the subsidisation of fixed business costs and the "SYN-ERGASIA" mechanism were extended for several months, while the repayable advance repayment conditions became more favourable. In addition, employee furloughs and special-purpose compensations in specific affected sectors were reactivated. As regards support measures against energy price increases, a targeted subsidy mechanism was put in place, with specific criteria and adjustment of support on a monthly basis. Lastly, with a view to rationalising the unified property tax (ENFIA), improving its collectability and reducing the tax burden on households, a reform of property taxation was introduced in March, with significant changes in the tax structure.

In more detail, Law **4787/2021**, passed in March, extended again the application of super-reduced VAT rates (6%) on personal protective and sanitary equipment[2] and reduced VAT rates (13%) on transport, coffee and non-alcoholic beverages, cinemas and the tourist package until 31.12.2021.[3] Subsequent laws[4] extended these arrangements until 30.6.2022.

In the same month, Decisions **1055-1056/2021** and **1095-1096/2021** of April, **1109-1110/2021** of May, **1147-1148/2021** of June and **1172-1173/2021** of July introduced a moratorium on restructured tax arrears instalments payable in March-July 2021 by enterprises in directly affected sectors and

1 Measures adopted up to February 2021 are described in the *Annual Report 2020*, pp. 195-207 (in Greek).
2 The measure was adopted in October 2020 (Law 4683/2020), was originally effective until 31.12.2020 and was extended for the first time until 30.4.2021 (Law 4753/2021).
3 The measure was adopted in May 2020 (Law 4690/2020), was originally effective until 31.10.2020 and was extended for the first time until 30.4.2021 (Law 4728/2020).
4 See Law 4839/2021 and Law 4876/2021 below.

by furloughed employees.[5] Similarly, Decisions **13800/2021** of March, **24449/2021** of April, **33332/2021** of May and **45352/30.6.2021** of June introduced a moratorium on restructured social security arrears instalments for March, April, May and June 2021.[6] Subsequently, Decision **1091/2021** of April extended until 31.12.2021 the moratorium on assessed debts that had been granted until 30.4.2021.[7] By a later law,[8] all non-restructured tax and social security contribution arrears assessed in the period March 2020-July 2021 were restructured in 36 to 72 instalments, payable as from 1.1.2022, with a further extension until 28.2.2022.[9] The moratorium on restructured arrears instalment payments by undertakings and employees was reactivated for January 2022.[10]

In addition, Law **4790/2021** introduced further measures to protect the economy from the effects of Covid-19, including:

Tax and social security measures

– VAT exemption on the delivery of goods and services to the International Organisation for Migration.

Other fiscal measures

– Introduction of a new business loan subsidy scheme, "Gefyra 2", for medium- and small-sized enterprises and sole proprietorships that have been affected by the pandemic and meet specific economic and wealth criteria. The scheme targets both companies with performing debts and businesses that are unable to meet their debt obligations. The amount of the subsidy ranged from 60% to 90% of the monthly instalment with a duration of eight months. The measure remained in force until December 2021.

– Extension of the "SYN-ERGASIA" mechanism for three months until June 2021, as well as budgetary coverage of employer contributions in various sectors.[11] Under later arrangements,[12] the measure remained in force until March 2022.

– Adoption of special arrangements freezing principal residence foreclosures and auctions for those financially affected by the pandemic.

– Establishment of a framework on the lease, by direct award, of primary or non-primary tourist accommodations to cover public health emergencies in response to the pandemic until 31.10.2021.

– Extension of measures to support employees and employers of all-year-round tourist accommodations showing a significant drop in their turnover until June 2021.[13]

In the same month, Decision **39421/2021** and subsequent Decisions **52938/2021** and **61940/2021** of April, **78288/2021** of June and **96043/2021** of July extended the measures to support landlords for the non-collection of rent for the period March-July 2021.[14]

5 For 2021, see earlier Decisions 1014-1015/2021 and 1028-2029/2021 for January and February.
6 For 2021, see earlier Decisions 6789/2021 and 7078/2021 for January and February.
7 These debts relate to payment of the current tax and social security liabilities of the first wave of the pandemic (March-June 2020), which was initially extended for the period August to October 2020 and then until the end of April 2021.
8 See Law 4821/2021 below.
9 See the Legislative Act of 29.1.2022.
10 Decisions 1006-1007/2022.
11 The measure was introduced in May 2020 (Law 4690/2020) to preserve full-time jobs in the private sector and has been continuously extended ever since.
12 See Law 4808/2021 and Decision 108743/2021 below.
13 They were adopted in November 2020 (Law 4645/2020) and have been continuously extended ever since until March 2021.
14 Landlords' support for the non-collection of rent was adopted by Law 4690/2020 for the period March-May 2020 and has ever since been continuously extended until February 2021.

In April, Law **4795/2021** wrote off outstanding assessed debts to municipalities and regions up to a total of €10 per debtor, whether natural or legal person, provided that the debts had become due and payable and the same person did not have any other debts at the time of the write-off. In the same month, Law 4797/2021 introduced tax measures to relieve and facilitate households and businesses for the 2021 tax year and additional budgetary measures extending the tenant support measure taken in 2020 and supporting the reopening of businesses. In greater detail:

Tax and social security measures

– Individual and corporate income tax for 2021 was made payable in eight equal monthly instalments.

– A 3% discount to individuals for a one-off payment of the 2021 tax.

– Individual and corporate income tax returns could be lawfully filed by 27.8.2021 with the payment of the first two monthly instalments.

– The 2021 property tax (ENFIA) was made payable in six equal monthly instalments, the first one being due in September 2021.

– Taxation would not be based on objective living expenditure criteria for those affected by the pandemic for 2021.

– No tax surcharge (fine) would be assessed on affected debtors and taxpayers over 60 years of age whose e-payment expenditure was less than 30% of their actual income.

– Taxpayers not included in the above category who covered only 20% instead of 30% of their income would pay half the fine.

– The fine was cancelled for specific categories of taxpayers, such as self-employed and sole proprietors in affected sectors.

– Extraordinary revenue would be excluded from the determination of the actual income on which the required minimum amount of e-payment expenditure is calculated.

– Farmers and coastal fishermen would be exempt from the professional tax for the 2020 tax year as well.[15]

– The suspension of the obligation of all private chronic dialysis units to pay to the Greek State 5% of hospitalisation fees received was extended until 31 December 2021 and, for the same period, the VAT rate on necessities was set at 6%. A later law[16] extended the measure until 30.6.2022.

– Stamp duties were not levied on fines for non-observance of social distancing.

– Immobilised private passenger cars and motorcycles could be used again in 2021 by paying a proportionate road tax.

– The CO2 emission tables used as coefficients for the calculation of road taxes were adjusted.

– The IKA and State pension thresholds were reinstated, with retroactive effect from 12.5.2016, for pensions of national resistance fighters, authors and artists.

15 Applicable in the tax year 2019 (Law 4714/2020).
16 See Law 4876/2021 below.

– Hunters who had a hunting licence issued for the 2020-2021 hunting year were exempt from the obligation to pay fees to the State, provided that they had issued a hunting licence of the same type as for the preceding hunting year.

– Rental income not received by property owners would not be included in their total income.

Other fiscal measures

– An increased special-purpose compensation was introduced as a new support measure to affected companies. The measure concerned small and micro enterprises in sectors subject to restrictive measures in April (excluding catering, financial and primary agricultural production), the amount of support being €500 to €4,000, depending on the number of employees.

– A supplementary budget was adopted with a €3 billion increase in appropriations to finance actions relating to the implementation of measures to counter the negative effects of the coronavirus.

– The reduction in business rent was expanded by providing for a 40% to 100% exemption from the obligation to pay rent in April.[17] Other legislation extended the reduction until July.[18]

In addition, Decision **2242.10/28057/2021** of April and later Decisions **2242.10/33140/2021** of May and **2242.10/57636/2021/2021** of August provided for further support to affected seafarers by extending the special-purpose compensation for April, May and June 2021.[19]

In the same month, under Decision **22547/2021**,employees of private-sector undertakings/employers were furloughed for April 2021 and State compensation was provided.[20] Subsequently, Decisions **28631/2021** of May, **47100/2021** and **51320/2021** of July, **58921/2021** of August and **74831/2021** of September furloughed these employees until September 2021. By Decision 109412/2021 of December, the measure was reactivated for January 2022 in specific sectors (night clubs and bars, concert halls and music-related professions). Lastly, Decision **3512/2021** expanded the scope of the above measure to include restaurants, sports, culture, playgrounds and events, but only for the second half of January 2022.

Finally, Decision **23930/2021** granted a two-month extension to unemployment benefits that expired in March and a one-month extension to benefits that expired in April.[21]

In May, Decision **2831/2021** introduced a working capital subsidy to catering undertakings for the purchase of raw materials during the first months of their reopening. The amount of support came to 7% of turnover and support was capped at €100,000 per tax registration number.

In addition, Decisions **26618/2021** and **34336/2021** continued[22] the provision of financial support to artists and art and culture professionals for March and April, while Decisions **45409/2021** of

17 The measure was adopted in February 2020 (Laws 4682/2020, 4683/2020 and 4684/2020) and remained in force until March 2021.

18 See Laws 4799/2021, 4804/2021 and 4818/2021 below.

19 Measures to support maritime labour during the pandemic were adopted by Law 4684/2020 in March 2020 and have ever since been extended by successive laws and decisions.

20 The measure was adopted in March 2020 (Law 4682/2020) and, under successive laws and decisions, remained in force until March 2021.

21 The first extension of unemployment benefits was adopted by Law 4682/2021 and concerned unemployment benefits that expired in the first quarter of 2020. For the period that followed, in order to support those who remained unemployed during the pandemic, successive decisions granted a two-month extension to benefits that expired up to the first two months of 2021.

22 The measure was introduced in September 2020 (Law 4722/2020) with initial effect for September and October 2021 and was extended until February 2021.

July, **92403/2021** of November and **109435/2021** of December maintained such support for May, June and July 2021 and January 2022.

Also in May, Law **4799/2021** continued the tax reform that had started in 2019 and slowed down in 2020 due to the pandemic. In particular, it provided for: (a) a reduction, as from 2021 and on a permanent basis, of the advance tax from 100% to 55% for all individuals carrying out a business activity; (b) a reduction of the corporate advance tax rate from 100% to 70% for 2021 and to 80% from 2022 onwards; (c) a reduction, on a permanent basis as from 2022 (tax year 2021), of the corporate tax rate from 24% to 22%; and (d) an expansion of the special solidarity levy moratorium to the private sector also in 2022. Another provision of the same law extended the exemption of undertakings in specific sectors that were lock-downed or affected by the spread of the coronavirus from the obligation to pay business rents also in May.[23]

In June, Decision **57732/2021** adjusted the objective prices of all properties in Greece as from 2022.[24] The weighted average increase in zone prices was 8%. It should be noted that objective prices are the basis of calculation of all taxes levied on real estate.

In the same month, Decision **3407/2021** adopted a new action to support business reopening by boosting liquidity in the tourism industry. The action consisted in subsidising working capital for enterprises across the tourism spectrum, provided that they employed at least one person and that their turnover had fallen by more than 30% in 2020, compared to 2019. The amount of subsidy per business was set at 2.5% to 5% of their turnover.

In addition, **Law 4808/2021** regulated matters relating to the taxation of ships and capital, support for workers and businesses in the tourism and food sectors, the extension of the 'SYN-ERGASIA' programme and other tax provisions. In more detail:

Tax and social security measures

– Tax and levy rates were adjusted for category 1 ships for the five-year period 2021-2025, with an annual increase of 4%. For 2021, the measure was suspended due to the pandemic.

– The rate at which tax is calculated on private pleasure boats was adjusted.

– Natural persons were granted an extension of the exemption of their land parcels from supplementary ENFIA (specifically applicable for the years 2016-2020) and a reduction of ENFIA (specifically applicable for the years 2019-2020) also for 2021.

– The entry into force of gaming taxation on a per entry basis was deferred until 12.7.2021 (instead of 1.7.2021).

Other fiscal measures

– The exemption of undertakings in specific sectors that were lock-downed or affected by the spread of the coronavirus from the obligation to pay business rents was extended also in June.[25]

– Measures were adopted for seasonal workers in the tourism and food sectors.[26]

– The 'SYN-ERGASIA' programme was extended until 30.9.2021 (instead of 30.6.2021).[27]

23 See above and the corresponding provision of Law 4797/2021.
24 The last real estate price adjustment had taken place in June 2018.
25 See above and the corresponding provision of Law 4797/2021.
26 Tourism and catering industry employees were supported throughout the pandemic, first by Law 4690/2020 and then by successive laws and decisions.
27 See above and the corresponding provision of Law 4790/2021.

In addition, **Law 4810/2021** provided for a permanent reduction (by 30%) as from 1 July 2021 in the VAT rates for the five islands affected by the migration crisis (Chios, Lesvos, Kos, Leros and Samos), provided that reception and accommodation facilities for third-country nationals operated within their region and for as long as they remained operational.[28]

Decision **45410/2021** of July and subsequent Decision **93226/2021** of November extended the financial support for tourist guides by granting special-purpose compensation for March, April, May and June 2021.[29]

At the same time, non-pandemic-related measures were adopted. In particular, **Law 4818/2021** implemented new VAT rules for cross-border e-commerce (retail sales and import of goods). More specifically, effective from 1.7.2021, (a) VAT exemption on goods imported into the EU valued at less than €22 by non-EU companies was lifted; (b) a new common EU threshold of €10,000 was introduced (replacing the turnover thresholds, which varied from country to country), above which VAT must be paid in the Member State where the goods are delivered. In order to implement the new rules and facilitate the business community and e-shoppers, specific platforms were envisaged, through which e-commerce sellers can fulfil all their VAT obligations on their sales inside and outside the EU.

In the same month, **Law 4821/2021** extended the debt restructuring scheme for tax and social security liabilities incurred during the pandemic by businesses and sole proprietors. Specifically, non-restructured tax and social security liabilities assessed between 1.3.2020 and 31.7.2021 will be payable in 36 interest-free instalments or 72 interest-bearing ones at a rate of 2.5%, as from January 2022. In addition, the debts of affected businesses, sole proprietors and employees that had dropped out due to the pandemic can enter the new instalment scheme. Another provision of the same law extended from 31.12.2021 to 30.6.2022 the reduced VAT rate of 13% on sports tickets.

In August, **Law 4822/2021** ratified the Financing Agreement and the Loan Agreement between the European Commission and Greece on the Recovery and Resilience Facility funds.

In the same month, following several postponements due to the pandemic, Decision 1171/2021 laid down the details for the gradual connection of cash registers with the IAPR's IT system and the transmission of all retail data to the myDATA digital platform. Connection was mandatory for all undertakings[30] and was carried out gradually until the end of 2021 on the basis of their gross revenue for the tax year 2019, an additional criterion being whether or not they were included in the activity code numbers affected by the pandemic.

In addition, **Law 4824/2021**, as well as numerous ministerial decisions, introduced a package of state aid measures to support households and businesses affected by the August wildfires, which included: (1) compensation for household necessities and effects; (2) housing assistance to natural and legal persons for building repairs; (3) grants to enterprises affected by the wildfires; (4) exemption of affected enterprises, including agricultural undertakings, from a repayable part of the repayable advance; (5) ENFIA exemption for the years 2021-2023; (6) rent/cohabitation subsidy; (7) a tax moratorium; (8) a six-month social security moratorium; (9) a loan moratorium; (10) suspension of enforcement actions for six months; (11) measures to support unemployed people; (12) grants to local governments to rebuild infrastructures; (13) financial support to resin workers; (14) hotel accommodation for fire-stricken people; (15) farmers' support by the Hellenic Agricultural Insurance Organisation (ELGA); and (16) additional support

28 Initially, Law 4336/2015 provided for the complete abolition of reduced VAT rates on all islands by the end of 2016. Since then and until 30.6.2021, successive laws and decisions had continuously suspended this abolition of the reduction of VAT rates for the above mentioned islands.

29 The measure was adopted by Law 4722/2021 and was originally effective for September 2020-February 2021.

30 Decision 1233/2021.

measures for households and businesses located in the affected Euboea municipalities. A provision of the same law approved an additional budget of €500 million to finance measures to restore forests, settlements and related infrastructure.

In the same month, **Law 4826/2021** introduced the following tax and social security measures:

– Exemption of those affected by the 2018 wildfires from the 2021 ENFIA.

– Extension of the deadline for filing 2020 individual and corporate income tax returns, initially until 10.9.2021 and, by a new decision,[31] until 15.9.2021.

– Extension of the reduction in employer and employee social security contributions by 3 percentage points for 2022 (as from 1.6.2020).[32]

– Introduction of features of a defined-contribution funded scheme into the supplementary insurance of newly insured individuals, on a compulsory basis for new labour market entrants from 2022 onwards and on a voluntary basis for employees and self-employed aged below 35 from 2023 onwards. Under this funded scheme, members' contributions will only finance their own future benefits, i.e. their supplementary pensions, contrary to the previously existing PAYG system, under which every year's contributions paid by the insured are used to finance supplementary pensions paid to current pensioners.

Decision **1077865/2021** provided that government arrears to pensioners would be retroactively taxed at a rate of 20%, free of any further deduction and of special solidarity levy. A later law[33] allowed pensioners to pay the income tax and fines resulting from amended income tax returns for pensions paid retroactively in up to 48 instalments on the basis of income criteria.

In October, **Law 4839/2021** extended again the reduction of VAT rates on certain products and services. At the same time, temporary and permanent measures were adopted for the post-pandemic period. In greater detail:

Tax and social security measures

– Further extension of reduced VAT rates (13%) on transport, coffee and non-alcoholic beverages, cinemas and the tourism package until 30.6.2022.[34]

– A reduction from 24% to 13% in the VAT rate on gyms and dance schools from 1.10.2021 to 30.6.2022.

– Permanent reduction of the VAT rate on animal feed from 13% to 6% as from 1.10.2021. Later another law[35] also introduced a permanent reduction in VAT on fertilisers from 24% to 13%.

– Halving of the capital concentration tax as from 1.10.2021.

– Extension of the moratorium on pay-TV charges from 30.9.2021 to June 2022.

– Reduction in mobile telephony charges by 12%-20% and their abolition for young people up to 29 years old as from 1.1.2022.

31 Decision 1210/2021.
32 This reduction initially applied for 2021 (Law 4756/2021), following a reduction of 0.9 p.p. in contributions as from 1.6.2020. (Law 4670/2020).
33 Legislative Act of 29.1.2022.
34 See Law 4787/2021 above.
35 See Law 4916/2022 below.

– Increase in the tax-free limit on parental grants and gifts to first-degree relatives from €150,000 to €800,000.

– Assistance to earthquake victims by a three-year exemption from ENFIA.[36]

Other fiscal measures

– The "Energy Transition Fund" was set up to subsidise all low-voltage electricity and gas bills.

In the same month, **Law 4842/2021** extended once again the scheme subsidising instalment payments on loans to households affected by the pandemic ("Gefyra") by up to 40% of loan instalments for three months, from 30.9.2021 to 31.12.2021.[37] In addition, for both the "Gefyra" and "Gefyra 2" schemes, the level beyond which debts are considered in arrears was increased to two monthly instalments in order to help debtors remain on the scheme. Another provision of the same law extended for academic year 2021-2022 the payment of housing benefits to students of public Vocational Training Institutes (IEKs).

In November, **Law 4855/2021** introduced double payment of the Guaranteed Minimum Income to beneficiaries for December and expanded the open programme of 100,000 subsidised jobs to a further 50,000 jobs until it was exhausted.[38] A similar measure was adopted in April 2022 (see measures to tackle the energy crisis below).

In addition, Decisions **1048/2021**, **1050-1052/2021** and **1054/2021** made the repayment terms for all cycles of the repayable advance measure more favourable.[39] The changes included: (a) an increase (up to 75%) in the exempted amount of repayable advances in line with the fall in the gross revenue of undertakings (b) abolition of the interest rate on their repayment instalments; (c) payment of the first instalment at the end of January (end of June under later decisions)[40] and repayment of the repayable amount in 60 interest-free monthly instalments, which were subsequently increased to 96; and (d) an additional 15% discount to those who would make one-off payments (until 31.3.2022).

In December, as a measure to protect vulnerable social groups from the energy crisis, **Law 4865/2021** provided for one-off financial support to low-pensioners, disabled people and uninsured elderly people. Similar measures were adopted in April 2022 (see measures to tackle the energy crisis below).

In the same month, **Law 4872/2021** provided for the payment of special financial assistance to medical, nursing, administrative and other staff serving in healthcare institutions, set at half of the beneficiaries' basic monthly salary.

In addition, **Law 4873/2021** recognised voluntary employment in public benefit organisations and the public sector and provided for tax incentives to support the public benefit activities of civil society organisations.

In the same month, **Law 4876/2021** introduced the following tax provisions:

36 It concerns properties seriously damaged in the earthquake of 30.10.2020 (on Samos, Ikaria and Chios islands) and the earthquake of 3.3.2021 (in Thessaly, in particular Larissa and Trikala).

37 The measure was introduced at the end of August 2020 (Law 4714/2020) with a deadline for inclusion the end of December 2020 and expired for the majority of borrowers at the end of September 2021.

38 The measure was introduced in September 2020 by Law 4726/2020 and envisaged, as from 1.10.2020, an open programme for the creation of 100,000 six-month jobs, for which the employee and employer social security contributions are financed by the State Budget, with an additional subsidy of €200 if the new recruits are long-term unemployed.

39 The measure was adopted in February 2020 (Laws 4682/2020 and 4684/2020) with the aim of boosting the liquidity of companies affected by the pandemic and preserving jobs.

40 GDOY 1-7/27.1.2022.

Tax measures

– Exemption from ENFIA of those affected by the earthquakes of 24.7.2021 and 27.11.2021 in Crete for the years 2021, 2022 and 2023.

– Extension until 30.6.2022 of reduced and super-reduced VAT rates on sanitary and protective equipment (6%),[41] imports of works of art,[42] collections or antiquities (13%) and zoo admission tickets (13%).[43]

– Extension until 30.6.2022 of the moratorium on the tax levied on gifts to public benefit legal persons.[44]

– Extension until 30 June 2022 of the suspension of payment to the State of 5% of hospitalisation fees by chronic dialysis units.[45]

– Contracts for the transfer of real estate for consideration, as a gift or parental grant could also be executed after the entry into force of the new objective values, i.e. from 1.1.2022 to 31.1.2022, on the basis of the objective values and rates in force on 31.12.2021. The Legislative Act of 29.1.2022 later extended that deadline until 31.3.2022.

– Incentives for e-payments. In more detail:

(a) For the years 2022-2025, the annual expenses incurred by every natural person for visits to doctors, dentists, orthodontists and veterinary surgeons, as well as tests in private diagnostic centres and other medical services, other than the purchase of medicines and hospitalisation, shall count twice towards covering 30% of the annual real income by online payments;

(b) For the years 2022-2025, 30% of taxpayers' e-payments to specific professional sectors (where electronic transactions are not widespread) up to €5,000 per year will be deducted from taxable income.

– Extension of the reduction in the road tax for tourist buses for the year 2022 as well.[46]

– In addition, Decision **107422/2021** provided support to cultural undertakings by covering audience seats/tickets (theatres, music venues, dance stages, concert venues, performance venues and cinemas) for the period January-December 2021.[47]

Decision **1268/2021** extended the deadline for timely payment of 2022 road taxes until 28.2.2022.

Decision **1078/2021** and later Decision **48965/2022** extended the subsidisation of fixed costs until June 2022. In particular, the amounts of support in the form of tax authority and e-EFKA credit, issued as part of the support in the form of fixed costs subsidy[48] and useable by 31.12.2021, could now be used until 30.6.2022 by undertakings that had not exhausted it, in accordance with the already filed return.

41 See Law 4787/2021 above.
42 The measure was adopted in October 2020 (Law 4738/2020).
43 The measure was adopted in February 2021 (Law 4772/2021).
44 The measure was adopted in October 2020 (Law 4738/2020).
45 See Law 4797/2021 above.
46 Initially applicable in 2021 (Law 4781/2021).
47 The measure was adopted by Law 4745/2020 and was originally effective in October, November and December 2020.
48 For the adoption of the measure, see Law 4772/2021.

In the same period, Decision **108743/2021** was published, extending by another three months the "SYN-ERGASIA" mechanism to 31.3.2022.[49]

In response to the energy crisis, a package of support measures for the entire population of the country, as well as for businesses, was adopted by a series of laws and numerous ministerial decisions. The support measures were frontloaded and initially provided for a horizontal subsidy on electricity and gas consumption; a more targeted subsidy mechanism with specific criteria was put in place in early 2022. Special provision was made for the most vulnerable consumers. In more detail, support included the following measures:

(a) For household electricity consumers and companies supplied by the low-voltage grid, a horizontal subsidy on electricity consumption. The subsidy initially concerned the period September-December 2021 and ranged from €30 to €165/MWh. In January 2022, the subsidy was limited to the principal residence only and was applied in tiers on the basis of monthly consumption as follows: for the first 150 kWh of monthly consumption, it came to €160/MWh, and for monthly consumption of 151-300 kWh, to €120/MWh. Subsequently, for the period February-March 2022, the amount of the subsidy was set as follows: for the first 150 kWh of monthly consumption, €150/MWh, and for monthly consumption of 151-300 kWh, €110/MWh. Finally, for April 2022 the subsidy for the first 150 kWh of monthly consumption increased to €270/MWh and for monthly consumption of 151-300 KWh to €290/MWh.

(b) For undertakings (low- and medium-voltage industry, other medium-voltage uses), a moratorium on utility charges for the period November 2021-March 2022 and a €65/MWh subsidy on electricity consumption for the period January-March 2022. In April, the subsidy on electricity consumption was doubled to €130/MWh. At the same time, for the period January-April 2022, an additional subsidy of €100/MWh was granted to micro and small and medium-sized enterprises on total consumption.

(c) For agricultural undertakings, a moratorium on utility charges for the period November 2021-March 2022 and an additional subsidy to all agricultural energy rates for August 2021 to February 2022. In addition, a refund of the excise duty on diesel fuel was implemented as from 1.1.2022. Moreover, it was decided to subsidise livestock farmers for animal feed amounting to 4% of the turnover for the period January-March 2022, to include the transport of animal feed to Crete in the Transport Equivalent in 2022 and to increase by 50% the programme for the transport of animal feed to small Aegean islands.

(d) For household natural gas consumers, an increase of the heating allowance for September-December 2021 and a moratorium on network charges for November and December 2021. In addition, a unit subsidy of €11-€34/MWh was set for the period September-December 2021, which was adjusted to €20/MWh for the period January-March 2022 and was doubled to €40/MWh for April 2022. For non-household consumers, the unit subsidy was set at €30/MWh for January 2022 and at €20/MWh for the period February-April 2022.

(e) For those entitled to a heating allowance for purchases of oil, gas or other heating fuels, an increase in the allowance by broadening the inclusion criteria.

(f) For vulnerable social groups, a package of measures for April 2022 which included: (i) increased child allowance to beneficiaries; (ii) one-off financial support to low-pensioners, disabled persons and uninsured elderly people; and (iii) payment of a double instalment of the guaranteed minimum income to beneficiaries.[50]

49 See Law 4790/2021 above.
50 See the corresponding provisions of Laws 4855/2021 and 4865/2021 above.

(g) For natural persons (including self-employed) with declared family income of up to €30,000, a fuel consumption subsidy until June 2022 in the form of a fuel pass.

(h) Subsidisation of the price of diesel consumed in the internal market for April 2022.

(i) Payment in April 2022 of a special-purpose compensation to taxi services.

In January 2022, Decision **1004/2022** overhauled the tax lottery framework, with different weights according to the income rate and the number of children, escalation of gifts up to €50,000 and a Christmas bonus of €100,000.

In addition, the **Legislative Act of 29.1.2022** provided for the exemption from all taxes of flight and diving allowances for the Armed Forces and Law Enforcement personnel. Another provision of the same Act imposed an environmental levy of up to €3,000 on imported second-hand vehicles, depending on exhaust emission standards.[51]

In February, **Law 4891/2022** was adopted to strengthen the defence of the country, which included contracts to upgrade Air Force and Navy operational capabilities by acquiring additional Rafale fighter jets, frigates and submarine torpedoes.

In addition, **Law 4892/2022** laid down provisions on the operational and organisational streamlining of the Electronic National Social Security Institution (e-EFKA), including: (a) individuals, as well as civil servants or officials or employees of public sector bodies can be appointed as Directors-General and Directors of e-EFKA; (b) officials of e-EFKA, other than Directors-General, will be granted a productivity bonus as a reward for increasing their efficiency; (c) provisions are introduced regarding the conduct of disciplinary proceedings against e-EFKA officials; (d) an e-EFKA Real Estate Company is established with the task of developing e-EFKA's real estate; and (e) contracts for e-EFKA projects, procurements and services will be awarded and implemented by derogation from the legislation in force, subject to specified conditions.

In March, due to a resurge of the pandemic, a new special programme was introduced by Decision 1293/2022 to support enterprises in selected sectors that are significantly affected. Eligible sectors included, inter alia, organisation of conferences and trade fairs, organisation of events, catering services, dance schools and night clubs. The eligibility criterion was a reduction of over 50% in turnover between 2019 and 2020, while the support amount was set at 8% of the 2019 turnover, capped at €400,000.

Finally, in the same month, **Law 4916/2022** introduced a major reform in real estate taxation featuring significant changes in the structure of ENFIA. In more detail:

(a) A new tax calculation scale was introduced, merging the brackets for low and medium zones and including lower rates;

(b) The supplementary and main taxes were merged for natural persons;

(c) Discount rates were increased for total real estate value of up to €150,000;

(d) Tax can be paid in 10 equal monthly instalments.

51 Amendment to previously applicable Law 4710/2020.

VI MONEY, CREDIT AND BANKS

In 2021, bank credit to the private sector continued to grow strongly, underpinned by the exceptionally accommodative single monetary policy and the co-financing and loan guarantee schemes of the Hellenic Development Bank and the European Investment Bank Group. Bank deposits by households and non-financial corporations also continued to increase. Deposit rates as well as lending rates on business and housing loans declined further. Lingering major challenges for banks include the further reduction of non-performing loans, especially taking into account that the impact of the pandemic on the quality of their loan portfolios has yet to be fully reflected, the improvement of profitability and the strengthening of their capital base in terms of both quantity and quality.

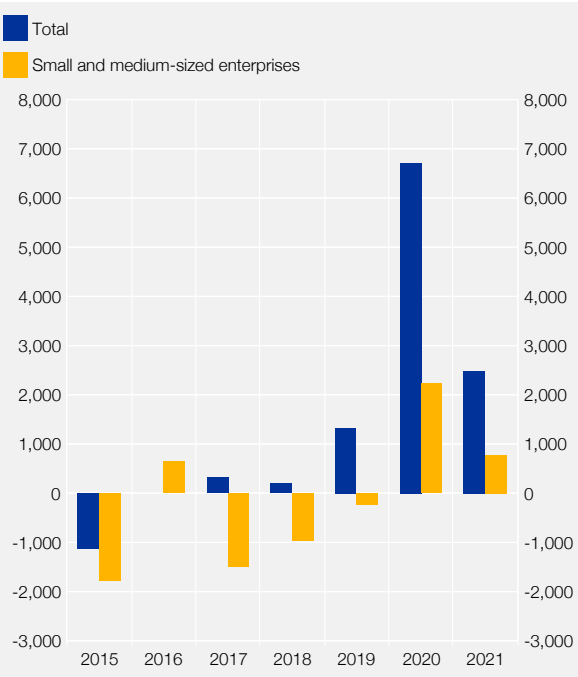
1 OVERVIEW OF DEVELOPMENTS AND PROSPECTS[1]

Monthly net flows of bank credit (new loans minus principal payments on existing loans) to non-financial corporations (NFCs) were much lower, on average, in 2021 than in 2020, albeit considerably higher than in 2019 before the pandemic (see Chart VI.1). The same holds for gross flows (i.e. loan disbursements) of new bank loans with agreed maturity to NFCs: in 2021, they were lower by about one third relative to 2020, but significantly higher relative to 2019. This was also the case for loans both to large firms and to small and medium-sized enterprises (SMEs): bank credit flows (net and gross) still remain higher than their pre-pandemic levels, but their abrupt rise shortly after the start of the pandemic was not repeated in 2021.

Indeed, firms' needs for bank credit must have eased in 2021, as their earnings recovered with the gradual lifting of mobility restrictions. It appears that sufficient liquidity buffers had already been created since 2020 for precautionary reasons. Firms' improved liquidity is confirmed by the Survey on the Access to Finance of Enterprises (SAFE) in the euro area (see Box VI.3).

Chart VI.1 Bank credit to non-financial corporations (2015 - 2021)

(annual cumulative net flows in EUR millions)



Source: Bank of Greece.

The co-financing and loan guarantee schemes of the Hellenic Development Bank (HDB) and the European Investment Bank (EIB) Group continued to support bank credit throughout 2021, but the funds made available by both organisations were much lower than in 2020 (see Box VI.1). Nevertheless, the impact of the schemes remained very strong – almost one third of loans to NFCs and sole proprietors in 2021 was backed by such schemes. In fact, it is esti-

1 The cut-off date for information and data used in this Chapter is 24 March 2022.

mated that in 2021 HDB programmes (which account for the bulk of the funds) were mainly focused on SMEs.

A favourable effect on domestic banks' ability to provide lending to the real economy came from the monetary policy instruments deployed by the Eurosystem in response to the pandemic. In the near term, banks' lending activity is expected to greatly contribute to the diffusion of benefits from the Recovery and Resilience Facility (RRF) to the Greek economy (see Box VI.2).

The results of both the SAFE and the Bank Lending Survey (see Boxes VI.3 and VI.5) are capturing an increase in bank credit availability and an easing of terms and conditions on lending, while highlighting the beneficial role of loan support schemes and of the monetary policy pursued by the Eurosystem. These findings mostly concern businesses – net credit flow to households has remained negative for several years, even though disbursements of new housing and consumer loans have grown moderately.

Regarding bank interest rates in particular, deposit rates in 2021 continued to decrease, while the positive differential between interest rates on time deposits and overnight deposits has narrowed further. The cost of bank financing for businesses, which is calculated by weighting the interest rate on loans with agreed maturity and the interest rate on loans without an agreed maturity, has also declined –albeit at a slower pace compared with previous years– to historically low levels. This development is also attributed to the single monetary policy stance and the aforementioned loan support schemes. By contrast, the cost of bank credit for households has remained overall unchanged, as the slightly lower mortgage rate counterbalanced the higher interest rate on consumer loans with an agreed maturity. Real lending rates fell markedly, implying a direct reduction in debt servicing costs and a rise in aggregate demand, especially if falling rates are sustained.

Deposits by both households and firms continued to grow in 2021, yet to a lesser extent than in 2020, but in any event at a much faster pace than before the pandemic. Central government deposits, including deposits with the Bank of Greece, have also increased. The slower growth rate of private deposits between 2020 and 2021 is consistent with a more moderate credit growth and a smaller fiscal policy response to the pandemic after the gradual reopening of the economy.

To the extent that Russia's invasion of Ukraine will weigh on economic activity in Greece, the path of deposits and loans will also be negatively affected, with their respective growth rates declining. On the other hand, the anticipated rise in prices on account of the war is set to lead to a higher nominal GDP. Ceteris paribus, this is expected to have a positive effect on deposit balances, as well as on loan demand in absolute terms. The uncertainty related to the Russian invasion of Ukraine should, in principle, discourage the supply of bank loans and is likely to boost somewhat demand for banknotes. Nevertheless, high and rising inflation generally discourages money holding in any form, unless counterbalanced by higher deposit rates, which is not an option under the current circumstances. Besides, rising inflation will lead to a further decline in real lending rates, thereby supporting bank loan demand.

Data available for 2021 suggest a drop in the stock of non-performing loans (NPLs) for domestic banks, essentially on the back of transactions making use of the Hellenic Asset Protection Scheme. Yet the NPL stock remains very high and it is therefore imperative to speed up the effort towards its further reduction. As a result of the aforementioned NPL transactions, banks posted sizeable losses and their capital adequacy ratios were negatively affected, although remaining at satisfactory levels. However, the relatively low quality of bank capital, as deferred tax credits make up the largest part of total regulatory own funds, coupled with the impact of International Financial Reporting Standard 9 (IFRS 9) and the obligation to meet the minimum requirement for own funds and eligible liabilities (MREL) in the years ahead, calls for a qualitative and quantitative strengthening of banks' capital base and an improvement of their core profitability. On a positive note, banks have already started efforts to strengthen their capital base.

2 BANK CREDIT

Credit growth to the private sector[2] turned positive from negative after the onset of the pandemic and quickened further in the second half of 2020 (see Chart VI.2). 2021 witnessed a reversal of this trend, as slower growth rates were recorded, but the yearly average has remained comparatively higher, driven by the stronger rates that were observed at the beginning of the year.

The annual growth in outstanding credit to the general government sector by the domestic banking system continued to rise in early 2021, at increasingly positive rates, but slowed in the second half of the year. In 2021 it averaged 61.0%, compared with 33.7% in 2020 as a whole. In this context, Greek commercial banks purchased sizeable amounts of Greek government bonds.

In greater detail, the annual rate of bank credit growth to non-financial corporations (NFCs), after rising in 2020 (see Chart VI.2) and reaching double-digit levels in the first two months of 2021, declined sharply, before recovering over the last quarter of the year, and stood at 3.7% in December 2021 (December 2020: 10.0%; January 2022: 2.8%). The average annual rate was 5.7% in 2021, remaining broadly unchanged relative to 2020 (5.6%).

The average monthly net credit flow[3] shrank to €206 million in 2021, i.e. more than halved compared with 2020 (€559 million), but remained almost twice as high as in 2019 (€110 million). The average monthly gross flow[4] of bank loans with an agreed maturity to NFCs was substantial, coming to €988 million in 2021, albeit 27% lower relative to 2020 (however, its 2020 base was exceptionally high even by historical standards), yet higher relative to 2019 (2020: €1,350 million; 2019: €666 million). In addition, the average monthly outstanding amount of bank credit without a fixed maturity (i.e. credit lines and other lending facilities) shrank by €1 billion (or by 15%) compared with 2020. Over the last four months of 2021 (especially in December), both net and gross flows mirrored a rise in corporate lending and reached average levels higher than their annual averages.

