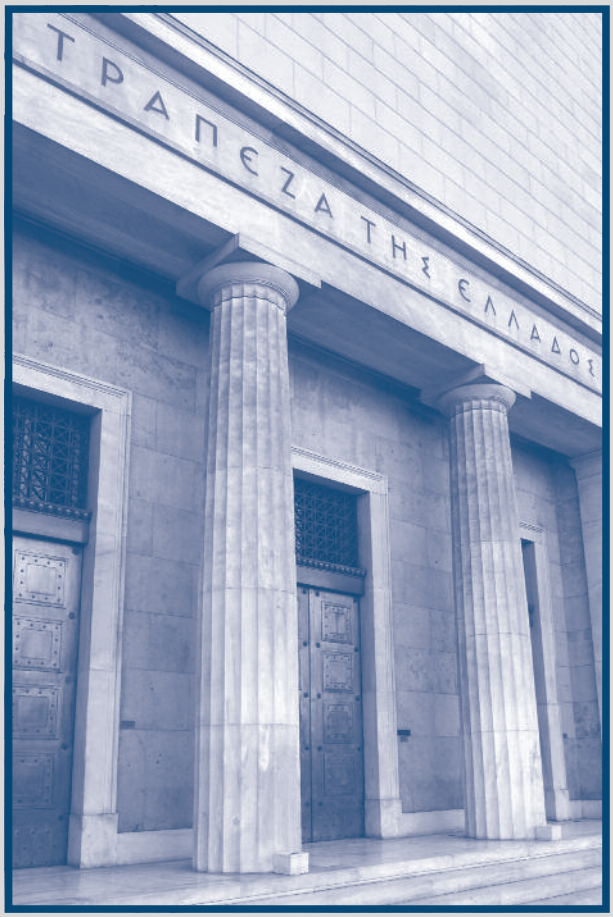
SUMMARY OF THE ANNUAL REPORT

2023

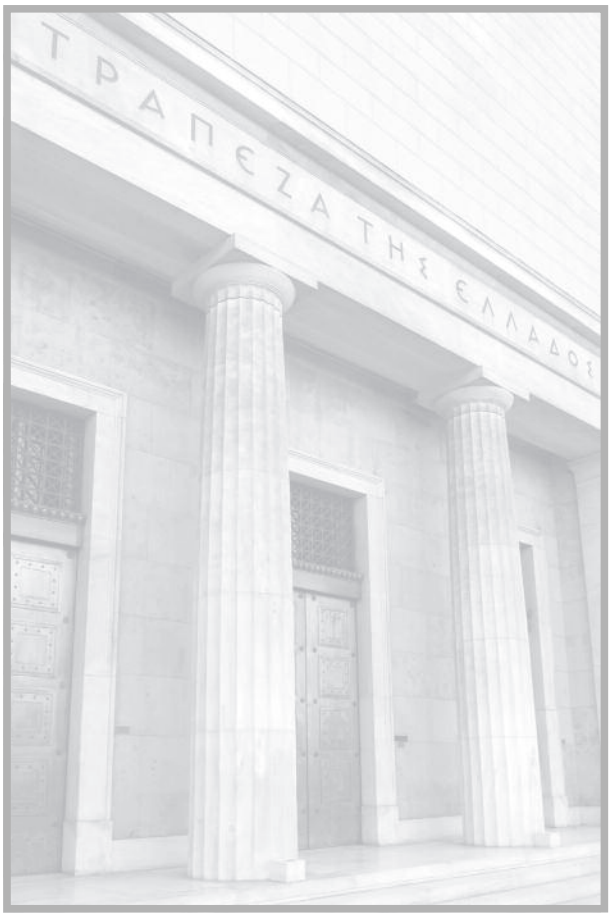


JULY 2024

BANK OF GREECE
EUROSYSTEM

SUMMARY OF THE ANNUAL REPORT 2023

Presented to the General Meeting of Shareholders
by Governor Yannis Stournaras



JULY 2024

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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

In 2023, the world economy faced a spate of challenges related to an increasingly complex interplay between economic, climate and geopolitical risks. The gradual withdrawal of fiscal support measures, tighter monetary conditions, the fallout from the unprecedented surge in international energy prices and a resurgence of uncertainty triggered by geopolitical tensions in the Middle East have all weighed on global economic activity, with divergences across economies. Nevertheless, the world economy turned out to be more resilient than expected and the risk of stagflation receded following decisive interventions by monetary and fiscal authorities. In the euro area, the effectiveness of monetary policy is reflected in rapid disinflation, as shown by the latest data. Yet, risks to the growth and inflation outlook for the global and the European economy linger on.

In 2023, the Greek economy continued to expand at a robust but slowing pace, significantly higher than the euro area average. Real GDP grew by 2%, mainly driven by private consumption, exports and investment. Headline inflation declined sharply, chiefly as a result of falling energy prices. The labour market strengthened, with the unemployment rate falling further, though more moderately. In the second half of the year however, consumer expectations were affected by the natural disasters that hit the country, mounting global uncertainty and persistent food inflation. Despite the adverse international environment, the Greek economy is on a positive track and is projected to continue growing faster than the euro area economy, while inflation is anticipated to decline further.

The most important development in 2023, which has a positive effect on the prospects of the Greek economy, was undeniably the Greek sovereign's recovery of investment grade, on the back of steadily improving fiscal performance and restored confidence among international investors. At the same time, despite interest rate increases, risks to public debt sustainability are contained in the medium term. However, the road that leads to strong, sustainable and balanced economic growth is difficult and requires resolute policy action for positive expectations to materialise and exogenous risks to be averted. Key to sustaining the growth momentum are the maintenance of fiscal credibility and a focus on building sufficient fiscal buffers over time, coupled with the effective use of available EU and national resources on research, innovation, green and digital investment, the implementation of the necessary reforms and the strengthening of institutions.

This year is a milestone for the euro area central banks, as it marks 25 years since the creation of the euro, which was unquestionably the most important step towards European integration. Over these years, the single monetary policy has faced multiple challenges. Yet, the experience gained has offered valuable lessons, which we should use to shield against future crises. In a world hit by successive supply-side shocks, mainly due to geopolitical tensions, effective risk management should be a top policy priority. Against this backdrop, monetary policy needs to be characterised by prudence, flexibility and gradualism, as well as constantly assess its available tools in the light of incoming economic data and the prevailing circumstances. But first and foremost, for monetary policy to be effective, it should be supported by appropriate fiscal and structural policies.

The Bank of Greece continued to serve as custodian of price stability and financial stability, ensuring smooth liquidity conditions for the Greek credit system. Throughout the year, the Bank

monitored and analysed economic developments and prospects, contributing to the formulation of the single monetary policy. Furthermore, it continued to invest in high-quality research and participate in the Eurosystem's research activities, as well as actions aimed at the assessment and management of climate-related risks. In 2023 the Bank of Greece started disclosing the climate footprint of its non-monetary policy portfolios, in line with the Eurosystem's common stance for applying sustainable and responsible investment principles in the management of such portfolios.

Meanwhile, it pressed forward with the digitalisation and technological upgrading of its processes, seeking at the same time to reduce operational risk and enhance cybersecurity. Moreover, the Bank continued to invest in skill and competence building among its staff, fully respecting its employees. Lastly, to ensure transparency and accountability, it placed emphasis on compliance and corporate governance issues, modernising and streamlining its procedures and policies.

As part of its corporate social responsibility, the Bank of Greece continued to incorporate sustainability principles in its operations and to implement relevant projects, as well as to disseminate culture through the work of its Centre for Culture, Research and Documentation. With a view to promoting financial literacy, it launched a series of initiatives, such as educational programmes at the Bank of Greece Museum, and participated in similar Eurosystem-wide initiatives.

We are particularly proud to have organised a very successful external meeting of the Governing Council of the European Central Bank in October 2023. Besides, for us at the Bank of Greece the word "Eurosystem" is a key component of our identity. For the years ahead, we shall continue to work methodically and responsibly, espousing a set of lofty values.

2024 is a year of hopes and challenges. Effectively addressing all these challenges warrants commitment and adherence to the central bank's vision. This vision is shared and served in the best possible way by the Bank of Greece employees, who are key to maintaining the Bank's high prestige and quality output. This is why I would like to sincerely thank them and encourage them to keep up the good work. Also, I would like to wish a successful career to all newcomers who joined our family in 2023. Last but not least, I would like to thank the members of the General Council for their support and cooperation.

Yannis Stournaras

CONTENTS

RESTORED CONFIDENCE IN THE GREEK ECONOMY AMID INTERNATIONAL UNCERTAINTY – CONTINUATION OF REFORMS

1 INTRODUCTION

The world economy seems to be heading for a soft landing, exhibiting high resilience to the recent crises, while the risk of stagflation has receded following decisive and timely interventions by monetary and fiscal authorities.

Nevertheless, the international economic environment continues to be characterised by heightened uncertainty. The tightening of monetary policy, the phasing-out of fiscal support, inflation exceeding the target of 2%, albeit declining, high debt, the fallout from the war in Ukraine, geoeconomic fragmentation and a new surge of uncertainty since October, triggered by geopolitical tensions in the Middle East, are all having adverse effects on economic activity and expectations.

The experience of the 2021-23 inflationary shock is particularly useful for addressing similar future supply-side shocks. The marked decline in global inflation recorded in 2023 is mainly due to falling energy prices and weakened activity, as well as central banks' forceful policy response. Specifically, the timely tightening of monetary policy with sizeable and abrupt increases in key interest rates has played a decisive part in taming inflation and containing inflation expectations. At the same time, it has helped rein in second-round inflationary pressures arising from wage increases, as the path of inflation in almost all advanced economies was not accompanied by an upward wage-price spiral. It should be noted that disinflation was achieved without significantly harming economic activity and employment.

In the euro area in particular, the tightening of monetary policy made it possible to curb very high inflation, without any major side effects on the real economy and financial stability. The key interest rate hikes by the European Central Bank (ECB) were unprecedented both in speed and in magnitude, and were forcefully transmitted into financing conditions at first and subsequently into the economy. Considerable increases are already visible in bank lending rates for firms and households. This led to a decline in loan demand, which, compounded by banks' tight credit standards, brought about a significant slowdown in credit growth. Tighter financing conditions have dented demand, contributing to an easing of inflationary pressures. The effectiveness of monetary policy is mainly reflected in rapid disinflation. Euro area inflation fell from 10.6% in October 2022 to 2.6% in February 2024. Meanwhile, the scenarios for a recession in the euro area economy did not materialise. Despite a significant slowdown in economic activity, the intended soft landing of the economy appears to have been achieved.