Lower credit growth to NFCs throughout the past year reflects, among other things, the exhaustion of funds made available under the lending support schemes to businesses (in economic sectors that were hit by the pandemic), managed by the Hellenic Development Bank (see Box VI.1). The share of such schemes in total credit was particularly high in 2020, while their contribution in 2021 was also noteworthy. Furthermore, banks' willingness and ability to disburse new loans to NFCs was adversely affected by the emergence of new non-performing exposures, which was induced by the economic fallout of the pandemic, leading to a higher level of perceived credit risk, especially with regard to SMEs. Conversely, the attraction of more new deposits in 2021 is in line with banks' increased lending capacity. Banks' fund raising, at exceptionally favourable terms, from the Eurosystem (mainly through TLTRO III) remained significant in 2021 and greatly encouraged the supply of corporate loans.

On the other hand, NFCs' demand for bank loans has understandably weakened. Firms resorted less to bank lending in 2021, because they had already built up adequate liquidity buffers since 2020, when they had borrowed excess funds for precautionary reasons to address the

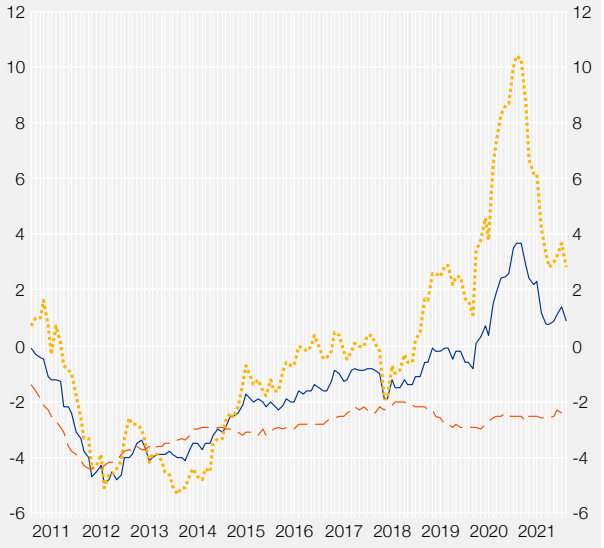
2 The private sector comprises financial sector corporations (insurance undertakings and financial institutions), as well as non-financial corporations, households (private individuals and non-profit institutions serving households) and, lastly, sole proprietors, farmers and unincorporated partnerships.

3 Net flows reflect changes in outstanding credit (i.e. loans and corporate bonds in banks' portfolios) on credit institutions' balance sheets, adjusted for loan write-offs/write-downs, corporate bond price revaluations, changes in exchange rates and loan reclassifications/transfers. For instance, loan write-offs/write-downs are added to the change in outstanding credit. In general, net bank credit flow equals the amounts of new loan disbursements (i.e. "gross flow of lending", see footnote 4) net of the amounts of principal payments on existing loans during the period of its calculation (e.g. within a given month in the case of monthly flows).

4 Gross lending flow is equal to the amounts of new loan disbursements during the calculation period (e.g. within a given month) (that is, without excluding loan repayments as in the case of net flow). Gross flow is proxied for by the loan amounts which are agreed under new loan contracts.

Chart VI.2 Bank credit to the private sector (January 2011 - January 2022)

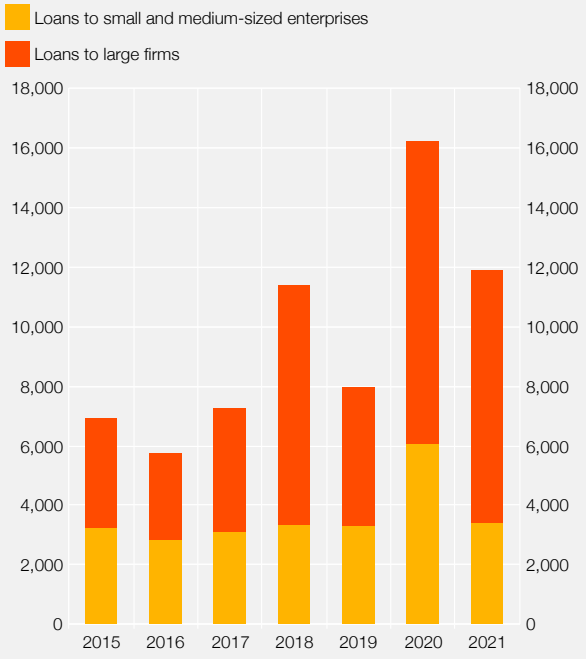
(annual growth rate %)



Source: Bank of Greece.

Chart VI.3 Bank loans with agreed maturity to NFCs (2015 - 2021)

(annual cumulative gross flows,[1] EUR millions)



Source: Bank of Greece.
1 Gross flow equals the amounts agreed in new bank loan contracts, as captured by interest rate statistics. Under Bank of Greece Governor's Act 2672/5.5.2014, which has been in effect since June 2014, forbearances are not included in the amounts of new loans.

economic impacts of the pandemic. Liquidity buffers were also fuelled by fiscal support measures, i.e. repayable advance and tax deferrals, as well as by furlough schemes.

Repayable advance funds are not taken into account in total bank credit. The funds that were made available during the January-April 2021 period increased the flow of lending to the real economy and accounted for almost one fourth of the cumulative gross flow of bank loans (with agreed maturity) to NFCs that was recorded in 2021. At the same time, the rebound in economic activity contributed to the generation of new sufficient earnings and therefore helped strengthen NFCs' internal funding.

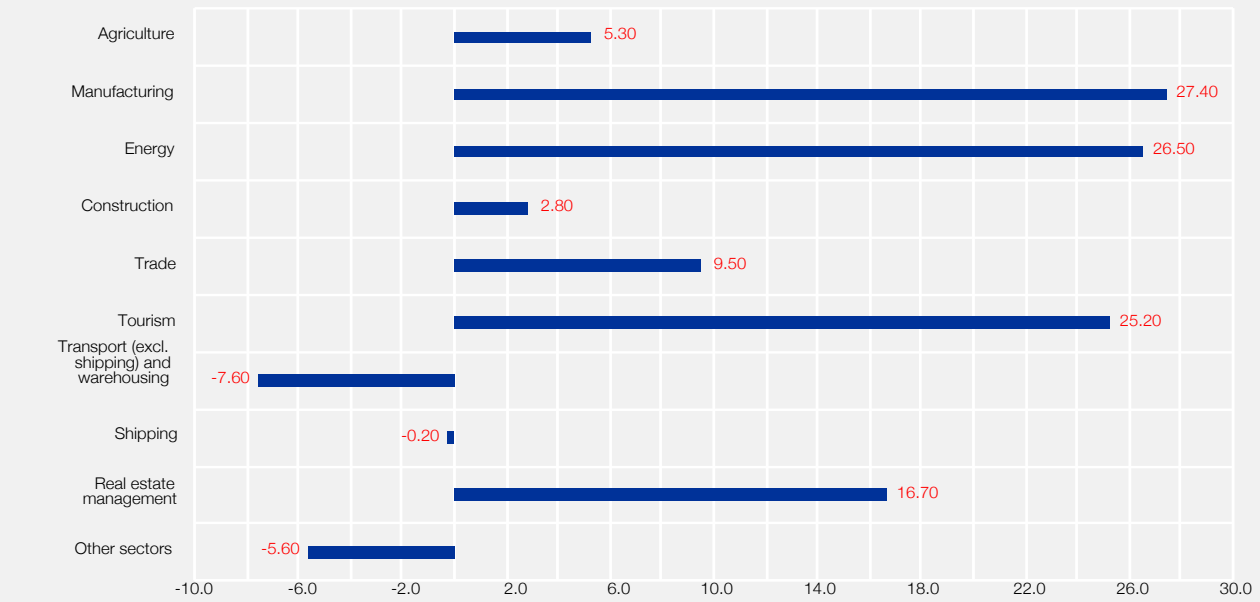
Large NFCs raised more funds on favourable conditions from non-bank financing sources in 2021, namely through the issuance of bonds.[5] In order to meet their financing needs, NFCs also tapped funds outside the capital markets, which are not included in bank credit growth, but must be seen as additional funding. Bank credit to NFCs is supported by the programmes of the European Investment Bank (EIB) Group and the Hellenic Development Bank (HDB) – see Box VI.1. These programmes envisage, among other things, the co-financing of loans to NFCs jointly by the financial organisation (EIB Group or HDB) and a commercial bank. Co-financed loans are extended to NFCs entirely by commercial banks (and not by the EIB or the HDB) and comprise the contributions from both the commercial bank and the EIB or the HDB. In 2021, part of the ensuing claims of the HDB vis-à-vis NFCs, the credit risk of which is assumed by the HDB rather than by the commercial bank (fiduciary loans), was not taken into account in total credit growth.

In a similar vein, domestic bank credit growth to NFCs in 2021 does not include other forms of financial support by international financial organisations, namely the EIB Group, the European Bank

5 In 2021, NFCs raised more funds on the international and domestic markets (€3.8 billion) than in 2020 (€1.6 billion), in 2019 (€2.7 billion) and in 2018 (€0.6 billion). See Chapter IX below.

Chart VI.4 Shares of individual sectors in the cumulative net flow of total bank credit to NFCs in 2021*

(percentages %)



Source: Bank of Greece.
Note: Total net flow of bank credit to NFCs in 2021 amounted to EUR 2.5 billion.

for Reconstruction and Development (EBRD) and the International Finance Corporation (IFC). Such support consists in the direct financing of NFCs through loan provision or corporate bond purchases, as already mentioned above, or through capital injections. Trade finance is also available to Greek businesses, with the international organisation guaranteeing instruments such as letters of credit or financial guarantees issued by domestic banks. Such forms of financial support, excluding (a) corporate bond purchases by international organisations (which have already been mentioned to be included in firms' total bond issuance in 2021) and (b) capital injections to firms, amounted to €0.8 billion, of which €0.5 billion referred to guarantees facilitating global trade transactions.

The annual rate of increase in loans to large firms slowed to 5.0% in December 2021 from a historic high of 13.9% in December 2020 (2021 average: 6.0%; 2020: 9.9%). Similarly, the annual rate of change in SME financing, after a peak of 7.6% in February 2021, i.e. the highest value ever recorded in the time series, declined to 2.4% in December (December 2020: 6.4%), but on average in 2021 it rose to 5.4% from 1.9% in 2020.

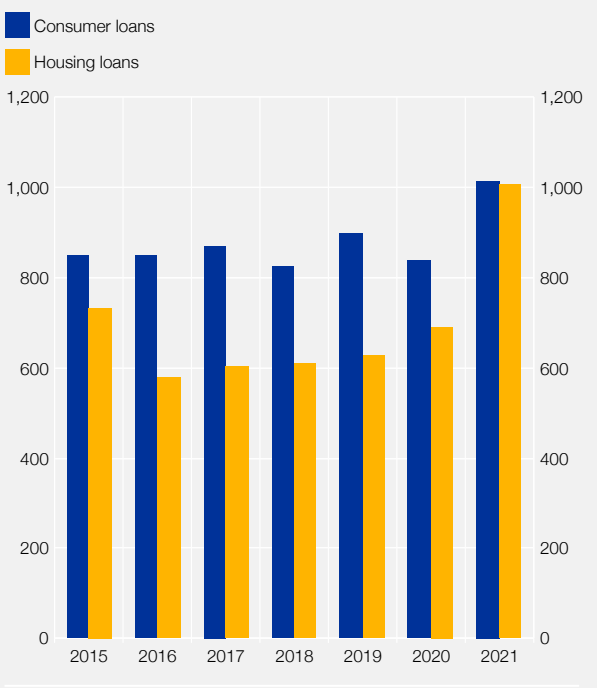
The average monthly gross flow of loans (with agreed maturity) to large firms (€707 million) declined by 16% in 2021 relative to 2020, while the corresponding flow to SMEs (€280 million) contracted even more by 44% (see Chart VI.3). Overall, in 2021 the bulk of bank credit continued to be channelled to large firms rather than to SMEs. Yet new lending to SMEs remained somewhat stronger compared with the 2016-19 period (2021: €280 million; 2019: €273 million; 2016-19 average: €260 million) on the back of the HDB's loan support schemes in 2021. In 2021, loan disbursements to SMEs through HDB schemes (€1.2 billion) accounted for 31.4% of total gross flow of bank loans to SMEs (including sole proprietors) (or 9.8% of total gross flow of loans to NFCs and sole proprietors),[6] against 60.1% in 2020 and 10.9% in 2019.

Chart VI.4 shows that in 2021 net bank credit to the manufacturing, energy and tourism sectors was more ample relative to the other economic sectors. Net flow of credit to manufacturing in

6 Total gross flow of bank loans to SMEs (and to NFCs, respectively) includes HDB's contribution to co-financed loans.

Chart VI.5 Bank loans with agreed maturity to households (2015 - 2021)

(annual cumulative gross flow, EUR millions)



Source: Bank of Greece.

2021 came to €0.68 billion, i.e. 27.4% of total net flow of credit to NFCs (amounting to €2.5 billion). The corresponding net flow of loans to the energy sector amounted to €0.66 billion (26.5% of total flow), while the flow to the tourism sector amounted to €0.63 billion (25.2%).

Total credit growth to NFCs in 2020-21 was mainly channelled to the manufacturing, trade and tourism sectors, which accounted for 22.0%, 21.4% and 18.7%, respectively, of total net flow to NFCs. These three sectors, trade in particular,[7] had the highest shares in financing through HDB schemes over the same period. In December 2021, the aforementioned sectors also had the highest shares in total outstanding bank credit to NFCs: manufacturing: 24.5%; trade: 20.9%; and tourism: 13.2% (followed by energy: 10.2%; and construction: 7.1%).

It should be noted that before the pandemic, in 2018-19, the order of the sectors in terms of their share in credit growth was different. During that period, the increase in net flow of credit to NFCs was mostly driven by energy (43.8%), warehousing and transport (excluding shipping) (40.7%) and tourism (36.1%), while other sectors such as manufacturing and trade had negative flows.

Turning to loans to households, the negative annual rate of change in consumer loans moderated to -0.3% in December 2021 (January 2022: (-0.3%), against -2.2% in December 2020, while the corresponding rate for housing loans worsened to -3.0% in December 2021 (as well as in January 2022) from -2.7% in December 2020. The monthly gross flow of consumer loans with agreed maturity grew on average in 2021 relative to 2020 (to €84 million from €70 million), as also did the corresponding flow of housing loans (2021: €84 million; 2020: €57 million) (see Chart VI.5). In the second half of 2021 in particular, monthly gross flows of both consumer and housing loans rebounded.

7 The biggest share is accounted for by trade, followed by manufacturing and, last, by tourism.

Box VI.1

CONTRIBUTION OF FINANCIAL INSTRUMENTS TO SUPPORTING THE EXTERNAL FINANCING OF DOMESTIC BUSINESSES AND PROFESSIONALS

Financial instruments help channel resources from the European Structural Funds to the real economy, with a view to the implementation of sustainable projects supporting economic, social and regional cohesion. The need to address the economic impact of the pandemic led in 2020 to simplifications in the operational framework governing the deployment of financial tools, as well as to a significant reinforcement of the relevant resources.[1]

1 See European Commission, Coronavirus Response Investment Initiative (CRII), March 2020; and Coronavirus Response Investment Initiative Plus (CRII+), April 2020.

Advantages and types of financial instruments

Compared to grants, financial instruments contribute to stimulating private investment with significantly less government support due to the recyclability and leverage of public funds. They are repayable in nature, thus providing beneficiaries with incentives for greater financial discipline and better performance, while the amounts repaid are re-allocated to national authorities to be reinvested in other projects. Lastly, financial instruments are recognised as a cost-effective policy mechanism, due to low management fees and costs.[2]

Financial instruments include, among other things: (a) debt schemes, such as co-financing or refinancing programmes, where part (or even the whole) of the loan is financed by public funds on favourable pricing terms; and (b) guarantee schemes, under which public funds are committed to guarantee bank loans or credit lines.

Contribution of financial instruments to the liquidity of domestic businesses in 2021

In Greece, the liquidity of domestic companies was supported in 2021, as in the previous year, mainly through debt and guarantee instruments. These instruments were created by utilising public national and European resources and were deployed with the intermediation of the domestic banking system. In more detail, in 2021, non-financial corporations and professionals received new loans amounting to €2.9 billion through programmes managed by the Hellenic Development Bank (HDB), the European Investment Bank (EIB) and the European Investment Fund (EIF) (see Chart A). Compared with 2020, 2021 saw a significant decrease in disbursements of bank loans related to financial instruments, which is attributable to the exhaustion of available resources owing to the high degree of absorption. Moreover, in 2020, the resources offered were much larger, due to emergency support measures in the early stages of the pandemic.

The importance of financial instruments is illustrated by the fact that in 2021 around 1/4 of new euro-denominated bank loans to non-financial corporations and professionals were associated with HDB or EIB Group programmes (compared with around 2/5 in 2020, see Chart B). The share for micro, small and medium-sized enterprises (SMEs) was even higher. Indicatively, over the period under review, all HDB programmes supported 12% of bank loan disbursements to non-financial corporations and professionals (€1.5 billion out of a total of €12.4 billion[3]) and more than double that percentage (28%) of loan disbursements to SMEs and professionals (€1.14 billion out of a total of €3.9 billion).

The greater contribution of financial instruments to the liquidity of SMEs is primarily due to quotas related to the allocation of resources by enterprise size. Moreover, SMEs' demand for cheaper borrowing through financial instruments is expected to be comparatively higher, on the one hand due to their limited access to alternative sources of finance and on the other as a result of higher borrowing costs compared with large firms.[4]

Out of the bank loan disbursements associated with financial instruments, the largest share (81%) referred to guarantee programmes. In terms of volume, the most significant disbursements were related to the HDB's "COVID-19 Enterprise Guarantee Fund" and the European Investment Fund (EIF) "COSME" programme. Under guarantee programmes, the State assumes part of the credit risk which would otherwise be carried by the lender. Thus, the bank is obliged to reduce its collateral requirements. At the same time, capital requirements for credit institutions are limited compared with typical lending without State guarantees.

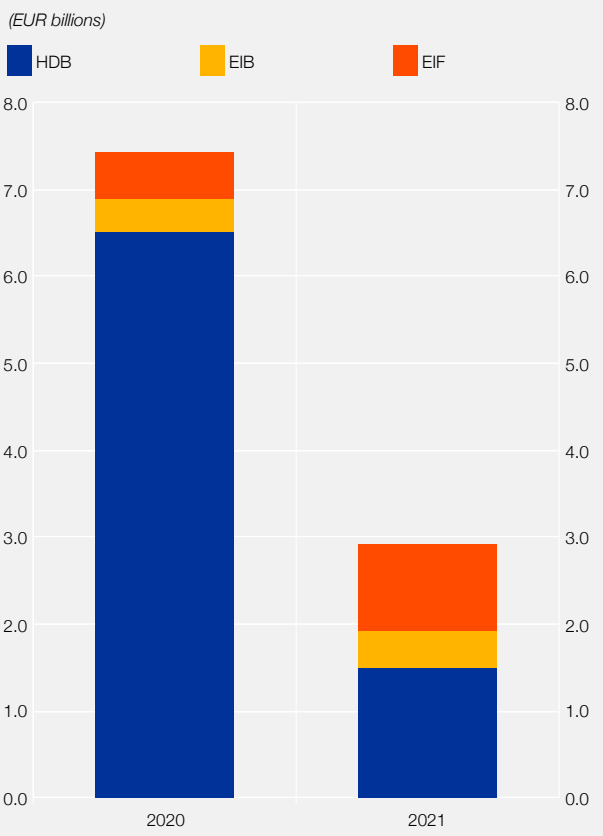
As regards the co-financing and refinancing measures, most importantly the HDB's "Entrepreneurship Fund II" and the EIB's "Global Loans" programmes, respectively, a part or the total amount of the loan is financed by public funds on favourable terms, which translate into lower borrowing rates for businesses and, at times, an ex-

2 For further details on management fees and costs, see European Commission, *Annual Summary Report on the implementation of financial instruments*, December 2021, p. 7.

3 The amount includes financing covered by public funds, for which the credit risk is carried by the State ("fiduciary loans").

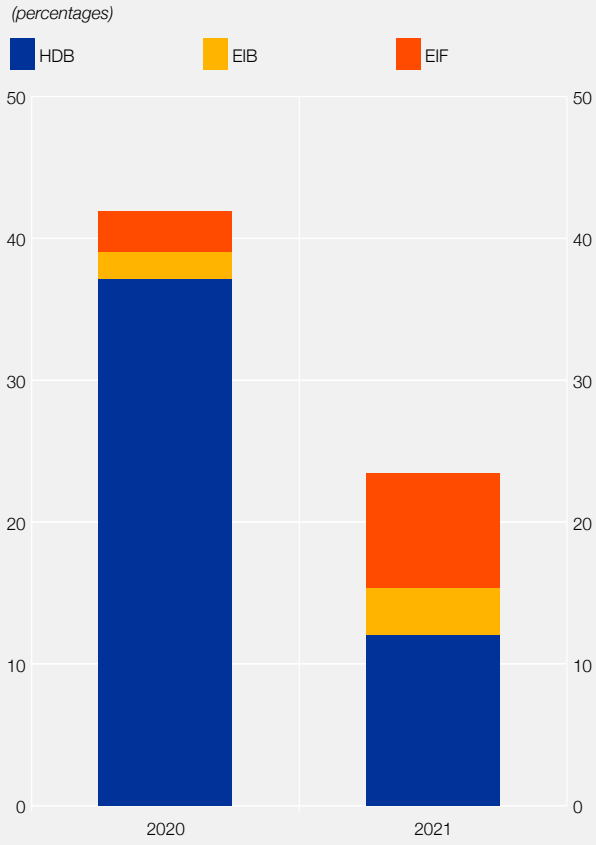
4 Indicatively, the difference in the weighted average cost between bank loans of over €1 million and those below €250,000 (which are presumed to be typically granted to larger and smaller enterprises, respectively) has been around 200 basis points in recent years.

Chart A Disbursements of bank loans to non-financial corporations and professionals associated with financial instruments



Sources: Hellenic Development Bank, Hellenic Bank Association and Bank of Greece calculations.
Note: HDB: Hellenic Development Bank; EIB: European Investment Bank; and EIF: European Investment Fund.

Chart B Share of financial instruments in new bank loans to non-financial corporations



Sources: Hellenic Development Bank, Hellenic Bank Association and Bank of Greece calculations.
Note: HDB: Hellenic Development Bank; EIB: European Investment Bank; and EIF: European Investment Fund.

emption from the levy under Law 128/1975.[5] It is worth noting that the amount of the loan granted through public funds is recorded neither under the BSI statistics nor under the MIR statistics; as a result, the reported bank credit flows may underestimate the total business loans granted and the reported bank lending rates may overestimate the borrowing costs of enterprises.

Repayable advances programme

In addition to financial instruments, the liquidity of domestic businesses and professionals has been greatly assisted by the repayable advances scheme. This was activated in 2020 as part of the emergency measures in response to the pandemic[6] and refers to the supply of particularly lowinterest loans directly from the State to businesses and professionals. In total, €2.8 billion were granted to beneficiaries in 2021 (compared with €5.5 billion in 2020). During the seven rounds of the programme, numerous favourable modifications were made, the most important being an increase to up to 75% in the grant rates for all rounds, depending on the decline in gross revenue of the applying enterprise. Moreover, an additional 15% discount on the repayable part is provided for in the event of one-off repayment of the loan. The repayment scheme of the repayable amount was successively expanded to 96 interest-free instalments and the start of loan repayments was deferred by six months.[7]

5 The nominal interest rates on bank business loans are subject to a levy of 0.6% per annum (Law 128/1975).
6 See Article 3 of the Legislative Act dated 30.3.2020 “Measures to tackle the coronavirus COVID-19 pandemic and other emergency provisions”.
7 The one-off payment date with a 15% discount was deferred to 31.3.2022 and the starting date of instalment payments was pushed forward from 31.12.2021 to 31.6.2022.

Box VI.2

SUPPORT TO CORPORATE FINANCING THROUGH RRF LENDING ON THE BASIS OF THE NATIONAL RECOVERY AND RESILIENCE PLAN

The NGEU and, in particular, the European Recovery and Resilience Facility (RRF) provide *inter alia* for loan support to Greece, which amounts to €12.7 billion for the period 2021-26. These funds should help deploy the development objectives outlined in the National Recovery and Resilience Plan "Greece 2.0".[1] Investments are private and aim at restructuring the Greek economy in five directions: (a) digital transformation; (b) green transition; (c) extroversion; (d) achieving economies of scale through collaborations, acquisitions and mergers; and (e) innovation-research and development.

The RRF loan support will be the basis for the provision of credit to enterprises by the Greek banking system and European financial institutions, i.e. the European Investment Bank and the European Bank for Reconstruction and Development, as well as for the participation of the Hellenic Development Bank of Investments[2] in equity financing.

Greece is also to utilise €500 million (out a €12.7 billion total of RRF loans), under the InvestEU programme, as guarantees (at the EU's higher credit rating), which should contribute to the implementation of private investment plans and, *inter alia*, SME equity financing.

I. Part of the RRF loan support will be allocated by the Greek government (a) to the domestic commercial banks, which should in turn channel it towards businesses in the form of loans. Another part will be directed by the Greek government (b) to European financial institutions, as set out below, which will also channel it to Greek non-financial corporations (NFCs) in the form of loans.

II. In addition to the credit funds to enterprises under point I above –which should not exceed half of an investment's value– co-financing is also required, in the form of loans (of at least 30% of total investment value) from: (a) domestic credit institutions or (b) European financial institutions, as well as (c) own contribution (at least 20%) of the investing enterprises. The interest rate on loans to enterprises that co-finance the investment plans (in addition to RRF credit under point I above) will be set by Greek credit institutions/European financial institutions on the basis of market rates and individual institutions' standard practices. On the other hand, the RRF loan support to be channelled by Greek banks under point I above represents low-cost credit for investing NFCs. Specifically, the interest rate on RRF loans to NFCs (via domestic banks) is set by ministerial decision at a minimum of 0.35%.

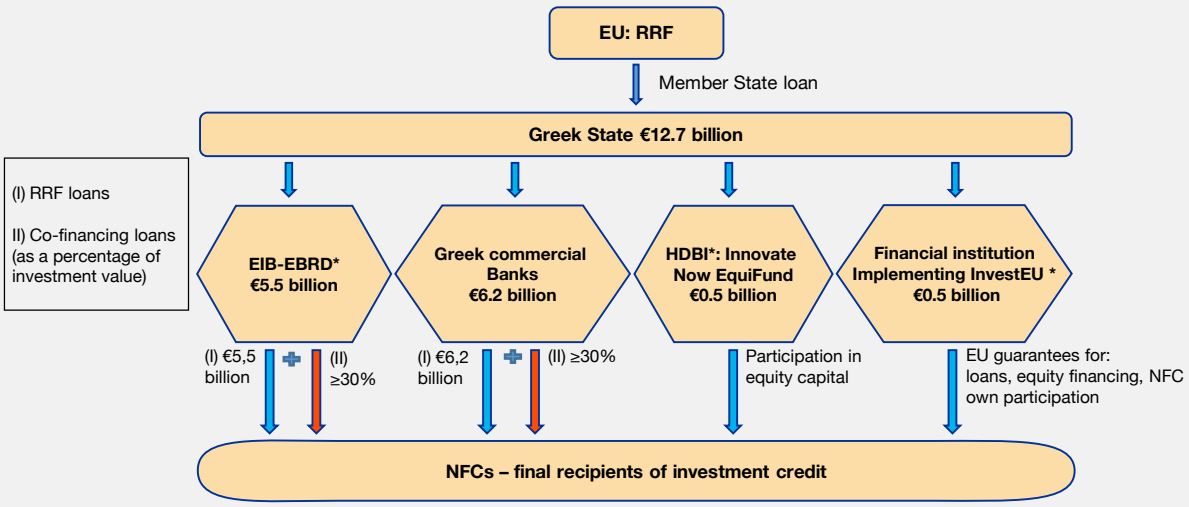
In more detail:

Ia. Out of the RRF loan support, €6.2 billion should be directed to Greek banks to be channelled to the real economy (see figure). RRF resources are managed by domestic banks –i.e. in terms of selection of the borrowing NFCs, monitoring of loan servicing, etc.– which shall not carry any responsibility if a company fails to pay. The credit risk of loans to NFCs, the cost of relevant losses and the resolution of loans shall be borne by the Greek State as the original borrower of the Community funds.

IIa. Domestic banks shall co-finance investment projects with additional own resources, in which case they will bear the credit risk. For example, if a bank's contribution to financing an investment project exceeds the required minimum of 30% of the investment value and reaches on average 40% of that value (share of RRF resources:

1 The European Commission borrows on the markets at low cost (due to the EU's highest AAA rating), which it then passes on with low-interest loans to Member States. Greece's loans from the EU will have a maturity of 30 years and a grace period of 10 years.
2 A subsidiary of the Hellenic Development Bank.

RRF loan resources allocation



Sources: "Greece 2.0, National Recovery and Resilience Plan: detailed description of actions" (2.4.2021) and "Invitation to credit institutions for cooperation with a view to jointly providing loans to finance eligible investments" (30.9.2021).
* EIB = European Investment Bank; EBRD = European Bank for Reconstruction and Development; HDBI = Hellenic Development Bank for Investment; Financial institution implementing InvestEU = EIB Group and/or other institutions, possibly via commercial banks.

40%, own participation: 20%),[3] new credit generated by Greek banks up to 2026 could be close to €6.2 billion.[4] This means that, over the 2022-26 period, the average annual growth rate of credit from the domestic banking system to NFCs should increase by up to 2.0 percentage points.

Bank credit under Ia and IIa is expected to be granted to enterprises of all sizes,[5] some of which lack easy access to bank credit. Sharing credit risk between banks and the Greek State, as mentioned above, should help reduce the cost of debt from the perspective of NFCs.

Ib & IIb. The European Investment Bank shall re-distribute to Greek NFCs (in line with Ib above) an amount of €5 billion from loan support provided by the RRF and shall also add own loans (in line with IIb above) to co-finance high and medium-value investment (see figure). The European Bank for Reconstruction and Development is to draw from the RRF up to €500 million, channel it to Greek NFCs in line with Ib above and co-finance (in line with IIb above) –along with an almost equal amount of own credit combined with private funds– investment of over €1 billion.

III. The Hellenic Development Bank of Investmetns (see the figure) shall manage a newly-created venture capital fund, the "Innovate Now EquiFund", which shall receive €500 million of the loan support to be provided by the RRF. The EquiFund aims to finance SMEs investment (to 70% of their value) through participation in investment fund management companies (Mezzanine Fund of Funds). The investing SME is required to participate by 30%.

Total lending to the NFCs from RRF resources (i.e. €11.7 billion[6] earmarked for lending through Greek credit institutions and European financial institutions) plus additional cofunding by Greek banks and the two European financial institutions should reach around €23 billion in 2022-26.

3 It should be noted that the final total contribution of RRF loans (and of credit institution loans, respectively) to co-financing will depend on the percentage of individual participations in investment projects to be deployed, according to the type of investment under each of the five directions defined in the national plan (and may amount to e.g. 30%, 40%, 50% of the investment value).
4 That is, same as the RRF loan support resources directed to the banks, as mentioned previously.
5 For instance, the National Recovery and Resilience Plan prioritises, among other things, investment and reforms to promote adoption of digital technologies by SMEs (e.g. deployment of cybersecurity technologies, participation in e-commerce platforms, etc.)
6 These funds will also cover fees associated with the relevant management costs of credit institutions.

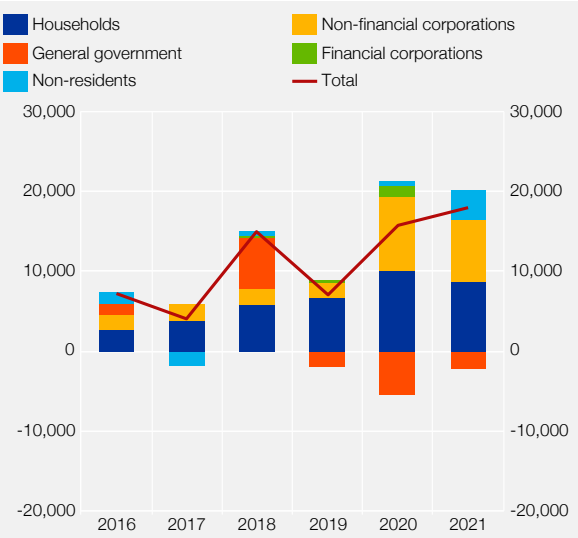
Lastly, it should be noted that the loan funds to the NFCs that can be mobilised by the Greek commercial banks on the back of the RRF loan support should be even higher than the amounts described under IIa above, provided that the banks finance investment projects that can be implemented irrespective of the RRF loan support. Those could be investment projects falling under (1) RRF grants (in particular, financing through public-private partnership grants); (2) the NSRF and Invest EU; and (3) state aid under the Development Law.

3 BANK DEPOSITS

After the substantial accumulation of deposits observed in 2020, mainly as a result of the pandemic-related fiscal and monetary policy measures to support businesses and households, private sector deposits continued to increase in 2021 at a slowing rate relative to 2020, but considerably higher than previously. To be more precise, the cumulative increase in domestic private sector deposits in 2021 was €16.2 billion (or 10%), reaching around 3/4 of the 2020 flow (€20.6 billion), while it was more than double the average annual flow of the 2016-19 period (see Chart VI.6).

Chart VI.6 Annual flows of deposits with domestic banks (2016 - 2021)

(annual cumulative net flow in EUR millions)



Source: Bank of Greece.

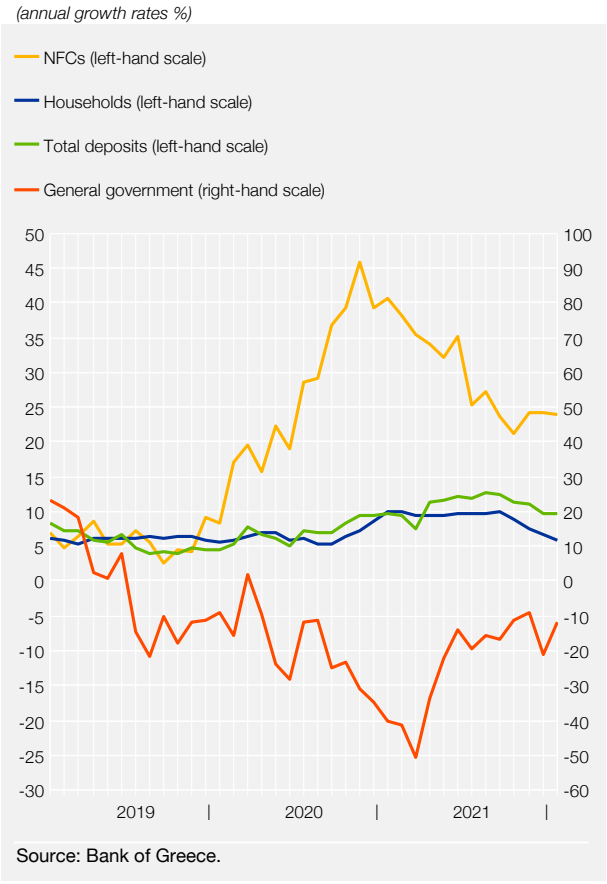
Household deposits grew by €8.5 billion (or 7%) in 2021. The annual growth rate of household deposits remained elevated throughout the year –reaching on average its highest level since 2010– although it showed signs of moderation towards the last months of the year (December 2021: 6.7%; December 2020: 8.6%, see Chart VI.7). In January 2022, household deposits continued to increase at a slower pace, year on year.

The path of household deposits in 2021 is associated with a rise in real disposable income, which was also boosted by fiscal support measures.[8] Furthermore, mobility restrictions, which broadly lasted until May 2021, inevitably curtailed consumer spending opportunities, while the uncertainty regarding employment prospects also contributed to an increase in precautionary savings by households, thus driving deposits upwards. On the other hand, since the second quarter of 2021 the dynamic economic recovery, which was later mirrored in the markedly higher number of paid employees (mainly in retail trade and tourism), had already started supporting household deposits. Current consumer spending and the release of pent-up demand, coupled with the gradual withdrawal of support measures, led to a contraction in the annual growth rate of household deposits towards the last months of the year. The shrinking outstanding amounts of housing and consumer loans continued to have a negative effect on household deposits in 2021.

Deposits by firms increased by €7.8 billion (or 24%) in 2021, against an increase of €9.1 billion in 2020. As mentioned above, since 2020 many firms had already built liquidity buffers through

8 In 2021, fiscal spending amounting to about €2.0 billion concerned pandemic-related subsidies to employees and self-employed persons within the household sector (against €2.7 billion in 2020). In addition, a sizeable part of the government support in the form of repayable advances was directed to unincorporated partnerships and sole proprietors and was therefore credited to deposits which are classified into the household sector.

Chart VI.7 Deposits with commercial banks (January 2019 - January 2022)



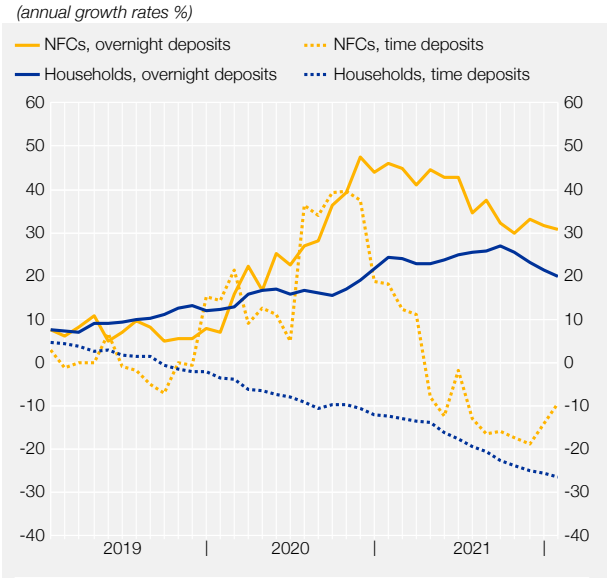
Source: Bank of Greece.

increased borrowing from banks or direct state aid, while their liquidity was enhanced on the back of moratoria on loan and tax obligations and spending deferrals. But from the second quarter of 2021 onwards, as the economy re-opened, the strong recovery of retail and tourist receipts helped improve firms' cash flows, while some large NFCs even managed to raise funds from alternative sources of financing (through the issuance of corporate bonds or shares) during the year. On balance, the growth rate of firms' deposits, after a sharp rise observed until late 2020, gradually moderated in 2021, but remained elevated (December 2021: 24%; December 2020: 39.3%, see Chart VI.7), reaching, on average, a post-2004 high. In January 2022, deposits by NFCs declined markedly, as typically observed at the beginning of each year.

The share of NFCs' deposits in total domestic private sector deposits continued to grow in 2021, averaging 20%, against 18% in 2020 and 15% in 2019, whereas that of household deposits shrank further to 77% from 79% in 2020 and 82% in 2019. The corresponding share for insurance undertakings and other (non-banking) financial institutions remained unchanged at around 3%. The gradual upward trend of firms' deposits is visible from 2016 onwards and appears to have picked up during the pandemic period of 2020-21.

The rise in corporate and household deposits continued to be driven exclusively by the most liquid types of deposits, i.e. overnight deposits by firms and households (savings and demand deposits and current accounts), as observed for several years now (see Chart VI.8). Beyond the impact of liquidity support measures on depositors' bank accounts, their preference for the most liquid types of deposits continued throughout 2021, also amid increasing demand for deposits as a transaction instrument, which became even stronger during the pandemic.[9]

Chart VI.8 Deposits by non-financial corporations and households on the basis of their liquidity (January 2019 - January 2022)



Source: Bank of Greece.
Note: Time deposits by NFCs comprise repurchase agreements (repos), while households' time deposits refer to deposits redeemable at notice of up to 3 months.

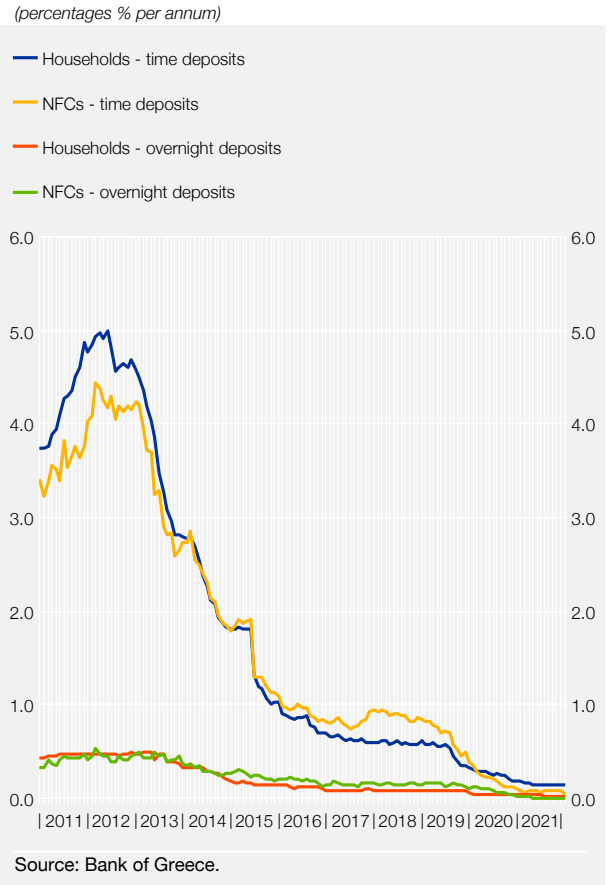
9 See Bank of Greece, *Monetary Policy Interim Report 2021*, Box VI.1 "The pandemic crisis and changes in purchasing and payment habits", December 2021.

Meanwhile, central government deposits with commercial banks declined by €1.2 billion (or 19% relative to end-2020), after the sharp fall that had been observed one year earlier mainly amid considerable fiscal stimulus to support businesses and households. However, central government deposits with the Bank of Greece increased overall in 2021 by €3.5 billion, a development which is primarily associated with new bond issuance, the disbursement of the EU's RRF and SURE funds and the Greek government's increased reserve assets in Special Drawing Rights (SDRs) following the IMF decision of August 2021 to enhance global liquidity. Deposits with commercial banks by social security funds and regional and local authorities, which together with central government make up the general government sector, decreased in 2021 by €1 billion, or 26%.

4 BANK INTEREST RATES

Deposit rates offered to non-financial corporations and households in 2021 stood at very low levels (see Chart VI.9). The very low levels of deposit rates are attributable to the exceptionally accommodative monetary policy stance of the Eurosystem and the strong inflows of retail deposits into banks, which ensured funding for credit institutions at favourable terms. The positive interest rate spread between time deposits and overnight deposits narrowed further in 2021 to just 11 basis points. Currently, holdings of current accounts and savings and demand deposits are in practice equally profitable as time deposits.

Chart VI.9 Bank interest rates on new time and overnight deposits by households and non-financial corporations (January 2011 - January 2022)



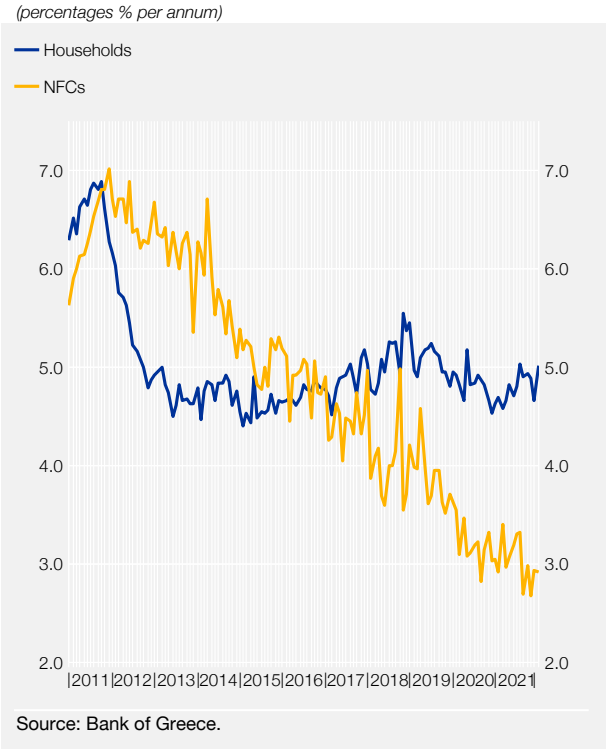
Source: Bank of Greece.

In greater detail, the weighted average interest rate on households' time deposits was 0.15% in 2021 on average (2020 average: 0.26%; 2011-19 average: 2.11%; and January 2022: 0.14%) and the corresponding rate on corporate time deposits was 0.08% (2020 average: 0.22%; 2011-19 average: 2.03%; and January 2022: 0.05%). The interest rates on overnight deposits almost came to zero (0.04% and 0.01% for household and NFCs, respectively; 2011-19 average: households: 0.25%; NFCs: 0.28%).

The cost of borrowing for NFCs hovered in 2021 close to 3%, i.e. the lowest levels observed since 2003, when harmonised time series of lending rates in euro area countries started to be recorded (see Chart VI.10). As a result of the prevailing downward trend, the weighted average lending rate stood in 2021 on average at a slightly lower level compared with one year earlier. The schemes of the EIB Group and the HDB continued to have a favourable effect on the availability and the terms and conditions of bank lending to firms. Corporate loan disbursements supported by the financial instruments of the above mentioned development organisations amounted in 2021 to €2.7 billion (2020: €7.4 billion),[10] accounting for over one quarter of the

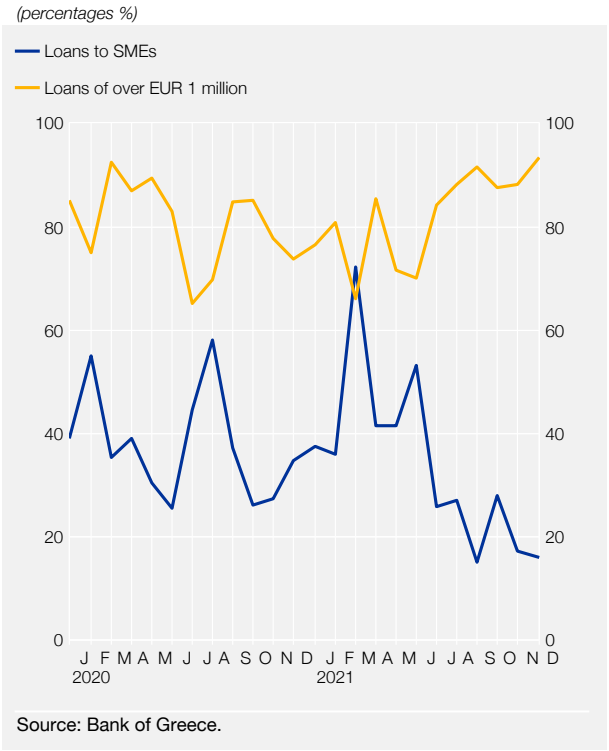
10 This amount includes the fiduciary loans granted to firms by the HDB and the EIB Group in the context of co-financed loans, the credit risk of which is assumed by the development organisations.

Chart VI.10 Bank interest rates on new loans to households and non-financial corporations (January 2011 - January 2022)



Source: Bank of Greece.

Chart VI.11 Shares of loans to SMEs and loans of over EUR 1 million in total loans with agreed maturity to NFCs (January 2020 - December 2021)



Source: Bank of Greece.

flow of new loans with agreed maturity to all NFCs and sole proprietors in the said period (2020: 43%, see Box VI.1).

More specifically, the weighted average interest rate on loans with agreed maturity stood at 2.9% in 2021 on average, i.e. down by 14 basis points relative to the 2020 average (2011-19 average: 5.0%; January 2022: 2.8%). The weighted average interest rate on loans without a fixed maturity, which comprise credit lines and overdrafts on demand deposits (94% and 6%, respectively, of outstanding loans without a fixed maturity in 2021), stood at 4.2% in 2021 on average, i.e. down by 30 basis points relative to the 2020 average (2011-19 average: 6.3%; January 2022: 3.9%).

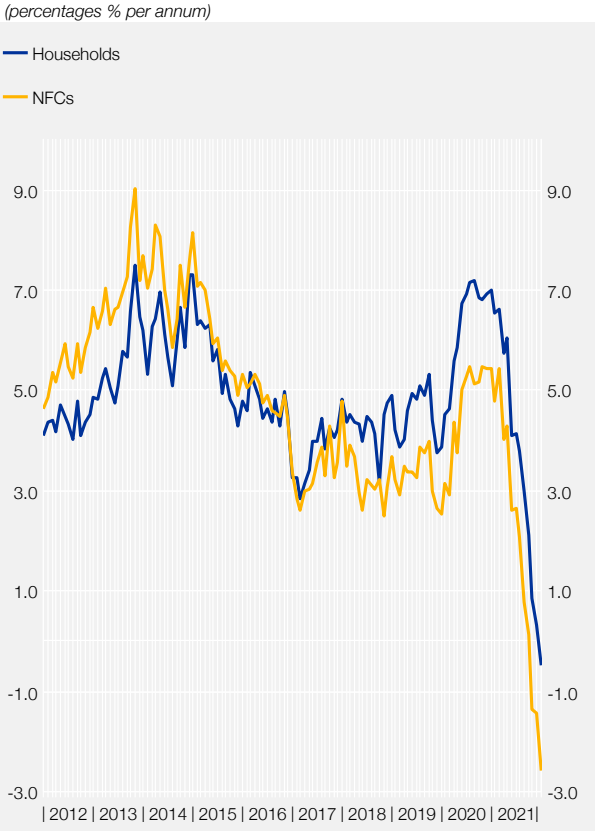
Across individual categories, the cost of borrowing for comparatively smaller firms that are classified as SMEs declined somewhat more. The interest rate on these corporate loans dropped by 28 basis points in 2021, year on year, and averaged 3.4%. This observation is consistent with the findings of the recent Survey on the Access of Enterprises to Finance (SAFE),[11] in which the majority of enterprises reported an improvement in bank lending rates (see Box VI.3). Indeed, in the latest survey round (covering the April-September 2021 period) the weighted average interest rate on credit lines or overdrafts, as reported by the enterprises of the sample, was 4.2%, against 5.5% over the preceding six months (October 2020-March 2021). Slight declines were also recorded in the interest rates on loans of: (a) up to €250,000 (by 18 basis points to 4.6%); (b) between €250,000 and €1 million (by 22 basis points to 3.3%); and (c) over €1 million (by 12 basis points to 2.7%). The spread between lending rates on large loans (over €1 million) and small loans (below €250,000) remained unchanged, year on year, at around 200 basis points.

11 For the April-September 2021 period.

At the same time, compared with 2020, in 2021 the share of loans to SMEs shrank, while that of loans of over €1 million rose. This is mainly due to the last months of the year, during which new bank lending mostly concerned large firms and large amounts (see Chart VI.11). By way of illustration, in 2021 as a whole new loans to SMEs accounted for 28% of the annual gross flow of corporate loans with agreed maturity (against 37% in 2020), while in the last four months of the year they accounted for a mere 17%. On the other hand, new loans of over €1 million accounted for 85% of the flow of new loans with agreed maturity to non-financial corporations in 2021 as a whole (against 78% in 2020) and for 91% during the last four months of the year.

Chart VI.12 Real bank lending rates on new loans to households and non-financial corporations (January 2012 - January 2022)

(percentages % per annum)



Source: Bank of Greece.

The weighted average lending rate for households stood in 2021 at the same level as in 2020 (see Chart VI.10) and averaged 4.8% (2011-19: 5.1%; January 2022: 5.0%). Across its components, only the interest rate on consumer loans with agreed maturity rose on average in 2021 to 10.0%, i.e. up by 27 basis points compared with its 2020 average (2011-19: 8.6%; January 2022: 10.9%). This rise coincided with a decline in the share of non-performing consumer loans in total loans and is attributed, among other things, to a smaller share of secured consumer loans, which as a rule are granted on more favourable pricing conditions.

With regard to housing loans, the weighted average interest rate fell marginally in 2021 by 8 basis points to 2.8%, compared with its 2020 average (2011-19: 3.1%; January 2022: 2.9%). Turning to the relative importance of these two categories, 50% of new loans with agreed maturity to households concerned consumer loans, compared with 55% in 2020. The weighted average interest rate on loans without an agreed maturity, comprising, in order of size of outstanding balances, credit cards, open-end loans and overdrafts on demand accounts, remained unchanged at the same high level (14.5%; 2011-19: 14.5%; January 2022: 14.7%).

As a result of price developments, since early 2021 lending rates in real terms[12] have declined sharply. As a matter of fact, the real lending rate for NFCs turned negative in the last four months of the year (see Chart VI.12). The lower real lending rate has to some extent a beneficial effect, because it brings down debt servicing costs. In greater detail, the real average lending rate for NFCs stood at 2.5% in 2021, against 4.5% in 2020 (2011-19: 4.9%). The respective rate for households stood at 4.2%, against 6.1% in 2020 (2011-19: 4.7%).

Generally, the very accommodative stance of the Eurosystem's single monetary policy and the increase in retail deposits, which was partly fuelled by government support measures, ensured favourable liquidity conditions for Greek banks. Against this backdrop, nominal lending rates in

12 The real interest rate in a given month is calculated as the differential between the nominal interest rate and the year-on-year inflation rate for that month.

2021 remained unchanged compared with one year earlier in most categories. For non-financial corporations in particular, the nominal lending rate stood at a very low level, while the real lending rate turned negative towards the end of the year. Meanwhile, the financial instruments of the HDB and the EIB Group contributed to a reduction in banks' credit risk and to improved borrowing terms for end borrowers in the form of a more favourable interest rate or reduced collateral requirements. Looking ahead, upward pressures on the cost of borrowing for firms and households are to be expected from further shifts in the accommodative stance of the single monetary policy. To a certain extent, these pressures are estimated to be counterbalanced by the beneficial effects of the economic rebound, the implementation of new financing schemes using the RRF funds and a further improvement in the quality of banks' assets.

Box VI.3

FINANCING CONDITIONS FOR SMES IN GREECE: INSIGHTS FROM THE SURVEY ON THE ACCESS TO FINANCE OF ENTERPRISES (SAFE)

The results from the two most recent rounds of the Survey on the Access to Finance of Enterprises (SAFE) show that, during the periods of October 2020-March 2021 (period "2020B") and April-September 2021 (period "2021A"), SMEs in Greece reported improved availability of bank loans, supported by the increasing willingness of banks to provide credit and, in particular during the period 2021A, by improvements in firms' solvency, as well as in the general economic outlook. Furthermore, for the third consecutive survey round, SMEs continued to see the public financial support measures as a factor improving the availability of external financing.

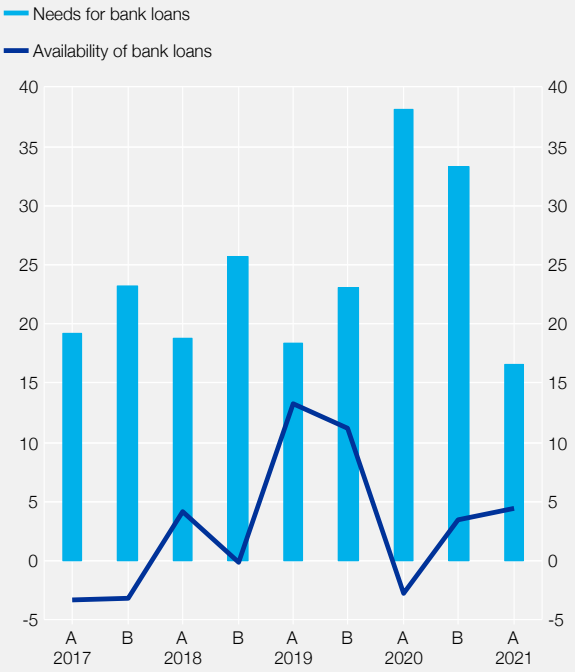
Results from the Survey on the Access to Finance of Enterprises (SAFE)

SMEs reported positive net percentages[1] regarding the availability of bank loans (2021A: 4% and 2020B: 3%, against 2020A: -3%) (see Chart A). With regard to their access to other sources of external financing, after a worsening over the period 2020B, in the latest survey round, SMEs signalled increases in the availability of leasing or hire-purchase[2] (2021A: 8%, against 2020B: -6% and 2020A: -16%) and trade credit (2021A: 8%, against 2020B: 6% and 2020A: -7%).

Regarding the factors with an impact on the availability of external financing, SMEs indicated banks' increasing willingness to provide credit (2021A: 14% and 2020B: 3%, against 2020A: 0%) (see Chart B). In the most re-

Chart A Changes in bank loan availability for SMEs in Greece

(over the respective six-month period,[1] net percentages of enterprises[2])



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
1 The survey is conducted twice a year. The first round refers to the period from April to September (period A) and the second round covers the period from October to March (period B).
2 Net percentages are defined as the difference between the percentage of enterprises reporting that a given factor (e.g. availability of bank loans) has increased and the percentage of those reporting that it has declined.

1 The results refer to net percentages of respondents, which are defined as the difference between the percentage of enterprises reporting that a given factor (e.g. availability of bank loans) has increased and the percentage of those reporting that it has declined.
2 In the survey, leasing or hire-purchase is treated as a financing source which enables firms to obtain the use of a fixed asset (for example, cars or machinery) in exchange for regular payments, but without the immediate ownership of the asset.

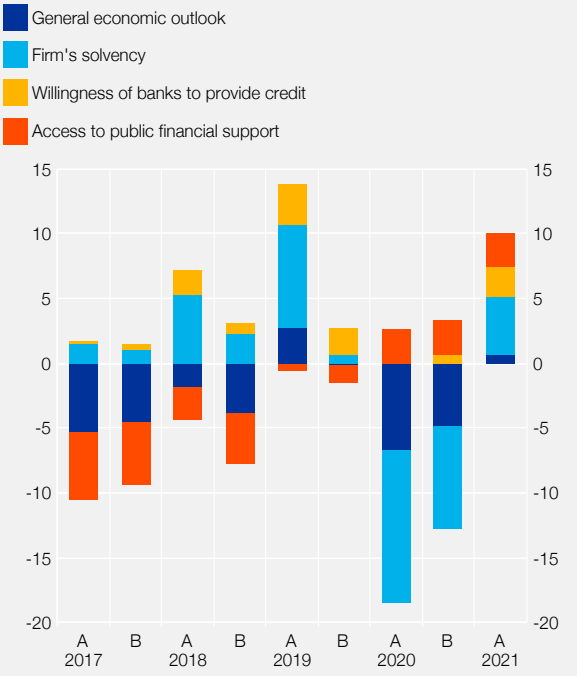
termining the solvency[3] of enterprises was positive, as opposed to the previous two reporting periods. Furthermore, in contrast with the findings of the previous three consecutive rounds of the survey, SMEs reported a positive impact from the general economic outlook[4] (2021A: 3%). Contrary to past findings, for the third consecutive round, SMEs mentioned that the public financial support measures[5] supported the availability of external financing (2021A: 15%, 2020B: 17% and 2020A: 15%), suggesting that the emergency fiscal stimulus measures have an ample scope and a wide outreach.

Compared with the findings of the first survey round after the outbreak of the COVID-19 pandemic, SMEs reported a relative decline in their needs (i.e. demand) for bank loans (2021A: 17% and 2020B: 33%, against 2020A: 38%) (see Chart A), as well as for credit lines or overdrafts (2021A: 22% and 2020B: 21%, against 2020A: 34%). At the same time, SMEs reported increasing needs for trade credit (2021A: 23% and 2020B: 17%) and leasing or hire-purchase (2021A: 16% and 2020B: 10%).

Improvements in the availability of bank loans, coupled with decreases in the external financing needs of SMEs, contributed to a decline in the composite external financing gap indicator (2021A: 8% and 2020B: 14%, against 2020A: 17%) (see Chart C), while the overall financing obstacles indicator also declined (2021A: 21% and 2020B: 22%, against 2020A: 27%) (see Chart D).

Chart B Changes in factors with an impact on the availability of external financing for SMEs in Greece

(over the respective six-month period,[1] weighted net percentages of enterprises[2])



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
1 The survey is conducted twice a year. The first round refers to the period from April to September (period A) and the second round covers the period from October to March (period B).
2 Changes in the impact of each factor are described in terms of weighted net percentages of enterprises for reasons of comparability between the development of the overall impact of the factors and the change in the availability of external financing sources (e.g. availability of bank loans). The weighted net percentage of enterprises is calculated by dividing the net percentage of respondents by the number of the factors (six). "Firm's solvency" is a sum of the weighted net percentages of three factors: (a) firm's credit history; (b) firm's own capital; and (c) firm-specific outlook.

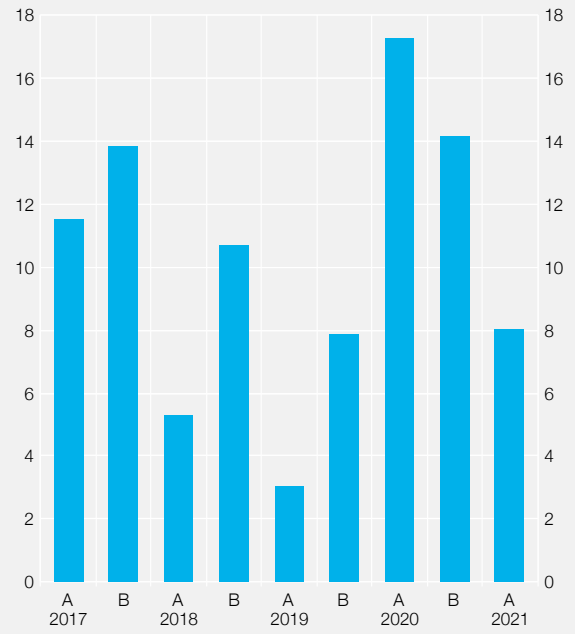
During the reviewed period, a relative decline was observed in the percentage of SMEs applying for bank loans (2021A: 25% and 2020B: 31%, against 2020A: 49%), while the percentage of SMEs that were discouraged from applying for fear of being rejected by the bank remained low (2021A: 13% and 2020B: 13%, against 2020A: 12%) and the percentage of SMEs that did not apply because of sufficient internal funds rose (2021A: 34% and 2020B: 22%, against 2020A: 15%). With regard to the outcome of loan applications, the percentage of applications that received the whole amount requested or part of it increased considerably (2021A: 49% and 2020B: 48%, against 2020A: 36%), whereas in the latest survey round the rejection rate returned to high levels (2021A: 21% and 2020B: 12%, against 2020A: 20%).

In the most recent round of the survey, most SMEs in Greece perceived as their main concerns the lack of skilled labour (2021A: 18%), along with access to external finance (2021A: 16%).

3 The percentage for “firm’s solvency” is a sum of the net percentages of three factors: (a) firm’s credit history; (b) firm’s own capital; and (c) firm-specific outlook.
4 The enterprises reporting that macroeconomic developments favourably affected the availability of external finance during the current six-month period were more than those reporting a negative impact from macroeconomic conditions.
5 SMEs’ access to the public financial support measures includes, among other things, public co-financing or guarantee schemes for bank loans.

Chart C Changes in the composite external financing gap indicator for SMEs in Greece

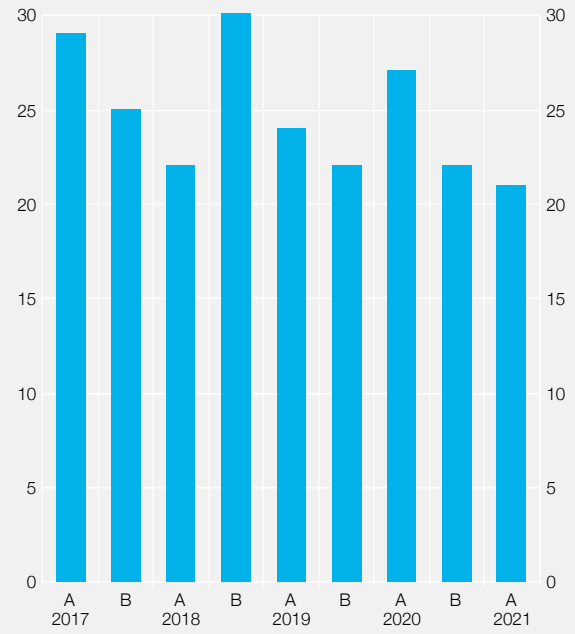
(over the respective six-month period,[1] weighted net percentages of enterprises[2])



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
1 The survey is conducted twice a year. The first round refers to the period from April to September (period A) and the second round covers the period from October to March (period B).
2 The composite external financing gap indicator is the weighted average of the financing gaps (needs minus availability) related to each of the five instruments: (a) bank loans with agreed maturity; (b) credit lines or bank overdrafts; (c) trade credit; (d) equity; and (e) debt securities.

Chart D Changes in the overall financing obstacles indicator for SMEs in Greece

(over the respective six-month period,[1] sum of net percentages of enterprises[2])



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
1 The survey is conducted twice a year. The first round refers to the period from April to September (period A) and the second round covers the period from October to March (period B).
2 The overall financing obstacles indicator is the sum of the percentages of enterprises reporting rejections of loan applications, loan applications for which only a limited amount was granted, and loan applications which resulted in an offer that was declined by the enterprise because the borrowing costs were too high, as well as the percentage of enterprises that did not apply for a loan for fear of rejection.

When asked about terms and conditions for bank financing, SMEs continued to report a decrease in bank interest rates[6] (2021A: -8% and 2020B: -11%), while the percentage of SMEs reporting an increase in other financing costs, such as charges, fees and commissions, remained high (2021A: 39% and 2020B: 22%).

6 Respondents were asked whether the level of interest rates on bank loans, overdrafts and credit lines increased.

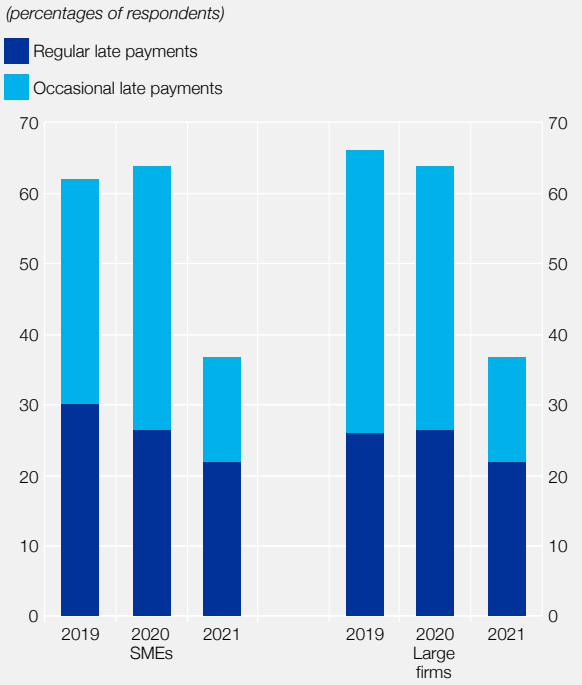
Box VI.4

LATE PAYMENTS TO NON-FINANCIAL CORPORATIONS IN GREECE: INSIGHTS FROM THE SURVEY ON THE ACCESS TO FINANCE OF ENTERPRISES (SAFE)

For the third year in a row, in the context of the Survey on the Access to Finance of Enterprises (SAFE), firms in Greece were asked special questions about the extent to which they perceived late payments[1] as a problem, and what impact these had had on their business activity. Special questions are included in the survey ques-

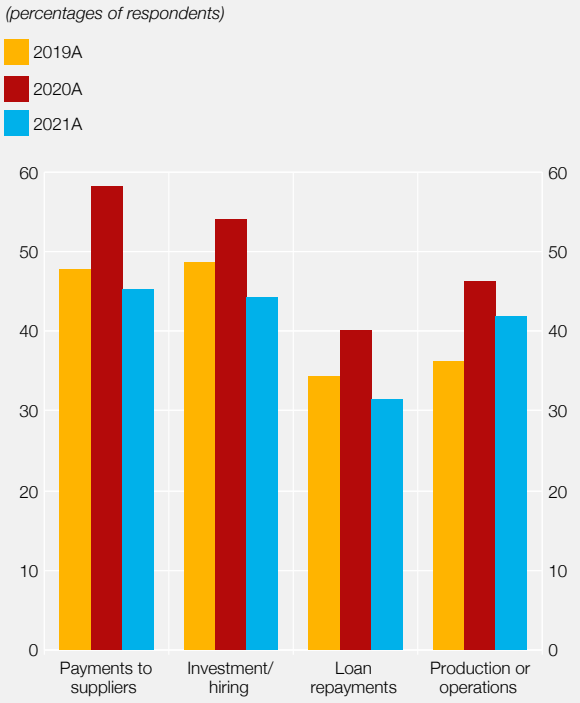
1 A late payment is defined as a payment not made within the contractual or statutory period of payment, unless the debtor is not responsible for the delay, and when the creditor has fulfilled all its legal and contractual obligations.

Chart A Late payments to non-financial corporations in Greece



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
Note: 2019A, 2020A and 2021A: period of April-September for the years 2019, 2020 and 2021, respectively.

Chart B Impact of late payments on SMEs in Greece



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
Note: 2019A, 2020A και 2021A: period of April-September for the years 2019, 2020 and 2021, respectively.

tionnaire once a year and only refer to the period of April-September[2] (period "A"). The analysis of developments in late payments is of particular relevance, as these may affect crucial business decisions such as investing or new hiring and payments to suppliers. The payments that are expected by a firm but are late may increase its external financing needs and affect its loan repayment ability, as well as its production or other business operations.

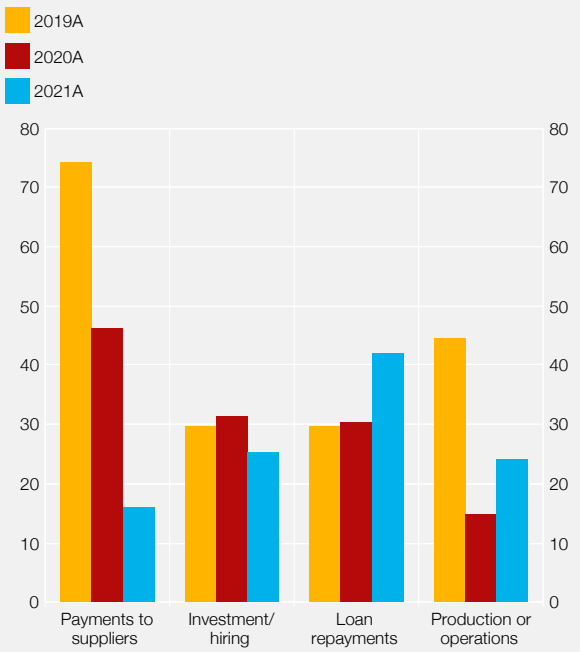
In the latest survey round, firms reported a decline in the incidence of late payments, especially occasional ones, which reflects the effectiveness of the emergency fiscal support measures that contributed to enhancing liquidity and supporting economic recovery in Greece. More specifically, after a temporary worsening that was observed at the onset of the pandemic, in the latest survey round, SMEs indicated a considerable decrease in the problems resulting from occasional late payments (2021A: 15%, against 2020A: 37% and 2019A: 32%) (see Chart A). At the same time, they also reported a decline in regular late payments (2021A: 22%, against 2020A: 26% and 2019A: 30%). Over that same period (see Chart A), large[3] firms in Greece reported a considerably lower incidence of occasional late payments (2021A: 15%, against 2020A: 37% and 2019A: 40%), while the incidence of regular late payments also declined, albeit to a lesser extent (2021A: 22%, against 2020A: 26% and 2019A: 26%).

Furthermore, the findings of the survey suggest that the emergency fiscal policy response to the economic fallout from the pandemic was supportive of SMEs' liquidity condition. In particular, fewer SMEs mentioned that late payments adversely affected their payments to suppliers (2021A: 45%, against 2020A: 58% and

2 The Survey on the Access to Finance of Enterprises (SAFE) is conducted twice a year. The first round refers to the period from April to September (period A) and the second round covers the period from October to March (period B).
3 Large firms employ 250 or more persons, whereas small and medium-sized enterprises (SMEs) have fewer than 250 employees.

Chart C Impact of late payments on large firms in Greece

(percentages of respondents)



Source: EC/ECB, Survey on the access to finance of enterprises in the euro area (SAFE).
Note: 2019A, 2020A and 2021A: period of April-September for the years 2019, 2020 and 2021.

2019A: 48%), as well as their investment or hiring decisions (2021A: 44%, against 2020A: 54% and 2019A: 48%) (see Chart B). Similarly, a smaller percentage of SMEs reported that late payments worsened their loan servicing ability or exacerbated their financing needs (2021A: 31%, against 2020A: 40% and 2019A: 34%). At the same time, fewer SMEs mentioned that late payments had a negative impact on their production or other business operations (2021A: 42%, against 2020A: 46% and 2019A: 36%).

Turning to large firms, a smaller percentage reported a negative impact of late payments on payments to suppliers (2021A: 16%, against 2020A: 46% and 2019A: 74%), as well as on their investment or recruitment decisions (2021A: 25%, against 2020A: 31% and 2019A: 30%) (see Chart C). Conversely, as suggested by the findings of the survey, possibly because of their broader business networks, larger firms were more impacted by the pandemic-related supply chain disruptions and, as a result, are experiencing difficulties in meeting pent-up demand for goods and services as the economy recovers. More specifically, some negative effects are more persistent for larger firms, given that the percentage of those reporting that late payments constrained their loan repayment ability or increased their financing needs rose in the latest survey round (2021A: 42%, against 2020A: 30% and 2019A: 30%). Besides, a higher number of large firms mentioned that late payments had a negative impact on their production or other business operations (2021A: 24%, against 2020A: 15% and 2019A: 45%).

Box VI.5

THE BANK LENDING SURVEY IN GREECE[1]

The latest rounds of the Bank Lending Survey (BLS) in Greece provide evidence of a considerable increase in demand across all loan categories in 2021, which is consistent with the concurrent recovery of economic activity in Greece. On the loan supply side, banks reported broadly unchanged credit standards, but an easing of overall terms and conditions on lending.

Loan demand

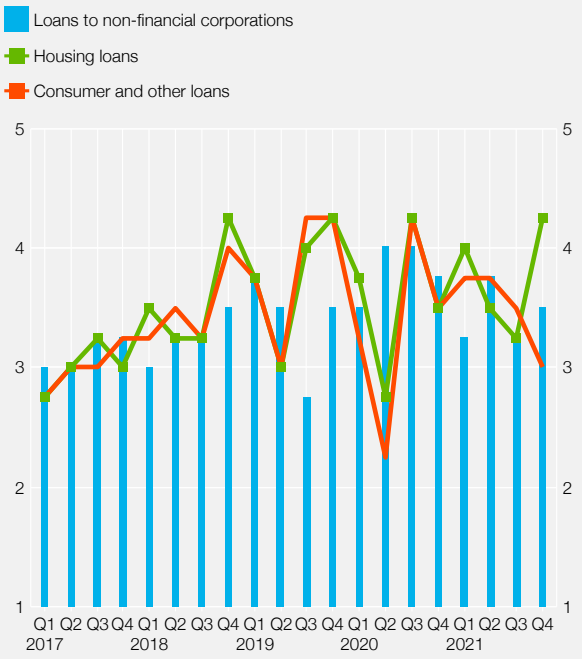
Banks in Greece indicated that firms' demand for loans[2] increased in 2021 (Q1: 3.25; Q2: 3.75; Q3: 3.25; Q4: 3.5) (see Chart A). Regarding the factors contributing to this development, banks reported a favourable impact, mainly from firms' increased needs for inventories and working capital, as well as for fixed investment, while the general level of interest rates contributed to a lesser extent.

1 The survey is conducted by the Eurosystem on a quarterly basis, using a sample of about 140 banks across the euro area. In Greece, the survey is conducted by the Bank of Greece and comprises the four Greek core banks.

2 The discussion of the results is based on banks' average responses on a scale of 1 to 5, with 1 corresponding to banks responding that loan demand "decreased considerably", 2 to banks responding "decreased somewhat", 3 to banks responding "remained broadly unchanged", 4 to banks responding "increased somewhat" and 5 to banks responding "increased considerably".