The year 2023 marked a milestone for the Greek economy, as it signalled the Greek sovereign's return to investment grade rating, while its growth rate remained well above the euro area average. The return to investment grade was the culmination of successive upgrades by major credit rating agencies over the past few years. This positive development actually came at a time of unprecedented crises (such as the pandemic, widespread geopolitical instability, the energy crisis, the surge in inflation and the strong tightening of monetary policy, as well as the recent experience with the devastating effects of climate change). The fact that it took 13 years for the country to return to investment grade suggests that confidence in the prospects of the domestic economy and the credibility of the economic policy pursued are crucial factors that, once lost, are very difficult to recoup and thus call for consistency and prudent policies.

The positive assessments of the Greek economy amid multiple crises, which warrant an analysis of the economic outlook taking into account various risks, demonstrate the resilience of the economy to negative shocks. Therefore, at the current juncture, it is imperative to further strengthen the resilience of the economy, as the long-term benefits from credible medium-term policy planning, structural fiscal adjustment, political stability and the implementation of major reforms (e.g. in the pension and tax systems, in the labour and product markets, and in the public sector), even at a possible short-term cost, are all too evident.

The country's fiscal credibility has been largely restored, while the deep crisis of the recent past has raised high fiscal awareness among policymakers. The reduction in public debt over the past few years has been remarkable and unparalleled by historical and international standards. Real GDP growth, on a cumulative basis, has played a key role, also greatly supported by inflation and the gradual elimination of primary deficits, following the timely withdrawal of the temporary expansionary fiscal measures adopted in 2020-22.

Greece stands out as a prime example of fiscal resilience among high-debt countries in Europe. The new EU fiscal rules, as well as the economic outlook analyses by major rating agencies, take into account not only the medium-to-long-term projections for public debt, but also its sensitivity to various risks. All sustainability analyses show that, in several adverse scenarios, the downward path of public debt is not impaired. On the one hand, this is due to the favourable profile of the Greek public debt and to effective risk management, which hedged against interest rate risk in a timely manner, while other countries are burdened with increased interest payments in a higher interest rate environment. On the other hand, the downward path of public debt is associated with the country's favourable structural-fiscal position and the far-reaching reforms in the management of public finances and the pension system, which ensure primary surpluses and considerably mitigate fiscal risk from population ageing over the course of many decades.

The consolidation of the baking sector was another driver of Greece's upgrade to investment grade rating. In recent years, the banking sector has made notable progress in overcoming its past weaknesses, with the cleanup of loan portfolios, the reduction of non-performing loans (NPLs), improvements in capital adequacy ratios and banks' return to strong profitability. The above developments, coupled with the upgrade to investment grade, enabled the Greek government to divest from the sector. More specifically, the disinvestment of the Hellenic Financial Stability Fund (HFSF) from significant Greek banks, with the participation of credible institutional long-term investors, signals the banking sector's return to normality, facilitates banks' access to capital markets and helps attract investors' funds, thereby ensuring the financing of sound investment projects, while testifying to market confidence in the prospects of the Greek economy. At the same time, the return of significant banks to purely private ownership, with an ensuing profit (of around EUR 9 billion) for the government, provides extensive benefits to the domestic economy, increasing the liquidity and effectiveness of the Greek capital market and creating opportunities for direct investment in the Greek banking sector. It should be noted that the timing of the HFSF's successful disinvestment was particularly favourable, given the positive investor sentiment towards Greece, despite an international environment of heightened uncertainty and increased geopolitical risks.

The positive effects on the Greek economy from the upgrade to investment grade are substantial:

- The impact of rising interest rates on sovereign and private funding costs is partly offset;
- Borrowing at comparatively lower interest rates reduces public debt servicing costs, thereby freeing up public resources;

- The investor base of Greek bonds broadens, attracting more high-quality and long-term investment funds, which will lead to increased investment flows and ultimately greater confidence in the prospects of the Greek economy;

- The ability to effectively manage public debt is further strengthened. Increased demand for Greek bonds enhances liquidity in the sovereign bond market and reduces bond price volatility in the secondary market. Easier market access provides flexibility for the management of cash reserves, liquidity needs and financing requirements, thus contributing to the mitigation of risks associated with borrowing and refinancing needs;

- Greek bonds are now subject to the regular haircuts applied by the Eurosystem on eligible collateral that is accepted in its credit operations, and to the same terms and criteria as for other euro area bonds. The fact that Greek bonds are no longer subject to special (higher) haircuts facilitates the management and the provision of liquidity to the Greek banking system, as well as the smooth transmission of monetary policy;

- According to Bank of Greece projections, GDP will grow by 2.5% in the long run, with lower financing costs per se contributing to an estimated 1.3% increase in GDP.

Nevertheless, there is no room for complacency, as there is still a long way to go for Greece's credit rating to converge to the average rating of euro area countries. Maintaining investment grade status and obtaining further upgrades require prudent economic policies, characterised by consistency, medium-term rational planning and measurable targets. Continued reforms, in particular to bolster institutions and the structural competitiveness of the economy, are also essential. Furthermore, sustainable primary surpluses are set to ensure debt reduction and help build the necessary fiscal buffers dictated by counter-cyclical fiscal policies.

2 WORLD ECONOMY

In 2023 the growth momentum of the world economy weakened, as a result of the slowdown in advanced economies, although emerging market and developing economies preserved their robust growth rates. However, the world economy seems to be heading for a soft landing, exhibiting remarkable resilience to the recent crises, while the risk of stagflation has receded following decisive and timely interventions by monetary and fiscal authorities. According to the latest IMF forecasts, global GDP growth weakened to 3.1% in 2023 (from 3.5% in 2022) and is expected to remain unchanged in 2024. Recovery from the fallout of the pandemic crisis, the war in Ukraine and the subsequent rise in living costs has been uneven across major economies. In advanced economies, activity slowed overall, with the exception of the US and the Japanese economy. Particularly in the euro area (mainly in Germany and Italy) and the United Kingdom, economic slowdown was steeper, reflecting: (i) subdued international demand, which led to substantially lower growth in global trade; (ii) high input costs, despite the unwinding of pandemic-related supply chain disruptions; (iii) tight financial conditions, mainly affecting investment; and (iv) a further decline in real incomes owing to a faster rise in the cost of living, despite emergency fiscal support. By contrast, growth in emerging market and developing economies remained robust. In this group of countries as well, macroeconomic developments were also quite uneven: the Russian economy exited the recession, India's economy slowed and economic growth in China quickened.

Global inflation declined, as international energy prices followed a downward path. According to the IMF, in 2023 global inflation fell by around 2 percentage points compared with 2022 to 6.8% and is expected to drop further to 5.8% in 2024 and 4.4% in 2025. In advanced economies, inflation decelerated faster (from 7.3% in 2022 to 4.6% in 2023), while for 2024 it is expected to decline by a further 2 percentage points to 2.6%. The decline of inflation in ad-

vanced economies from the 40-year high recorded in 2022 is due to the impact of falling international energy prices, as well as the timely and largely coordinated response of central banks. The factors pushing down inflation differ as to their relative importance across economies, but overall – and to a larger extent in 2024, as expected – they will be associated with declining core inflation on the back of restrictive monetary policy, signs of labour market slackening and the gradual pass-through of lower international energy prices in 2023 to the domestic general price level.

World trade is estimated to have decelerated significantly in 2023. Persisting heightened uncertainty and growing geopolitical risks shaped an overall adverse external environment for world trade, while global demand also weakened considerably. The IMF estimated that global trade volumes (goods and services combined) grew by a mere 0.4%, compared with a strong increase of 5.2% in 2022. The main factors behind the contraction in world trade flows were: (i) a decline in global economic activity and weak global demand; (ii) increased trade restrictions that were adopted by several countries and remained above pre-pandemic levels; and (iii) geoeconomic fragmentation. World trade is projected to recover in 2024 and 2025, but its growth rate will fall short of the 2000-19 average. Recent developments at the Suez Canal – which handles 11% of global trade – following repeated attacks on cargo vessels in the Red Sea and traffic disruptions, as well as at the Panama Canal because of the drought, are creating global supply bottlenecks. These incidents have increased delivery times and shipping costs, heightening the risks to global trade.

Global commodity prices, especially gas prices, declined sharply from the historic highs seen in 2022. More specifically, the international price of natural gas of all types plunged by 63% in 2023 from the historically high levels of 2022, affected by reduced demand amid slower growth rates and higher production. In Europe in particular, milder weather conditions, the acceleration of green transition and the historically high gas inventory levels have also contributed to lower gas prices. Meanwhile, the average international price of crude oil dropped by 17% in 2023 year-on-year, mainly on account of the global economic slowdown and a deterioration in the economic outlook for China in the first half of the year. According to IMF forecasts, international crude oil prices are projected to fall slightly in 2024, partly owing to weaker demand.

The fiscal stance remained supportive in advanced economies and neutral in emerging market and developing economies. In advanced economies, the fiscal stance was slightly expansionary (with the exception of the euro area), despite the phasing-out of the emergency income support measures related to the energy crisis, mostly owing to strong fiscal expansion in the United States. The public debt-to-GDP ratio, although declining from the historic highs seen in 2020-21, continues to be above its pre-pandemic levels, and in 2023 it is estimated to have reached 112% of GDP in advanced economies and 67% of GDP in emerging market and developing economies. For 2024 the fiscal stance is expected to tighten in several economies around the world, so as to stem the upward dynamics of the public debt-to-GDP ratio and mitigate fiscal risks over the medium term.

Monetary policy tightening continued in 2023, albeit at a slower pace in most economies, due to a faster-than-expected fall in inflation and concerns about a further weakening in aggregate demand. Interest rate hikes by major central banks helped keep inflation expectations anchored at low levels, with no significant impact on the labour market, which has generally remained resilient. However, tighter monetary policy had a dampening effect on investors' expectations about the economic outlook (especially in the euro area).

In the euro area, economic activity weakened visibly in 2023, amid tight financial conditions, reduced consumer confidence and lower domestic demand. At the same time, weaker foreign demand and cost competitiveness losses due to the appreciation of the euro weighed on exports of goods. In annual terms, GDP only grew by 0.5%, compared with a robust growth rate

of 3.4% in 2022, reflecting: (i) the impact on demand from tighter financing conditions; (ii) uncertainty and a deterioration in economic sentiment; (iii) the impact of the energy crisis and high inflation on consumption; as well as (iv) lower investment due to slower credit growth and increased uncertainty related to geopolitical developments. According to the March 2024 ECB staff macroeconomic projections, real GDP growth should pick up slightly by 0.6% in 2024, supported by increasing real incomes, a resilient labour market and a gradual recovery in foreign demand, which however will remain subdued. Tight financing conditions, despite an anticipated easing, the withdrawal of fiscal support measures and global supply disruptions are likely to keep the growth momentum muted in the near term.