Chart A Changes in demand for loans to non-financial corporations and households in Greece[1]

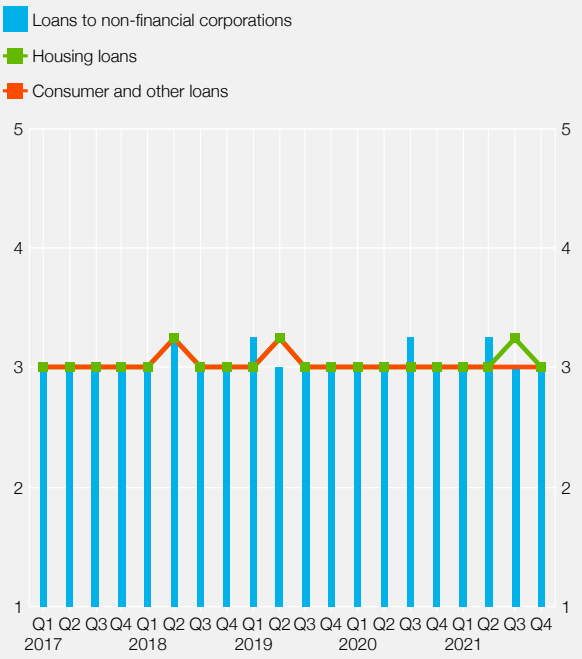
(over the corresponding calendar quarter; averages[2])



Source: ECB/Bank of Greece, Bank Lending Survey.
1 Banks' perceptions of changes in loan demand over the corresponding calendar quarter.
2 Average of banks' responses using a five-point scale, where 1 = "decreased considerably", 2 = "decreased somewhat", 3 = "basically no change", 4 = "increased somewhat" and 5 = "increased considerably".

Chart B Changes in terms and conditions on loans to non-financial corporations and households in Greece[1]

(over the corresponding calendar quarter; averages[2])



Bank: ECB/Bank of Greece, Bank Lending Survey.
1 Banks' perceptions of changes in terms and conditions on loans over the corresponding calendar quarter.
2 Average of banks' responses using a five-point scale, where 1 = "tightened considerably", 2 = "tightened somewhat", 3 = "basically no change", 4 = "eased somewhat" and 5 = "eased considerably".

Banks also reported increased demand for loans to households. More specifically, the increase in demand for housing loans (Q1: 4; Q2: 3.5; Q3: 3.25; Q4: 4.25) was mainly supported by improved consumer confidence and better housing market prospects, while the increase in demand for consumer credit and other loans (Q1: 3.75; Q2: 3.75; Q3: 3.5; Q4: 3) was underpinned by higher consumer confidence and increased spending on durables.

Loan supply

According to the banks surveyed, credit standards[3] remained unchanged across all loan categories. Regarding the terms and conditions[4] on lending to enterprises, the sample reported a relative easing in the second quarter (see Chart B), which was primarily driven by competition and the subsequent narrowing of margins on average loans, as well as on riskier loans. With respect to housing loans, the sample reported a relative easing for terms and conditions in the third quarter, due to the narrowing of margins on average loans and on riskier loans.

Finally, banks in Greece indicated that the share of rejected applications for loans to firms remained unchanged in the first half of 2021, but increased somewhat in the second half. As for loans to households, the share of rejected applications remained unchanged for consumer credit and other loans, whereas for housing loans it increased somewhat in the fourth quarter.

3 For credit standards, banks' responses correspond to 1 if they report that these "tightened considerably", 2 if they report "tightened somewhat", 3 if they report "remained broadly unchanged", 4 if they report "eased somewhat" and 5 if they report "eased considerably".

4 For terms and conditions on lending, banks' responses correspond to 1 if they report that these "tightened considerably", 2 if they report "tightened somewhat", 3 if they report "remained broadly unchanged", 4 if they report "eased somewhat" and 5 if they report "eased considerably".

5 DEVELOPMENTS IN THE BANKING SECTOR

The transactions that are associated with a reduction in the stock of non-performing loans (NPLs) greatly determined banks' financial and supervisory indicators.[13] More specifically, the NPL sales and securitisations that took place during the year led to a further reduction in NPLs, although at the same time they contributed to sizeable losses for banks, weighing on their capital adequacy ratios. Furthermore, between January and September 2021 banks' net income fell, year on year, mainly on account of lower non-recurring profits.

With regard to profitability (see Table VI.1), over the January-September 2021 period, banks saw their operating income decrease slightly, year on year, mainly because of a drop in income from financial operations and other income, which more than offset a rise in net fee and commission income. Net interest income remained unchanged compared with one year earlier, reflecting the positive effect from the lower cost of funding, which offset a decrease in the outstanding amounts of loans and a further decline in the net interest margin.[14] Increased operating expenses, mainly due to one-off costs for the restructuring of certain systemic

Table VI.1 Financial results of Greek banks

(amounts in EUR millions)

	January-September 2020	January-September 2021	Change (%)
Operating income	**6,884**	**6,612**	**-3.9**
Net interest income	4,236	4,205	-0.7
– Interest income	5,410	5,398	-0.2
– Interest expenses	-1,174	-1,193	1.7
Net non-interest income	2,647	2,407	-9.1
– Net fee and commission income	913	1,090	19.4
– Income from financial operations	1,411	1,235	-12.5
– Other income	324	82	-74.7
Operating costs	**-2,900**	**-3,124**	**7.7**
Staff costs	-1,443	-1,547	7.2
Administrative costs	-1,044	-1,149	10.1
Depreciation	-413	-428	3.7
Net income (operating income less operating costs)	**3,984**	**3,488**	**-12.5**
Provisions for credit risk	-4,038	-7,639	89.2
Other impairment losses[1]	-229	-173	-24.5
Non-recurring profits/losses	-230	-84	-63.4
Profits (+) / Losses (-) before taxes	**-512**	**-4,409**	**>100**
Taxes	-160	-234	45.8
Profits (+) / Losses (-) from discontinued operations	-15	41	>100
Profits (+) / Losses (-) after taxes	**-688**	**-4,627**	**>100**

Source: Financial statements of the four systemic banking groups (SIs) and supervisory data for less significant banks (LSIs).
1 Impairment losses on securities, as well as on tangible and intangible assets.
2 Profits/losses from discontinued operations arise mainly from the disinvestment of foreign subsidiaries by Greek banks.

13 Available data refer to developments in financial results over the January-September 2021 period, while in the case of non-performing loans and bank capital adequacy, the data refer to the year as a whole and are provisional.

14 The net interest margin of Greek banks during the January-September 2021 period was 2.1% (on an annualised basis), slightly lower relative to one year earlier (2.3%). However, according to the European Banking Authority (EBA) Risk Dashboard, it remains higher than the EU average (January-June 2021: 1.2%).

banks, led to weaker results before provisions and taxes compared with one year earlier. Moreover, as a result of NPL transactions and the need to cover credit risk, banks posted losses.

As regards capital adequacy, both Common Equity Tier 1 (CET1) and the Total Capital Ratio on a consolidated basis declined (on the basis of provisional data) to 12.6% and 15.2%, respectively, at end-December 2021 (from 15% and 16.6%, respectively, in December 2020). With a fully phased-in impact from International Financial Reporting Standard 9 (IFRS 9), CET1 came to 10.7% and the Capital Adequacy Ratio to 13.4%. At the EU level, on the basis of EBA data, the corresponding weighted average CET1 ratio was 15.7%.[15] The quality of Greek banks' regulatory own funds deteriorated further, as deferred tax credits (DTCs) amounted to €14.4 billion in December 2021, accounting for 64% of total regulatory own funds (up from 53% in December 2020). It should be noted that, as suggested by provisional December data, the sovereign-bank nexus has exacerbated, as banks' exposure to risk stood at 22.5% (total exposures to central government/ total assets) at end-2021, or 38.7% as a percentage of GDP.

Table VI.2 Key quality indicators of loan portfolios

(percentages %, on-balance sheet items on a solo basis)

	Dec. 2019	Dec. 2020
Ratio of non-performing loans (NPLs) to total loans	**30.1**	**12.8**
NPL ratio by portfolio		
Corporate loans	*27.7*	*13.0*
Large firms	15.0	7.0
Small and medium-sized enterprises (SMEs)	38.8	21.1
Sole proprietors and micro enterprises	51.2	30.6
Shipping	13.9	6.2
Housing loans	*31.0*	*10.4*
Consumer loans	*46.0*	*19.5*
NPL structure by arrears bucket or default status		
Past due > 90 days	**23.3**	**31.1**
91-180 days	4.8	4.5
181-360 days	2.9	4.8
>1 year	15.7	21.8
Unlikely to pay	**29.4**	**35.5**
Denounced loans	**47.3**	**33.5**
Other indicators		
Forborne loans (to total loans)	**18.0**	**10.6**
Performing loans	10.6	6.4
Non-performing loans	35.3	39.1
Under legal protection	**3.6**	**0.5**
NPL coverage ratio	44.4	42.4
Default rate	1.1	0.6
Cure rate	1.4	3.2

Source: Bank of Greece.

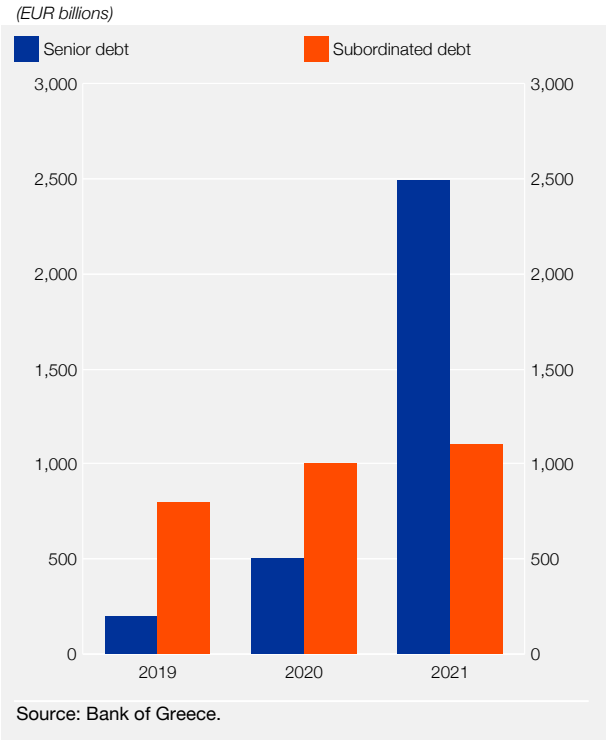
According to provisional December 2021 data, the quality of loan portfolios on a solo basis has improved, as NPLs came to €18.4 billion, down by €28.8 billion compared with end-December 2020 and by about €90.3 billion compared with their peak in March 2016. As regards the structure of NPLs, about 3/4 relate to corporate loans and 1/5 to housing loans, while the remainder consists of consumer loans. Moreover, there is roughly equal distribution of denounced loans, loans unlikely to pay and loans more than 90 days past due which have not yet been denounced.

The reduction in the NPL stock during 2021 was achieved mainly through loan sales of €27.5 billion (under the Hellenic Asset Protection Scheme). It should be noted that this amount also includes outstanding amounts of loans transferred to available for sale (AFS) assets. This reduction was also underpinned, albeit to a lesser extent, by (a) active NPL management[16] and (b) the support measures introduced by the government and banks to bolster households' disposable income and to facilitate borrowers in servicing their loans. However, given that the full impact of the pandemic will take some time to become visible, there is no room for complacency.

15 Data referring to September 2021.

16 Through loan restructurings/forbearance, collection of arrears, collateral liquidation, etc.

Chart VI.13 Bond issuance by Greek banks



Source: Bank of Greece.

With respect to key quality indicators of bank portfolios (see Table VI.2), the ratio of NPLs to total loans declined substantially, but remained high (12.8%) in December 2021.[17] At the EU level, according to EBA data, the NPL ratio was 2.1% at end-September 2021. The NPL ratio has declined across all portfolio categories, but remains elevated for loans to sole proprietors and micro enterprises as well as SMEs, which are included in the business loan portfolio. The portfolio of loans to large firms and the shipping loan portfolio fared relatively better. On the basis of a sectoral breakdown, for the three sectors with the highest outstanding amounts of loans, i.e. trade, manufacturing and construction, the NPL ratio came to 16.7%, 13.1% and 20.8%, respectively, while for the tourism-related sectors, namely accommodation and food services, it stood at 15.4% and 31.5%, respectively. The NPL coverage ratio decreased slightly to 42.4%, from 44.4% in December 2020.

At end-December 2021, around 39% of total NPLs related to forborne loans,[18] while it should be stressed that a high share of the forborne loans re-defaults within a relatively short period after the conclusion of the forbearance agreement. Given the impact of the pandemic, it is estimated that a large number of forborne loans may be recorded as non-performing in 2022. Part of the loans under a lending support scheme (e.g. under the "Gefyra" ("Bridge") programme) is also likely to be registered as NPLs at the end of the protection period. On the other hand, the share of loans under legal protection has declined.[19]

The favourable conditions in global capital markets (for more details, see Chapter IX herein) in 2021 and the improved quality of Greek banks' portfolios ensured continued progress in meeting regulatory capital requirements (including the minimum requirement for own funds and eligible liabilities − MREL). More specifically, banks have begun strengthening their capital base through both capital increases and bond issuance. In total, as shown in Chart VI.13, bonds amounting to €5.8 billion were issued in 2019-21.

Banks' efforts to improve the quality of their assets and strengthen their financial aggregates continued throughout 2021, assisted by an accommodative monetary policy and an expansionary fiscal policy. In a few cases, however, mostly among smaller banks, this effort still needs to be stepped up. In the current environment of changing financial conditions globally (see Chapter IX herein), Greek banks are faced with major challenges, such as new NPLs that may arise after the pandemic with the gradual return to normality and the expected withdrawal of support measures (supervisory, fiscal, etc.), the obligation to meet the minimum requirement for own funds and eligible liabilities (MREL), the need to absorb the impact of IFRS 9 and the consequences of climate change.[20] Furthermore, the current geopolitical developments and a strong

17 Referring to on-balance-sheet loans (before provisions) and advances by Greek commercial and cooperative banks (on a solo basis), according to supervisory data collected for NPL monitoring purposes.
18 It should be noted that total forborne loans (i.e. performing and non-performing) amount to €15.3 billion.
19 Loans included in this category concern natural and legal persons (under Laws 3869/2010 and 4307/2014, as applicable).
20 The ECB and the Single Supervisory Mechanism (SSM) are conducting in the first half of 2022 a climate risk stress test for each bank, including the four Greek significant banks.

surge in inflationary pressures could weigh heavily on Greek banks' fundamentals. Despite the fact that Greek banks' exposure to the warring countries is minor, a steep escalation of the Russia-Ukraine crisis would lead, among other things, to further hikes in energy prices and even higher inflation, with negative implications for all EU economies.

It is therefore clear that these challenges call for continued vigilance and stronger action on the part of banks to further reduce NPLs, strengthen their capital base and more effectively use their increased liquidity towards financing the economy.

VII OVERVIEW OF THE PRIVATE INSURANCE MARKET

2021 was marked by significant changes in the Greek insurance market, mainly resulting from: (a) further concentration of the sector, particularly life insurance, through acquisitions and mergers; (b) the focus of sales on investment-linked insurance products, whose investment risks are borne by the policyholders themselves; (c) reduced availability of traditional insurance products incorporating profit-sharing clauses, due to the low interest rate environment; and (d) actions taken by business management to contain the risks of a possible increase in interest rates.

More than two years after the outbreak of the pandemic, it is assessed that insurance undertakings have addressed the pandemic impact effectively, while continuing to adapt to the technological demands of the times and tackling the risks of climate change.

Scientific research so far has shown that the cost of climate change impacts will be particularly high, as the frequency and severity of extreme climate and weather events are increasing. Against this background, private insurance will play a very important role in protecting against natural disasters, as a risk transfer mechanism to absorb damages related to climate change and natural disasters (see Box VII.1)

Lastly, it is worth noting that the protection of consumers/policyholders lies at the core of the supervisory institutional framework. This is achieved by ensuring insurance undertakings' solvency and improving the level of customer satisfaction and the overall credibility of the insurance market (see Box VII.2)

1 KEY MARKET FIGURES[1]

On 30 September 2021, 37[2] insurance undertakings operated on the Greek private insurance market, unchanged from 30 September 2020, which fall under the following categories based on their authorisation and insurance business:[3]

- 2 life insurance undertakings;
- 18 non-life insurance undertakings; and
- 17[4] undertakings involved in both life and non-life insurance (including life insurance undertakings which, as regards non-life insurance, exclusively pursue business in the "accident" and "sickness" classes).

Of these 37 insurance undertakings, 35 are operating and supervised in accordance with the European Solvency II Directive (Solvency II), which has been implemented in all countries of the European Union (EU) since 1.1.2016, while 2 undertakings are exempt, due to their size,

1 The cut-off date for data and information used in this chapter was 31.01.2022.
2 With the exception of mutual insurance cooperatives referred to in the first subparagraph of Article 7(1) of Law 4364/2016.
3 As of 31 December 2021, there are 36 insurance undertakings operating in Greece, as a result of the merger of Generali Life S.A. and Generali Hellas I S.A. (formerly AXA S.A.).
4 As of 31.12.2021 the number is 16 due to the merger of two of them (see footnote 3 above).

from a number of requirements under all three main pillars of Solvency II.[5] Of the 35 insurance undertakings subject to Solvency II, 12 belong to insurance groups based abroad and 5 to insurance groups based in Greece. In addition, 5 insurance undertakings based in Greece operate in other EU countries under the freedom to provide services.

In addition, 250 insurance undertakings based in another EU Member State,[6] which are supervised, as regards their financial situation, by the competent supervisory authorities of their home countries, operate in Greece under the freedom of establishment (branch) or the freedom to provide services. At the end of 2020, the annual written premiums of these undertakings amounted to €969 million or 19% of the total Greek insurance market. In particular, as regards the market for third-party motor vehicle liability insurance, in 2021 the share of insurance undertakings based in another Member State and operating in Greece under the freedom to provide services or the freedom of establishment increased to 19% for the first nine months of 2021 (from 17% in 2020).

The financial figures presented below relate only to the 35 undertakings operating on the domestic insurance market that are subject to Solvency II supervision by the Bank of Greece.

The domestic insurance market is characterised by significant concentration, in particular in life and non-life insurance undertakings, as the five largest hold 81% of the relevant market in terms of technical provisions, while the five largest non-life insurance undertakings have a share of 46% in terms of gross written premiums.

Gross written premiums in life insurance in the period January-September 2021 amounted to €1.8 billion, up by 19% year on year. Of this amount, €0.72 billion is linked to investment, corresponding to 41% of total gross written premiums for life insurance, compared with 30% in the corresponding period of 2020 (up by a substantial 61%). At the same time, there was a 6% decrease in gross written premiums for profit-sharing insurance and a 2% increase in other life insurance.

The premiums for non-life insurance business in the same period amounted to €1.6 billion, up by 3% year on year. Of this amount, the largest shares are held by third-party motor vehicle liability (34%), fire (20%) and hospital expenses (16%), with premium changes of -2%, + 4% and + 6% respectively compared to the first nine months of 2020. In the same period (January-September 2021), the claims paid amounted to €1.2 billion for life insurance and €0.5 billion for non-life insurance, up by 16% and 5% respectively.

The total assets of insurance undertakings supervised by the Bank of Greece stood at €20.4 billion on 30.9.2021, up by 5% compared to 30.9.2020. Of total assets, €8.7 billion (43%) were held in government bonds and €2.7 billion (13%) in corporate bonds. In addition, €3.5 billion (17%) related to insurance investment whose risks are borne by the policyholders.

Similarly, the total liabilities of insurance undertakings amounted to €16.3 billion (from €15.8 billion on 30.9.2020), with total technical provisions amounting to €14.9 billion (up from €14.6 billion on 30.9.2020), of which €11.8 billion related to life insurance and €3.1 billion to non-life insurance. Of the technical life provisions, 29% refer to investment-linked life insurance (compared with 25% on 30.9.2020).

In non-life insurance, the market loss ratio on 30.9.2021 stood at 42% of the corresponding earned premiums in the same period and the expenditure ratio (management and commissions) stood at 46%, compared with 40% and 45% respectively on 30.9.2020.

5 The Bank of Greece, on the basis of the principle of proportionality, has exempted 2 insurance undertakings that meet the required size and business criteria from certain Solvency II provisions on solvency requirements, governance system and disclosure and reporting requirements.

6 Source: European Insurance and Occupational Pensions Authority (EIOPA).

The insurance market's own funds remained unchanged from the previous year, while the total Solvency Capital Requirement (SCR) amounted to €2.1 billion, with total eligible own funds of €4.1 billion. As regards the quality of eligible funds on the insurance market, they rank in the highest quality class (Tier 1) at 93%. At the same time, the SCR ratio of all insurance undertakings stands at levels well above 100%.

The Minimum Capital Requirement (MCR) in the total insurance market stood at €0.7 billion, with the corresponding total eligible own funds amounting to €3.8 billion.

2 DEVELOPMENTS IN THE SUPERVISORY FRAMEWORK

2.1 Bank of Greece Executive Committee Act 195/3/29.11.2021 on "Revision of the minimum coverage amounts for compulsory insurance against civil liability arising from motor vehicle accidents"

On 7 December 2021, the decision of the Bank of Greece Executive Committee on the revision of the minimum coverage amounts for compulsory insurance against civil liability arising from motor vehicle accidents in accordance with the Harmonised Index of Consumer Prices (HICP), covering all Member States, as adjusted and announced by the European Commission, was published in the Government Gazette. More specifically, as from 1.1.2022 the minimum insurance coverage amounts referred to in Article 6(5) of Presidential Decree 237/1986 cannot be less than:

- €1,300,000 per victim in the case of bodily injury;
- €1,300,000 per accident in case of damage to property and regardless of the number of victims.

2.2 Bank of Greece Executive Committee Act 195/4/29.11.2021 on "Adoption of European Insurance and Occupational Pensions Authority (EIOPA) Guidelines on Information & Communication Technology security and governance (EIOPA-BoS-20-600)"

On 3 December 2021, the Bank of Greece Executive Committee Act (ECA) on the adoption of the EIOPA guidelines on information and communication technology security and governance (EIOPA-BoS-20-600) was published in the Government Gazette.

More specifically, it provides for the establishment of a framework of guidelines addressed to insurance and reinsurance undertakings on information and communication technology (ICT) security and governance for the implementation of the governance requirements laid down in the relevant articles of Law 4364/2016. The provisions will apply by way of analogy at group level, while insurance and reinsurance undertakings will take into account the principle of proportionality to ensure that governance arrangements (including those related to ICT security and governance) are implemented in a manner that is proportionate to the nature, scale and complexity of the underlying risks.

This ECA introduces an obligation for insurance and reinsurance undertakings to define an ICT strategy and establish an ICT risk management system, which includes an information security policy and procedures to ensure the confidentiality, integrity and availability of ICT systems, as well as the obligation to designate a person responsible for the information security function, reporting and accountable to the board of directors. The ECA also introduces an obligation for insurance and reinsurance undertakings to implement an information security testing framework, including threat-led penetration tests. Lastly, it introduces a number of requirements related to the governance of ICT projects and systems.

Box VII. 1

THE ROLE OF PRIVATE INSURANCE IN NATURAL DISASTER PROTECTION

Insurance undertakings provide coverage against different insurance risks in exchange for a premium. Given that Greece is among the most earthquake-prone regions in the European Union and natural disasters are quite frequent, insurance coverage for such perils as earthquakes, wildfires, hail storms, flooding, landslides, etc. is the core of insurance activity. Furthermore, climate change does not expose insurers to new, unknown types of risk, since what is mainly changing is the frequency and the magnitude of potential losses.

The financial cost of natural disasters in Greece is fairly high. For instance, it is noted that in 1999, i.e. the year with the highest costs from natural disasters to date, mainly on account of an earthquake, costs exceeded €4 billion, amounting to about 3% of Greece's total GDP. The second year with the highest financial costs associated with natural disasters was 2007, when costs amounted to above €1.7 billion, mainly on account of wildfires, followed by the year 1990, with the related financial costs, primarily attributed to drought, exceeding €1 billion.[1]

It should be stressed that the bulk of the aforementioned financial losses was uninsured and the affected population was largely indemnified with government budget funds. Over the 1980-2018 period, according to estimates,[2] the claims paid by insurance undertakings as a result of earthquakes, flooding and storms covered for a mere 2% of total losses.

As the impact of the climate crisis in Greece is closely linked with a higher incidence of wildfires and floods (the occurrence of earthquakes is not expected to be affected by climate change) and the role of the private insurance market in related loss coverage is modest, it is understandable that the fiscal cost will keep increasing.

Against this backdrop, and given the government's responsibility to protect all citizens, financial support to affected parties should reach an appropriately large share of the population and be independent from economic conditions, without however placing a systematic burden on taxpayers. One of the most effective ways to achieve this is to enhance the role of private insurance in the area of natural disaster protection. This can be achieved by providing Greek citizens with tax incentives to buy insurance, but most importantly by promoting public-private partnerships (PPPs), a policy that is already pursued in other European countries.

European experience has shown that designing such tools as PPPs with regard to natural disaster issues relies on a pre-defined set of principles, which should include at least the following:

1. Decisions are made and actions are coordinated through a single central mechanism bringing together government bodies and private insurance undertakings.

2. The participation of natural and legal persons, who will practically be the beneficiaries, should be as broad as possible.

3. The responsibility for, as well as the total cost of, indemnities are shared in a transparent manner between the private and the public sector, so as to avoid indemnification gaps or overlaps.

4. The implementation of preventive and adaptation measures against such risks are sine qua non for such tools.

Last but not least, it is worth noting that only a meaningful dialogue between all stakeholders, public and private, can lead to a sustainable and efficient solution in the long run, which will provide Greek citizens with adequate protection from natural disasters and risks stemming from the climate crisis.

1 The International Disaster Database, www.emdat.be.
2 NatCatSERVICE, MunichRe, 2018.

Box VII. 2

CONDUCT RISKS FROM THE PERSPECTIVE OF INSURANCE POLICYHOLDERS

Private insurance is among the few business activities in which the consumer/policyholder pays in advance (in the form of an insurance premium) to purchase a product in exchange for a promise of a future benefit/compensation upon the occurrence of the insured event. This promise involves the payment of a much higher amount of money than the insurance premium at an unknown yet critical time in the future, i.e. when the policyholder will be most vulnerable and in need of compensation in order to address the financial consequences from the occurrence of the insured risk.

In this context, it is crucial that consumers/policyholders enjoy value for money, in the sense that the insurance product offered is affordable and best meets customer needs. The protection of policyholders lies at the heart of the insurance supervisory framework and is achieved in two ways. First, by strengthening the solvency of insurance undertakings, in order to ensure, to the extent possible, that they will fulfil their obligations and that consumers/policyholders will indeed receive what they were promised. And second, by improving customer satisfaction, as well as the overall credibility of the insurance market, as a result of insurers' behaviour vis-à-vis policyholders. The solvency of insurance undertakings is ensured by compliance with the provisions of the prudential supervision framework (Solvency II), while insurers' behaviour vis-à-vis consumers is enhanced by compliance with the relevant legislation on conduct of business (in particular Directive (EU) 2016/97 on insurance distribution).

Insurers' business practices go beyond the narrowly defined insurance contract; they cover all stages of the product lifecycle, i.e. from the point before even such a product exists up to the termination of the insurance contract. The key drivers of insurance conduct risk, i.e. the risks arising from business practices that affect consumers/policyholders, are the following:[1]

- The **business model** of the insurance undertaking: Referring to the customer-centric culture that permeates the entire structure and hierarchy, internal organisation and operating model of an insurance undertaking.

- The **development and design** of insurance products: Referring to the ability of insurance undertakings to take into account the characteristics, needs, objectives and preferences (investment, saving, etc.) of targeted customers. Product testing before a product is launched to the market and constant monitoring to assess whether a product meets over its whole lifecycle the identified customer-centric objectives are at the heart of this process.

- The **pricing** of insurance products: Referring mainly to the assessment of a reasonable and fair price for customers (value for money), while aggressive pricing strategies (such as price discrimination for reasons not associated with insurance risk) should be avoided in any event. To better protect insurance policyholders, due costs should be charged and made known to customers in advance. Furthermore, the pursuit of profit should not overlook that customers pay a price in anticipation of a gratifying return, especially in the event of a long-term contract. Mismatches between actual returns or benefits and customers' expectations, in the long run, lead to the dissatisfaction of good payers, while undermining the credibility of the insurance market.[2]

- The **marketing** of insurance products: To better protect policyholders, the overall promotional strategy should be clear, while generalities and exaggerations/overstatements regarding the coverage offered must be avoided to eliminate the risk of under-insurance or over-insurance.

1 EIOPA, "Framework for assessing conduct risk through the product lifecycle", 15.2.2019, https://www.eiopa.europa.eu/document-library/report/framework-assessing-conduct-risk-through-product-lifecycle_en?source=search.

2 EIOPA, "Supervisory statement on assessment of value for money of unit-linked insurance products under product oversight and governance", 30.11.2021, https://www.eiopa.europa.eu/document-library/supervisory-statement/supervisory-statement-assessment-of-value-money-of-unit_en.

– The **distribution and sales** of insurance products: Insurance distributors must be skilled and trained professionals always acting in the best interest of their customers. Providing insufficient or inadequate disclosures without any explanation on their content does not help customers understand the obligations and the rights arising from the signing of an application for insurance. Beyond insurance intermediaries' apparent obligations and own responsibility, insurance undertakings must pursue policies that are not limited to performance criteria for the selection and assessment of their intermediaries, ensure ongoing training and monitor compliance with the applicable rules of professional ethics and disclosure.

– **Claims handling:** The avoidance of unreasonably long and burdensome claims handling procedures and the payment of claims without unjustified delays and unfair rejections are warranted and are constantly reviewed for further improvements.

All of the above areas are subject to constant supervisory review, aimed at the timely identification of problems that may prejudice the interests of current or prospective policyholders, as well as at minimising the possible emergence of similar problems in the future. In a similar vein, new EU-wide legislative initiatives are expected in the area of unit-linked insurance products,[3] which will clarify and simplify several current obligations of insurance undertakings, with a view to further enhancing consumers' confidence in the single European insurance market.

3 Action 8, p. 11 in https://eur-lex.europa.eu/resource.html?uri=cellar:61042990-fe46-11ea-b44f-01aa75ed71a1.0001.02/DOC_1&format=PDF.

VIII MACROPRUDENTIAL POLICY

The ultimate objective of the macroprudential policy of the Bank of Greece is to contribute to safeguarding the stability of the financial system as a whole, by strengthening its resilience and reducing the build-up of systemic risks.

In this context, during 2021 the Bank of Greece: (a) set the countercyclical capital buffer (CCyB) rate for Greece at 0%, for the second, third and fourth quarters of 2021 and for the first quarter of 2022, following a concurrent opinion from the Hellenic Capital Market Commission; (b) identified the Other Systemically Important Institutions (O-SIIs) in Greece for 2021, in accordance with the relevant EBA guidelines (EBA/GL/2014/10); and (c) set the O-SII buffer rate for 2022 at 0.75%.

Moreover, the countercyclical capital buffer rate for Greece for the second quarter of 2022 remained unchanged at 0%.[1] Also, the Bank of Greece monitored the compliance of credit and other institutions with Executive Committee Act 175/1/29.7.2020 (see Box VIII.1).

1 SETTING THE COUNTERCYCLICAL CAPITAL BUFFER RATE

The countercyclical capital buffer aims to address the procyclicality of credit growth and leverage, ensuring an appropriate level of credit growth and leverage in both the upward and the downward phase of the business cycle. The countercyclical capital buffer rate can vary between 0% and 2.5%, calibrated in steps of 0.25 percentage points or multiples of 0.25 percentage points.[2] The countercyclical capital buffer must be met with CET1 capital and is expressed as a percentage of the total risk exposure amount of credit institutions and investment firms that are exposed to credit risk.[3]

In an economic upturn, setting the countercyclical buffer rate at a level above 0% contributes to building up a capital buffer in excess of the minimum requirements applicable in the context of microprudential supervision. This prevents and mitigates excessive credit growth and leverage. Conversely, in an economic downturn, reducing the countercyclical buffer rate releases part of the accumulated capital buffer and can therefore encourage the extension of credit to the real economy, thereby mitigating the impact of the recession.

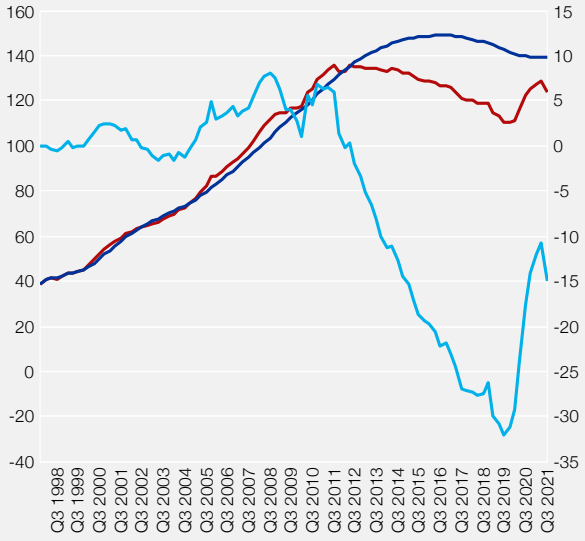
Under Law 4261/2014 (Article 127),[4] the Bank of Greece assesses on a quarterly basis the intensity of cyclical systemic risk and the appropriateness of the CCyB rate for Greece, and sets or adjusts the CCyB rate, if necessary. This rate was set for the first time in the first quarter of 2016 and has remained at 0% ever since.

Bank of Greece Executive Committee Act (ECA) 202/1/11.3.2022 repealed ECA 55/18.12.2015 by redefining the implementation procedure for applying and the methodology for setting the coun-

1 The cut-off date for information and data used in this Chapter is 31 March 2022.
2 For the purposes of Article 130(2) of Law 4261/2014, the designated authority may set a countercyclical buffer rate in excess of 2.5% of the total risk exposure amount, where justified on the basis of the considerations set out in Article 127(3) of Law 4261/2014.
3 The total risk exposure amount is calculated in accordance with Article 92(3) of Regulation (EU) No 575/2013.
4 As currently in force, after being amended by Article 44 of Law 4799/2021, which transposed the provisions of Article 136 of Directive 2013/36/EU after being amended by Directive (EU) 2019/878.

Chart VIII.1 Standardised credit-to-GDP gap (Q4 1997 - Q3 2021)

(non-seasonally adjusted GDP, Hodrick-Prescott one-sided filter)



Sources: ELSTAT, Bank of Greece and Bank of Greece calculations.

tercyclical capital buffer rate in accordance with the amended provisions of Law 4261/2014. The new procedure and methodology are in line with the simplified standardised methodology for setting the countercyclical capital buffer laid down in Directive (EU) 2019/878 (Capital Requirements Directive V − CRD V), while the revised methodology is based on Recommendation ESRB/2014/1 of the European Systemic Risk Board.

The appropriateness of the countercyclical capital buffer rate is assessed by reference to the level of the "standardised credit-to-GDP gap", as defined in Recommendation ESRB/2014/1, which reflects the deviation of the credit-to-GDP ratio from its long-term trend. In greater detail, in a first phase, the ratio of short-term and long-term debt securities and loans (i.e. credit), as reported in the financial liabilities of the private non-financial sector, to the sum of the figures of the last four quarterly observations of GDP is calculated (in nominal terms, non-seasonally adjusted). In a second phase, the long-term trend of the credit-to-GDP ratio is calculated by applying a Hodrick-Prescott filter. The standardised credit-to-GDP gap is the difference between the credit-to-GDP ratio and its long-term trend. A high positive value of the standardised credit-to-GDP gap indicates excessive credit growth relative to GDP growth, which poses increased risks to the financial system, thus warranting the setting of the countercyclical buffer rate at a level above 0%.

In addition to the standardised credit-to-GDP gap, the Bank of Greece also examines a number of additional indicators to monitor the build-up of cyclical systemic risk.[5] These indicators can be grouped into six categories:

1) Measures of credit developments: growth of credit to the domestic private sector, ratio of outstanding credit to the domestic private sector to GDP at current prices, growth of loans to households and growth of credit to NFCs;

2) Measures of private sector indebtedness: ratio of outstanding credit to non-financial corporations to GDP, households' debt to disposable income ratio and debt-service-to-income ratio at origination (DSTI-O) for loans secured by residential property;

3) Measures of potential overvaluation of property prices: price developments in residential and commercial properties (offices and retail spaces);

4) Measures of the strength of bank balance sheets: net interest margin, growth of risk-weighted assets, leverage ratio and loan-to-deposit ratio;

5) Measures of external imbalances: current account balance-to-GDP ratio;

6) Measures of risk pricing: Athex Exchange Composite Price Index and Banking Index;

5 For detailed definitions, see Executive Committee Act 202/1/11.3.2022.

In Greece, the standardised credit-to-GDP gap has remained in negative territory since 2012. In the third quarter of 2021, it stood at -15.1 percentage points, compared with -10.8 in the previous quarter (see Chart VIII.1), mostly due to the rise in nominal GDP. It should be pointed out that the latest available data on the financial liabilities of the private non-financial sector prior to setting the CCyB rate for Q2 2022 refer to Q3 2021. For this level of the standardised credit-to-GDP gap, the benchmark buffer rate (buffer guide), as defined in Recommendation B, para. 3(A) of Recommendation ESRB/2014/1, is set at zero.

The analysis of the additional indicators examined by the Bank of Greece confirms the view that there is no excessive credit growth and leverage.

Therefore, the Bank of Greece maintained the CCyB rate at "zero per cent" (0%) throughout 2021 and for the first quarter of 2022.[6] In its press release of 31 March 2022, the Bank of Greece announced that the CCyB rate for Greece would remain unchanged at zero per cent in the second quarter of 2022 and communicated the data justifying its assessment. In particular, the press release presented the following: (a) the current CCyB rate; (b) the credit-to-GDP ratio and the standardised credit-to-GDP gap; (c) the buffer guide; and (d) the justification of the CCyB rate. Given that the CCyB rate remained at the minimum level, capital requirements on credit institutions were not affected.

2 IDENTIFICATION OF OTHER SYSTEMICALLY IMPORTANT INSTITUTIONS (O-SIIS) AND SETTING OF THE O-SII BUFFER

Under Law 4261/2014 (Article 124), the Bank of Greece is responsible for identifying other systemically important institutions (O-SIIs)[7] among credit institutions authorised in Greece. Other systemically important institutions are identified on an annual basis to determine the appropriateness of applying the O-SII buffer.[8]

The implementation of the O-SII buffer aims at reducing moral hazard and strengthening the resilience of O-SIIs. Moral hazard arises from a credit institution's expectation that it will not be allowed to fail due its systemic importance (too big to fail). An O-SII buffer limits excessive risk-taking by a systemically important credit institution through higher capital requirements, thus reducing moral hazard. Moreover, it cushions the systemic impact of misaligned incentives by strengthening the systemically important institution's capital buffer to absorb potential losses and thus reduces contagion risk.

The Bank of Greece identifies O-SIIs using the methodology set out in the relevant guidelines of the European Banking Authority (EBA/GL/2014/10),[9] as adopted under Executive Committee Act 56/18.12.2015. According to this methodology, the competent authorities calculate a score indicating the systemic importance of each bank based on specific criteria. These criteria relate to size; importance for the economy; complexity; and interconnectedness of the institution with the financial system. These four criteria each consist of one or more mandatory indicators, which should be used as a minimum by the competent authorities in calculating the score of each credit institution. The score of each credit institution is expressed in basis points (bps). Each competent authority sets out a threshold in basis points; any credit institutions crossing it

6 See Executive Committee Acts 186/1/18.3.2021, 190/3/16.6.2021, 193/3/27.9.2021 and 196/1/9.12.2021.
7 Other systemically important institutions are contrasted with those identified as global systemically important institutions (G-SIIs).
8 Identification of O-SIIs is conducted on a solo, sub-consolidated or consolidated basis, as appropriate, and the O-SII buffer is set accordingly.
9 EBA, Guidelines on the criteria to determine the conditions of application of Article 131(3) of Directive 2013/36/EU (CRD IV) in relation to the assessment of other systemically important institutions (O-SIIs), 16 December 2014.

Table VIII.1 Mandatory scoring indicators

Criterion	Indicators	Weight (%)
Size	Total assets	25
Importance	Value of domestic payment transactions	8.33
	Private sector deposits from depositors in the EU	8.33
	Private sector loans to recipients in the EU	8.33
Complexity/ Cross-border activity	Value of OTC derivatives (notional)	8.33
	Cross-jurisdictional liabilities	8.33
	Cross-jurisdictional claims	8.33
Interconnected-ness	Intra-financial system liabilities	8.33
	Intra-financial system assets	8.33
	Debt securities outstanding	8.33

Source: Guidelines on the criteria to determine the conditions of application of Article 131(3) of Directive 2013/36/EU (CRD) in relation to the assessment of other systemically important institutions (O-SIIs), EBA, 16 December 2014.

are designated as O-SIIs. This threshold may range from 275 bps to 425 bps to take into account the specificities of each Member State's banking sector and to ensure the homogeneity of the group of O-SIIs designated in this way based on the OSIIs' systemic importance. An indicative threshold of 350 bps is proposed. The competent authorities may designate further relevant entities as O-SIIs based on additional qualitative and/or quantitative indicators of systemic risk.

In calculating the scores of systemic importance for Greek banks, the Bank of Greece used only the mandatory indicators (see Table VIII.1), and selected a threshold of 350 basis points.

On the basis of the above, the following credit institutions were designated as O-SIIs for 2021:

- National Bank of Greece S.A.
- Piraeus Financial Holdings S.A.
- Alpha Service and Holdings S.A.
- Eurobank Ergasias Services and Holdings S.A.

Under Executive Committee Act 195/29.11.2021, the Bank of Greece decided to reset the capital buffer held by O-SIIs for 2022 at 0.75% for all O-SIIs, as these are designated on a consolidated basis above, and on a solo basis as follows:

- Alpha Bank S.A.
- National Bank of Greece S.A.
- Piraeus Bank S.A.
- Eurobank S.A.

Box VIII.1

IMPLEMENTATION OF THE RECOMMENDATION OF THE EUROPEAN SYSTEMIC RISK BOARD OF 31 OCTOBER 2016 ON CLOSING REAL ESTATE DATA GAPS (ESRB/2016/14)

In 2020, the Executive Committee of the Bank of Greece approved Act 175/1/29.7.2020 (hereinafter the "Act") adopting Recommendation ESRB/2016/14 of the European Systemic Risk Board of 31 October 2016 on closing real estate data gaps (hereinafter the "Recommendation"), as amended by Recommendation ESRB/2019/3 of the European Systemic Risk Board of 21 March 2019.

The main objective of the Recommendation is to establish a harmonised EU framework for monitoring developments in residential real estate (RRE) and commercial real estate (CRE) markets, the segments of the

real estate sector most relevant for financial stability purposes. The proposed framework will involve the regular monitoring of a set of reliable and comparable key RRE/CRE loan and investment indicators to help identify the build-up of systemic risks and assess the potential need for macroprudential intervention. These indicators will provide useful information to ensure that lender-based macroprudential instruments (such as sectoral capital requirements, including those related to the real estate sector) are selected and calibrated in the most efficient way to prevent future occurrences of excessive credit growth that could lead to a possible resurgence of NPLs. In addition, they will also be used to guide national authorities in the use of borrower-based macroprudential policy instruments, such as limits on the loan-to-value ratio, the loan-to-income ratio, the debt-to-income ratio, the interest coverage ratio, the debt service-to-income ratio or the debt service coverage ratio.

The Act is fully aligned with the definitions and calculation methodology of the indicators proposed in the Recommendation, with the triple goal of enhancing the reliability of financial stability analyses, increasing the indicators' ability to provide early warnings against the build-up of systemic risks, and enabling a more accurate comparison of risks across the domestic markets of the EU. Nevertheless, bearing in mind the principle of proportionality and the characteristics of the Greek market, the scope of the Recommendation was limited to credit institutions established and operating in Greece, branches of foreign banks operating in Greece, and leasing companies established and operating in Greece. Furthermore, during the Act's implementation, in 2021, consultations were held with the reporting institutions, both on a bilateral basis and collectively through the Hellenic Bank Association. During these consultations, the Bank of Greece offered clarifications with a view to ensuring the correct and consistent implementation of the Act's reporting requirements, while a set of calculation approaches was agreed in relation to the indicators, which was tailored to the specificities of the Greek market and the way raw data are kept by institutions.

The Act contains detailed information on the definitions of the data and indicators to be reported, accompanied by guidance on the methods for calculating these indicators, and the templates and timeline for the submission of the relevant reports – the latter already underway on a quarterly basis since the beginning of 2021. A page dedicated to the monitoring framework is also now available on the Bank of Greece website.[1]

In more detail, where RRE indebtedness is concerned, data, weighted ratio averages and indicator distributions are all monitored in terms of flows and stocks of the corresponding loans. For the flows of RRE loans, the data required include, in particular, the number and amount of loans disbursed, the loan-to-value ratio at origination (LTV-O), the loan service-to-income ratio at origination (LSTI-O), the loan-to-income ratio at origination (LTI-O), the debt-to-income ratio at origination (DTI-O), the debt service-to-income ratio at origination (DSTI-O) and the maturity of the loans at origination. For the stocks of such loans, the data required include, again, the number and amount of loans disbursed and the current loan-to-value ratio (LTV-C).

CRE indebtedness and CRE investment are monitored by tracking a similar set of indicators. These include, indicatively, direct and indirect CRE investment flows/stocks, valuation adjustments flows/stocks on CRE investments, CRE lending flows/stocks (including CRE property under development or construction), flows/stocks of non-performing CRE loans (including CRE property under development or construction), and flows/stocks of loan loss provisions on CRE lending (including CRE property under development or construction). Furthermore, for the flows of CRE loans, the following data are required: weighted average of the LTV-O, weighted average of the interest coverage ratio at origination (ICR-O), weighted average of the debt service coverage ratio at origination (DSCR-O). For the stocks of CRE loans, the additional data required include: weighted average of the current loan-to-value ratio (LTV-C); weighted average of the current interest coverage ratio (ICR-C); and weighted average of the current debt service coverage ratio (DSCR-C).

1 https://www.bankofgreece.gr/en/main-tasks/financial-stability/submission-of-data-on-real-estate-debt-and-investment.

IX CAPITAL MARKETS

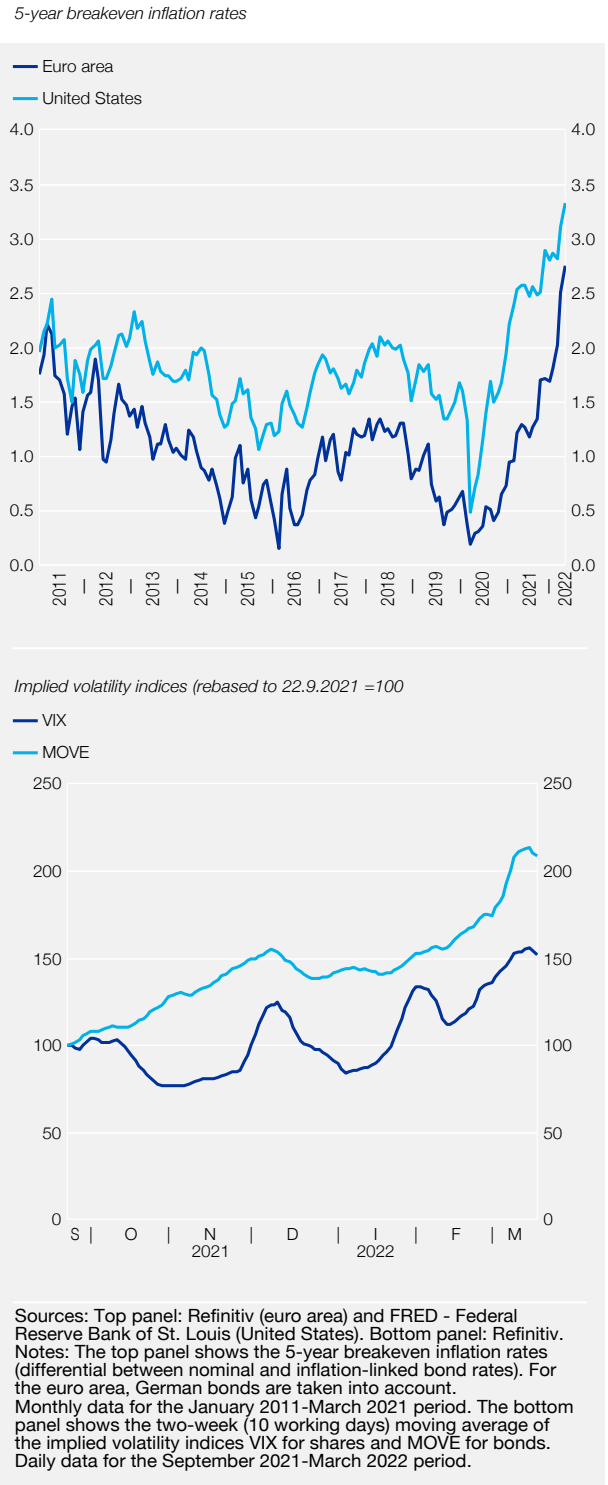
The year 2021 saw a continuation of the exceptionally favourable financial conditions that had prevailed since mid-2020, as a result of the coordinated response of major central banks and governments in advanced economies to address the economic fallout of the pandemic, through to the end of the third quarter. These conditions led to very low costs of borrowing for both high-rated and low-rated bond issuers. Against this backdrop, the Greek government raised funds on the international bond markets at historically low rates, which greatly contributed to the provision of government support to the real economy during the pandemic period.

However, global financial conditions have visibly changed since the last quarter of 2021, amid rising inflation across major economies worldwide (see Chart IX.1, top panel), thus leading to expectations of monetary policy tightening and interest rate hikes in several large economies across the globe. At its March 2022 meeting, the US Federal Reserve raised its key policy rate, in line with market expectations. Changing monetary conditions are associated with a rise in global bond yields, which is more pronounced for bonds that are seen as riskier (see Box IX.1).

At the same time, geopolitical tensions, after Russia's invasion of Ukraine, exacerbate uncertainty about the global economic outlook. Hence, another source of uncertainty, which leads to increased volatility in equity and bond markets, is added to the shifting monetary conditions (see Chart IX.1, bottom panel).

In this environment, the flexibility embedded in the pandemic emergency purchase programme (PEPP) is believed to provide crucial support to Greek government bonds. Yet given the changing monetary conditions, stepping up the effort towards an upgrade of Greece's credit rating to investment grade is of the utmost importance.

Chart IX.1 Inflation expectations and implied volatility indices



Sources: Top panel: Refinitiv (euro area) and FRED - Federal Reserve Bank of St. Louis (United States). Bottom panel: Refinitiv.
Notes: The top panel shows the 5-year breakeven inflation rates (differential between nominal and inflation-linked bond rates). For the euro area, German bonds are taken into account. Monthly data for the January 2011-March 2021 period. The bottom panel shows the two-week (10 working days) moving average of the implied volatility indices VIX for shares and MOVE for bonds. Daily data for the September 2021-March 2022 period.

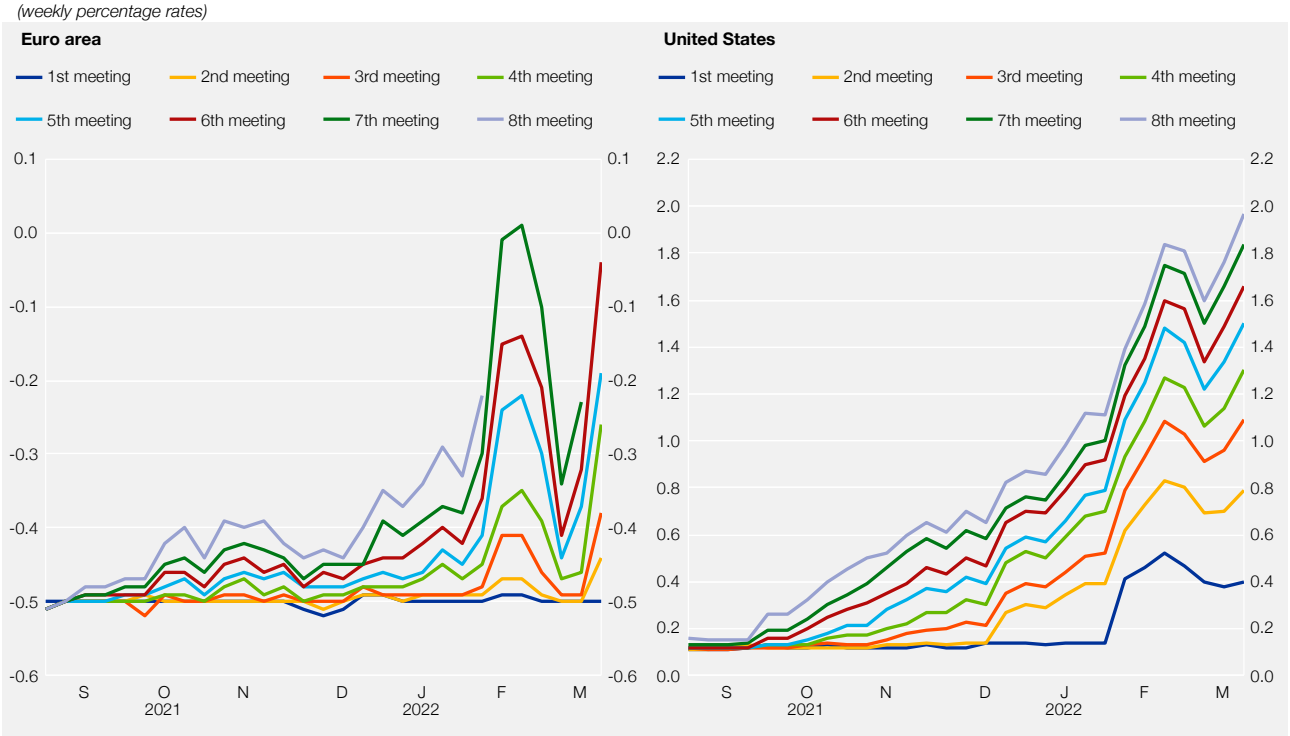
1 OVERVIEW OF DEVELOPMENTS AND PROSPECTS[1]

In 2021, global financial conditions remained very favourable through to the third quarter, as bond yields continued to stand at historically low levels, while, in the same vein, low stock market volatility and low equity risk premia pushed upwards equity prices globally. Lower borrowing costs were accompanied by a considerable increase in bond issuance across all credit ratings, especially by sovereigns and firms in advanced economies. Against this background, Greek government and corporate bond yields also reached historically low levels, while equity prices on the Athens Exchange rose markedly. Certainly, the favourable financial environment of the Greek economy was underpinned by Greece's credit rating upgrades by DBRS and S&P.

Meanwhile however, new risks have gradually emerged, particularly as to the level of inflation. In more detail, inflation in major economies worldwide has exceeded levels last seen in the 1980s, while investors' inflation expectations suggest a further rise. Furthermore, soaring energy costs, compounded by the recent geopolitical tensions, have heightened uncertainties about the prospect of a decline in inflation as well as about the global economic outlook. This had led to expectations of an interest rate lift-off by major central banks during 2022 (see Chart IX.2). At the FOMC meeting of 16 March 2022, the US Federal Reserve raised its policy rate by 25 basis points, in line with investors' expectations.

These developments are mirrored in rising government and corporate bond yields globally (see Box IX.1). In this international financial environment, already since the fourth quarter of 2021,

Chart IX.2 Expected key policy rates in the euro area and the Unites States (September 2021 - March 2022)



Source: Refinitiv.
Left-hand panel: The lines show the expected path of the ECB's deposit facility rate at the following eight meetings of the ECB Governing Council, as implied by OIS rates.
Right-hand panel: The lines show the expected path of the US federal funds rate at the following eight FOMC meetings, as implied by CME futures contracts.

1 The cut-off date for information and data used in this chapter is 28 March 2022.

Greek government bond yields have been following an upward trend, consistent with the average rise in yields for similarly rated bonds (BB). Greek corporate bond yields have increased less than the yields on other European, non-investment grade corporate bonds, while the maturity profile of the outstanding corporate bonds provides flexibility (see Box IX.2).

As repeatedly stressed by the Bank of Greece, the shift in global monetary and financial conditions is set to affect the cost of borrowing for the Greek government and Greek non-financial corporations. In this context, Eurosystem support is expected to play a prominent role. Finally, it becomes clear that a potential upgrade of Greece's credit rating would enhance the resilience of Greek government bond yields and contribute to improved financing conditions for Greek non-financial corporations in the capital markets.

2 INTERNATIONAL CAPITAL MARKETS

Throughout 2021, volatility in international equity and bond markets remained historically low. Against this backdrop, the search for yield led to increased portfolio investments in lower-rated, higher-yield securities, which translated in lower risk premia and higher asset valuations.

However, since the end of the third quarter of 2021, the rise in inflation globally and the expected further build-up of inflationary pressures have already given rise to expectations of monetary policy normalisation by major central banks.[2] Investor expectations of a gradual withdrawal of exceptional global monetary accommodation were confirmed following the Fed's latest announcements about a progressive shift in its monetary policy.[3] Thus, the prices of interest rate derivatives (see Chart IX.2) suggest that investors expect the US Federal Reserve to raise the federal funds rate by a total of at least 150 basis points (bps) during 2022 (six hikes of 25 bps each), on top of the recent 25 bps increase. The interest rate derivatives market indices also point to expectations of interest rate hikes by the European Central Bank (ECB).

Expectations of interest rate increases in major economies worldwide have a – direct or indirect – upward effect on euro area government and corporate bond yields as well (see Chart IX.3).[4] The spreads between long-term and short-term US federal bonds have narrowed, whereas a widening of spreads is observed in the euro area, suggesting the different time horizons of expectations about the future path of interest rates between the two monetary areas (see Chart IX.4). Lastly, inflation-linked bond yields, which are neutral to inflation rates, in 2021 remained relatively stable in the United States, but declined in the euro area.[5] Over the reviewed period of 2022, the aforementioned yields increased in the United States (+37 bps) and decreased in the euro area (-49 bps).

2 On 18 March 2022, the 5-year breakeven inflation rate, i.e. a measure of expected inflation derived from 5-year benchmark bonds, was 2.84% in the euro area and 3.42% in the United States, up by 168 bps and 71 bps year-on-year, respectively. The bond market's longer-term inflation expectations, as captured by the 5-year 5-year forward inflation rate, increased year on year (5-year 5-year forward inflation rate on 18.3.2022: euro area: 1.7% and USA: 2.4%, compared with 1.2% and 2.0%, respectively, one year earlier).

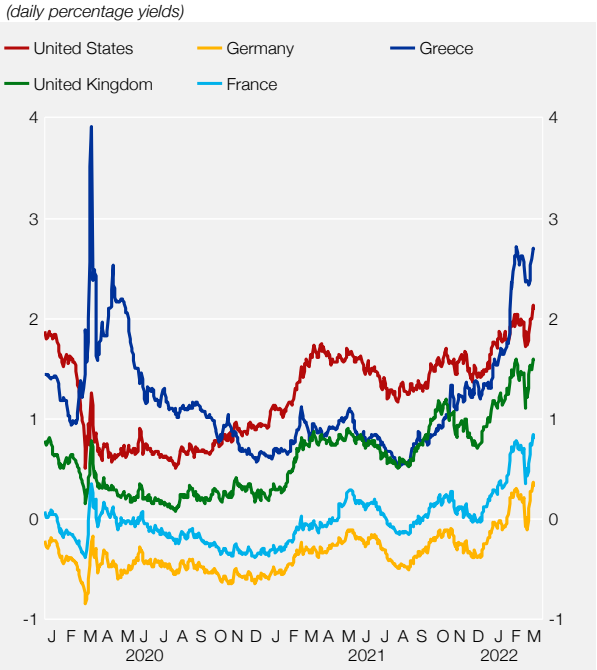
3 See the FOMC statements of 22.9.2021, 3.11.2021, 15.12.2021, 26.1.2022 and 16.3.2022. In brief, the FOMC decided in January 2022 to end its net asset purchases by early March. On 16 March 2022, the FOMC decided to raise the target range of its federal funds rate by 25 bps, while, as suggested by the economic projections of the FOMC members (Economic Projection Materials – dot plot), the majority of its members assess that the US key policy rate should be at least 150 bps higher than its current level by the end of 2022.

4 Changes in 10-year bond yields between 1.1.2021 and 31.12.2021: Germany: 40 bps, France: 54 bps, Italy: 66 bps, Spain: 54 bps and Portugal: 42 bps. Rising yields and widening spreads continued into the 1.1-18.3.2022 period (changes in yields: Germany: 55 bps, France: 64 bps, Italy: 71 bps, Spain: 73 bps and Portugal: 70 bps).

5 The interest rate on German 5-year inflation-linked bonds stood at -2.3% at end-December 2021, i.e. down by 79 bps year on year.

Chart IX.3 Ten-year government bond yields (January 2020 - March 2022)

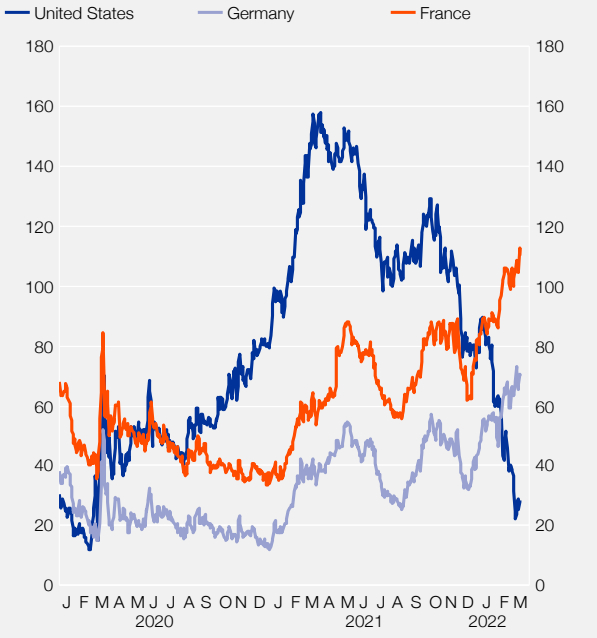
(daily percentage yields)



Source: Refinitiv.

Chart IX.4 Yield spreads between 10-year and 2-year benchmark bonds (January 2020 - March 2022)

(daily data, basis points)



Source: Refinitiv.

In any event, monetary policy normalisation by major central banks worldwide is expected to drive global bond yields upwards, affecting international financial conditions via a rise in volatility in equity and corporate bond markets. In such an environment, according to estimates by international rating agencies, a contraction in bond issuance should be expected.[6] Besides, the estimated global impact from such eventuality is reflected in the upward trend of both government and corporate bond yields, which has been observed since the end of the third quarter of 2021, in line with expectations about a tightening in the Fed's monetary policy (see Box IX.1).

6 For instance, S&P estimates that, in view of a monetary policy tightening globally, sovereign and non-financial corporate (NFC) bond issuance in 2022 will contract by 4% and 7%, respectively. See "Credit Trends: Global Financing Conditions: Bond Issuance Looks Set To Contract 2% This Year As Monetary Policy Tightens", Standard and Poor's, 31.1.2022.

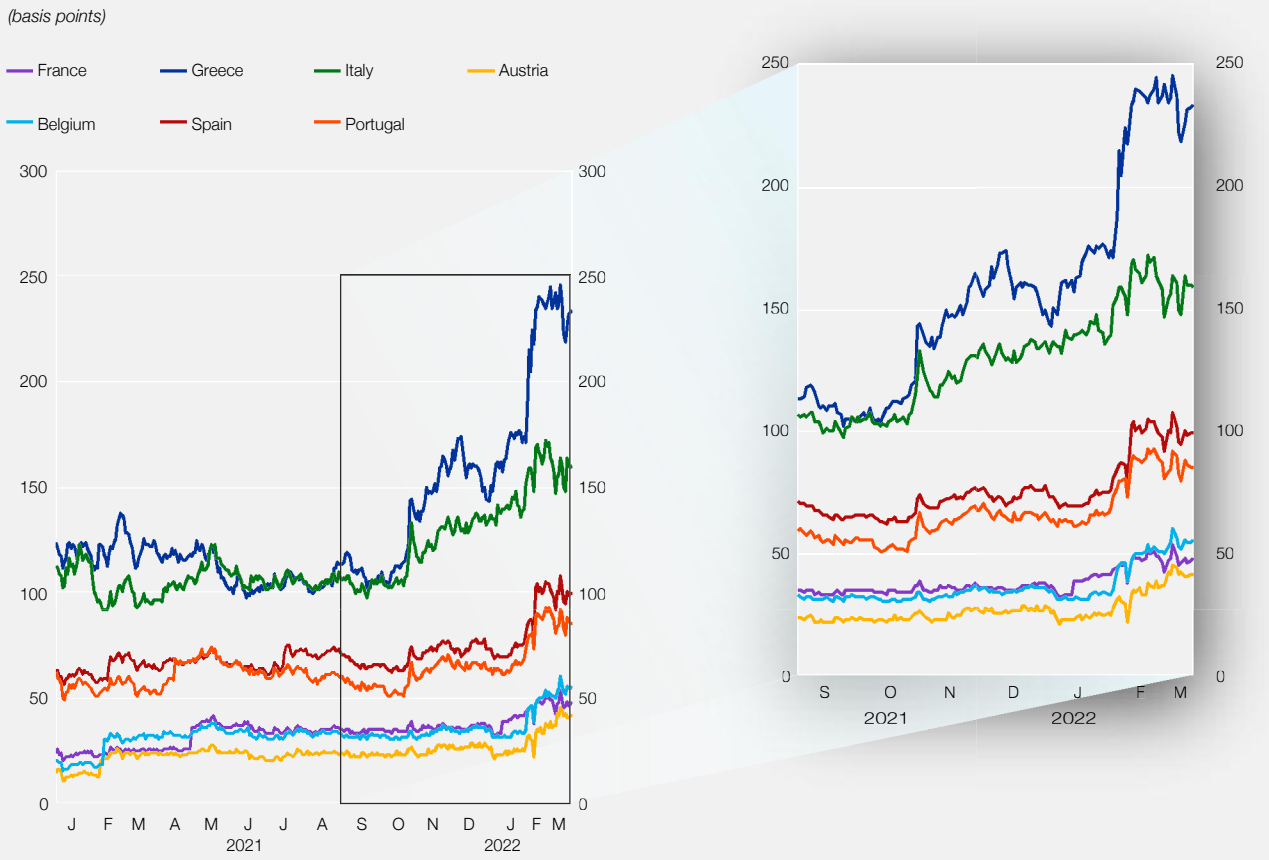
Box IX.1

GLOBAL FINANCIAL CONDITIONS AND GREEK SOVEREIGN BONDS

The yield differentials (spreads) between 10-year Greek and other euro area government bonds are determined by: (a) common factors, which affect all bonds, but not necessarily in a uniform way or to the same extent; and (b) the so-called "idiosyncratic" factors, such as risks relating to specific economies. Common factors may refer to global monetary conditions, while market expectations about Greece's potential exit from the euro area (Grexit) can be seen as a past example of idiosyncratic factors.

Recently, from mid-October 2021 to date, a surge has been observed in the spreads of Greek sovereign bonds vis-à-vis the German Bund. During the same period, the yield spreads of the sovereign bonds of other euro area economies, including the so-called "core" economies such as France, Austria and Belgium, vis-à-vis the Bund have also risen, while the magnitude of the rise differs across economies (see Chart A).

Chart A Spreads between euro area sovereign bonds and the German Bund



Sources: Refinitiv and Bank of Greece.
Notes: The chart shows the yield differentials (spreads) of the 10-year sovereign bonds of Greece and selected euro area economies relative to the German Bund. The left-hand panel shows the evolution of yields from the beginning of 2021 until 15 march 2022, while the right-hand panel focuses on the 1.10.2021-15.3.2022 period. Spreads are measured in basis points.

For instance, in the period after the prospect of an interest rate lift-off by the Fed emerged as a factor affecting investor expectations and up until Russia's invasion of Ukraine (i.e. between 22 September 2021[1] and 23 February 2022), the spread of the 10-year French sovereign bond vis-à-vis the German Bund widened by about 17 basis points (bps). Likewise, the Austrian spreads widened by 13 bps, the Belgian spreads by 22 bps, the Spanish spreads by 40 bps and the Italian spreads by 72 bps. Over that same period, the spread of Greece's 10-year benchmark bond relative to the Bund widened by as much as 133 bps.

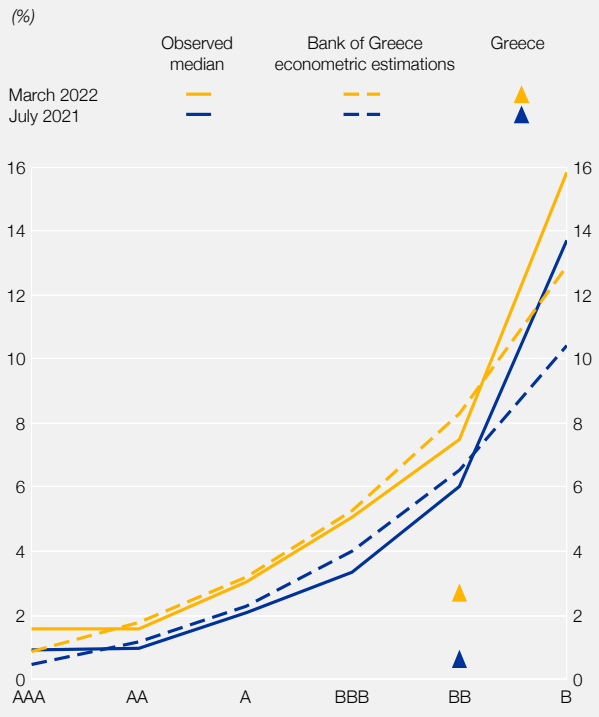
Of course, this period is characterised by large fluctuations, with high volatility being its main characteristic. For example, sovereign spreads stabilised after the ECB meeting of 17 December 2021, whereas the announcement of a higher-than-expected inflation rate for the euro area, on 7 January 2022, was followed by a renewed upward trend (changes in spreads: between 17.12.2021 and 6.1.2022: Greece: -7 bps, Italy: +2 bps, Spain: -3 bps, Belgium: -4 bps, Austria: -3 bps and France: -2 bps; between 7.1.2022 and 23.2.2022: Greece: +89 bps, Italy: +29 bps, Spain: +32 bps, Belgium: +20 bps, Austria: +18 bps and France: +17 bps). So, given that the rise of yields and spreads is persistent, it is important to investigate the determinants of Greek government bond yields, in order to find out whether they are idiosyncratic or common.

1 At the Federal Open Market Committee (FOMC) meeting of 21-22 September 2021, the likelihood of a 2022 increase in the federal funds rate was signalled, given that the number of FOMC members favouring a policy rate hike during 2022 had grown, as evidenced by the accompanying documents of the meeting (see Projection Materials). This signal was confirmed by the minutes of the meeting released on 13 October 2021.

Expectations of an interest rate hike raise sovereign yields globally

To investigate whether the rise in yields is a country/economy-specific or a global phenomenon, the equilibrium relationship of the government sovereign bond yields, globally, with their credit ratings is employed. In particular, the relevant literature has established that credit ratings are a key determinant of sovereign bond yields, as shown in Chart B.[2,3]

Chart B Sovereign yields by credit rating category



Source: Refinitiv. Calculations and econometric estimations: Bank of Greece. Notes: The solid lines show the median 10-year bond yield, for each credit rating category. Medians have been calculated based on data from 70 economies around the world. Dashed lines show the estimated level, by credit rating category, on the basis of the Bank of Greece model (see D. Malliaropulos and P. Migiakis (2018), "The re-pricing of sovereign risks following the Global Financial Crisis", Journal of Empirical Finance, 49C, 39-56). The triangles denote the level of the 10-year Greek sovereign bond yield on the respective dates.

In this respect, the level of yields is determined in close connection with sovereign credit ratings, because the latter are derived from a combination of various criteria relating to the underlying economies and not merely on the basis of a limited set of fundamentals. Thus, differences in the cost of borrowing may be observed even for economies with relatively similar levels of debt by the standards of each economy, as different ratings reflect differences in structural, macroeconomic or other parameters of the underlying economies. For example, while Spain and Belgium have almost the same debt-to-GDP ratio (estimates for 2021[4]: Spain: 120.6%, Belgium: 112.7%), because of their different credit ratings (highest current rating of each economy: Spain A (S&P), Belgium AA (S&P)), the yields of Spain's 10-year bonds (1.315% on 15.3.2022) are higher than those of Belgium's (0.875% on 15.3.2022).

Accordingly, the cross-section relationship of yields with sovereign credit rating categories explains the different reactions of euro area bond yields to the same factors. This appears to be the case especially at the current juncture, as the yields of lower-rated bonds are more sensitive to the common factor of expectations about a monetary policy tightening by major central banks.

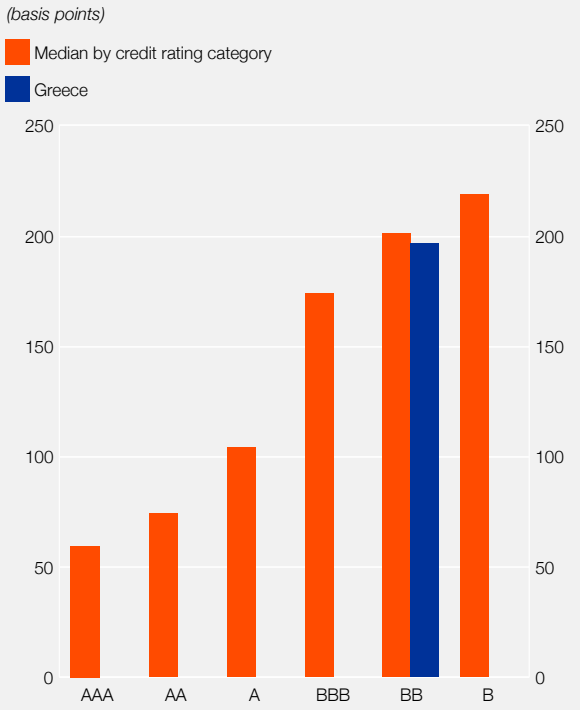
Specifically, from the third quarter of 2021 until recently, a surge in sovereign yields has been observed across all credit rating categories, which is more pronounced for bonds with lower credit ratings (see Chart C). In fact, the upward trend in lower-rated bond yields intensified after the FOMC meeting in September. Since 13 October 2021, when the minutes of the meeting were published and it became evident that several members of the committee had turned around and were now in favour of a 2022 interest rate lift-off, a rise in yields has also been observed for the high-rated bonds. Consequently, this suggests that expectations of an interest rate hike by major central banks during 2022 are driving upwards sovereign yields globally.

2 See for instance Aizenmann J., M. Binici and M. Hutchinson (2013), "Credit ratings and the pricing of sovereign debt during the euro crisis", *Oxford Review of Economic Policy*, 29, 582-609; De Santis, R. (2012), "The euro area sovereign debt crisis: safe haven, credit rating agencies and the spread of the fever from Greece, Ireland and Portugal", ECB Working Paper No. 1419; and Georgoutsos, D. and P. Migiakis (2018), "Risk perceptions and fundamental effects on sovereign spreads", Bank of Greece Working Paper No. 250.

3 Chart B also shows that markets are overpricing Greek government bonds, perceiving a higher credit rating than their current one (BB). More precisely, it appears that the market pricing of Greek government bonds now ranges between BBB and BBB+.

4 Source: *Economic Forecast, Autumn 2021*, European Commission, 11.11.2021.

Chart C Changes in sovereign yields since the third quarter of 2021



Source: Refinitiv and Bank of Greece calculations.
Notes: The orange bars show the observed changes (in basis points) in 10-year sovereign bond yields, by credit rating category, for 70 economies wordlwide between 1.7.2021 and 15.3.2022. The bue bar shows the respective change in the 10-year Greek government bond yield. In calculating the change for the BB category, the change in the Greek sovereign bond yield was not taken into account.