The labour market in the euro area remained resilient, despite a marked deceleration in economic activity and mounting uncertainty, supporting real wages. In 2023 total employment increased by 1.4% (2022: 2.3%), while in 2024 it is projected to rise modestly by 0.5%. Unemployment declined further to 6.5% (from 6.7% in 2022), remaining at historically low levels. In 2024 the unemployment rate is projected to rise slightly to 6.7% amid subdued economic growth.

In 2023, headline inflation in the euro area declined significantly. Headline HICP inflation dropped by 3 percentage points to 5.4% in 2023. The main factors that drove down inflation were: (i) improved supply conditions, with an unwinding of constraints observed since the beginning of the year; (ii) lower energy inflation, on the back of falling international energy commodity prices; (iii) the continued tightening of monetary policy; (iv) weaker aggregate domestic demand, due to the negative impact from high inflation on consumption, uncertainty related to geopolitical developments and tighter financing conditions; and (v) firms' limited capacity to raise prices by increasing profit margins, in the face of lower demand. Besides, consumer prices were pushed downwards by the euro's appreciation, which reduced import prices, and upwards by labour market tightness, which led to higher nominal wages. According to the March 2024 ECB projections, euro area inflation is expected to decline further to 2.3% in 2024, mainly owing to receding food inflation, while the withdrawal of energy-related support measures will exert temporary upward pressures on energy inflation. Inflation is projected to continue declining, reaching very close to 2% in the first half of 2025 and remaining at levels compatible with the ECB's target until the end of 2026.

However, core inflation kept rising in 2023, despite signs of a deceleration in the second half. Annual HICP inflation excluding energy and food averaged 4.9% in 2023, against 3.9% in 2022, mainly due to more persistent services inflation and rising wage costs. Food inflation remained high, as earlier input cost surges (transport costs, fertiliser prices) were passed on to the prices of final goods. Services inflation also remained elevated, fuelled by wage increases and strong private consumption on travel services, which started after the withdrawal of health restrictions. Tight financing conditions, the elimination of fiscal support measures and the unwinding of bottlenecks in global value chains might contribute to a faster-than-expected decline in core inflation. In 2024, core inflation is anticipated to fall to 2.6%.

Finally, with regard to developments in international capital markets, financial conditions have improved since the fourth quarter, amid higher expectations of disinflation. Market-based measures of inflation expectations are suggesting that inflation should further subside in 2024 and 2025. Against this backdrop, investors are expecting sizeable interest rate cuts during 2024 both by the ECB and the US Federal Reserve. Yet, there is great dispersion of expectations regarding interest rates, reflecting increased uncertainty surrounding such expectations. Disinflation expectations, coupled with expectations of substantial policy rate cuts by central banks, led to an easing of global financial conditions in the second half of 2023, after a tightening observed in the beginning of the year. Government and corporate bond yields declined, while equity prices rose markedly worldwide. Nevertheless, investors in the first quarter of 2024 revised their initial expectations about the path of key interest rate cuts by central banks

in the euro area and the United States, and are now expecting fewer cuts and higher-than-anticipated levels of interest rates until the end of 2024. The upward correction in benchmark bond yields partly reversed the sharp decline observed at the beginning of 2024.

3 THE SINGLE MONETARY POLICY

Throughout 2023 the Governing Council of the ECB assessed that inflation, albeit declining, would remain too high for too long, compared with its 2% medium-term target. Domestic inflationary pressures continued to be considered significant and, during that time, were mainly due to a surge in unit labour costs amid rising wage and falling productivity growth. In any event, most measures of longer-term inflation expectations currently stand at around 2%.

In the context of the single monetary policy, the Governing Council of the European Central Bank continued to raise key interest rates until the third quarter of 2023. Key interest rates were increased six times during 2023, bringing the deposit facility rate to 4% as of September 2023. Specifically, the key rates were increased twice in the first quarter by 50 basis points each time and four times in the second and third quarters by 25 basis points each time, while since September 2023 they have been kept unchanged. The Governing Council of the ECB continued in 2023 to follow a data-dependent and meeting-by-meeting approach to its interest rate decisions, based on a continuous assessment of the state of the euro area economy, in particular the inflation outlook. In September it was announced that the key ECB interest rates are at levels that, if maintained for a sufficiently long duration, will make a substantial contribution to the timely return of inflation to its target. Keeping interest rates at sufficiently restrictive levels should gradually reduce inflation by dampening demand and pre-empting any sustained upward shift in inflation expectations.

In addition, measures were adopted to gradually reduce the Eurosystem's balance sheet size. From mid-2023 onwards, reinvestments of the principal payments from maturing securities purchased by the Eurosystem under the asset purchase programme (APP) were discontinued. It should be recalled that from March to June the APP portfolio was steadily decreasing by a monthly average of EUR 15 billion. Moreover, it was decided to gradually reduce the pandemic emergency purchase programme (PEPP) portfolio over the second half of 2024, by EUR 7.5 billion per month on average, until year-end and to discontinue reinvestments thereafter.

Finally, as of late September 2023, the remuneration of banks' minimum reserves held with national central banks (NCBs) was set at 0%. It should be recalled that until then these holdings were remunerated at the deposit facility rate, which has reached historically high levels. This decision ensures a full pass-through of key Eurosystem interest rate changes to money market rates. It also enhances the efficiency of the single monetary policy by reducing overall interest expenses stemming from reserves while achieving the same degree of monetary restriction.

Key interest rate hikes had already since 2022 contributed to tight financial and monetary conditions in the euro area, which continued into 2023. Banks' funding costs increased, subsequently leading to higher interest rates on business and housing loans. The growth of credit to firms and households moderated, as a result of lower loan demand and supply. In parallel, monetary dynamics weakened significantly.

As a result of monetary policy tightening, excess liquidity in the banking system gradually declined in 2023 from its November 2022 peak. This reduction largely reflected voluntary early repayments and the maturing of TLTRO III operations. It should be noted that a further reduction in excess liquidity is set to assist in reducing NCBs' balance sheets over the medium term.

Monetary policy tightening by the Eurosystem, with a view to achieving the primary objective of price stability in the euro area, had an adverse side effect on the profitability of the ECB and the NCBs, including the Bank of Greece (which however remained in profit). It should be stressed though that central banks are public institutions, with the specific mandate of ensuring price and financial stability, and are not profit-oriented. The projected losses are expected to be temporary and to be soon recouped by future profits. It should also be noted that such losses are significantly lower compared with the potential macroeconomic costs that could have emerged if the ECB had not addressed decisively challenges to price stability and risks of recession both before and after the outbreak of the pandemic. The credibility of central banks mainly hinges on their ability to fulfil their primary objective and contribute to macroeconomic and financial stability, while any temporary losses do not prevent them from fulfilling their mandate.

In March 2024, the Governing Council of the ECB announced changes to the operational framework for implementing monetary policy. This framework determines how the Governing Council will be steering short-term money market rates closely in line with its monetary policy decisions as the Eurosystem balance sheet normalises. These changes establish a set of key principles and parameters on the provision of central bank liquidity, as excess liquidity in the banking system, while remaining significant over the coming years, gradually declines. The new framework will ensure that the implementation of the Eurosystem's monetary policy continues to be effective, flexible and efficient in the future as the Eurosystem balance sheet normalises.

4 THE GREEK ECONOMY: DEVELOPMENTS AND PROSPECTS

Macroeconomic environment

In 2023, the Greek economy grew at a slowing but robust rate, significantly higher than the euro area average. GDP growth at constant prices in 2023 turned out at 2% (compared with 5.6% in 2022), outpacing the respective euro area rate by four times. Exports, private consumption and investment were the main drivers of growth. More specifically, exports of goods and services increased, albeit at a slowing pace, supported by a buoyant tourism sector, which continued to grow strongly. Tourism receipts in 2023 outperformed the historically high receipts of 2019, dispelling any doubts aired at the beginning of the year mainly owing to the erosion of European households' incomes by high inflation. Private consumption growth also moderated after its post-pandemic highs, due to the fading effects of pent-up demand. Households' consumer spending was supported by an increase in their real disposable income. Investment growth continued to rise into 2023, as the positive prospects of the Greek economy prompted firms to press ahead with their investment plans. Investment in transport equipment and housing rose markedly. On the other hand, higher imports, largely due to rising private consumption and investment, had a negative contribution to GDP growth. Most indicators of economic activity, such as manufacturing output, construction, services and car sales, continued to suggest positive growth rates, while some indicators captured a deceleration or even decline, such as retail sales volumes. Nevertheless, business and consumer confidence indicators were adversely affected in the second half of the year by the natural disasters that hit the country, heightened international uncertainty due to geopolitical developments in the Middle East, as well as persistent food inflation.

Rising inflation in 2022-23 took its toll on household savings, which returned to negative pre-pandemic levels. Sustained consumer demand, despite households' lower purchasing power amid high inflation, resulted in a reduction of household savings accumulated during the pandemic period. At the same time, the withdrawal of the pandemic- and energy-related support measures, the ongoing release of pent-up demand and repayments of loan/tax obligations also weighed heavily on household savings.

Headline inflation declined sharply, as a result of falling energy commodity prices. But core inflation continued its upward path, reflecting upward pressures on the prices of non-energy industrial goods and of services. HICP inflation declined to 4.2% in 2023 (from 9.3% in 2023), below the euro area average. This sharp decline is solely attributable to the energy component, since all other inflation components trended upwards, as evidenced by the pick-up in core inflation (HICP excluding energy and food) to 5.3% in 2023 (from 4.6% in 2022), above the euro area average. The disinflation of the energy component (-13.4%) is due to lower energy prices relative to 2022, government subsidies and strong downward base effects. Conversely, food inflation (9.9%) picked up marginally in 2023 (from 9.7% in 2023) but stood at lower levels than the euro area average, while services inflation remained unchanged year-on-year (4.5%). Core inflation was higher than headline inflation throughout 2023, but has been inching downwards since mid-year.

The labour market continued to strengthen in 2023, albeit at a slower pace. Total employment growth increased by 1.3% in 2023 (compared with 5.4% in 2022). It should be noted that the rise in employment was stronger for women relative to men, as well as for the 45-64 age group, thus contributing to higher shares in total employment, whereas the 30-44 age group saw a negative growth rate and the respective share shrank. The share of part-time work in total employment dropped in 2023 to 7.5% (from 8.2% in 2022). The unemployment rate fell to 11.1% (from 12.4% in 2022), with the long-term unemployment rate declining considerably. Compared with the recent past, signs of a labour market tightening are increasingly evident, as firms, particularly in the sectors of construction, manufacturing, trade, tourism and agriculture, find it difficult to hire workers matching their needs, despite a significant increase in wages in 2023.