After Russia's invasion of Ukraine, a decline in euro area sovereign bond yields was observed, particularly for bonds with high credit ratings. Meanwhile, heightened volatility in bond and equity markets, as well as rising yields on bonds with lower credit ratings (i.e. BBB and below) worldwide point to investors' increased preference for safe assets (flight-to-safety). Against this background, Greek government bond yields have increased further, in line with the average increase in BB-rated bond yields.

Conclusions

Changes in global monetary and financial conditions strongly affect Greek sovereign bonds as well. In particular, market expectations about an upcoming monetary policy tightening and interest rate hikes have led to a surge in bond yields, which is more pronounced for lower-rated sovereign bonds. Additionally, the higher volatility ensuing from the recent geopolitical developments leads to flight-to-safety, i.e. portfolio shifts away from low-rated into "safe haven" assets, such as bonds with a high credit rating.

All in all, the factors pushing sovereign yields upwards globally, such as the expectations of higher interest rates and the prevailing uncertainty due to the current geopolitical developments, also drive the yield rise of Greek sovereign bonds. In this regard, a potential upgrade of Greece's credit rating by major rating agencies would be very important, as it could strengthen the resilience of Greek bonds to the changes in financial conditions brought about by the shift of global monetary conditions and elevated volatility. Finally, this highlights the need to continue and step up the ongoing reform effort, as well as to achieve or even overshoot the agreed fiscal and economic growth targets.[5]

5 The drivers of the Greek economy's upgrade to the investment-grade category are discussed in Box VII.1 of the Bank of Greece *Monetary Policy Interim Report* published in December 2021.

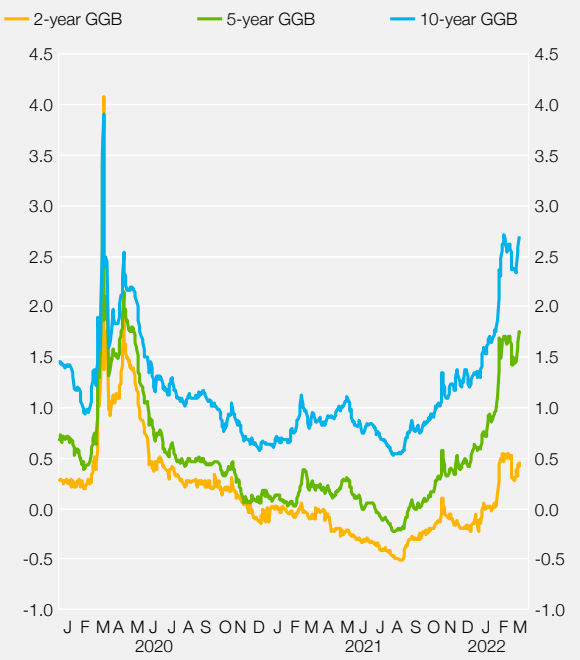
3 GREEK GOVERNMENT BONDS

During 2021, market sentiment for Greek government bonds was positive, as a result of the favourable international monetary and financial environment and the better-than-expected performance of the Greek economy, which led to an upgrade of Greece's credit rating.[7] Against this background, Greek government bond yields across the entire maturity spectrum stood at historically low levels through to the end of the third quarter, which greatly enabled the Greek State to issue new bonds at a historically low cost and with longer maturities, with a view to providing financial support to the real economy during the pandemic (see Chart IX.5).

7 On 18 March 2022, DBRS upgraded Greece's credit rating to BB (high), just one notch short of investment grade. On 14 January 2022, Fitch had revised the outlook on Greece's ratings to positive from stable (affirming a rating of BB), while on 23 April 2021 S&P had upgraded Greece's rating from BB- to BB. Thus, the Greek economy's credit rating is now closer to investment grade – i.e. a score equivalent to or higher than BBB-/Baa3/BBB (low) – by one notch on the basis of DBRS ratings, by two notches on the basis of Fitch and S&P ratings and by three notches on the basis of Moody's ratings.

Chart IX.5 Greek government bond yields (January 2020 - March 2022)

(daily data, percentage yields)



Source: Refinitiv.

However, since the beginning of the fourth quarter of 2021, an upward trend has been observed in Greek government bond yields. This development is thought to be associated with the international context, in particular with expectations of a monetary policy shift globally, as well as with uncertainties surrounding the prospect of a decline in inflation and the global economic outlook following the recent geopolitical developments (see Box IX.1).

Over the January-September 2021 period, Greek government bond yields followed a downward path, continuing a trend that had been observed since the second quarter of 2020. Yet a slight rise in medium-term and long-term bond yields has been visible from September onwards, largely in line with global developments, while since the end of October short-term bond yields have also started to rise (see Chart IX.5). Thus, as at mid-March 2022, the yield curve of Greek government bonds has considerably shifted upwards relative to both early 2021 and early 2022 (see Chart IX.6). The spread of the Greek 10-year bond vis-a-vis its German counterpart also moved along a similar path, remaining relatively stable over the first nine months of 2021. As from end-October, the spread has been trending upwards, in line with the respective spreads for some euro area countries, as well as with the higher sensitivity of Greek bonds to international investment climate swings (see Chart IX.7).

In 2021, amid very favourable financial conditions, the Greek government issued long-term bonds at a low cost, further improving its public debt profile. In greater detail, Greek government bond issues in 2021 totalled €14 billion and attracted robust demand.[8] Furthermore, at the end of 2021, the Greek government offered an exchange or buyback of debt maturing between 2023 and 2042. The offer was met with strong interest, and 72.16% of the value of the bonds was either repurchased (transaction amounting to around €1.1 billion) or exchanged (transaction amounting to around €1.8 billion). Low-cost bond issues also continued into the reviewed period of 2022.[9]

At the same time, Treasury bills with maturities of 3, 6 and 12 months, totalling €24.8 billion, were issued in 2021, compared with €23.6 billion in 2020, with the average weighted cost of the issues being considerably lower (2021: -0.35%; 2020: 0.04%). It should be noted that all of the Treasury bills issued in 2021 had negative yields. The Public Debt Management Agency aims to improve the parameters of Greek sovereign debt by lowering its average cost of refinancing and to extend its maturity by increasing the number of longer-term bond issues.

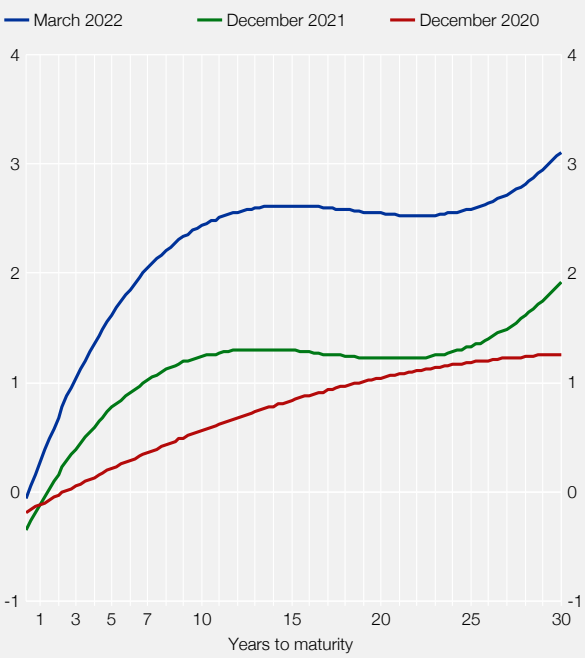
Finally, the liquidity condition of the government bond market has improved relative to the period prior to the inclusion of Greek government bonds in the PEPP. More specifically, the average

8 January: 10-year bond, €3.5 billion, 0.750% coupon (yield 0.807%); March: 30-year bond, €2.5 billion, 1.875% coupon (yield 1.956%); May: 5-year bond, €3 billion, 0.0% coupon (yield 0.172%); June: 10-year bond reopening, amounting to €2.5 billion (yield 0.888%); September: 5-year and 30-year bond reopenings, amounting to €1.5 billion (yield 0.02%) and €1 billion (yield 1.675%), respectively.

9 January 2022: 10-year bond issue, amounting to €3 billion, with a 1.75% coupon (yield 1.836%).

Chart IX.6 Greek government bond yield curve

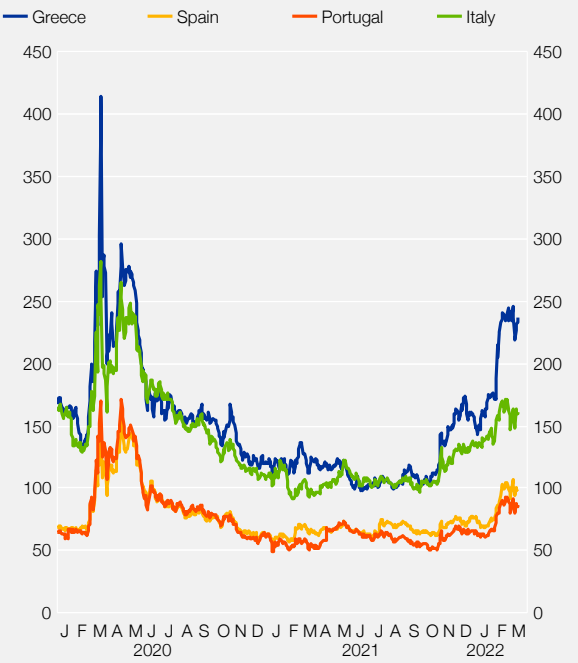
(percentage yields)



Source: Bank of Greece econometric estimations based on Refinitiv data.
Note: The yield curve was estimated using the cubic spline methodology, with time-varying parameters. Data for December 2020, December 2021 and March 2022 refer to 31.12.2020, 31.12.2021 and 17.3.2022, respectively.

Chart IX.7 Ten-year government bond yield spreads (January 2020 - March 2022)

(daily data, basis points)



Source: Refinitiv.
Note: The lines show the yield differentials of government bonds issued by the reviewed countries against German 10-year government bonds.

daily value of transactions on the Electronic Secondary Market for Government Securities (HDAT) came to €109.5 million in 2021, compared with €92.3 million in 2020. The average daily trading volume on the Dematerialised Securities System (DSS), which settles both domestic and international transactions, reached €742.4 million in 2021, up from €600.9 million in 2020.

Thus, it becomes apparent that global monetary and financial conditions strongly affect Greek government bond yields, having a direct effect on the cost of borrowing for the Greek State and an indirect effect on the market-based cost of financing for Greek firms. In this light, the inclusion of Greek government bonds in Eurosystem asset purchase programmes is expected to provide support to Greek government securities in the event of worsening financial conditions. Notwithstanding this, sustaining a low cost of borrowing over the years is contingent on the upgrade of Greece's credit rating to investment grade.[10]

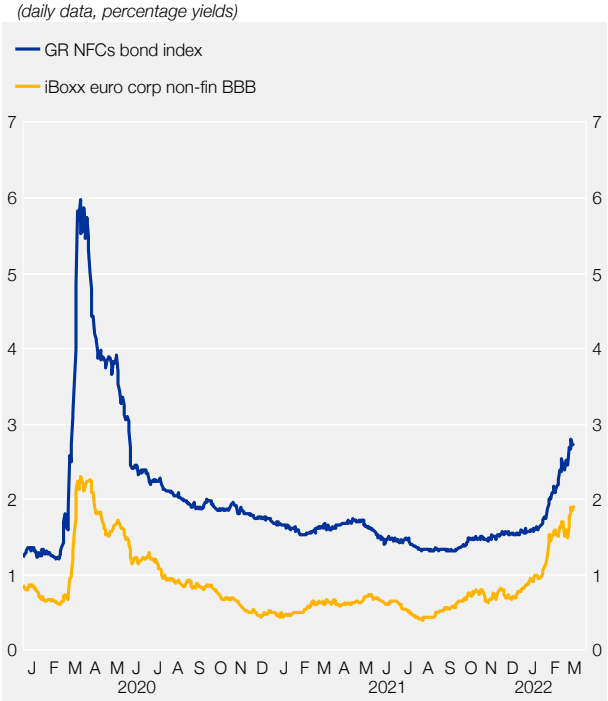
4 GREEK CORPORATE BONDS

As in government bond markets, conditions in corporate bond markets during 2021 were particularly favourable for new issues. In greater detail, on account of low borrowing costs and historically low yields for Greek government bonds, the yields on bonds issued by Greek non-financial corporations also remained close to historic lows throughout the year. Still, since the end of the third quarter of 2021, an upward trend has been observed in Greek corporate bond yields, consistent with the upward path of similarly rated euro area corporate bond yields (see Chart IX.8).

10 For the prospects of achieving this goal, see Bank of Greece, *Monetary Policy Interim Report 2021*, Box VII.1.

Chart IX.8 Greek and other European non-financial corporate bond yields (January 2020 - March 2022)

(daily data, percentage yields)



Sources: Bank of Greece (GR NFCs bond index) and Refinitiv (iBoxx euro corp non-fin BBB).
Note: The GR NFCs bond index denotes the average weighted bond yield for Greek non-financial corporations that have issued eurobonds in international bond markets since 12 December 2021. The weighting is daily and based on the market value of the bonds. The index compilation methodology is described in Bank of Greece, Economic Bulletin, Issue 40, December 2014, pp. 59-78. The index is available on Bloomberg (ticker: BOGGRNFC index).

During 2021, a surge in bond issuance by non-financial corporations was recorded on the global bond markets, in view of improved financial conditions worldwide, a development which also had a positive effect on similar issues in Greece. Over that period, four Greek non-financial corporations raised funds worth €2.4 billion (in nominal terms), through bond issues on the international capital markets, with an average weighted coupon of 2.9%. Besides, in 2021 seven bond issues were floated on the domestic market, raising a total of about €1.4 billion with an average weighted coupon of 2.4%. Lastly, during the reviewed period of 2022, two new issues totalling €200 million were floated on the domestic market, albeit with a higher average weighted coupon (2.9%).

The gross value of securities issued by Greek non-financial corporations, through their subsidiaries, on the international markets since 2013 comes to about €12.6 billion, which suggests that the international markets have become a significant source of investment funding and debt refinancing for large Greek firms, mainly manufacturers and exporters. The outstanding amounts of issues, i.e. taking also into account issues, maturities and repayments, stand at around €6.7 billion. Turning to the domestic market, since it started operating in 2017 and until mid-March 2022, Greek non-financial corporate bond issues totalled about €4.1 billion, with their outstanding balances coming to roughly €3.6 billion.

It should also be stressed that a number of Greek firms have already been active on the market for sustainable financial products, financing investment projects aimed at improving their environmental performance indicators. More specifically, Greek firms have tapped the international bond markets raising €2.45 billion through the issuance of sustainability-linked bonds, while the sustainability-linked bonds that they have issued on the domestic market amount to €570 million.

Box IX.2

BOND MARKET FINANCING OF GREEK ENTERPRISES AND ITS RELEVANCE FOR THE GREEK ECONOMY

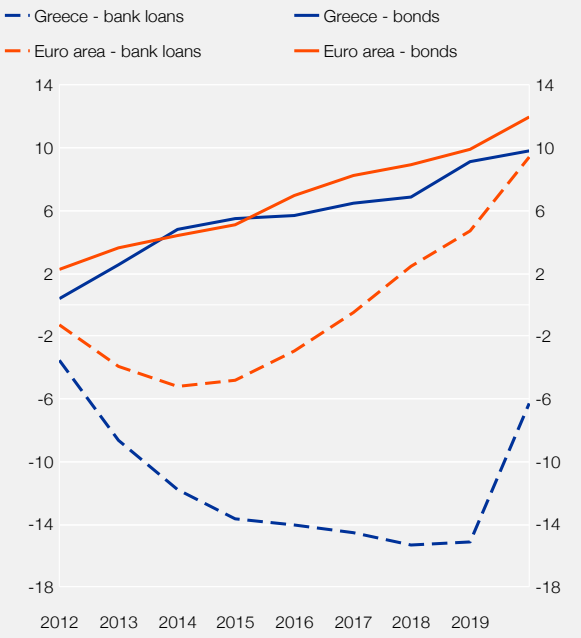
The corporate bond market is an important source of financing, which can render the allocation of production factors more efficient, thus increasing the productivity of the economy. In recent years, around thirty major Greek non-financial corporations (NFCs) have gained access to external financing through the issuance of corporate bonds, either on international markets or on the domestic market. An examination of the evolution of bond market financing of Greek enterprises allows us to draw conclusions concerning both the financing of

the Greek private sector and the economic activity of these enterprises.

Bank lending is the main source of external financing for domestic firms. Of course, in the period from 2012 to 2015, the cumulative net flow of loans to Greek NFCs was negative, reflecting the significant shortfall in new credit by banks compared to loan maturities, amid deleveraging of the domestic banking sector (see Chart A). Over the same period, the net flow of bank loans to NFCs in the euro area was also negative. At the same time, however, financing from the corporate bond market was on the rise both in the euro area and in Greece.

Since end-2012, Greek NFCs have been continuously present in the international bond markets, raising significant amounts, while funding raised from the domestic market, which has been operating in the Athens Exchange since mid-2016, exhibits an upward trend. In line with international developments, Greek companies borrowed about €3.8 billion in 2021, the largest amount since 2012. At the same time, the cost of bond issuing by Greek NFCs on international markets has dropped from around 9% in 2012 and 2013 to around 2.8% in 2021, converging with that of comparable corporate

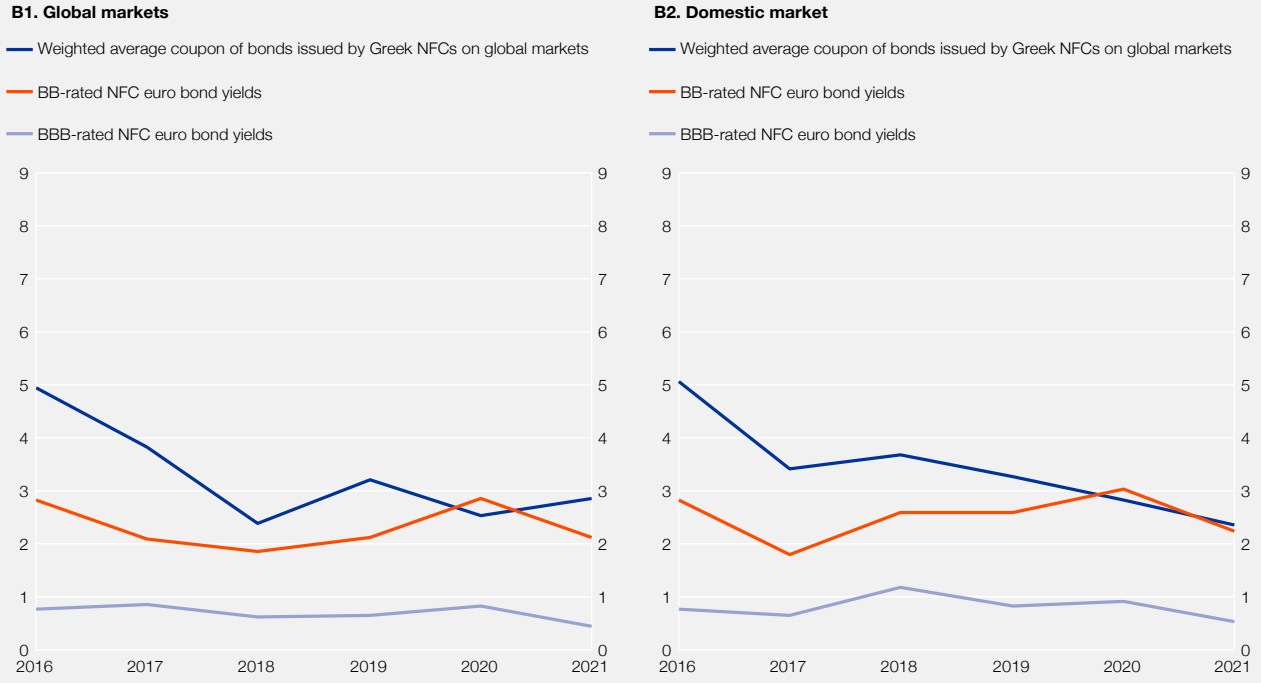
Chart A Sources of financing of non-financial corporations



Sources: Eurostat, ECB and Bank of Greece.
Note: The curves show the ratio of cumulative net flow of bank loans/bonds to the sum of the balance of bank loans and bonds. Ratios are taken separately for non-financial corporations in Greece and the euro area. Cumulative net flows are calculated as the sum of annual net flows of bank loans/bonds since 2012.

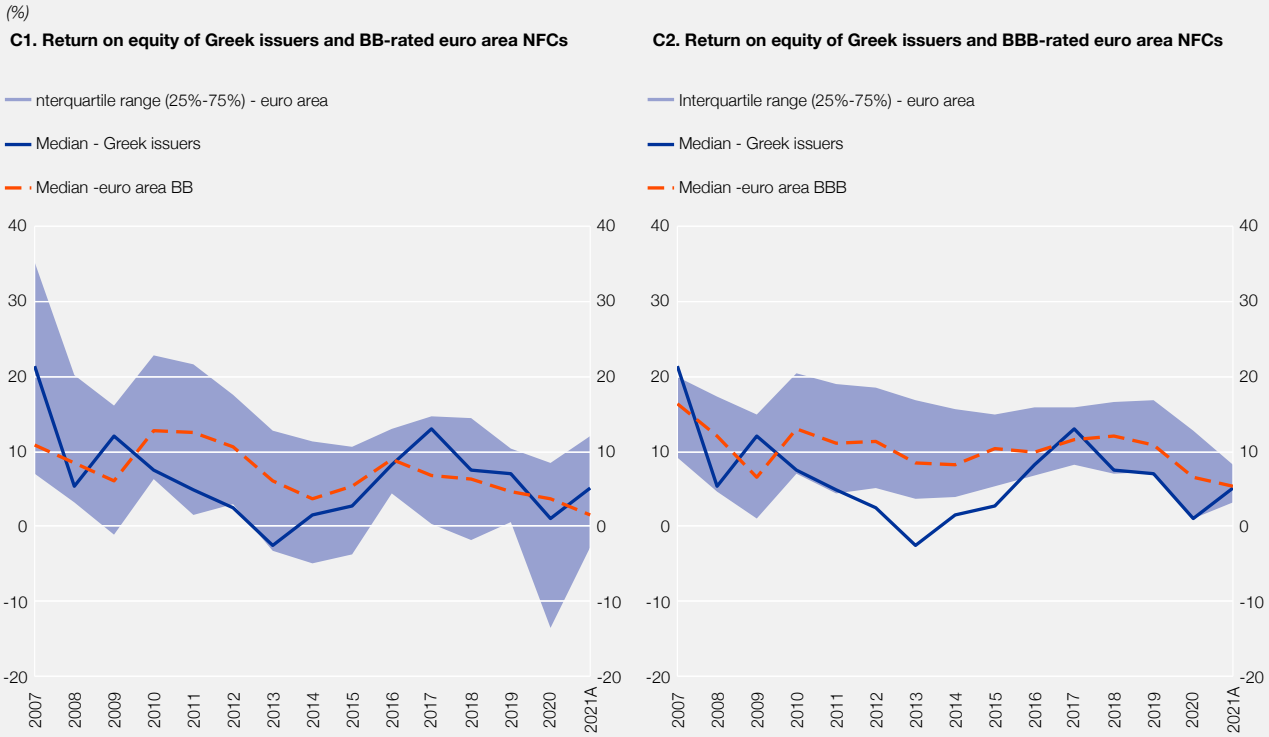
Chart B Borrowing costs for new issues by Greek non-financial corporations and corporate bond yields in euro of non-financial corporations with BB and BBB credit rating

(yields in %)



Sources: Refinitiv and Bank of Greece.
Notes: The curves show yields of euro bonds issued by BB- and BBB-rated non-financial corporations (NFCs), as well as weighted average bond coupons issued by Greek NFCs. Each year shows BB and BBB-rated bonds with the same maturity as the weighted average maturity of Greek bonds.

Chart C Return on equity of Greek issuers and euro area non-financial corporations



Sources: Refinitiv and Bank of Greece.
Notes: The chart shows the median of return on equity of Greek issuers and the median of return on equity of similar euro area NFCs with BB (left-hand side) and BBB (right-hand side) credit rating. Shaded areas show the interquartile range of return on equity of euro area NFCs. Euro area peers rated BB and BBB were collected from Refinitiv (21 and 81 listed groups respectively). The ratio of net profits to average equity was used to measure return on equity.

bonds issued by similarly rated euro area firms[1] (see Chart B1). A similar picture is also seen in the domestic market, where the cost of bond issuing has decreased from close to 5% in 2016 to around 2.4% in 2021 (see Chart B2). Accommodative international financial conditions, combined with a better than expected performance of the Greek economy and a gradual improvement of the credit rating of the Greek government, have contributed to a gradual reduction of yields on Greek government and corporate bonds.

An analysis of the fundamentals of Greek issuers and a comparison with similar firms abroad provide useful information on their profitability and solvency, in addition to their current credit rating, which is affected by the credit rating of the Greek sovereign. The fundamentals of Greek issuers compare favourably with those of similar NFCs that have issued euro-denominated bonds with a credit rating equal to that most common among Greek issuers (i.e. BB), while often standing close to the fundamentals of companies with a higher credit rating (BBB). Return on equity (RoE) of Greek issuers was negatively affected during the debt crisis, before returning to levels better than for BB-rated peers, and often to levels equivalent to those of peers within the investment class (BBB) (see Chart C). Similar conclusions can be drawn from the examination of other indicators, such as the debt-to-equity ratio and the interest coverage ratio.

Gross value added of Greek issuers

The contribution of issuing enterprises to the Greek economy can be proxied by comparing their gross value added (GVA) with total GVA of Greek NFCs. Greek NFCs were represented by the total number of enterprises included in the institutional sector of non-financial corporations (S.11) in accordance with the European System

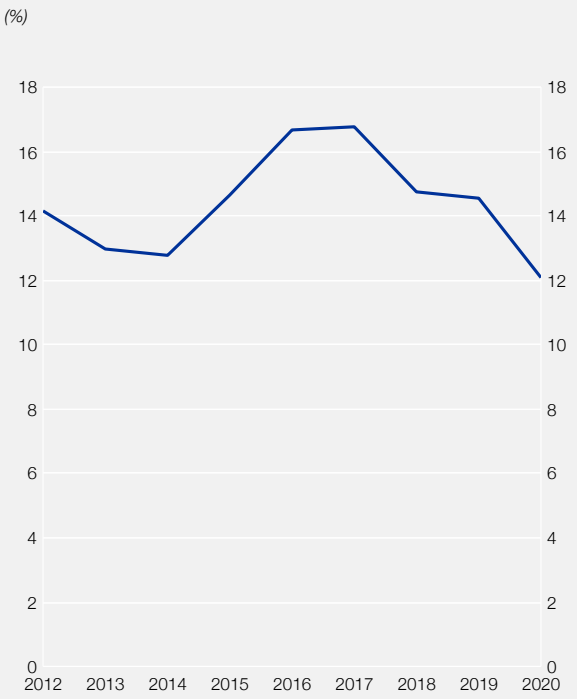
1 The weighted average credit rating of Greek issuers at the date of bond issue stands at BB.

of National and Regional Accounts (ESA 2010).[2] Data on the GVA of NFCs were taken from the Hellenic Statistical Authority (ELSTAT) and are based on the ESA 2010 statistical standard. A corresponding methodology, which is also in line with literature, was used to calculate GVA of issuing firms.

As shown in Chart D, over the 2012-2020 period, GVA of issuing enterprises represented on average around 14% of GVA of Greek NFCs, which demonstrates the strength of their contribution to the Greek economy. The significant role of issuing firms is also reflected in the allocation of funds raised. According to the prospectuses and balance sheets of these firms, around 3/4 of funding was used for the repayment of previous bank lending and working capital, while 13% (in total around €2.2 billion in the years 2012 to 2021 inclusive) was channelled towards the companies' investment plans.

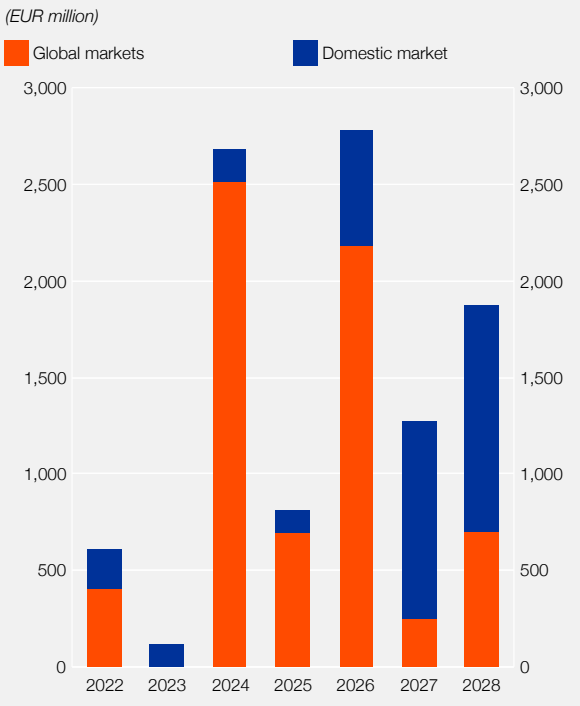
In summary, Greek NFCs that have issued securities either on international markets or on the domestic market are capital intensive, export-oriented and mostly profitable, having a significant footprint in the Greek economy. In addition, they are large in size and have been operating for many years, which makes them more resilient to fluctuations in demand, gives them access to more sources of finance, as well as the possibility to exploit economies of scale and develop stable relationships with their business partners through participation in international production chains.[3]

Chart D Share of Greek issuers in the gross value added of Greek non-financial corporations



Sources: ELSTAT, Orbis Europe, issuers' financial statements and Bank of Greece.
Notes: The curve shows the ratio of gross value added (GVA) of Greek issuers to the GVA of Greek NFCs. Issuers' GVA is calculated as the sum of compensation of employees, net profits, depreciations, taxes and net financial expenditure, minus subsidies. GVA of Greek NFCs is calculated as the sum of compensation of employees, gross operating surplus and taxes on production and imports, minus subsidies.

Chart E Maturities of Greek corporate bonds per year



Sources: Refinitiv and Bank of Greece.

Conclusions

In conclusion, the increase in market financing of large Greek non-financial corporations is in line with international developments and constitutes an alternative channel for raising capital. Greek non-financial corporations that have issued securities are not many, but have a sig-

2 Total economy (S.1) consists of the following institutional sectors: non-financial corporations (S.11), financial corporations (S.12), general government (S.13), households and non-profit institutions serving households (NPISHs) (S.1M) and rest of the world (S.2). This analysis is limited to the category of non-financial corporations (S.11).

3 See for instance Fort, T., J. Hartiwanger, R. Jarmin and J. Miranda (2013), "How Firms Respond to Business Cycles: The Role of Firm Age and Firm Size", IMF Economic Review, 61, 520-559, and Ferrando, A. and K. Mulier (2015), "'Firms' financing constraints: do perceptions match the actual situation?", The Economic and Social Review, 46(1), 87-117.

nificant footprint in the Greek economy, with a strong contribution to the gross value added of the Greek economy. Finally, as shown in Chart E, the refinancing needs of Greek corporate bonds are rather limited up to end-2023, adding some flexibility.

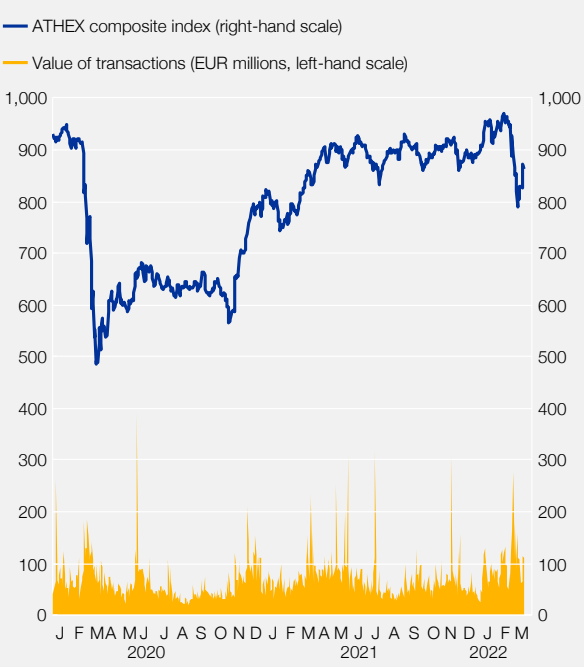
5 STOCK MARKET

Equity prices on the Athens Exchange trended upwards in 2021 (ATHEX composite index: +10.4%), in line with positive performance in the United States (S&P 500: 26.9%) and the euro area (EURO STOXX: 20.4%), as well as amid low volatility (see Chart IX.9). Most sectors have posted positive returns, with the sub-indices of sectors such as industry (+27.2%) and energy (+16.2%) outperforming the ATHEX composite index.

However, the uncertainty about the global economic outlook, which prevails after Russia's invasion of Ukraine, has worsened investor sentiment in equity markets globally. In particular, volatility across equity markets has risen substantially (changes in average implied volatility indices between 31.12.2021-24.2.2022 and 24.2-18.3.2022: VIX: +24%; VDAX: +58%; VSTOXX: +55%) and equity prices have been trending downwards (changes between 31.12.2021 and 18.3.2022: S&P 500-USA: -6.4%; EURO STOXX-euro area: -9.3%).

Chart IX.9 Athens Exchange composite share price index and value of transactions (January 2020 - March 2022)

(daily data)



Source: Refinitiv.

In the light of the above, it is evident that the low volatility conditions that prevailed in 2021 both in the international markets and in the Greek equity market have changed significantly. During the reviewed period of 2022, share price volatility in the Greek market has surged relative to 2021, while covariance with European shares is stronger (standard deviations of daily returns during the 1.1-18.3.2022 period: ATHEX composite index: 1.48%; EURO STOXX: 1.46%; correlation coefficient between the ATHEX composite index and EURO STOXX in 2022: 96.2%).[11]

Trading activity (daily average volume of transactions) in 2021 grew to €71.0 million, up from €64.9 million in 2020, while during the reviewed period of 2022 a further increase has been recorded (€95.8 million). Furthermore, share capital increases amounting to around €1.7 billion were effected in 2021 by ATHEX-listed non-financial corporations, compared with about €166 million in 2020.[12] Also, in 2021 one company was listed on the primary market and two companies were listed on the ATHEX alternative market, while 13 companies were delisted from the primary market and one company from the ATHEX alternative market.

11 Standard deviations of daily returns in 2021: ATHEX composite index: 0.99%; EURO STOXX: 0.79%; correlation coefficient between the ATHEX composite index and EURO STOXX in 2021: 55.9%.

12 Share capital was increased by paying up issued shares in cash or in kind, or by exercising stock options. The 2021 figure includes the €1.35 billion share capital increase of the Public Power Corporation (PPC) in November, which was paid up in cash.

X ENVIRONMENT, ENERGY AND CLIMATE CHANGE

In 2021, global greenhouse gas emissions (GHG) increased again after a temporary decline in 2020. The average global temperature was one of the warmest on record, and extreme weather events became more frequent and intense. Encouraging developments included the adoption of policies, notably in the EU, to promote green recovery and transition to low carbon economies, while the outcomes of the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26) were seen as positive but insufficient steps forward. A hotly debated issue among Member States was the proposed inclusion, on a transitional basis and subject to strict conditions, of nuclear energy and gas in the EU Taxonomy of Sustainable Finance. The Bank of Greece established a Centre for Climate Change and Sustainability, actively supports the goals of the Paris Agreement and, together with the Climate Change Impacts Study Committee (CCISC), takes part in several national and international initiatives on sustainable development and climate change.

Developments continue to confirm the urgent need to drastically tackle climate change, one prerequisite for which is global cooperation. This is also highlighted by the increasingly stark warnings from international organisations and the scientific community about the health, environmental and financial risks of climate change, calling, among other things, for action to address climate change and biodiversity loss together. Equally important is progress in the necessary technologies, and it is encouraging that the past twelve months have seen significant advances in research, particularly in the areas of clean energy sources (nuclear fusion, green hydrogen, etc.), energy storage and carbon dioxide removal. In the new geopolitical conditions that have emerged following Russia's invasion of Ukraine, it is becoming all the more pressing to accelerate a more widespread take-up of clean energy.

1 CLIMATE CHANGE AND ENERGY: INTERNATIONAL DEVELOPMENTS AND POLICIES, KEY SCIENTIFIC FINDINGS AND REPORTS[1]

In 2021, global carbon dioxide emissions increased by an estimated 4.9%, following a decline of 5.4% in 2020; the 2021 drop is attributed to the relaxation of COVID-19 restrictions on economic activity.[2] The average global temperature was the sixth highest since 1880[3] and more than 1°C above pre-industrial levels, while the past twelve months have been marked by repeated weather extremes.[4] Moreover, the term "climate crisis" has become much more common in domestic and international media (see Box X.1).

In 2021, green recovery featured high on the policy agenda, as part of the efforts to overcome the economic fallout of the pandemic in a way that is consistent with sustainability. At

1 The cut-off date for information and data in this Chapter is 28 March 2022.

2 See Global Carbon Budget 2021, 4.11.2021, https://www.globalcarbonproject.org/carbonbudget/archive/2021/GCP_CarbonBudget_2021.pdf.