Growth in average wages strengthened, while the increase in total compensation of employees was roughly as high as in 2022, because of weaker increases in total and dependent employment. Besides, given the slower economic growth rate, labour productivity growth was muted and, as a result, unit labour costs increased considerably. In 2023, compensation per employee grew by 5.5% year-on-year (2022: 2.8%), productivity per employee by 1.0% (2022: 3.0%) and unit labour costs by 4.5% (2022: -0.2%).

Increased input costs over the past few years contributed to a significant rise in profit margins, despite a decline observed in 2023. In 2021-22, the relevant indicators outperformed their historical highs, especially in the industrial sector, construction and services. Higher profit margins during this period were due to the high prices charged by firms to offset their increased production costs, as well as to excess demand following the pandemic period and the reopening of the economy. The relatively small size of the domestic product market and the delayed implementation of adequate structural changes in this market are factors that discourage competition and favour higher profit margins when economic conditions allow it.

The international competitiveness of the Greek economy, after the significant improvement seen during the previous years, seemed to stagnate or even decline slightly in 2023, amid a deteriorating international trade environment. The considerable appreciation of the euro, partly fuelled by the rapid increase in key interest rates in the euro area and the progressive narrowing of the interest rate spread vis-a-vis the United States, negatively affected the price competitiveness of the Greek economy in 2023. This negative effect offset the competitiveness gains arising from lower domestic inflation compared with the weighted average inflation of Greece's main trading partners, both inside and outside the EU. On the other hand, competitiveness in terms of unit labour costs continued to improve. This is due to the fact that the rise in nominal labour costs in Greece was smaller than in the euro area, amid strong increases in nominal wages per employee and limited or negative changes in labour productivity. In terms of structural competitiveness, Greece's ranking in the relevant composite indicators shows stagnation or even decline, following strong progress in the previous period (2020-22). The pace of reform implementation in areas such as public administration, delivery of justice and cutting red

tape appears to fall short, with Greece lagging behind other countries on the basis of the relevant indicators.

The current account deficit narrowed significantly in 2023 to 6.3% of GDP (from 10.3% of GDP in 2022). This was mainly driven by: (i) the improved balance on fuels and other goods, since the relevant imports fell more than the corresponding exports, chiefly reflecting lower international energy commodity prices; (ii) a higher surplus in the travel balance, owing to buoyant tourism performance; and (iii) the improved secondary income account. However, these trends were partly offset by: (i) the higher deficit in the primary income account, largely as a result of increased interest payments; and to a lesser extent (ii) the lower surplus in the sea transport balance, mainly as a result of reduced freight rates. It should be noted that foreign direct investment (FDI) flows were lower in 2023 (EUR 4.6 billion or 2.1% of GDP) relative to 2022 (EUR 7.5 billion or 3.6% of GDP), with the real estate sector attracting more than 40% of total inflows. Lower FDI flows primarily reflect: (i) global economic uncertainty; (ii) high interest rates; (iii) increased energy costs; (iv) foreign investors' limited participation in capital increases, mergers and acquisitions of domestic companies; and (v) stagnation of the Greek economy's competitiveness according to relevant indicators.

The Greek real estate market continued to attract investor demand in 2024, particularly for prime properties, further pushing prices upwards. The uncertainties seen over the past two years amid growing geopolitical instability did not reverse the upward trend in property prices and, so far, do not seem to greatly affect construction and investment activities. Investor interest was mainly focused on the residential real estate sector, and investment housing in particular, with the respective prices posting very high growth rates. Residential construction activity increased markedly, while positive business confidence rose further relative to 2022. Both the overall cost of building new residential properties and the prices of building materials continued to grow. In the commercial real estate sector, property prices continued to increase in the first half of 2023, especially for prime properties. Total construction activity for commercial real estate recorded positive growth rates in the year to November.

Turning to capital markets, developments in Greek securities were driven by the Greek sovereign's credit rating upgrades to investment grade during 2023. Greek government bond yields declined more strongly than those of the remaining euro area government bonds. As a result, their yield spreads vis-a-vis other euro area government bonds narrowed significantly. Notably, the spread of the Greek 10-year bond over its German counterpart fell in 2023 (by 98 bps to 105 bps), well below the respective spread of the Italian bond. Underlying this development was also a considerable rise in international funds' holdings of Greek government bonds, which led to compressed borrowing costs. Greek corporate bond yields also declined. It should be stressed that the issuance of new senior debt by Greek banks at lower borrowing costs will significantly boost both the profitability and the resilience of the Greek banking system. Regarding the equity market, the Athens Exchange share price index by far outperformed the US and euro area indices, amid a large increase in average daily trading volumes. These trends were mainly associated with the Greek sovereign rating upgrade to investment grade, as well as with banks' higher profitability and credit rating upgrades. Rising equity prices are also explained by a sharp increase in international investment funds' holdings of Greek shares from the fourth quarter of 2022 onwards, basically pricing in an upgrade to investment grade.

Fiscal developments

During the second half of 2023, three of the four credit rating agencies recognised by the Eurosystem upgraded the Greek sovereign's credit rating to investment grade. This is an important milestone that signals acknowledgement of the credibility of the economic policies pursued in recent years and the resilience of the Greek economy, despite a deteriorating international environment and increased uncertainty. Key factors behind these upgrades were a steadily improving fiscal performance, supported by positive and strong economic growth rates

above the euro area average, as well as rating agencies' assessment that the clear election outcome led to political stability with prospects for maintaining the reform efforts.

Against this backdrop, the year 2023 was a milestone for fiscal management. The higher primary fiscal surplus and the Greek sovereign's upgrade to investment grade strengthened international investors' confidence in the prospects of the Greek economy. This is attributable to the country's steadily improving fiscal position, mainly on the back of past reforms and the timely reversal of expansionary measures introduced in 2020-22, as well as to the government's commitment to swiftly implement its ambitious investment-oriented reform agenda. Overall, the fiscal management of the exceptional circumstances of the past four years has highlighted the benefits of past fiscal-structural reforms, particularly in terms of designing the support measures and financial management, but also in terms of State Budget monitoring, execution and control.

The ample fiscal space that was created in 2023 enabled the financing of emergency fiscal measures, without impairing the fiscal path. Over the course of the year, emergency fiscal measures totalling around 1% of GDP were adopted, with a view to supporting incomes against the protracted energy crisis and the consequences of the climate change-related weather extremes. Such interventions, along with the already enacted measures under the 2023 Budget and in combination with the withdrawal of past support measures, implied a cumulative fiscal burden of 3.1% of GDP in 2023. However, according to the 2024 Budget forecasts, despite the adoption of additional measures, the general government primary surplus in 2023 is estimated to increase to 1.1% of GDP (against 0.1% of GDP in 2022), overshooting the initial projection of the 2023 Budget for a primary surplus of 0.7% of GDP.

The projected increase in the primary surplus in 2023 relative to 2022 is attributed to the timely withdrawal of pandemic- and energy-related fiscal measures, as well as to the overperformance of tax revenue. Revenue from taxes and social security contributions rose on the back of the better-than-expected economic activity and higher inflation, as well as an increase in electronic transactions and tax audits that improved tax efficiency and compliance. It should be noted that revenue from income tax (direct taxation) increased visibly, owing to higher wages and pensions and the ensuing increase in withholding tax (in the case of individual income tax) as well as firms' improved financial results in the previous financial year (in the case of corporate income tax). According to the revised projection of the Bank of Greece, which takes account of the latest available fiscal data, the primary surplus is expected to turn out at 1.4% of GDP or higher in 2023, well above the forecast in the 2024 Budget, mostly reflecting reduced primary expenditure and, to a lesser extent, better-than-expected performance of tax revenue.

Despite the higher primary surplus and continued fiscal adjustment, the fiscal stance in 2023 is estimated to be expansionary. This is due to increased spending on public investment backed by the Recovery and Resilience Facility. Excluding this impact, the fiscal stance is estimated to be neutral. In the light of the above, fiscal policy made a balanced contribution to monetary policy efforts to contain inflation, reversing emergency support measures while at the same time boosting growth-enhancing investment expenditure necessary for strengthening the economy's growth momentum, in line with the European Commission's recommendations.

The reduction of public debt continued in 2023, outperforming most euro area countries. According to Bank of Greece estimates, general government debt is expected to decline by 10.7 percentage points of GDP relative to 2022 and reach a post-2010 low of 161.9% of GDP. The largest contribution to this reduction is estimated to come from the interest rate-growth differential (snowball effect), reflecting both nominal GDP growth and the stock of debt. The improved primary surplus is also set to have a debt-reducing effect.

With regard to debt issuance, the Greek government increased its medium-to-long-term funding from international capital markets in 2023, compared to 2022. Overall, the Public

Debt Management Agency raised a total of EUR 11.5 billion, maintaining high cash reserves. Bond issues in 2023 saw a higher weighted average yield relative to 2022, in line with rising government bond yields globally. Although interest rates remained elevated amid further monetary policy tightening, the yield spreads of Greek government bonds over their German counterparts followed a downward path. It should be noted that, in the recent bond issues in early 2024, the Greek government's borrowing costs decreased significantly, reflecting its upgrade to investment grade, which translates into higher demand for Greek government bonds by international investors. Regarding the liquidity of the government bond market, trading volumes on the secondary market increased in 2023 compared to 2022. Government bond issues in 2023 were characterised by the strong presence of long-term institutional investors, confirming their confidence in the growth prospects of the Greek economy and the effective public debt management strategy.

Greece remains one of the top performers in Recovery and Resilience Facility (RRF) funds disbursements in the EU, which provide a significant fiscal impulse to the economy. In total, Greece has received 41% of the available funds (EUR 15 billion, of which EUR 7.7 billion in grants and EUR 7.3 billion in loans) and is one of the few countries to have received three tranches of grants and loans, after fulfilling 26% of the agreed targets and milestones of its programme. Following the final revision of the National Recovery and Resilience Plan in November 2023, which includes new investment projects to absorb additional resources totalling EUR 5.8 billion under the RePowerEU programme, total available resources increased to EUR 36 billion, of which EUR 18.2 billion refers to grants and EUR 17.7 billion to loans. However, there are delays in the disbursement of grants to firms, reflecting administrative hurdles to the implementation of investment plans at the regional and the local government level. Besides, although the amount of loans for signed contracts has increased substantially, disbursements to firms remain relatively low.

Banking sector

Bank interest rates rose further in 2023, in line with the tightening of the single monetary policy stance. The pass-through of the ECB policy rate hikes was uneven across loan categories and in any case was not full. More specifically, borrowing costs for non-financial corporations (NFCs) rose significantly, as interest rates on corporate loans are mostly variable, directly linked to a benchmark rate. Notwithstanding this, their rise is smaller than the increase in key ECB interest rates. As a result, the weighted average interest rate on corporate loans stood at 5.8% in 2023 (up from an average of 3.5% in 2022). But bank-based financing conditions for firms were in fact more favourable than what is suggested by bank interest rate statistics, on account of the supply of low interest rate loans through the financing tools of the European Investment Bank (EIB) Group and the Hellenic Development Bank (HDB), as well as through the RRF-backed loans. Turning to household loans, interest rate increases were more limited than for loans to NFCs, mostly because the bulk of lending rates for households are fixed, determined according to banks' pricing policies rather than benchmark rates. Furthermore, bank lending rates for households had already started to increase long before the tightening of the single monetary policy stance. In greater detail, the weighted average interest rate on housing loans stood in 2023 at 4.1% (up by 96 bps relative to 2022), while the respective rate on consumer loans with a defined maturity increased to 11.3% (up by 78 bps relative to 2022). In real terms, bank lending rates turned positive in 2023, although remaining at relatively low levels compared with the past.

Compared with the European average, the rise in nominal lending rates in Greece was weaker for both NFCs and households. First, the liquidity conditions of Greek banks have improved, as evidenced by the rise in the deposit-to-loan ratio for several years. The structure of Greek banks' liabilities, which is tilted towards cheaper funding sources, and the greater relative importance of lower-cost retail deposits as a source of funding allowed lending rates to converge to lower levels. As a consequence, increases in Greek banks' funding

costs were weaker compared with the euro area banks. This development was also supported in recent years by the progress achieved in the clean-up of bank balance sheets from non-performing exposures, improvements in the institutional framework for the protection of creditors' rights and the tapping of alternative sources of funding. Finally, the crucial importance of Greece's sovereign credit rating upgrade to investment grade should not be overlooked, as it broadens the range of available sources of funding for Greek banks and lowers their funding costs. As a result of the above effects, the differential in the weighted average cost of borrowing between Greece and the euro area narrowed both for loans to firms and for housing loans to households.

In 2023, time deposit rates increased and overnight deposit rates remained marginally posi-tive. In greater detail, given the satisfactory liquidity conditions of credit institutions, ECB policy rate hikes were passed through to time deposits only to a small extent. The weighted average interest rate on time deposits by households and NFCs came to 1.8% in 2023 (against an average of 0.2% in 2022). Compared with the euro area, increases in time deposit rates were smaller in Greece. Thus, for the first time since 2003, the interest rate on time deposits in Greece is, from mid-2022 onwards, lower than the corresponding euro area average.

Annual bank credit expansion to the private sector slowed overall in 2023, after a significant acceleration in 2022. This largely reflects a weaker increase in loans to NFCs and a steeper decline in housing loans to households, despite a pick-up in consumer credit growth.

The growth rate of bank lending to firms was slower (6.5%) in 2023 compared with 2022 (8.3%). The main drivers of this slowdown were lower GDP growth and considerably higher interest rates on loans to NFCs, on average, which weakened demand for bank loans. Developments in new bank loans to businesses in 2023 were mostly affected by the contribution of credit to large firms. The average monthly gross flow of loans to large firms decreased sharply year-on-year. By contrast, the respective flow to SMEs rose slightly year-on-year, also supported by the contribution of the EIB Group and HDB financing tools. The net flow of bank loans to businesses remained positive in 2023, for the seventh year in a row, and was chiefly directed to the industrial, energy and trade sectors.

Bank loans to households continued to contract year-on-year in 2023 (-2.4%), at a marginally stronger rate than in 2022 (-2.2%). This largely reflects the stronger contraction in housing loans (-3.7%), despite an acceleration in consumer loans (2%) compared with one year earlier. Higher interest rates on housing loans in 2023 dented household demand for new loans. On the other hand, developments in consumer loans were consistent with the uptrend in private consumption.

Private sector deposits continued to grow, yet at a more moderate pace than in 2022, amid a shift from overnight deposits to time deposits. More specifically, bank deposits grew by a cumulative EUR 5.8 billion in 2023 (compared with an increase of EUR 8 billion in 2022) and came to EUR 194.8 billion, i.e. their highest level since mid-2011. The slower growth in private sector deposits was driven by overnight deposits. On the other hand, the annual growth rate of time deposits returned to positive territory after 3.5 years, mainly reflecting the upward path of households' time deposit balances. These changes broadly suggest a restructuring of firms' and households' liquid asset holdings towards time deposit accounts, given the higher remuneration they offer in the context of the greater pass-through of policy rate increases to time deposit rates. The rise in time deposits with domestic banks is a strong sign of confidence in the Greek banking system after the recent turmoil in foreign banking systems over the first months of 2023. Still, the bulk of banks' deposit base continues to consist of liquid assets held in overnight accounts (74% of private sector deposits).

In 2023, bank deposits held by both households and firms grew more moderately than in 2022. The slowdown in the growth of household deposits was due to lower real income growth in 2023 (compared with 2022) and households' high consumption expenditure, also given the level of inflation. At the same time, a rise was observed in households' holdings of alternative investment options such as Greek Treasury bills and mutual fund shares/units, which offered considerably higher yields. Furthermore, the real (weighted average) interest rate on total household deposits in 2023 remained negative, discouraging households from saving. Business deposits continued to grow at a markedly slowing pace in 2023, partly reflecting a decline in credit expansion to NFCs.

The fundamentals of Greek banking groups improved in 2023. Profitability strengthened year-on-year, mirroring a significant increase in net interest and fee income amid rising key ECB interest rates, as well as reduced loan-loss provisions due to a decrease in the stock of non-performing loans (NPLs). On the other hand, profitability was adversely affected by lower net income from financial operations, which had benefited from non-recurring income in the past year, and to a lesser extent by higher operating expenses. Greek banks' liquidity ratios rose compared with December 2022, remaining higher than those of euro area banks, despite a reduction in Eurosystem funding (via TLTRO operations). Capital adequacy ratios improved compared with December 2022, yet they were still below of the euro area average. In particular, the Common Equity Tier 1 (CET1) ratio rose to 15.5% in December 2023, from 14.5% in December 2022, and the Total Capital Ratio (TCR) to 18.7% from 17.5%, respectively. Greek banking groups improved their loan portfolio quality further, but the ratio of NPLs to total loans remains significantly higher than the euro area average. According to the latest available provisional data, the NPL ratio dropped further to 6.6% in December 2023 (from 8.7% in December 2022), compared with a euro area average of 2.3%. In 2023, the stock of NPLs for Greek banks decreased by EUR 3.3 billion to EUR 9.9 billion and related chiefly to business loans (68%) and, to a lesser extent, housing loans (23%) and consumer loans (9%).

Overall, the favourable domestic environment is making it easier for banks to effectively address challenges. The resilience of the Greek economy and Greece's upgrade to investment grade contributed to the revision of Greek banks' outlook by credit rating agencies from stable to positive, whereas the outlook for European banks is broadly neutral or negative. These developments have lowered banks' funding costs from capital markets, making it easier for them to meet the minimum requirement for own funds and eligible liabilities (MREL).

2023 was also marked by the HFSF's divestment from Greek significant banks. This echoes the progress that the banking sector has made in addressing its past weaknesses and achieving recurring operating profits. The HFSF's successful divestment from the four significant banks testifies to their improved attractiveness and prospects. The Greek government received a total of EUR 2.8 billion from the HFSF's divestment (between October 2023 and March 2024).

Projections

The Greek economy is projected to continue expanding in 2024, at a higher rate relative to 2023 and well above the euro area average. According to the latest Bank of Greece estimates, economic activity will grow by 2.3% in 2024, with private consumption and investment remaining key drivers of growth, whereas the contribution of the external sector will be marginally negative. In particular, private consumption (+1.7%) will be driven by an anticipated rise in households' real disposable income, on the back of higher labour income, continued recovery in employment and further disinflation. Investment (+11.1%) will keep rising strongly, backed by the available EU resources, which, coupled with the banking sector's high liquidity, will attract private funds. The high growth rates of investment reflect the improvement in economic sentiment, especially after the upgrade of the Greek sovereign' credit rating to investment grade and the considerable disinvestment observed over the past ten years. Exports (+3.7%) will continue to rise signifi-

cantly in the years ahead, despite weak growth in the euro area economy, while the loss of competitiveness arising from higher unit labour costs will dampen export dynamics. However, the contribution of the external sector to GDP growth will be slightly negative, as strong investment activity will considerably raise imports (+3.5%).

The outlook for tourism is once again positive this year, despite ongoing international uncertainty. The contribution of tourism receipts to the Greek economy is sizeable, as, among other things, they support private consumption and exports of services, thereby containing the growth of the current account deficit. Leading tourism indicators that are favourable for Greece, such as seat scheduling in international incoming flights and hotel bookings, confirm the positive outlook for the tourism industry, creating expectations for another booming year.

Labour market prospects remain positive over the medium term. Employment is expected to rise further (by 1.3% year-on-year) and the unemployment rate is anticipated to fall (to 10.4%) in 2024, reflecting the ongoing recovery in economic activity.

Headline and core inflation are both projected to decline in 2024, as all components are trending downwards. Despite the uncertainty caused by geopolitical developments, HICP inflation is expected to fall further to 2.8% in 2024, while core inflation is anticipated to decline sharply to 3%.

Stronger growth dynamics is expected to have a positive effect on labour productivity, whereas wage growth developments may weigh on competitiveness. The rise in labour productivity is projected to remain muted in 2024 at 1.0% (as in 2023). On the other hand, average wages and unit labour costs will continue to grow at a similar pace as in 2023. According to the Bank of Greece, in 2024 compensation per employee is estimated to increase by 5.4% (2023: 5.5%) and unit labour costs by 4.4% (2023: 4.5%). These trends are expected to exert downward pressures on firms' profit margins. Wage growth in 2024 will be affected by the rise in compensation of civil servants, as well as by the reinstatement of seniority-based increases (for every three years of work experience) in private sector wages, which had been suspended in the context of the economic adjustment programmes. In addition, the minimum wage setting process was expedited, with a view to delivering a new increase as of 1 April 2024, which – as announced on 29 March – will be as high as 6.4%.