3 NOAA/NCEI, "Assessing the Global Climate in 2021", 13.1.2022.

4 Examples include: very low temperatures in the US states of Texas and New Mexico in February and March 2021; a record heat wave in western Canada in June and July; deadly floods in Germany and Belgium in July; devastating wildfires in Greece, Turkey, Spain and California in August; continued warming and ice melt in the Arctic; and unprecedented windstorms and floods in the UK and Australia, respectively, in February and March this year. See also World Weather Attribution, "Heavy rainfall which led to severe flooding in Western Europe made more likely by climate change", 23.8.2021; and NOAA, "Arctic Report Card – Update for 2021", 6.12.2021.

least at the EU level, developments were generally positive, as Member States drew up and started to implement national Recovery and Resilience plans, benefiting from Next Generation EU (NGEU) funding, one focus of which is on green transition projects. Still, there is much to be done by the largest economies in the world towards effective green recovery policies.[5]

Decarbonisation is crucial for a green recovery and green transition in general. It is worth noting that, in May 2021, major multinational oil companies faced shareholder pressure to become greener. However, according to a recent report, the net zero-emission plans of some major companies in various sectors were assessed as ineffective.[6] In the EU, following the Taxonomy Regulation 2020/852, Commission Delegated Regulation (EU) 2021/2139 was adopted in June 2021, concerning the determination of environmentally sustainable economic activities in some energy sectors. Also, on 2 February 2022, following a contentious debate among the governments of EU Member States, the European Commission published a draft Complementary Climate Delegated Act to accelerate decarbonisation,[7] incorporating –on a transitional basis and under strict conditions– specific nuclear energy and natural gas activities into the list of economic activities covered by the EU Taxonomy. Regarding natural gas, the draft Act's proposed technical screening criteria and a 270gr CO_2/KWh direct GHG emissions threshold[8] could effectively exclude several natural gas-fired electricity generation facilities from the Taxonomy. Before its entry into force, the Act will need to be formally approved by the EU Council and the European Parliament. It has already come under heavy fire from environmental groups and other organisations,[9] while experts are split between those who warn against the hazards of nuclear energy or argue that natural gas is not clean and those who see the use of these two energy sources as an inevitable until the renewable energy market matures and technology makes sufficient headway in the development of alternative energy sources (green hydrogen, nuclear fusion, etc.), as well as in energy storage and carbon capture and removal.

Moreover, the new geopolitical conditions that have emerged following Russia's invasion of Ukraine are already affecting national energy policies. Germany was the first to emphasise the importance of energy autonomy: in his policy statement addressing the German Bundestag on 27 February 2022, Chancellor Olaf Scholz announced (a) measures to increase the amount of natural gas in storage to two billion cubic metres; and (b) the rapid construction of two liquefied natural gas (LNG) import terminals, which could also handle green hydrogen in the future. Soon afterwards, the United States and the United Kingdom announced an embargo on Russian oil and gas, while, the informal EU summit of 10-11 March 2022 set out guidelines to phase out dependency on Russian gas, oil and coal imports. These included, in particular: diversifying supplies and routes, including through liquefied natural gas and biogas; further developing an EU hydrogen market and accelerating the development of renewables; improving the interconnection of European electricity and gas networks; improving energy efficiency and promoting circularity; and raising storage capacity. On 24-25 March, the European Council decided that Member States would work together on voluntary common

5 See UN Environment Programme (UNEP) press release, "Are we on track for a green recovery? Not Yet", 10.3.2021, on the report "*Are We Building Back Better? Evidence from 2020 and Pathways for Inclusive Green Recovery Spending*".

6 NewClimate Institute, *Corporate Climate Responsibility Monitor 2022*, 6.2.2022.

7 See European Commission press release, "EU Taxonomy: Complementary Climate Delegated Act", 2.2.2022.

8 The 270g CO_2e/kWh threshold for new electricity generation facilities is much lower than called for by Member States (cf. the threshold of 340g CO_2e/kWh proposed by France or a 380g CO_2e/kWh supported by 80 MEPs from four political groups). On the Greek side, feedback on the draft Delegated Act was provided by the Ministry of Environment and Energy and industry stakeholders, including the Hellenic Association of Independent Power Producers.

9 It is worth noting that the inclusion of gas in the Taxonomy was strongly criticised by the Institutional Investors Group for Climate Change (IIGCC) in its open letter of 12 January 2022. See https://www.iigcc.org/news/iigcc-publishes-open-letter-calling-for-gas-to-be-excluded-from-the-eu-taxonomy.

purchase of gas, LNG and hydrogen, while also inviting Member States to start the refilling of gas storage ahead of next winter and to complete and improve gas and electricity interconnections throughout the EU.[10]

During 2021, significant policy and legislative actions to advance the goals of the Paris Agreement included the following:

– On 22 April 2021, the United States convened a virtual Leaders Summit on Climate, bringing together 40 world leaders, at which President Biden pledged to cut US emissions by 50% by 2030.

– On 6 July 2021, the European Commission adopted a number of measures to boost sustainable finance. These included the new Sustainable Finance Strategy; a proposal for a Regulation on a European Green Bond Standard (see Box X.2); and a Taxonomy Disclosures Delegated Act, concerning the information to be disclosed by firms about the proportion of their EU Taxonomy-aligned activities.[11] (See also Box X.4 for a discussion of the interactions between sustainable development, sustainable finance and digital financial technology.)

– On 8 July 2021, following the conclusion of its monetary policy strategy review, the ECB announced an ambitious action plan to include climate change considerations in its monetary policy strategy.[12] The plan aims to ensure that, in the fulfilment of its monetary policy mandate, the Eurosystem takes into account the economic impact of climate change, as well as the implications of low-carbon transition policies. It comprises measures that strengthen and broaden ongoing initiatives by the Eurosystem to better account for climate change considerations with the aim of preparing the ground for changes to the monetary policy implementation framework.

– On 14 July 2021, the European Commission announced a set of measures (the "Fit for 55" package) to reduce net GHG emissions by 55% by 2030.[13]

– On 27 October 2021, the European Commission adopted a review of EU banking rules (the Capital Requirements Regulation and the Capital Requirements Directive), aimed to support the transition to climate neutrality and make banks more resilient to environmental, social and governance (ESG) risks.[14]

– On 1 November 2021, the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 26) concluded with the adoption of the Glasgow Climate Pact,[15] whereby countries reaffirmed their commitment to take action. UN Secretary-General António Guterres acknowledged that important steps forward had been taken, but cautioned that we are still knocking on the door of climate catastrophe.[16]

10 See https://www.bundesregierung.de/breg-en/news/policy-statement-by-olaf-scholz-chancellor-of-the-federal-republic-of-germany-and-member-of-the-german-bundestag-27-february-2022-in-berlin-2008378; https://www.consilium.europa.eu/media/54773/20220311-versailles-declaration-en.pdf; and European Council Conclusions, 24-25 March 2022.

11 See European Commission press release, 6.7.2021.

12 See ECB press release, 8.7.2021.

13 See European Commission press release, "European Green Deal: Commission proposes transformation of EU economy and society to meet climate ambitions", 14.7.2021. See also European Commission Communication, "Fit for 55 – delivering the EU's 2030 climate target on the way to climate neutrality".

14 See European Commission press release, "Banking Package 2021: new EU rules to strengthen banks' resilience and better prepare for the future", 27.10.2021.

15 https://unfccc.int/sites/default/files/resource/cma2021_10_add1_adv.pdf. Another important document issued during the conference was the Coalition of Finance Ministers for Climate Action and NGFS Chairs Joint COP26 Statement.

16 Secretary-General's statement on the conclusion of the UN Climate Change Conference COP26, 13.11.2021, https://www.un.org/sg/en/node/260645.

– Lastly, on 27 January 2022, the United States convened a virtual ministerial meeting of the Major Economies Forum on Energy and Climate, which stressed the need to strengthen climate ambition, accelerate efforts to tackle the climate crisis and reduce methane emissions.

Over the past twelve months, reports by international organisations and research studies continued to focus on:

(a) the need for timely and decisive action to meet the goals of the Paris Agreement and reduce GHG emissions to net zero by 2050 (two reports by the UN Intergovernmental Panel on Climate Change (IPCC),[17] three reports by the International Energy Agency (IEA),[18] one report by the UN Environment Programme (UNEP)[19] and one by the Energy Transitions Commission (ETC)[20]);

(b) the risks of climate change for human health, the environment and biodiversity;[21]

(c) the risks for the financial system (see reports by the ECB and the ESRB;[22] the Joint NGFS-INSPIRE Study Group on Biodiversity and Financial Stability;[23] the LSE research centres and the London University;[24] and the WWF[25] – see also Box X.3 in this chapter);

(d) the need to address climate change and biodiversity issues together;[26]

(e) research into clean energy sources (green hydrogen, nuclear fusion);[27]

(f) research in the area of energy storage;[28] and

(g) effective ways to raise public awareness of climate change risks and policies.[29]

17 IPCC, (a) Climate Change 2021: The Physical Science Basis – Contribution of Working Group I to the Sixth Assessment Report of the IPCC, 9.8.2021; and (b) Climate Change 2022: Impacts, Adaptation and Vulnerability – Working Group II Sixth Assessment Report – Summary for Policymakers, 27.2.2022, https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf.

18 IEA, (a) *Global Energy Review 2021 – Assessing the effects of economic recoveries on global energy demand and CO_2 emissions in 2021*, April 2021; (b) *Net Zero by 2050: a Roadmap for the Global Energy Sector*, May 2021 (see also the accompanying IEA press release, "Pathway to critical and formidable goal of net-zero emissions by 2050 is narrow but brings huge benefits, according to IEA special report", 18.5.2021); and (c) *World Energy Outlook 2021*, 13.10.2021.

19 UNEP, *Emissions Gap Report 2021 – The Heat Is On*, 26.10.2021.

20 Energy Transitions Commission, *Keeping 1.5°C Alive: Closing the Gap in the 2020s*, September 2021.

21 See Daniel R. Bressler, "The mortality cost of carbon", *Nature Communications*, 29.7.2021; Wim Thiery et al., "Intergenerational inequities in exposure to climate extremes", *Science*, 26.9.2021; Global Coal Reef Monitoring Network (GCRMN), *Rising Sea Surface Temperatures Driving the Loss of 14 Percent of Corals Since 2009; Some Show Resilience, Offering Hope for Recovery*, 5.10.2021; and (US) National Academies, *Biodiversity at Risk – Today's Choices Matter*, Consensus Study Report 2022.

22 See ECB/ESRB, *Climate-related risk and financial stability*, July 2021; and ECB, "ECB economy-wide climate stress test – Methodology and results", Occasional Paper Series, No. 281, September 2021.

23 See Joint NGFS-INSPIRE Study Group on Biodiversity and Financial Stability, *Biodiversity and Financial Stability: building the case for action*, October 2021. The project benefited from the contribution of the Bank of Greece.

24 *Climate-neutral central banking: How the European System of Central Banks can support the transition to net-zero*, May 2021.

25 WWF, *Nature's next stewards: why central bankers need to take action on biodiversity loss*, July 2021. The publication includes the public responses of the Bank of Greece and other central banks.

26 IPBES and IPPC, *Biodiversity and Climate Change*, June 2021.

27 Regarding green hydrogen, see: European Parliamentary Research Service Briefing, *EU hydrogen policy: Hydrogen as an energy carrier for a climate-neutral economy*, April 2021; and International Renewable Energy Agency (IRENA), *Geopolitics of the Energy Transformation – The Hydrogen Factor*, January 2022. For nuclear fusion, see: Zylstra, A.B. et al., "Burning plasma achieved in inertial fusion", *Nature*, January 2022; and UK Atomic Energy Authority (UKAEA) press release, "Fusion Energy Record Demonstrates Power Plant Future", 9.2.2022.

28 In January and February 2022, the Boston University Institute for Sustainable Energy held a series of four virtual workshops entitled "Where Is Energy Storage Headed?", which brought together leading experts in the field. See https://www.bu.edu/igs/2022/01/04/workshop-series-where-is-energy-storage-headed/.

29 See e.g. Bernard, R., P. Tzamourani and M. Weber, "Climate change and individual behaviour", Deutsche Bundesbank Discussion Paper No. 01/2022.

From the perspective of central banks and supervisors, 2021 saw the publication of important analyses regarding the incorporation of climate change and sustainability considerations into financial regulation and supervision. A brief overview is provided below:

– Network of Central Banks and Supervisors for Greening the Financial System (NGFS): Reports on: the progress made by supervisors in integrating climate-related and environmental risks into their supervisory frameworks; global climate scenario exercises and new climate scenarios for central banks and supervisors; biodiversity-related financial risks; and bridging data gaps;

– Basel Committee on Banking Supervision (BCBS): Principles for the effective management and supervision of climate-related financial risks; report on climate-related risk drivers and their transmission channels; and report on climate-related financial risk measurement methodologies;

– European Banking Authority (EBA): Draft implementing technical standards on prudential disclosures on ESG risks; report on management and supervision of ESG risks for financial institutions and investment firms; and draft joint (EBA/EIOPA/ESMA) regulatory technical standards on disclosures under the Sustainable Finance Disclosure Regulation (SFDR);

– Single Supervisory Mechanism (SSM): Report on the supervisory review of banks' approaches to manage climate and environmental risks; and announcement and results of economy-wide climate stress test;

– European Insurance and Occupational Pensions Authority (EIOPA): Sustainable Finance Roadmap 2022-2024; opinion on the supervision of the use of climate change risk scenarios in ORSA; consultation on application guidance on running climate change materiality assessment and using climate change scenarios in the ORSA; report on non-life underwriting and pricing in light of climate change; discussion paper on methodology on potential inclusion of climate change in the Nat Cat standard formula; and article on climate change, catastrophes and the macroeconomic benefits of insurance;

– European Securities and Markets Authority (ESMA): Preliminary report – Emission Allowances and derivatives thereof; letter to the European Commission on the challenges in the area of ESG ratings; and letter to the European Commission on priority issues relating to SFDR application.

Box X.1

FROM GLOBAL WARMING TO CLIMATE CRISIS: REVIEWING THE TERMINOLOGY OF CLIMATE CHANGE

Several different terms have been used to describe climate change and its impact on the planet. The terms that have made their way into our everyday vocabulary are "global warming" and "climate change". Other terms used less frequently and emphatically include climate catastrophe, climate disruption, climate chaos, ecological breakdown, climate deregulation, climate war, global heating and climate apocalypse. Advocacy groups, media organisations, local governments (including in Australia), UN institutions and the UK parliament are shifting their language on climate change to become more powerful and emotive. Conventional terminology is being superseded by expressions such as climate emergency, climate crisis and climate breakdown, which are seen as more accurately describing what is happening around us.[1] However, of all the above-mentioned new terms, the one we come across and listen more often today is "climate crisis".

1 Bedi, G. (2020), "Is it time to rethink our language on climate change?", Lens, Monash University (https://lens.monash.edu/@environment/2020/01/03/1379384/is-it-time-to-rethink-our-language-on-climate-change).

Global warming

19th century scientists Jean-Baptiste Fourier, Eunice Foote and John Tyndall were the first to investigate the role of greenhouse gases in warming the Earth's surface.[2] Nobel Laureate Svante Arrhenius continued their work, claiming in 1897 that the burning of fossil fuels may lead to global warming. His calculations led him to the conclusion that, as a result of human activity, carbon dioxide is added to the atmosphere, which could increase the Earth's temperature.[3] At that time, however, human influences were considered insignificant and the oceans were considered to be large "carbon sinks", automatically eliminating pollution. As a result, his warning went unheard and the matter was forgotten until 1975, when the scientific study by Wallace Broecker was published, using for the first time the term "global warming".[4]

In the late 1980s, the issue of global warming came to the fore in politics and the media, as the average annual temperature rose sharply. Global warming became the dominant popular term in June 1988, when NASA scientist James Hansen testified to Congress that "global warming has reached a level such that we can ascribe with a high degree of confidence a cause and effect relationship between the greenhouse effect and the observed warming".[5] His testimony received broad coverage in the US media, making the term very popular.[6] Also worldwide, global warming became a daily topic in the news, in an effort to communicate that the planet is experiencing a change in climate due to global warming.

The term "global warming" was formalised in the 1980s to describe the impact on the earth's surface temperature from the increased level of heat-trapping gasses in the atmosphere. However, when discussions about global warming intensified and moved from the scientific realm to the public arena, it was seen that it was not a helpful description and decades later the term "climate change" prevailed among scientists, politicians and their institutions.[7] The term "climate change" has become more common as it reflects the long-term change in the Earth's climate. However, the term "global warming" remains valuable and is commonly used by scientists and the public, as it is a straightforward and accurate description of what is happening in global temperatures over time.[8]

Climate change

By the time of Hansen's testimony, international organisations had paved the way for "climate change" to eventually become the most popular term. The World Meteorological Organisation and the United Nations Environment Programme established in 1988 the Intergovernmental Panel on Climate Change (IPCC), which in 1992 published the UN Framework Convention on Climate Change.[9] According to Article 1 thereof, "climate change means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere". The term "global warming" is not used in the Framework Convention. These events were milestones for the universal prevalence and use of the term "climate change" in the years that followed.

In 2002, Frank Luntz, a political consultant, advised Republicans to start using the term "climate change" as it suggests a more controllable and less emotional challenge, while "global warming" has catastrophic connotations attached to it.[10] After that, the term "global warming" more or less disappeared from US President George H.W.

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2 Tisher, S.S. (2021), "A climate chronology", University of Maine (https://umaine.edu/climatechronology/wp-content/uploads/sites/575/2022/02/Climate-Chronology-January-2021-212022-1.pdf).
3 Arrhenius, S. and E.S. Holden (1897), "On the influence of carbonic acid in the air upon the temperature of the earth", *Publications of the Astronomical Society of the Pacific,* 9 (54), 14-24.
4 Broecker, W.S. (1975), "Climatic Change: Are We on the Brink of a Pronounced Global Warming?", *Science New Series,* 189 (4201), 460-463.
5 See http://image.guardian.co.uk/sys-files/Environment/documents/2008/06/23/ClimateChangeHearing1988.pdf.
6 See https://www.nasa.gov/topics/earth/features/climate_by_any_other_name.html.
7 See https://www.rte.ie/brainstorm/2021/0708/1233848-climate-change-terminology-global-warming-greenhouse-gas/.
8 Samenow, J., "Debunking the claim 'they' changed 'global warming' to 'climate change' because warming stopped", *The Washington Post,* 29.1.2018 (https://www.washingtonpost.com/news/capital-weather-gang/wp/2018/01/29/debunking-the-claim-they-changed-global-warming-to-climate-change-because-its-cooling/).
9 United Nations (1992), *United Nations Framework Convention on Climate Change,* Bonn, Germany.
10 See http://www.exponentialimprovement.com/cms/uploads/a-cleaner-safer-healthier.pdf.

Bush's speeches on the environment, and was replaced by the term "climate change".[11] Furthermore, in 2005 the US National Academies published a brochure expressing the view that "climate change" was a more comprehensive scientific description of what is happening on the planet because, as opposed to "global warming", it helps convey that there are other changes in addition to rising temperatures.[12]

Nowadays, according to a growing number of reputable media, the phrase "climate change" does not cut it anymore, as it is too neutral, too worn-out and too nice-sounding to describe the crisis facing the planet.[13] According to The Guardian, the phrase "climate change" sounds rather passive and mild at a time that scientists warn about a catastrophe for humanity. In fact, it has updated its style guide to introduce new terms describing more accurately the environmental crises facing the planet, such as "climate emergency", "climate crisis" or "climate breakdown".[14] The Observer and other media, such as the BBC and the US Associated Press, have also amended their internal rules for climate reporting.[15]

Climate crisis

Nowadays, the use of the term "climate crisis" is widespread in both international and domestic media. "Climate crisis" is not a scientific term and thus does not feature in scientific dictionaries and glossaries of international environmental organisations. In prestigious English dictionaries (such as Cambridge, Collins and Oxford)[16] the definition of climate crisis varies, as it describes the current situation rather than a climatic term. It is therefore no coincidence that "climate crisis" tends to become the prevalent term in public discourse, since it describes more emphatically and clearly the consequences of climate change, which are the result of extreme weather events such as floods, prolonged heat waves and wildfires.

Al Gore, US Vice-President from 1993 to 2001, is credited with coining the term "climate crisis". Twenty years ago, he had stated that "climate crisis" is the most appropriate term to signal the urgency of the issue, considering that the language we use when discussing the climate crisis is of paramount importance not only to trigger an emotional response, but also to incite to action. The Nobel Peace Prize 2007 was awarded jointly to Al Gore and the Intergovernmental Panel on Climate Change (IPCC) for their global climate action. In his Nobel Lecture he stated: "We must understand the connections between the climate crisis and the afflictions of poverty, hunger, HIV-Aids and other pandemics. As these problems are linked, so too must be their solutions".[17] Environmental organisations and Democratic lawmakers believe it evokes emphatically the gravity of the threats facing the planet from continued greenhouse gas emissions and can help spur the political willpower that has long been missing from climate advocacy.[18]

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11 Lee, J., "A call for softer, greener language", *The New York Times,* 2.3.2003 (https://www.nytimes.com/2003/03/02/us/acall-for-softer-greener-language.html).

12 National Academy of Sciences, National Academy of Engineering, Institute of Medicine, National Research Council (2005), *Understanding and responding to climate change:* highlights of National Academy Reports, Washington DC: National Academy of Sciences.

13 Yoder, K., "Is it time to retire 'climate change'?", Grist Magazine, 17.6.2019 (https://grist.org/article/is-it-time-to-retire-climatechange-for-climate-crisis/).

14 Carrington, D., "Why the Guardian is changing the language it uses about the environment", *The Guardian,* 17.5.2019 (https://www.theguardian.com/environment/2019/may/17/why-the-guardian-is-changing-the-language-it-uses-about-the-environment).

15 See https://www.cleanenergywire.org/blog/climate-change-or-climate-crisis-whats-right-lingo.

16 The definition of climate crisis is as follows: (a) In the Cambridge dictionary: serious problems that are being caused or likely to be caused by changes in the world's weather, in particular the world getting warmer as a result of human activity increasing the level of carbon dioxide in the atmosphere (see https://dictionary.cambridge.org/dictionary/english/climate-crisis). (b) In the Collins dictionary, as a situation of imminent environmental catastrophe brought about by climate change (see https://www.collinsdictionary.com/dictionary/english/climate-crisis). (c) In the Oxford dictionary, as a situation in which immediate action is needed to reduce or stop climate change and prevent serious and permanent damage to the environment (see https://www.oxfordlearnersdictionaries.com/definition/english/climate-crisis?q=climate+crisis).

17 See https://www.nobelprize.org/prizes/peace/2007/gore/26118-al-gore-nobel-lecture-2007/.

18 Sobczyk, N., "How climate change got labeled a 'crisis'", *Energy & Environmental News,* 10.7.2019.

In November 2019, eleven thousand scientists from all over the world signed a declaration on the climate entitled "Warning of a Climate Emergency", stating that the Earth is facing a climate emergency due to insufficient efforts to tackle the climate crisis on an international scale.[19]

Conclusions

The climate is changing and so is the name describing this change. The terminology used is evolving in line with developments, highlighting the fact that climate change has hardened into a climate crisis and emphasising the huge impact that climate change already has on human life, ecosystems and biodiversity. Mustering the communicative power of words in the fight against climate change indicates the seriousness of the issue. The European Commission's European Green Deal provides recommendations on education and training as part of the solution for the changes required for a successful transition to a greener life.[20] The issue is not only how climate change is put in words, but also to whom it is addressed and how it is conveyed. Climate change coverage in news footage, newspapers and their websites could target more the youth. Education and environmental literacy can communicate climate change; the origin of greenhouse gas emissions; the benefits of circular economy, reusing and recycling; existing and future solutions; and, above all, what small things can be done by groups and individuals alongside action at global, national and local level.

19 The declaration was published in January 2020. See Ripple, W.J., C. Wolf, T.M. Newsome, P. Barnard, W.R. Moomaw (2020), "Warning of a climate emergency", *BioScience,* 70 (1), 8-12.
20 European Commission (2019), *The European Green Deal,* Brussels.

Box X.2

THE CONTRIBUTION OF THE GREEN CAPITAL MARKETS UNION TO THE EUROPEAN ECONOMY

Achieving the goals of the European Green Deal[1] on sustainable development and net-zero greenhouse gas emissions by 2050, as well as the intermediate goals for 2030 ("Fit for 55"),[2] creates new challenges, but also opportunities, as it is linked to a need for additional investment. In particular, Europe will need an estimated €350 billion in additional investment per year over this decade to meet its 2030 emissions-reduction target in energy systems alone, alongside the €130 billion it will need for other environmental goals.[3] Meanwhile, a faster shift to clean energy has become more urgently necessary in the new geopolitical context following Russia's invasion of Ukraine.[4] The size of the investment needed implies that a combination of funds from the EU budget and public and private investments will be required. The European Commission has stated that it will continue to work on how to further mobilise resources to achieve the objectives of the Green Deal. The Sustainable Europe Investment Plan will mobilise sustainable investment of at least €1 trillion over the next decade, through the EU budget, while it will also crowd in private funding through guarantees under the InvestEU Programme.[5] In this direction, under the 2021-2027 Multiannual Financial Framework and NextGenerationEU (NGEU), the EU aims to spend up to EUR 605 billion on projects addressing the climate crisis and €100 billion on projects supporting biodiversity. Of the €750 billion allocated for NGEU, 30% will be raised through issuance of green bonds.

1 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019DC0640.
2 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0550&from=EN.
3 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021DC0390&from=EN.
4 In their recent Versailles Declaration (11 March 2022), EU leaders recognised that the current situation calls for a thorough reassessment of how the EU ensures the security of its energy supplies and highlighted the need to reduce energy dependencies.
5 See https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0021. The plan is accompanied by a Just Transition Mechanism, which will mobilise investments of at least €143 billion and help the shift of highly carbon-dependent regions to new types of economic activity, as it is important to make sure that no one is left behind in the transition towards a climate-neutral economy by 2050.

Financing in the EU is characterised by greater reliance on bank lending, among other things due to the more favourable tax treatment of debt compared to equity investment, as well as a preference for shorter-term assets rather than the placements. Moreover, investments in the EU are usually within the borders of Member States (home bias), mainly due to differences in the legal framework of national markets, e.g. in corporate insolvency rules. The expansion of green finance can be a driving force towards a carbon-neutral economy, financial integration and stability in the euro area.

Markets are an important source of funding for the economy and can play a crucial role in economic growth in the post-pandemic period, reducing the risk of uneven recovery across Member States. A healthy and dynamic capital market, which provides an alternative for raising funds to promote green innovation and finance long-term projects, is expected to support the transition to a low-carbon economy and, at the same time, the digital transition. The green transition offers the opportunity to build a truly pan-European capital market – in other words, a green capital markets union.[6] The development of a green capital markets union can support the completion of the Capital Markets Union by adding depth and diversification to the financial instruments available, while also enhancing the risk sharing capacity of the EU financial system.[7]

The green bond market in the EU

Achieving EU policy goals focusing on the green and digital transition requires the mobilisation of investment resources and the development of appropriate finance instruments. The EU is a global leader in the development of green capital markets. At present, the green bond market displays a higher degree of integration across the euro area than the aggregate bond market, with green bonds being roughly twice as likely as other types of bonds to be held cross-border within the euro area.[8]

Green capital markets are dynamic and rapidly growing, which bodes well for more sustainable investment and green bond financing. From 2007 to the end of 2021, green bonds[9] worth €1.43 trillion were issued at a global level, of which €429 billion in 2007-2018 and the remaining €997 billion in the period from 2019 onwards (see Chart A). It is worth noting that, in 2021 alone, green bond issuance came to €496 billion. The strong growth of the green bond market and the acceleration of green bond issuance activity are developments that are particularly relevant for the European capital markets. Green bonds totalling €804 billion have been issued on euro area capital markets, of which €645 billion by entities established in a euro area Member State.

Green bond issues are increasingly launched by the private sector, while issues by the public sector (sovereigns, local and regional authorities and related entities) continue to raise funding for projects and investment programmes linked to sustainability goals (see Chart B). It is encouraging that European companies so far seem to lead the way in the issuance of instruments that finance sustainable activities. Should this trend continue, it could point to a stepping-up of private sector engagement in the sustainability agenda going forward. Consequently, the deepening and further integration of euro area capital markets, with a focus on financing sustainable investments, will contribute to the creation of a single European capital market for green financial instruments.

Strengthening of the EU institutional framework for sustainable finance and the Capital Markets Union

The renewed EU strategy on sustainable finance identifies four main areas where additional action is needed

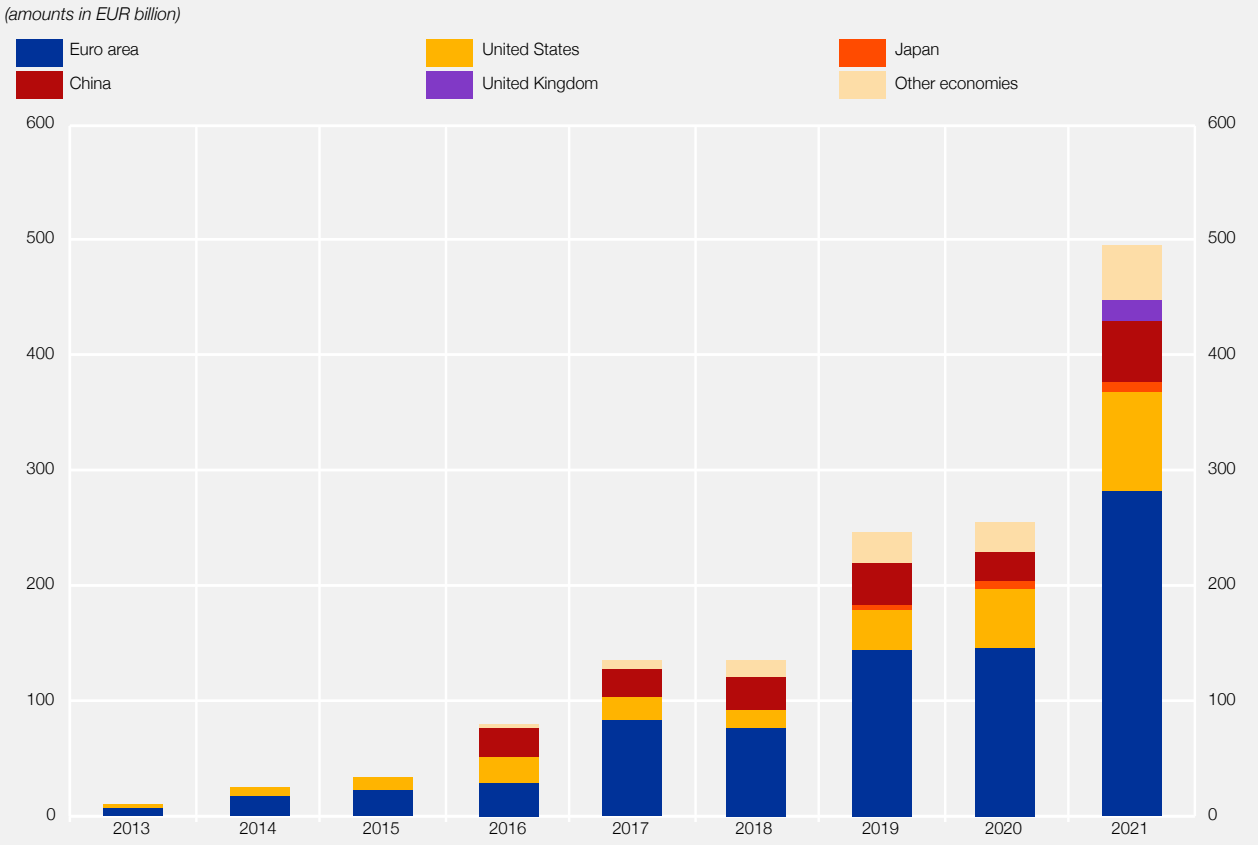
6 https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210506~4ec98730ee.en.html.

7 Green bond markets are characterised by a higher degree of integration and relatively low home bias. Therefore, encouraging green finance is a very effective way to strengthen financial integration. Also, investment funds that meet environmental, social and governance (ESG) criteria appear to be more stable, as their investors are less likely to withdraw following negative performance than non-ESG investors – see Capota, L., M. Giuzio, S. Kapadia and D. Salakhova (2021), "Are ethical and green investment funds more resilient?", mimeo; and Alogoskoufis et al. (2021), "Climate-related risks to financial stability", Special Feature, ECB, *Financial Stability Review*, May 2021.

8 https://www.ecb.europa.eu/pub/financial-stability/macroprudential-bulletin/focus/2021/html/ecb.mpbu_focus202110_3.en.html. See also Box II.2 in this Report.

9 The analysis covered about 5,500 issues of securities identified as "green bonds" on the Refinitiv platform, based on the use of proceeds in sustainable projects according to the prospectus of the issue.

Chart A Green bond issuance



Source: Refinitiv and Bank of Greece calculations.
Note: The chart shows green bond issuance per year for the period 2013-2021. These bonds were selected on the basis of Refinitiv financial market data. Bonds characterised as green were selected and classified by issuing country and year. The countries were then aggregated to sum up the issuing activity of euro area countries.

for the financial system to fully support the transition of the economy towards sustainability: (a) financing the path of the real economy towards sustainability; (b) more inclusive sustainable finance; (c) improving the financial sector's resilience and contribution to sustainability; and (d) fostering global ambition.[10] At the same time, recognising that a well-functioning Capital Markets Union can have a significant stabilising effect and help the EU recover from the COVID-19 pandemic, the European Commission presented a plan in 2020, comprising 16 actions aimed to address key remaining challenges on the path towards the Capital Markets Union.[11] The plan identifies a need for deep and liquid capital markets, as well as the opportunity for the EU financial system to attract more investors and issuers globally to euro-denominated financial instruments, thereby strengthening the international role of the euro. One of the three key objectives of the new plan is to support a green and digital economic recovery by making financing more accessible to European businesses, through improved availability and accessibility to sustainability-related data.

10 Actions that are identified as important for financing the transition and are relevant to capital markets include: adoption of legislation to support the financing of certain economic activities that help to reduce greenhouse gas emissions; extending the EU Taxonomy framework and developing a general framework of standards and labels for sustainable financial instruments; leveraging the opportunities offered by digital technologies; reflecting sustainability risks in financial reporting standards and accounting; improving transparency of credit ratings; developing appropriate micro- and macro-prudential tools for sustainability risks, etc. See Communication from the Commission "Strategy for Financing the Transition to a Sustainable Economy", 6.7.2021, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0390.

11 Communication from the Commission "A Capital Markets Union for people and businesses", 24.9.2020, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A590%3AFIN.

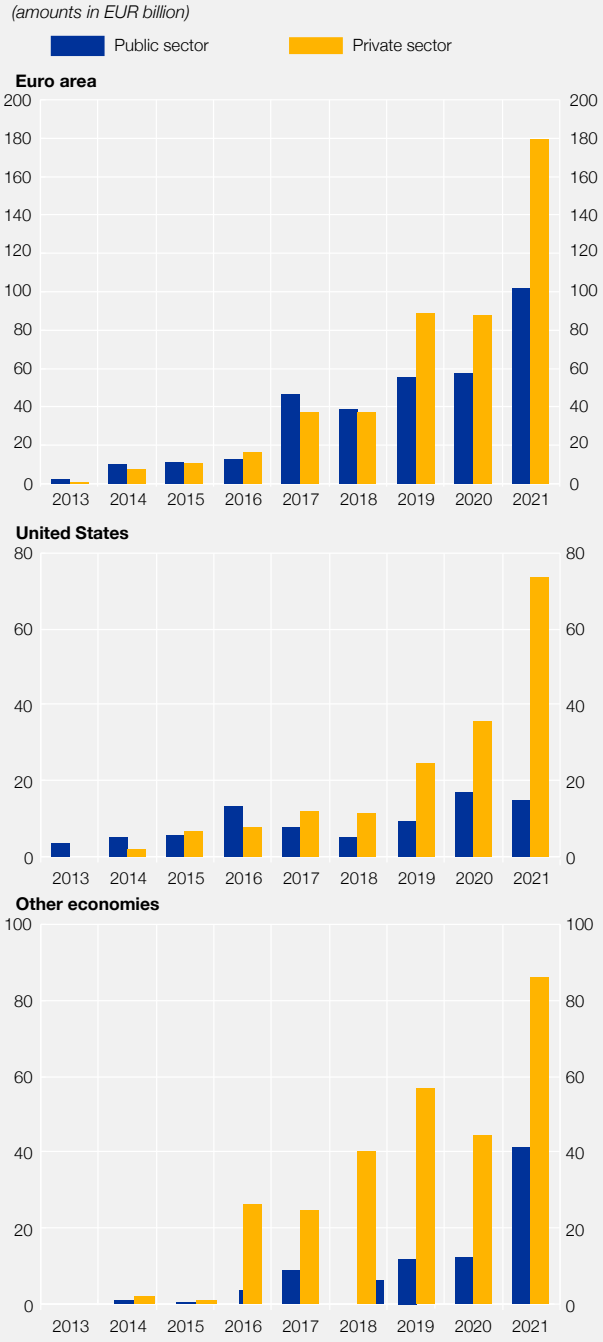
Meanwhile, the EU has taken legislative initiatives for the financial system that support the financing of sustainable development through capital markets.[12] The introduction of common standards, labels and credit rating criteria will contribute to adequate and targeted financing and enhance the credibility of markets. Furthermore, the improvement of corporate sustainability practices for and relevant disclosures, e.g. the obligation of companies to publicly disclose their greenhouse gas emissions reduction targets and performance against the targets, will help to channel investments into financing the transition to a low-emission economy. These actions could also strengthen the integrity of the EU financial system and markets and reduce the risk of greenwashing.

The development of a green capital markets union is linked to further progress in addressing the shortcomings of the EU Capital Markets Union, to the harmonisation of corporate insolvency legislation and investor protection rules, as well as to the strengthening of integrated cross-border market supervision. Important elements of a green capital markets union include transparency standards (according to which companies are required to disclose sustainability data), EU-certified green financial products such as the proposed Green Bond EU Standard, and a harmonised regulatory and supervisory framework for sustainable finance. The completion of the EU's strategic actions and the creation of the necessary legal framework for the financial sector will put in place the enabling conditions for financing the transition to a sustainable European economy and for increasing the participation of capital markets in financing. The European Commission's proposal for a voluntary Green Bond Standard based on the EU Taxonomy is a positive step in this direction. However, making this standard mandatory within a reasonable period of time would enhance the credibility of green investments. Similar initiatives are also necessary for instruments that finance other aspects of sustainable development (e.g. sustainable bonds or social bonds). Finally, the legislative framework will need to be sufficiently flexible to accommodate financial innovation, helping to meet funding needs.

The role of central banks

Physical risks, such as the higher frequency and severity of extreme weather events, as well as transition risks, e.g. from a late and abrupt transition to a low-carbon economy, could affect the transmission of monetary pol-

Chart B Green bond issuance by the public and the private sector in the euro area, the United States and other economies



Source: Refinitiv and Bank of Greece calculations.
Note: The charts show the value of Greek green bond issues in the period 2013-2021 in capital markets of the euro area, the United States and other economies, by issuers of the private sector (financial institutions and non-financial corporations) and the public sector (supranational organisations, federal states and public sector corporations).