In 2024, the current account deficit is projected to further improve to 6.0% of GDP (compared with 6.3% of GDP in 2023). The factors behind this improvement are the following: (i) Exports of goods, despite their weakness in 2023, maintained and further increased their market share, paving the way for even better performance in the coming years; (ii) The expected slowdown in domestic consumer spending, coupled with further declines in energy prices, will limit imports of goods; (iii) An even higher surplus in the services balance is to be anticipated, as travel receipts are expected to rise modestly in 2024, without being significantly affected by developments in the Middle East, mainly on the back of the extension of the tourist season, the promotion of alternative forms of tourism and the strengthening of the cruise industry. In parallel, the recent geopolitical developments in the Red Sea are believed to lead – at least in the short term – to higher freight rates and hence higher sea transport receipts; (iv) The anticipated interest rate cuts, paired with the country's credit rating upgrade to investment grade, will contribute to lower interest payments, thereby improving the primary income account; (v) EU financing, especially in the form of grants (e.g. funds under the European recovery instrument NextGenerationEU – NGEU), will have an immediate positive impact on the current account balance, via the primary and secondary income accounts; (vi) Foreign direct investment is set to remain robust, reflecting the speeding-up of privatisations, inflows from EU funds and an improved business climate. Conversely, needs for imports of investment goods are expected to weigh on the current account deficit.

The outlook of the Greek real estate market remains positive. In the short term, as foreign demand remains strong, real estate prices are expected to continue rising in the prime market segment, driving upwards prices in secondary markets as well.

Monetary policy in 2024 will continue to be restrictive, maintaining interest rates at sufficiently high levels for as long as necessary. Based on its current assessment, the ECB Governing Council considers that the key ECB interest rates have reached levels that, if maintained for a sufficiently long duration, will make a substantial contribution to the timely return of inflation to the 2% target.

The fiscal stance is estimated to remain slightly expansionary in 2024, in line with the European Commission's fiscal policy guidance. The fiscal stimulus comes from increased public expenditure on investment backed by RRF funds. Excluding this impact, the fiscal stance is expected to be neutral, complementing the restrictive stance of monetary policy and the effort to curb inflation. Based on available data and the policy measures so far announced, the Bank of Greece expects the primary surplus to increase to 2.1% of GDP in 2024. The improvement of the primary balance is mainly explained by a projected rise in tax and social security contribution revenues on the back of strong economic growth. This projection takes into account the adopted measures for 2024, having a cumulative fiscal cost of 2.6% of GDP, which is lower than that of the policy measures of 2023. Public debt is projected to decrease further to 152.3% of GDP in 2024, at a slower pace than in the previous three years, as the decline in the GDP deflator is expected to offset both the acceleration in real GDP and the dampening effect of the widening primary surplus. Moreover, public debt is projected to decline in nominal terms for the first time since 2019 and for just the fifth time in the 29-year period for which national accounts data are available.

The debt-to-GDP ratio is expected to remain on a steadily declining path over the medium-to-long term. The baseline scenario of the Bank of Greece foresees that, assuming adherence to the achievement of fiscal targets and effective use of EU funds, the debt-to-GDP ratio follows a steady downward trajectory, which is only temporarily halted in 2033 for purely technical reasons associated with the inclusion of deferred interest on part of the EFSF loan in public debt.

Turning to the financial sector, the conditions for a decline in domestic bank interest rates will be favourable in 2024, as inflation gradually approaches its medium-term target of 2% and the ECB starts cutting key interest rates. The financial sector is expected to benefit from the following factors: (i) ongoing improvements in the labour market and consequently in prospective borrowers' creditworthiness; (ii) developments in the real estate market, implying higher collateral value; and (iii) the relatively recent sovereign credit rating upgrade to investment grade, which improves the liquidity conditions of Greek banks, pushing downwards banks' cost of funding from the capital markets.

The outlook for bank credit to the private sector depends on the future path of benchmark interest rates. In 2024, credit growth will initially continue to be adversely affected by past increases in bank lending rates. In the course of the year, with the ECB rates unchanged or lowered, credit growth should eventually pick up, but only gradually, given the estimated time lags. If the growth rate of economic activity in 2024 stays at the very least similar as in 2023, loan demand by firms and households will strengthen further. The more favourable investment environment after the upgrade to investment grade is set to have a positive impact on demand for bank loans. At the same time, bank loan supply will continue to be greatly supported by the low-interest loans from the RRF, the MFF 2021-2027 programmes and the new co-funding and guarantee schemes of the HDB and the EIB Group. Such financing tools will facilitate the promotion and funding of investment projects, some of which are long-term investments by large firms. Against this background, annual growth in bank credit to NFCs is expected to remain broadly the same, on average, as in 2023.

The maintenance of robust growth rates for economic activity and bank credit to firms is anticipated to contribute to a further rise in bank deposits. A potentially higher pass-through of policy rate increases to domestic deposit rates in the near term, especially if coupled with an expected decline in inflation, will also encourage saving and boost demand for interest-bearing deposits. If the anticipated policy rate cuts go hand in hand with inflation stabilising at low levels and with stronger economic activity and credit growth, then deposits will continue their upward trend.

The outlook for credit institutions is also positive. The prospects of banks' credit ratings appear to be positive, assisted by Greece's upgrade to investment grade and the resilience of the Greek economy, as well as by developments in banks' fundamentals such as the improved quality of their loan portfolio (with the reduction of the NPL ratio) and the strengthening of their capital adequacy, profitability and liquidity. A further improvement in banks' performance is expected to be supported by the containment of their funding costs amid continued bank bond issuance, which also helps sustain bank profitability. By contrast, a potential reduction in interest rates is expected to have a relatively small impact on bank profitability.

5 SOURCES OF RISK AND UNCERTAINTY

Risks surrounding the global economic outlook appear to be balanced, as the risks of stagflation or recession are fading and the negative shocks to aggregate supply are gradually waning. Upside risks include: (i) a faster-than-projected decline in inflation would allow monetary authorities to normalise their policy stance sooner; (ii) in China a swift implementation of reforms and restructuring in the real estate market is likely to speed up recovery in the country's economy and hence in world trade and global exports; (iii) artificial intelligence and innovation in production may have beneficial effects over the medium term on labour productivity and total factor productivity, particularly in advanced economies. On the other hand, there are downside risks to the global economic outlook such as: (i) The risk of more persistent inflationary pressures remains significant, amid disruptions to the global supply of goods and raw materials and higher international commodity prices. A possible deterioration in world trade conditions and global supply chains might push upwards international food and fuel prices, as well as the cost of imported intermediate and final goods. Other factors may also work in the same direction, such as an escalation of geopolitical tensions in the Middle East and the Red Sea, though which a significant part of world trade passes, traffic disruptions in the Panama and Suez canals, and increased voluntary reductions in oil production; (ii) The slowdown in China's economy is likely to be steeper than expected if the implementation of credible restructuring measures in its over-indebted real estate sector is delayed; (iii) The pace of the necessary fiscal adjustment in several major economies should be gradual yet credible, so as to avert the risk of a more violent adjustment with higher interest rates on public debt in the event of abrupt movements in market risk sentiment.

Risks to the euro area economic outlook are slightly tilted to the downside, although the likelihood of a hard landing in the economy has waned. A potential aggravation of geopolitical tensions in the Middle East and Ukraine, as well as the continuation of attacks in the Red Sea would heighten the risk of renewed global supply disruptions and increases in food and energy prices and in transport costs, leading to higher inflation and lower growth rates. Further geoeconomic fragmentation might also hamper cross-border flows of merchandise, adding to international commodity price volatility and resulting in a weaker-than-expected recovery in external demand. Moreover, a tightening of global financial conditions would affect domestic demand, public finances and financial stability. Extreme weather events are likely to dampen productivity and raise the fiscal cost, in an environment of high debt levels and borrowing costs, thus worsening the economic outlook. On the contrary, a greater-than-expected moderation in wage costs, owing to a faster labour market slackening, should bring down inflation sooner. Such a moderate growth in wage costs is not anticipated to pass through to prices, as it will be absorbed

by firms' profit margins, which are expected to narrow. In parallel, a more front-loaded implementation of policies for green and digital transitions should support investment.

The persistence of labour market tightness in the euro area increases the risk of wage and inflation pressures and calls for increased vigilance on the part of monetary authorities. A persistently tight labour market in certain sectors of the economy, particularly in labour-intensive services, can keep services inflation high for longer and thereby delay the decline in core inflation. In a macroeconomic environment where core inflation remains high, higher-than-expected increases in nominal wages and a smaller compression of firms' profit margins would lead to more persistent inflation, a stronger monetary policy response and lower growth rates.

In spite of the above, recent data suggest that the risk of a generalised upward wage-price spiral in the euro area remains contained. As inflation falls and short-term inflation expectations return to the 2% inflation target, recent marginally positive real wage growth implies lower wage demands in the future. The slowdown in nominal wage growth, paired with an expected rise in labour productivity growth, is estimated to dampen unit labour costs in the coming years, limiting wage pressures on inflation. At the same time, firms' increased profit margins after the pandemic should continue absorbing part of wage increases, also easing any second-round effects of wages on inflation. Moreover, given that monetary policy changes have a lagged effect on aggregate domestic demand and subsequently on the labour market, the effects of past monetary policy tightening on the labour market are expected to become more visible in the coming quarters. Therefore, in the absence of new external shocks, the risk of a wage-price spiral in the euro area appears to remain less likely as economic activity slows down, inflation falls and the labour market is rebalanced.

Central banks continue to face major uncertainties regarding monetary policy conduct. On the one hand, monetary authorities should avoid normalising the monetary policy stance too early, as this would probably lead to a resurgence in inflation and undermine their credibility. On the other hand, there is increasing evidence that a tighter-for-longer monetary policy puts a strain on the economy in sectors that are highly sensitive to interest rate changes, such as hard-hit construction and manufacturing, with negative repercussions for economic growth.

As regards the Greek economy, achieving robust growth rates is the key challenge. The risks surrounding the GDP growth forecast are mainly tilted to the downside and relate to: (i) a further slowdown in the European economy; (ii) growing uncertainty due to adverse geopolitical developments in Ukraine and the Middle East and its impact on the global economic environment; (iii) possible delays in the implementation of the NGEU programme and slower absorption of relevant funds; (iv) reform fatigue, with negative implications for productivity and competitiveness; and (v) the impact of potential natural disasters related to the climate crisis. Conversely, GDP growth would benefit from a better-than-expected performance of tourism. More specifically, the allocation of travel flows into more regions, the extension of the tourist season, the unwinding of labour shortages in the country's hotels and the implementation of new infrastructure projects are challenges that, if overcome, could further upgrade the Greek tourism product, strengthening an already favourable outlook.

Increased uncertainty arising from recent geopolitical turbulence represents an upside risk to the inflation outlook, with adverse distributional effects. Persisting inflationary pressures and a possible continued rise in food and housing prices would hit more severely lower-income households, which spend a relatively higher share of their income on those needs. However, the government's targeted measures to support the more vulnerable households in the face of rising prices are expected to provide some relief. At the same time, recent legislative interventions to ensure price rationalisation and transparency, as well as to enhance competition are anticipated to ease inflationary pressures and support consumer spending, especially by vulnerable households.