12 Such as the Sustainable Finance Disclosure Regulation, the (amended) Regulation on EU Climate Transition and Paris-aligned Benchmarks, the proposal for a Regulation on European Green Bonds, and the proposal for a Directive on sustainability reporting by companies.

icy and jeopardize price, financial and economic stability. Central banks around the world are already considering how the physical and transition impact of climate change can be included in macroeconomic forecasting and financial stability monitoring. Also, they have been undertaking work to integrate climate-related risks into prudential regulation and supervision, engaging with rating agencies and financial firms s to ensure that climate-related risks are understood, disclosed and incorporated in risk assessment and in credit provision decisions.

In the summer of 2021, the Governing Council of the ECB approved a comprehensive action plan, with an ambitious roadmap to further incorporate climate change considerations into the ECB's policy framework to more systematically reflect environmental sustainability criteria in monetary policy. The ECB supports ongoing EU initiatives to improve the disclosure of climate data, in order to enhance transparency and promote a market for green financial instruments.[13]

13 See the article by the Governor of the Bank of Greece entitled "Central banks and climate change", *Handelsblatt,* 29.9.2021.

2 GREENHOUSE GAS EMISSIONS IN THE EU AND GREECE

In 2019, greenhouse gas (GHG) emissions in the EU28 plus Iceland amounted to 4,067.1 million tonnes of CO_2 equivalents, their lowest level since 1990. This represents a drop of 28.3% relative to 1990, which occurred despite GDP growth by more than 64% over the same period (see Table X.1) and was supported by a variety of factors, including a rebalancing of the energy mix towards more renewables, the use of less carbon intensive fossil fuels and improvements in energy efficiency, structural changes in the economy, and lower energy demand by households for heating, as winters in Europe have, on average, been milder since 1990. Moreover, the overall reduction in GHG emissions has been supported, at the EU and national level, by key agricultural and environmental policies in the 1990s and climate and energy policies in the 2000s.[30]

In 2020, aggregate GHG emissions in the EU27 (excluding the United Kingdom) fell by about 8% relative to 2019 and stood 34% below 1990 levels. Compared with 1990, emissions were down in most EU Member States, while they rose in Cyprus and Ireland. The reduction in emissions in 2020 was due to several factors, including the growing use of renewables for electricity generation and the substitution of fossil natural gas for conventional fossil fuels that have become costlier. The recessionary impact of the COVID-19 pandemic on the economies of individual Member States (all but Ireland experienced a GDP contraction) also played a role in GHG emission reductions across the EU.[31]

Looking at a sectoral breakdown, the majority of sectors reduced their emissions between 1990 and 2019. The largest declines occurred in public electricity and heat production, manufacturing industries excluding iron and steel, the residential sector, and in the iron and steel production sector (-620, -267, -136 and -126 million tonnes of CO_2 equivalents, respectively). The factors behind this include energy efficiency improvements in industrial plants and greater energy savings by household and business users thanks to better building insulation and the growing use of more energy efficient appliances. By contrast, road transportation and refrigeration-air conditioning saw their emission levels increase by 176 and 83 million tonnes of CO_2 equivalents, respectively.[32]

30 European Environment Agency, *Annual European Union greenhouse gas inventory 1990-2019 and inventory report 2021*, 27 May 2021.
31 European Environment Agency, *Trends and projections in Europe 2021*, EEA Report No. 13/2021.
32 European Environment Agency, *Annual European Union greenhouse gas inventory 1990-2019 and inventory report 2021*, 27 May 2021.

Table X.1 Greenhouse gas emissions[1]

(in million tonnes of CO_2 equivalents)

	1990	2019	Change 2018-2019	Change 1990-2018	Change 1990-2019	Change 1990-2000*
Country	(million tonnes)			(percentage changes)		
Austria	78.4	79.8	1.5	-7.7	1.8	-6.1
Belgium	145.7	116.7	-1.1	-7.4	-19.9	-25.8
Bulgaria	100.0	56.0	-2.3	-7.5	-44.0	-48.2
Croatia	31.4	23.6	0.3	-1.7	-24.8	-26.1
Cyprus	5,6	8.8	0.3	-5.6	58.7	49.8
Czech Republic	198.9	123.3	-4.6	-3.5	-38.0	-40.2
Denmark	70.9	44.2	-8.1	-7.7	-37.6	-42.4
Estonia	41.0	14.7	-27.3	-21.2	-64.2	-71.8
Finland	71.2	53.1	-5.8	-9.0	-25.5	-32.2
France	544.0	436.0	-1.9	-9.2	-19.9	-27.3
Germany	1,248.6	809.8	-5.4	-8.7	-35.1	-40.8
Greece	103.3	85.6	-7.2	-13.7	-17.1	-28.4
Hungary	94.8	64.4	-0.5	-1.4	-32.0	-32.9
Iceland	3.7	4.7	-2.1	-5.0	-28.2	21.8
Ireland	54.4	59.8	-4.4	-3.7	9.9	5.8
Italy	518.7	418.3	-2.4	-8.6	-19.4	-26.3
Latvia	25.9	11.1	-1.1	-6.1	-57.0	-59.6
Lithuania	47.8	20.4	1.1	-1.6	-57.4	-27.4
Luxembourg	12.7	10.7	1.7	-14.0	-15.6	-18.4
Malta	2.6	2.2	6.5	-2.6	-16.2	-18.4
Netherlands	220.5	180.7	-3.2	-9.0	-18.0	-25.4
Poland	475.9	390.7	-5.1	-4.4	-17.9	-21.5
Portugal	58.9	63.6	-5.4	-8.5	8.1	-1.1
Romania	266.4	113.9	-3.6	-4.7	-57.3	-59.3
Slovakia	73.5	40.0	-5.3	-5.8	-45.6	-48.7
Slovenia	18.6	17.1	-2.6	-6.2	-8.2	-13.9
Spain	290.0	314.5	-5.6	-13.7	8.5	-6.4
Sweden	71.2	50.9	-2.4	-6.8	-28.5	-33.4
United Kingdom	794.1	452.3	-2.9	-	-43.0	-
EU plus Iceland[2]	**5,668.7**	**4,067.1**	**-3.9**	**-8.1**	**-28.3**	**-31.9**

Sources: European Environment Agency, *Annual European Union greenhouse gas inventory 1990-2019 and inventory report 2021*, May 2021. For 2020: European Environment Agency, *Approximated EU greenhouse gas inventory – Proxy GHG emission estimates for 2020*, November 2021.

* Figures in these columns refer to the EU without the UK (EU27).

1 Total GHG emissions, excluding land use, land-use changes and forestry.

2 The EU, Iceland and the UK jointly report their national GHG emissions during the second commitment period of the Kyoto Protocol, reflected in the Doha Amendment.

In 2019, the bulk of GHG emissions in the EU28 was accounted for by Germany, the United Kingdom, France and Italy,[33] which reduced their combined share in total EU GHG emissions (to 52.0% from 54.8% in 1990), while the majority of EU countries had shares of less than

33 The shares of the four largest emitters in 2019 were as follows: Germany: 19.9%; United Kingdom: 11.1%; France: 10.7%; and Italy: 10.3%, compared with 22.0%, 14.0%, 9.6% and 9.2%, respectively, in 1990. The smallest emitters were Malta, Cyprus, Luxembourg, Latvia, Slovenia, Estonia and Lithuania, with shares ranging between 0.1% and 0.5%.

2%. On the other hand, Germany and the United Kingdom were also the countries with the largest emission reductions between 1990 and 2019 (-438.8 and -341.8 million tonnes of CO_2 equivalents, respectively). In Germany, this was mainly due to increased efficiency of heating facilities and economic restructuring, particularly in the iron and steel sector. Other important factors include a switch from coal to natural gas, a strong increase in renewable energy use, and waste management measures. Lower emissions in the United Kingdom were primarily the result of liberalising energy markets and the fuel switch from oil and coal to gas in electricity production. Decreasing iron and steel production and the implementation of methane recovery systems at landfill sites contributed to a lesser extent. However, significant reductions were also achieved by small emitters, such as Romania, Slovakia and Hungary (-152.5, -33.5 and -30.4 million tonnes of CO_2 equivalents, with shares of 2.8%, 1.0% and 1.6%, respectively.

Looking at the percentage breakdown between the six main GHGs, carbon dioxide (CO_2) has the largest share, at 81.0% of total EU GHG emissions in 2019 (1990: 79.3%), followed by methane (CH_4) and nitrous oxide (N_2O) with 10.9% and 6.3%, respectively, down from 12.9% and 7.2% in 1990. CO_2 emissions showed the largest decline, while CH_4 and N_2O emissions also fell substantially as a result of reduced mining activity and improved waste management.[34]

A breakdown by source category (see Table X.2) shows that the far largest share, 70% of total EU GHG emissions in 2019, came from the energy sector (3,132 Mt CO_2e), followed by agriculture with a share of 10.5% (429 Mt CO_2e), industrial processes with 9.1% (370 Mt CO_2e) and the waste sector with 3.3% (135 Mt CO_2e).[35]

Table X.2 Greenhouse gas emissions by source category in the EU[1] and Greece

(in million tonnes of CO_2 equivalents)

	1990	1995	2000	2005	2010	2014	2015	2016	2017	2018	2019
					EU28						
Energy	4,358	4,081	4,012	4,123	3,801	3,336	3,376	3,357	3,361	3,282	3,132
Industrial processes	530	506	463	473	397	369	381	381	390	380	370
Agriculture	537	469	459	437	423	432	433	434	437	432	429
Waste	240	246	228	200	167	145	142	139	138	136	135
Other	0	0	0	0	0	0	0	0	0	0	0
Indirect CO_2 emissions	4.00	4.00	3.00	3.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Total*	5,669	5,305	5,166	5,236	4,790	4,303	4,335	4,312	4,327	4,233	4,067
					Greece						
Energy	77	81	97	107	93	74	71	67	70	67	61
Industrial processes	11	14	15	15	12	12	12	13	13	12	12
Agriculture	10	9	9	9	9	8	8	8	8	8	8
Waste	5	5	5	5	5	4	4	5	5	5	5
Total*	103.3	109.3	126.5	136.4	118.5	99.3	95.5	91.8	95.6	92.3	85.6

Sources: European Environment Agency, *Annual European Union greenhouse gas inventory 1990-2019 and inventory report 2021*, May 2021. For Greece: Ministry of Environment and Energy, *Climate Change Emissions Inventory*, March 2021.
* Total GHG emissions, excluding land use, land-use changes and forestry.
1 The EU, Iceland and the UK jointly report their national GHG emissions during the second commitment period of the Kyoto Protocol, reflected in the Doha Amendment. The EU28 aggregate therefore includes Iceland.

34 More specifically, CO_2 emissions came to 3,296 million tonnes in 2019, 26.7% lower than in 1990. CH_4 and N_2O emissions, at 443 and 255 million tonnes of CO_2 equivalents, respectively, were also lower than 1990 levels (by 39.2% and 37.3%).

35 Average annual changes relative to 1990 were: energy-related activities: -28.1%, agriculture: -20.1%, industrial processes: -30.2% and waste: -43.8%.

In Greece, after an upward trend in 1990-2007 (in the context of rising living standards and a growing services sector), emissions followed a declining path in 2008-2019.[36] This development was mainly due to economic recession, but also to mitigation actions (a shift to more renewables and improved energy efficiency). Between 2018 and 2019, Greece reduced its GHG emissions by 7.2%, mainly driven by the energy sector. This sector has a huge weight in GHG emissions, 71.5% of the national total in 2019 (1990: 74.6%), and reduced its emissions by 20.5% relative to 1990.[37] The second most important source category was industrial processes with a share of 13.6%. Agriculture (including livestock farming) comes third with a share of 9.2%. This sector saw its emissions decrease significantly (-22.2%) between 1990 and 2019, mainly due to lower N_2O emissions from agricultural soils, less use of synthetic nitrogen fertilisers and falling livestock numbers. Reduced use of synthetic nitrogen fertilisers is attributable to a rise in organic farming, the high cost of fertilisers and the adoption of sound fertilisation practices. Waste had a share of 5.7% in total GHG emissions in 2019 and its emissions were marginally (0.5%) lower than in 1990, largely thanks to increased recycling.

Turning to a breakdown by greenhouse gas, CO_2 emissions accounted for 76.8% of the national total in 2019 and were 21.2% lower than in 1990, mainly as a result of the introduction of natural gas and renewable energy in power generation. It is worth noting that Greece's high available hydroelectric potential also played a significant part in emission reduction. The second most important greenhouse gas was methane (CH_4), with a share of 11.7%; its emissions declined by 9.3% compared with 1990 levels.[38]

3 DOMESTIC POLICY MEASURES IN THE AREAS OF ENERGY, ENVIRONMENT AND CLIMATE IN 2021

On 16 March 2021, Law 4784/2021 on sustainable urban mobility was published.

On 28 April 2021, the Greek government submitted to the European Commission a National Recovery and Resilience Plan, "Greece 2.0", identifying green transition as its no. 1 objective.

On 23 July 2021, Law 4819/2021 was published, establishing a comprehensive framework for waste management.

On 6 September 2021, the establishment of a new Ministry of Climate Crisis and Civil Protection was officially announced.

On 20 September 2021, Greece hosted the EUMED9 summit and, along with eight other Mediterranean countries of the EU, co-signed the "Athens Declaration", whereby the parties reiterated their commitment to implement the Paris Agreement.

On 20 October 2021, Law 4843/2021 was published, transposing the EU Energy Efficiency Directive into Greek law and introducing other provisions on promoting renewable energy and competition in the electricity market.

On 18 November 2021, the Ministry of Environment and Energy published a draft National Climate Law – Transition to climate neutrality and adaptation to climate change, put up for public consultation between 24 November 2021 and 28 January 2022. The draft law Greece's national

36 However, GHG emissions rose in 2017 year-on-year, mainly due to increased use of solid fuels.
37 Within this source category, power generation is responsible for the majority of emissions (52.2%), followed by transport and manufacturing-construction with smaller shares of 29.1% and 7.5%, respectively.
38 Ministry of Environment and Energy, *Greece – National Inventory Report 2021*, March 2021.

targets for reducing GHG emissions by 2030 and 2050, respectively, and the actions required in each of the country's seven top emitting sectors.

On 10 December 2021, Law 4872/2021 was published, on just and growth-friendly transition and specific issues of de-lignitisation.

On 13 and 30 December 2021, the Public Gas Distribution Networks S.A. (DEDA) announced that it expected to launch three pilot projects in 2022 (two for the distribution of biomethane in the prefectures of Serres and Imathia[39] and one for the production, distribution and use of natural gas-based hydrogen to fully meet the energy needs of one settlement in the prefecture of Florina).[40] They would be the first such projects in Greece.

On 28 February 2022, the Greek Minister of Environment and Energy provided the EU Council of Ministers with a Greek government proposal to create an EU Energy Crisis Solidarity Facility to cushion households and businesses from the impact of the global energy crisis.[41]

On 9 March 2022, the Prime Minister, in a letter to the President of the European Commission, proposed a Six-Point Plan for protecting and restoring the smooth functioning of the gas and electricity wholesale markets and for ensuring that EU Member States' citizens and economies do not "unduly suffer in an already challenging period".

On 16 and 17 March 2022, the Prime Minister and the Minister of Environment and Energy, respectively, stated that Greece pursues its energy self-sufficiency, among other things by utilising its renewable energy sources and economically viable natural gas reserves, while also seeking to become a green energy hub for entire Europe.

39 See Public Gas Distribution Networks S.A. (DEDA) press release, 6.12.2021 (in Greek).
40 See Public Gas Distribution Networks S.A. (DEDA) press release, 30.12.2021 (in Greek).
41 See Ministry of Environment and Energy press releases of 27 and 28.2.2022 (in Greek): https://ypen.gov.gr/kostas-skrekas-oi-ellinikes-protaseis-sto-avriano-symvoulio-ypourgon-energeias/ and https://ypen.gov.gr/kostas-skrekas-apofasistiki-kai-syntonismeni-evropaiki-drasi-gia-tin-antimetopisi-tis-energeiakis-krisis/.

Box X.3

CLIMATE CHANGE AND THE BANKING ENVIRONMENT[1]

Climate change, i.e. the change in the global climate as a result of human activity (anthropogenic climate change), caused mainly by an increase in the concentration of greenhouse gases (GHG) in the atmosphere, affects the natural environment, and thereby the economy and the financial system. The impact of climate change on financial stability is associated with the distribution and types of financial assets exposed to climate-related and environmental risks. These risks relate to the physical impacts of climate change (physical risks) and to the process of transition to a low emissions economy (transition risks), while the cost is significantly reduced by implementing the necessary measures in a timely and orderly manner. Therefore, climate change falls directly within the mandate of central banks –including the Bank of Greece– to, *inter alia*, ensure financial stability.

Climate change and the banking system: risks and interconnection

The main cause of climate change is the increase in global average temperature, which can lead to, among other things, sea level rise, floods, droughts, extreme weather events and extinction of species and ecosystems.[2] Dam-

1 Summary of Special Feature I: "Climate change and the banking environment", *Financial Stability Review,* December 2021 (in Greek).
2 Bank of Greece, *The environmental, economic and social impacts of climate change in Greece*, June 2011.

age from extreme weather events and the disruption of production processes is one example of the direct consequences of changes in weather patterns, along with the effects of long-term climate changes. These effects will in turn lead to a slowdown in productivity (e.g. declining crop yields, damages to businesses and infrastructure, loss of working hours and health problems due to extreme weather events), capital losses and additional expenditure for damage repair. As regards transition risks, businesses are faced with rising gas emission costs and compliance costs. The development of new green technologies, the improvement of energy efficiency and a potential decrease in the demand for environmentally harmful products may further weigh on the financial situation of some businesses and on households' disposable income. These impacts on the real economy are expected to affect the banking system; however, identifying and measuring the related risks in banks' risk assessment models is a challenge. The connection between climate-related risks and traditional banking risks mainly refers to:[3]

a) credit risk, since borrowers' debt-servicing capacity and/or banks' ability to fully recover the value of a loan in the event of a borrower's default are impaired (e.g. potential impact on the borrower's income and capital and/or the value of collateral due to extreme weather events and disruption of production processes);

b) market risk, in terms of adjustments in the value of financial assets when climate risk has not yet been fully reflected into the pricing of exposures (e.g. losses from declining prices of corporate bonds after a natural disaster);

c) liquidity risk, as banks' access to stable sources of funding is affected, given that climate change may impact on deposit/credit flows (e.g. when credit lines and deposits are used and withdrawn, respectively, to address damages from natural disasters) and securities holdings (fire sales); and

d) operational risk, as natural disasters (e.g. floods, wildfires) may cause damages that directly affect the operation of banks' facilities (e.g. branches, central units) and also companies with which a bank cooperates in providing services to its customers and which may be exposed to natural hazards.

Moreover, a bank's legal and reputational risk may increase where it finances activities with a high level of GHG emissions or promotes products as sustainable while in reality they are not environmentally friendly ("greenwashing", see also Box II.3).

The complexity of the climate change challenge and our still incomplete understanding of its impacts on macroeconomic indicators such as inflation and interest rates make further research necessary, and to this end, central banks are already developing particular actions.[4] On the other hand, climate change could create new opportunities to develop a bank business model that is geared towards financing of sustainable activities, innovative products and projects for climate change adaptation, in order to promote transition towards a low-emissions economy. It should be noted, however, that the growth of the necessary financing is hampered by the lack of definitions and criteria commonly accepted and widely used by stakeholders and markets, which would enable a reliable identification and assessment of those investments that are aligned with greenhouse gas emission reduction targets.

Climate change and global initiatives

The Paris Agreement (2015) set out goals and a framework to strengthen countries' ability to deal with the impacts of climate change. Similarly, as most central banks acknowledged in time climate change as a challenge for the financial system, they have undertaken and continue to undertake important actions to address it within their competences and in line with their mandate. Furthermore, the Basel Committee on Banking Supervision (BCBS), in the context of its relevant actions on climate change,[5] has been assessing the extent to which climate-related

3 ECB (2021), "Climate-related risk and financial stability", July 2021, and "Climate change and monetary policy in the euro area" September 2021, and Papandreou, A.A. (2019), "Stranded assets and the financial system", Bank of Greece, Working Paper No. 272.
4 ECB press release, "ECB's Governing Council approves its new monetary policy strategy", 8.7.2021.
5 BIS, "Basel Committee advances work on addressing climate-related financial risks", November 2021.

financial risks can be addressed within the framework of existing rules. Furthermore, the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), of which the Bank of Greece is a member, in order to contribute towards achieving the objectives of the Paris Agreement, among other things published in May 2020 a Guide with recommendations and best practices for the integration of climate-related and environmental risks into supervisory activities.[6] One of these recommendations is to develop a clear strategy and establish internal arrangements to address climate-related issues.

At the 26th United Nations Climate Change Conference of the Parties (COP26) in Glasgow (October-November 2021), countries further committed to reducing greenhouse gas emissions (mainly carbon dioxide and methane) and to addressing deforestation by financing actions.[7] In the context of this conference, the NGFS, the ECB and 68 central banks that are members of the NGFS –including the Bank of Greece[8]– committed to take further actions to facilitate the transition to a carbon-neutral economy and achieve the objectives of the Paris Agreement. In addition, major banking groups that control around 40% of the world's financial assets reiterated in a joint statement their readiness to substantially support green growth through targeted lending.

EU initiatives on tackling climate change and protecting the financial system

The European Union, under the European Green Deal and the plan to achieve interim emissions' reduction targets by 2030,[9] aims at a growth model that is based on sustainable economic activities, as these will be defined in the relevant classification system currently under development (EU Taxonomy Regulation[10]). In addition, the proposal for an EU Regulation[11] on European green bonds could support the financing of sustainable growth and further deepen the green bonds markets, also by enhancing the credibility of these bonds while reducing the risk of greenwashing. The recent proposal of the "Banking Package 2021"[12] includes sustainability issues in banks' regulatory and supervisory framework, by integrating climate-related and environmental risks into banks' risk management framework and supervisory process. Furthermore, in November 2021, the ECB's Single Supervisory Mechanism (SSM) published a report[13] on banks' approaches and progress on integrating climate-related risks into their practices and meeting the relevant supervisory expectations published one year ago.[14] The report recognises that efforts to meet the supervisory expectations are under way and most banks have prepared plans to meet them in the near future.

In terms of climate risk analysis, in September 2021,[15] the ECB published the results of its first economy-wide climate stress test, an exercise that assessed the impact of climate change under three different climate policy scenarios. In Greece, while the share of firms subject to transition risk is close to the EU average, the share of firms exposed to physical risks is much higher compared with other countries. This is due to many reasons and, according to the methodology followed, it may be attributed *inter alia* to Greece's geographical location (and its vulnerability to climate change), the exposure of Greek banks to domestic firms (mainly based in Greece) and adaptation measures that have or have not been implemented. In addition, the ongoing European stress test on climate-related risks, a learning exercise to assess banks' climate-risk preparedness conducted in the first half of 2022,[16] aims to contribute to better understanding of the challenges that banks face in managing climate-related risks. The benchmark analysis to assess the sustainability of banks' business models and their exposure

6 NGFS, "Guide for Supervisors: Integrating climate-related and environmental risks into prudential supervision", May 2020, and "Progress report on the Guide for Supervisors", October 2021.
7 Glasgow Climate Change Conference, October-November 2021.
8 Bank of Greece COP26 pledge, 3.11.2021.
9 European Commission, European Green Deal.
10 EU Taxonomy for sustainable activities.
11 Regulation of the European Parliament and of the Council on European green bonds, July 2021.
12 European Commission, "Banking Package 2021: new EU rules to strengthen banks' resilience and better prepare for the future", October 2021.
13 ECB, "The state of climate and environmental risk management in the banking sector", November 2021.
14 ECB, "Guide on climate-related and environmental risks", November 2020.
15 ECB press release, "Firms and banks to benefit from early adoption of green policies, ECB's economy-wide climate stress test shows", September 2021.
16 ECB Press Release, "ECB Banking Supervision launches 2022 climate risk stress test", 27.1.2022.

to emission-intensive companies by comparing them through a common set of climate risk metrics could also help identify vulnerabilities faced by banks and appropriately integrate the insights into the Supervisory Review and Evaluation Process (SREP).

The Bank of Greece's initiatives to tackle climate change and safeguard financial stability

The Bank of Greece was among the first central banks to systematically engage with the analysis of the economic, social and environmental impacts of climate change, undertaking initiatives such as the establishment of the Climate Change Impacts Study Committee (CCISC) in 2009 and contributing to the design of policy measures to limit the adverse impacts of climate change and to facilitate adaptation. The Bank of Greece was the first central bank to endorse the Principles for Responsible Banking of the United Nations Environment Programme Finance Initiative (2019) and is also a member of the NGFS and other international working groups (e.g. ECB or European Banking Authority groups). In addition, in 2021, the Bank of Greece set up the Climate Change and Sustainability Centre, whose main task is to coordinate the Bank's actions on climate and sustainability issues.

Conclusions – recommendations and prospects

Climate change requires multi-level cooperation in order to be addressed and to achieve the goals for green growth, as it is expected to have significant environmental, social and economic impacts. Central banks, within their remit, play an important role in facilitating the transition to a sustainable low-emissions economy, while at the same time safeguarding financial stability. With the development of methodologies, data availability, research and analysis and policymaking, central banks can contribute to address the impacts of climate change and financing sustainable growth. At the same time, commercial banks need to develop a modern business model, which is capable of managing the risks of climate change in their financial exposures as well as financing green growth. The benefits are expected to be significant in terms of improving their assets through new exposures to sustainable projects and activities, but also in terms of reducing non-performing loan ratios. The financing strategy of projects (through green loans) for the transition to a new energy model based on the use of renewables, high energy efficiency and net-zero greenhouse gas emissions (sustainable finance) will contribute to meeting the goals for limiting global warming, adapting to the changing climate and strengthening resilience.

4 SUSTAINABILITY AND CLIMATE ACTIVITIES OF THE BANK OF GREECE IN 2021

4.1 Establishment of a Centre for Climate Change and Sustainability, and the Bank of Greece's climate pledge

On 14 June 2021, the General Council of the Bank decided to establish a special business area, the Centre for Climate Change and Sustainability, whose main tasks are: to design, coordinate, support and implement the climate and sustainability activities of the Bank and of the Climate Change Impacts Study Committee (CCISC); to provide recommendations to the Administration on the Bank's climate and sustainability strategy and to support the Bank's high-level representation at relevant Eurosystem and international fora; and to advise the Bank's Departments on climate and sustainability considerations to be further incorporated into their individual operations (see the Management Report and the Environmental Report 2021).

On 3 November 2021, in the context of the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 26), the Bank of Greece made a pledge to contribute, within its field of responsibility, to the Objective in Article 2.1(c) of the Paris Agreement, Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. This pledge supports the Glasgow Declaration of the Network for Greening the Financial System (NGFS) and the European Central Bank (ECB) pledge on climate change action that were published earlier on the same day; the latter was a follow-up to the ECB's action plan presented on 8 July 2021 to include climate change considerations in its monetary policy strategy (see Section 1 above). Through its COP 26 pledge, the Bank of Greece committed to concrete actions within its field of responsibility, including conducting re-

search; assessing the financial system's exposure to climate-related physical and transition risks; exploring ways to embed the outcome of research and analysis and the available tools and methodologies in macroeconomic forecasting models, financial stability monitoring and supervisory approaches (see Box X.3). It also committed to apply sustainable and responsible investment principles in its non-monetary policy portfolios, in line with the common stance of the Eurosystem.

4.2 "LIFE-IP AdaptInGreece – Boosting the implementation of adaptation policy across Greece" project (2019-2026)[42]

The LIFE-IP AdaptInGR project, aimed to boost the implementation of Greece's National Climate Change Adaptation Strategy (NCCAS) (which was drafted by the CCISC and, following public consultation, was enacted by articles 42-45 of Law 4414/2016) brings together, during the current first adaptation policy cycle (2016-2025), the Bank of Greece and 17 other strategic partners from central government, local and regional authorities and the academia. During the first phase of the project (2019-2020), the methodological framework for monitoring adaptation actions and policies was finalised, benefiting from the expertise of the Bank of Greece, and a first assessment was carried out of the project's social and economic impact and contribution to the implementation of the NCCAS.

Currently, monitoring and evaluation work is underway and, jointly with private-sector stakeholders and social partners, public awareness activities are being carried out. Meanwhile, selected adaptation pilots are being rescheduled, after revisions to the initial planning owing to COVID-19 restrictions.

As part of its involvement in the current phase of the project, the Bank of Greece, among other things:

– contributes to the development of the methodological framework for monitoring the socio-economic impact of the project's implementation;

– updates its studies on the economic, social and environmental impacts of climate change in Greece;

– helps boost climate change adaptation in the financial sector, by setting up working groups bringing together the banking and insurance industries;

– participates in dissemination of research results and in adaptation awareness and stakeholder engagement activities;

– monitors and assesses the results of project actions; and

– participates in the project's Complementary Funding Committee, which aims to mobilise additional resources for adaptation action in Greece.

4.3 The "Economy and Climate: Handle with care" exhibition at the Museum of the Bank of Greece

Given that climate change has consequences for their primary objective of price stability, as well as for their financial stability mandate, central banks too should take urgent action (alongside governments that are primarily responsible for dealing with this matter). Accordingly, the ECB and the Bank of Greece have made their respective pledges on climate action (see Section 4.1 above).

42 For more details, see https://www.adaptivegreece.gr/en-us/.

In the same vein, since 8 December 2021, the Bank's Centre for Culture, Research and Documentation has been holding a temporary exhibition at the Museum of the Bank of Greece entitled "Economy and Climate: Handle with care". The exhibition describes the phenomenon of climate change and analyses its economic consequences, with a focus on Greece. At the same time, it aims to highlight the risks and opportunities arising from climate change, but also the role of central banks in addressing the impacts of climate change within their mandate.

4.4 Memorandum of Understanding between the Bank of Greece and the Ministry of National Defence

On 2 March 2022, the Bank of Greece and the Ministry of National Defence signed a Memorandum of Understanding on cooperation in addressing the impacts of climate change and enhancing the Ministry's relevant capabilities. The two parties agreed to support the climate initiatives and actions of the Ministry, drawing on the expertise of the Climate Change Impacts Study Committee (CCISC). Also, they considered a possible joint participation in national-scale projects aimed at promoting adaptation and strengthening resilience to climate change; to this end, they agreed to work together in designing a number of actions, which could include: collection, analysis and dissemination of environmental data on the evolution of climate change-related phenomena and biodiversity trends; an assessment of climate change risks and implications for the Armed Forces; information campaigns to raise awareness of climate change mitigation and adaptation; and making more widely known the results of their cooperation.

Box X.4

GREEN FINTECH

Achieving the goals of the European Green Deal for sustainable growth and net-zero greenhouse gas emissions by 2050 creates new opportunities as well as challenges because of the substantial additional investment needed. Green finance can foster investment in green innovative projects, thus supporting both the transition to a low-carbon economy and digital transition.[1] The 26th UN Climate Change Conference of the Parties (COP26) in 2021 brought together world leaders and climate experts to agree on the measures needed to tackle climate change and keep temperature increase ideally below 1.5°C. As highlighted by the COP26 objectives and conclusions, there is a clear link between sustainable finance and technological innovation.[2] While the Action Plan on Financing Sustainable Growth[3] and the Action Plan on Fintech[4] have been developed as separate initiatives, the European Commission, in its Strategy for Financing the Transition to a Sustainable Economy,[5] has highlighted the need to seize the opportunities offered by digital technologies for sustainable finance. In 2018, the G20 Sustainable Finance Study Group examined the potential benefits of applying digital technology on sustainable finance.[6]

Green financial technology

Green financial technology (green fintech) is defined as "technology-enabled innovations applied to any kind of financial processes and products all while intentionally supporting Sustainable Development Goals or reducing sustainability risks".[7] The application of digital technologies in green finance is perceived as beneficial for its po-

1 See also Box 29.
2 The global debate on how emerging technological innovations could be used to support green finance started in 2014, when the United Nations Environment Programme (UNEP) launched the "Inquiry: Design of a Sustainable Financial System". In 2016, green finance was very much under the radar of G20 leaders, with the launch of the Green Finance Study Group during China's G20 presidency.
3 https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52018DC0097.
4 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018DC0109.
5 https://eur-lex.europa.eu/resource.html?uri=cellar:9f5e7e95-df06-11eb-895a-01aa75ed71a1.0001.02/DOC_1&format= PDF.
6 See https://g20sfwg.org/wp-content/uploads/2021/06/G20_Sustainable_Finance_Synthesis_Report_2018.pdf.
7 For green fintech taxonomy, see https://www.greenfinanceplatform.org/sites/default/files/downloads/resource/GreenFintechTaxonomyDataLandscaping-v5%20.pdf.

tential to make large amounts of data available at a lower price and at a fast pace, improving the pricing of environmental risks and opportunities, reducing search costs for information as well as improving the measuring and tracking of sustainability criteria. In such a way, green fintech facilitates access to sustainable finance options, unlocks new sources of finance and enables new business models.[8] For example, the use of blockchain for the automation of processes in bond issuance, although not yet widely adopted, has the potential to reduce the costs of design and financing of green bonds. Big data, machine learning and artificial intelligence would allow the collection from disparate sources, processing of large amount of data about companies' social and environmental impacts as well as translation into more standardized and comparable data for investment decision-making.[9] These digital technologies are already being used by organisations in disaster risk management.[10] Blockchain technology allows also the greenness of investments to be verified in a secure and transparent manner, increasing confidence and lowering costs associated with green labelling. Fintech solutions facilitate access to green finance for start-ups, e.g. through peer-to-peer (P2P) solutions. "Green" crowdfunding platforms enable investors to directly participate in the financial system unlocking new sources of sustainable finance.

Fintech can be considered in part as a more environmentally friendly alternative to the traditional financial sector. For example, cloud computing technologies, in addition to consumer benefits such as increased convenience and more clarity in personal finance management, can contribute considerably to reducing the carbon footprint through energy savings. In addition, as the average consumer is growing more environmentally conscious, some fintech companies seize the opportunity to invest in green initiatives to grow their market share and give a strong incentive to investors who are willing to allocate resources to projects aligned with the relevant sustainability goals.[11] The fintech sector continues to grow rapidly[12] and to make considerable efforts to become "greener".[13] However, it should be noted that the use of digital technologies, such as artificial intelligence and blockchain, implies a high carbon footprint.[14] The European Commission has stressed that while digital technologies are important in the transition process, there are concerns about the environmental impact and growing energy needs of data centres and distributed ledger technology, especially as regards crypto-assets.[15] Furthermore, regulators and supervisors, in cooperation with central banks, should establish the appropriate framework to ensure the safety and protection of users, the financial system and the economy, in line with sustainable development goals and the transition towards an economy with net-zero greenhouse gas emissions.

Conclusions and challenges

Digital transformation and climate neutrality are the two mega-trends that will shape our future. The challenges that are related to leveraging the full potential of digital finance to mobilize sustainable finance include, among other things, the high energy footprint of digital technologies, the weak digital infrastructure as well as the high costs of newer technologies, the quality and use of sustainability-related data for financial decision-making, the limited awareness and understanding of sustainable digital finance. There is a need to further understand the interaction of sustainable finance, which is a relatively new concept, with digital finance, which is rapidly changing. The effective use of fintech products and services requires, *inter alia*, high levels of digital financial

8 https://g20sfwg.org/wp-content/uploads/2021/06/G20_Sustainable_Finance_Synthesis_Report_2018.pdf.
9 The interest in sustainable financial products has led the largest credit rating agencies to revise methodologies and establish credit rating standards to incorporate climate and environmental risks. It is therefore necessary for investors to have reliable and comparable data in order to make informed decisions on environmental risks. See Bank of Greece, *Monetary Policy Interim Report* 2021, Box VII.2.
10 The World Bank uses machine learning techniques in its disaster management strategy: https://documents1.worldbank.org/curated/en/503591547666118137/pdf/133787-WorldBank-DisasterRiskManagement-Ebook-D6.pdf.
11 For example, by planting trees and funding projects related to clean energy and solar energy, etc. See, *inter alia*, https://www.finextra.com/blogposting/20197/the-5-green-fintechs-you-need-to-watch-in-2021.
12 In the first half of 2021, global fintech investment reached USD 98 billion through 2,456 agreements. See KPMG, Pulse of Fintech H1 2021.
13 Further digital transformation and delivering the sustainable development goals are the two top trends in the financial sector for 2022. See Capgemini (2022), *Top Trends in Banking* 2022 (eBook).
14 See Alonso, A. and J.M. Marqués (2019), "Financial Innovation for a Sustainable Economy", Banco de España, *Documentos Ocasionales*, No. 1916.
15 https://eur-lex.europa.eu/resource.html?uri=cellar:9f5e7e95-df06-11eb-895a-01aa75ed71a1.0001.02/DOC_1&format= PDF.

literacy.[16] At the same time, the European Commission and the OECD have stressed the need to promote shared understanding of the financial competences individuals need in order to make sound decisions on personal finance while also supporting sustainability.[17] As regards Greece, there is a strong digital divide, with significant socioeconomic differences in access to and use of digital technologies. It is therefore necessary to set up a system of continuous education and training. Moreover, investment in innovation and infrastructure is required for Greece to become a technology hub.[18]

16 In 2016, leaders endorsed the high-level principles on digital financial inclusion, which involved the strengthening of digital and financial education and awareness raising. See GPFI (2016), "G20 High-Level Principles for Digital Financial Inclusion, Global Partnership for Financial Inclusion". Moreover, the European Commission has recognised the importance of financial literacy for consumers in the context of their greater participation in the capital market and for small- and medium-sized enterprises in the context of the Capital Markets Union. See European Commission (2020), *A new Vision for Europe's capital markets: Final Report of the High-Level Forum on the Capital Markets Union*.

17 For example, individuals should understand and take into account the environmental impacts of their purchases, be able to assess sustainable investments, identify cases of greenwashing, climate-related risks and sustainability labels. See also European Union/OECD (2022), "Financial competence framework for adults in the European Union".

18 See Bank of Greece, *Annual Report* 2020, Box X.3, for further analysis of the factors that may fuel the risk of technological lags in Greece.

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