In parallel, challenges to the labour market are growing. The declining unemployment rate makes it more difficult for employers to find workers, thereby leading to a tighter labour market, particularly in construction, tourism, manufacturing and the primary sector. Furthermore, despite the considerable fall in unemployment in the past few years, a number of labour market distortions persist, with female, youth and long-term unemployment rates remaining significantly above the EU averages. It should be noted that the natural unemployment rate in Greece is estimated at around 13%, which is twice as high as in many EU countries, indicating the existence of serious distortions and structural problems.

Risks to the improvement of the current account balance remain significant. The main source of concern is weakening global demand, especially from the major destinations of Greek goods, which does not point to a significant improvement in exports in 2024. Geopolitical developments, a possible resurge in fuel prices and the re-emergence of inflationary pressures constitute additional risks.

Despite the positive outlook for the Greek real estate market in the period ahead, there are still significant uncertainties that are related with geopolitical instability worldwide. Property price developments and the recent corrections in European and international real estate markets, amidst high inflation, increased energy costs and higher interest rates, if maintained, are expected to lead to weaker growth or even to some correction in the prices of the domestic real estate market in the near term.

Given the high uncertainty, the medium-term planning of fiscal policy should place greater emphasis on risk assessment. This ensures that sufficient fiscal buffers are built over time, capable of shielding the economy in times of crisis. A risk management-based framework should: (i) encourage the build-up of buffers, even in the absence of immediate high risk to debt sustainability; and (ii) pursue more ambitious fiscal adjustment targets in the case of high-debt countries, provided that a procyclical policy is avoided.

In particular, the sustainability of Greek public debt exhibits high resilience to a series of adverse shocks over the medium term. Both public debt and gross financing needs score well in different adverse scenarios, deviating slightly from the baseline scenario of the Bank of Greece up until early 2030. The likelihood of a reversal in the downward course of the debt-to-GDP ratio is estimated to be little over the medium term, as the likelihood of gross financing needs is exceeding the 15% and 20% of GDP limits. On the basis of the above, risks to public debt sustainability are estimated to be contained over the medium term, subject to adherence to fiscal targets and effective utilisation of EU funds. This is largely due to the favourable repayment profile of official sector debt, which accounts for the bulk of total debt, coupled with the past hedging swap contracts, which locked in historically low interest rates.

In the long term, however, there is increased uncertainty, and fiscal prudence and responsibility are needed, given the major fiscal challenges. In a high interest rate environment globally, focusing on achieving a fiscal position that ensures long-term sustainability is crucial, as rising borrowing costs (relative to the pre-pandemic period) and slowing growth rates limit the debt-reducing impact of the interest rate-growth differential ("snowball effect") and gradually weaken the initial beneficial effect of inflation on the reduction of the debt-to-GDP ratio. Fiscal prudence is therefore necessary so as not to undermine the downward path of public debt. Besides, it should be stressed that the current favourable characteristics of accumulated debt are not permanent. The gradual refinancing of official sector debt on market terms will increase the exposure of Greek government debt to interest rate risk, market risk and refinancing risk, leaving no room for fiscal policy relaxation. Therefore, the next decade provides a unique window of opportunity to rapidly reduce Greek public debt. In order to use this window of opportunity, fiscal credibility must be safeguarded and EU funds must be effectively utilised. This will ensure not only the maintenance of investment grade status, but also the further gradual improvement of the country's credit rating.

Concerning the banking sector, the significant improvement in asset quality over the past few years should not lead to complacency. The NPL ratio, despite its considerable decline, remains well above the average of euro area banks. Meanwhile, there is a high private debt overhang, reducing the scope for new borrowing and dampening investment.

6 POLICY RECOMMENDATIONS

In an environment of heightened uncertainty, credible medium-term economic policy planning is of crucial importance. Against this background and with a view to improving economic resilience and addressing the medium-to-long-term challenges as well as the chronic weaknesses of the Greek economy, economic policy should focus on the following areas:

Monetary policy

The so far successful monetary policy, which managed to bring inflation down without causing a recession and without impairing financial stability, is expected to remain realistic and gradualist. The response of monetary policy to the new circumstances should be flexible, data-dependent and state-dependent. In other words, the assessment of the way forward by monetary authorities needs to be continuous and meticulous. Any adjustments in the conduct of monetary policy have to follow a step-by-step approach, in order to avoid disorderly movements in the markets. This includes not only policy rate decisions, but also decisions about the balance sheet size of the Eurosystem and, by extension, the market footprint of the central bank.

The ECB remains focused on achieving its inflation aim. Monetary policy must remain restrictive for as long as needed to achieve the inflation target of 2% over the medium term. This will prevent a de-anchoring of inflation expectations and second-round effects from strong wage pressures. Therefore, developments in labour costs, firms' profit margins and inflation expectations warrant close monitoring at the current juncture.

In the first half of 2024 there will be enough evidence to decide on monetary policy normalisation moves in the course of this year and avoid an excessive tightening of financial conditions. On the one hand, the effects of past monetary policy tightening are already evident and will continue to be transmitted to some extent this year and next year, due to time lags. Thus, although key interest rates have remained stable since September 2023, a sizeable part of past interest rate increases should continue to be transmitted to financing conditions, affecting lending rates and credit growth, as well as to the real economy, further reducing demand and inflation. In addition, the further shrinking of the ECB's balance sheet through TLTRO repayments and the gradual reduction of the APP and PEPP securities portfolios is also contributing to tightening financial conditions. On the other hand, economic growth in the euro area remains sluggish and weaker than expected. Headline inflation has receded markedly, while core inflation continues to decline and risks are now more balanced. Nominal wage increases are moderate and corporate profits appear to be absorbing the increase in wage costs. Therefore, taking into account all available data for the first half of 2024, the appropriate time to start lowering key ECB interest rates will be assessed, without jeopardising the progress towards price stability achieved so far.

Fiscal policy

The year 2023 is a milestone for fiscal policy credibility, which must be safeguarded. Overachievement of fiscal targets, resulting in a considerably wider primary surplus without harming economic growth, and the recovery of investment grade status are major policy successes. However, this should not lead to complacency, but instead motivate policymakers to step up efforts to ensure fiscal prudence and obtain further upgrades of the country's sovereign credit rating. Adherence to fiscal responsibility is crucial, especially as the achievement of primary surpluses in the long term will become more challenging, given the projected slower growth rates, while the positive impact of inflation on public finances will wane.

Experience from the management of past crises has demonstrated the major importance of counter-cyclical fiscal policies for strengthening the resilience of economies. Such policies, in good times, can help build the necessary buffers and fiscal space for the adoption of discretionary fiscal policies in bad times. In this context, it is estimated that a cyclically adjusted primary surplus of 2% of GDP is required in order to build the necessary fiscal buffer.

Medium-term planning enhances the credibility of the policy pursued. A credible medium-term fiscal strategy is of crucial importance in an environment of successive crises and heightened uncertainty, with increased geopolitical risks and the impacts of climate change becoming more and more evident. Key to designing a medium-term fiscal path is the assessment of fiscal sustainability risks. Improved sustainability requires a focus on growth-friendly policies. The variable that will determine to a large extent the sustainability not only of public debt but also of private debt is the so-called "snowball effect", that is the difference between the nominal effective interest rate of debt refinancing and the nominal GDP growth rate. The "snowball effect" in the last several years has been negative, i.e. the nominal effective interest rate of debt refinancing has been smaller than the nominal growth rate, and this contributed to the stability of public and private sector finances. Policymakers should understand the significance of the "snowball effect" and make sure that it has the right sign, if not always, at least for most of the time. A favourable "snowball effect" can contribute to the ability of economies to remain resilient as they transition to the new normal.

The new EU economic governance framework requires prudent medium-term fiscal planning with constraints on the adoption of extraordinary measures. According to the new fiscal rules, fiscal consolidation and effectively addressing fiscal sustainability issues are now at the top of the medium-term agenda, while respecting the EU's investment priorities. At the core of the new rules are the reduction of public debt and the mitigation of risks to its sustainability in the medium-to-long term by controlling public expenditure growth. Making the expenditure rule an operational rule for monitoring and compliance implies that any fiscal space will be used to build up buffers and/or reduce public debt, while any extraordinary fiscal measure on the expenditure side should be financed by a revenue-increasing measure of an equal size. In such an environment of budgetary constraints, clear priorities should be set before the adoption of any new targeted support measures for the most vulnerable income groups.

Priority should also be given to broadening the tax base by combatting tax evasion and reviewing existing tax exemptions. This would also enable better targeting of social policy and, more generally, promote tax fairness. The recent measures against tax evasion are seen as a positive input to a growth-oriented tax policy. Notwithstanding this, curbing tax evasion among the self-employed also requires an appropriate incentivisation of consumers to disclose transactions. In parallel, the review of the currently applicable tax exemptions should focus on social usefulness and appropriate targeting. As both the number and the cost of tax exemptions have increased significantly over the past few years, a review is deemed necessary so as to make sure that they are relevant at the current juncture and fit for purpose (support of vulnerable groups, strengthening of business activity, promotion of innovation, etc.). Such an approach, coupled with an intensification of audits regarding the use of tax exemptions, would enhance tax fairness, potentially leading to higher tax revenue. In this manner, tax policy can be growth-friendly, while allocating the tax burden more fairly and proportionally.

The targeting of social spending in economies such as the Greek economy, where concealing income is a widespread practice, should rely on eligibility criteria rather than on tax returns. The provision of means-tested benefits in an economy with a high tax evasion rate leads to an irrational and unfair use of public funds. This is evidenced by the low fiscal multiplier of social spending in Greece, which suggests that such spending is allocated across several income brackets and is not channelled exclusively to the lower brackets of income distribution. The establishment of refined eligibility criteria, other than tax returns, for recipients of social

payments is therefore deemed necessary. An increased use of electronic means of payment and the measures that are already in place to improve the technology toolkit of tax authorities should contribute to curbing tax evasion and help better target benefits.

Labour market

Increasing labour force participation of men and women and especially youth is of paramount importance, as population ageing may undermine the sustainability of social security systems. Policies that improve the work-life balance and invest in the technical education and (re)skilling of human capital, along with reforming the tax system and reducing incentives for early retirement, can help in this direction, so as to make it easier for more workers to rejoin and remain in the labour market. The employment and labour market participation of young people require strengthening demand in high value-added sectors and occupations, attracting foreign direct investment and increasing the extroversion of the Greek economy.

The observed labour market tightness calls for initiatives to ensure that the ongoing recovery of the economy is not disrupted. The continuous rise in employment and the fall in the unemployment rate have greatly limited the pool of – both skilled and unskilled – workers available for recruitment by firms, as evidenced by the higher measures of labour market tightness. In order to address labour market tightness, it is imperative to further support workers' technical education and continuous upskilling throughout their careers, as well as the reskilling of the long-term unemployed. Continued implementation of efficient training programmes for the labour force, and the vulnerable social groups in particular, should contribute to job retention and labour market participation of vulnerable groups. With a view to addressing job and skill mismatches in the domestic labour market, the integration of immigrants and the introduction of incentives to attract skilled immigrants are warranted. However, an institutional framework for immigration flows must be established, while appropriate strategies and policies must be designed for immigrants' gradual and successful social inclusion. Appropriate mechanisms for matching labour force skills with labour market needs must also be put in place, particularly at the local level. At the same time, the increase in wage costs points to an urgent need to reduce or subsidise social security contributions, so as to raise the competitiveness of Greek businesses and preserve jobs. Last but not least, reversing the brain drain and achieving a brain regain through incentives and well-paid jobs are also imperative.

Reforms

Pressing ahead with and strengthening reforms, especially in areas with chronic weaknesses, such as the delivery of justice. It should be noted that an efficient judicial system that assists in the resolution of disputes and the protection of property rights is a key driver of investment and growth. This can be explained by the fact that investors are more willing to invest in an economy where their contractual and property rights are protected and where they can seek and receive justice promptly should these rights be violated. Besides, an efficient judicial system is crucial for addressing business malpractices and monopolistic structures, thus contributing to increased competition, which in turn leads to higher productivity and fosters economic growth. Moreover, a well-functioning justice system provides an effective financial contract enforcement mechanism, thereby ensuring the expansion of financial markets, improved financing conditions in the economy and faster growth rates. Actions are therefore required, aimed at modernising and speeding up the delivery of justice, through an upskilling of judges as well as through the digitisation of court archives and judicial processes, adopting legislation for monitoring and improving the performance of judicial staff, and revising the judicial map for administrative, civil and criminal courts.

Further improvements in the business investment environment will boost investment and labour productivity. Actions in this direction include cutting red tape and digitalising public administration, accelerating and completing the national cadastre, as well as improving tax administration and streamlining the tax system, which could strengthen legal certainty for investors

and help address the investment gap. At the same time, there is a need to remove the remaining, and excessive by EU standards, regulatory barriers to entry in certain professional services, to increase business R&D spending, which lags behind the European average, and to improve the digitalisation of the Greek economy. The expansion of investment should also be supported by rising domestic savings, without the contribution of which there is an imbalance between national savings and investment, which negatively affects the balance of payments.

Furthermore, a faster absorption and effective use of funds under the EU recovery instrument NGEU and the Multiannual Financial Framework 2021-27 is needed. The timely implementation of the reform programme will further improve the structural characteristics of the Greek economy, leading to strong and sustainable growth rates. Emphasis should be placed on actions aimed at raising total factor productivity, potential output growth and structural competitiveness, thereby improving the resilience of the economy. In this context, EU funds should be directed to investment in physical and human capital, clean energy, digital technologies and artificial intelligence, to competitive sectors that are export-oriented and to the improvement of infrastructures. This would enable closing the investment gap and boosting investment related, among other things, to green and digital transitions. Energy sector reforms in particular are expected to help contain medium-term inflationary pressures.

Wage increases should take account of developments in labour productivity, so as to avoid a deterioration in the competitiveness of the Greek economy. Wage decisions must take into account medium-term productivity developments and the current environment of high uncertainty. Thus, they will not add to the persistent inflationary pressures, which would worsen the competitiveness of the Greek economy and ultimately reduce the real incomes of workers.

A further rise in exports necessitates a diversification of tradable goods and services, with a focus on sectors of high value added. The past few years have seen considerable improvements in the extroversion of the Greek economy. As suggested by balance of payments data, in 2023 exports of goods and services as a percentage of GDP almost doubled compared with 2010 and outdid their 2019 level. Between 2010 and 2019, the share of gross value added of tradable goods and services at current prices increased from 50% to 57%, with an equal decrease for non-tradables. But more than 50% of Greek exports originates from three sources, namely travel services, sea transport and fuel. Besides, exports of high-tech products, despite having almost doubled in 2017-22, still account for a small share in total exports of goods. Therefore, for the Greek economy to become more extrovert, the composition of goods and services exports must be improved and the sectors producing high-tech goods must be supported.

Banking sector

The challenges of the economic environment require a further strengthening of the banking sector's resilience. Further improving the capital base of Greek banks remains an important challenge for the sector, particularly in the current environment of changing international financial conditions. The quality of Greek banks' prudential own funds remains low, as deferred tax credits (DTCs) continue to account for a large part of total prudential own funds. Further ahead, Greek banks are faced by a number of challenges, such as a possible increase in their funding costs (among other things, due to the impact from the issuance of MREL-eligible bonds) and the need to further reduce the NPL ratio towards the European average, in a high interest rate environment. In this context, both systemic and non-systemic banks should further increase their capital buffers taking advantage of their increased core profitability, which creates favourable conditions for internal capital generation. The creation of the so-called "fifth pillar" in the domestic financial system comprising well-capitalised non-systemic banks is expected to improve competition and the financing conditions of SMEs. Lastly, the interlinkages between climate change risks and the financial system must be further explored.

The high level of private debt which is held outside the banking sector is a major imbalance that hampers, among other things, access to bank credit. This can be addressed through sustainable workout solutions for viable borrowers and through collateral liquidation in all other cases. In this respect, the role of credit servicing firms is of paramount importance. The transposition of Directive 2021/2167 into Greek law, setting out the new legislative framework for credit servicers, is expected to provide assistance, among other things, in corporate governance matters and in borrowers' fair treatment. Improvements in the out-of-court settlement mechanism and the operation of the Sale and Lease Back Organisation in particular should help address this problem.

European integration

Although the EU banking sector so far seems to have fared well despite a multitude of challenges, there is no room for complacency. The strengthening of the crisis management framework in the euro area along with the completion of the Banking Union (namely in the form of the European Deposit Insurance Scheme) will enhance the preparedness of monetary authorities to deal with banking crises. The authorities should prepare for a rainy day well in advance. The past crises show the importance of enhancing the institutional framework prior to the materialisation of risks.

To this end, in April 2023 the European Commission published legislative proposals to reform the existing framework for crisis management and deposit insurance. The main elements of the proposed reform include: (i) expanding the scope of resolution to include small and medium-sized banks; and (ii) strengthening the role of national deposit guarantee schemes with the possibility of using them in resolution, for preventive measures or for alternative measures in insolvency. Such proposals should work in the right direction to ensure seamless crisis management in the banking sector and the protection of depositors. However, it should be stressed that there is a need for additional changes to ensure, among other things, the effectiveness of the framework in the event of a generalised systemic crisis. In this respect, the adoption of a common European deposit insurance scheme at the banking union level is essential to consolidate depositor confidence.

Bolstering the resilience of the euro area economy and its financial system to future shocks requires faster progress towards deeper European integration and better policy coordination. The creation of a full-fledged Capital Markets Union, the completion of the Banking Union and the development of a strategy towards a Fiscal Union are priorities, with a view to more prosperity for Europe and its citizens.

Climate change

The cost of tackling the impacts of climate crisis dictates the need for medium-term planning. The recent international experience with the devastating effects of climate change, especially in Southern Europe, has demonstrated the need for a "rainy day" fund to finance climate change adaptation and emergency relief, in addition to the necessary investments to mitigate the impacts of climate change over the medium-to-long term. The increased cost of addressing natural disasters must be covered either from European funds or from additional income sources, without undermining fiscal stability. At the same time, the promotion of private property insurance is warranted for tackling climate change risks, as the public sector alone cannot bear the entire cost of compensation and infrastructure restoration.

The acceleration of the energy transition and the reduction of reliance on fossil fuels will contribute to the achievement of environmental goals. Increasing the share of renewables in the energy mix requires, in addition to new investment, increased energy storage capabilities. In this context, it is crucial to use REPowerEU resources to improve energy efficiency and accelerate the green transition. At the same time, it should be noted that the green transition of the economy requires not only the implementation of new investment projects, but also the existence of staff appropriately trained in new technologies.

Despite the deep crisis of the past decade, Greece is currently a prosperous country with strong institutions and consolidated democracy. According to the United Nations' Human Development Index (with population weighting), Greece ranks among the top 13% of world population. This index includes variables such as per capita GDP, as well as sectors such as education, health, standard of living and the environment. The past ten years saw a great number of reforms that made significant contributions to the stabilisation of the economy, the banking system and the social security/pension system, to the improvement of the tax collection mechanism, competition and labour market flexibility, as well as to the deregulation of certain markets. However, such changes came up against strong resistance from vested interests, as they were imposed in the context of the economic adjustment programmes, under the strict surveillance of European and international institutions. As a result, despite the undeniable benefits of those reforms, the policies pursued lacked national ownership to a great extent.

In an international environment where new uncertainties are piling up, reform fatigue is the biggest challenge to further strengthening the resilience of the Greek economy. Geopolitical instability, technological challenges, green transition and generative artificial intelligence are just some of the areas that call for strengthening the economy's resilience to exogenous shocks and necessitate sustained high growth rates in the medium term. To this end, economic policy should focus on maintaining the reform momentum, with stronger national ownership of planned changes.

Implementing the necessary reforms is a prerequisite for increasing welfare and bolstering institutions. The proposed reforms aim at enhancing total factor productivity, potential output growth and structural competitiveness, leading to higher economic growth, a stronger labour market, social cohesion and, ultimately, higher standards of living. In turn, this reduces the risk of unemployment and an adverse economic outlook, limits inequalities and unlocks sound creative forces.

Finally, the important competitiveness challenges of the European economy in the medium-to-long term call for rapid steps to reform the EU architecture. Further delays in taking action towards full integration of Europe, even in sectors where substantial progress has been achieved (such as the Banking Union and the Capital Markets Union), will lead to a marginalisation of the region and loss of prosperity for its citizens. Policymakers should act in a timely and proactive manner (i.e. before the outbreak of a new major crisis), with decisive, balanced and well-designed reforms at the euro area level, in a spirit of cooperation and mutual concessions. These changes will make the economies of the Member States more resilient, enhance the acceptance of the euro as a global reserve currency and lay the foundations for sustainable and lasting prosperity of all European citizens.

Box 1

LABOUR MARKET: RESILIENCE FACTORS AND IMPLICATIONS FOR INFLATION

The labour market in advanced economies has shown resilience to the successive pandemic and energy shocks, partly owing to fiscal measures supporting incomes and growth. During the post-pandemic period, unemployment declined relatively quickly to historic lows. At the same time, employment remained robust, despite the economic slowdown since 2021 amid increased uncertainty, high inflation and coordinated monetary policy tightening.

Labour shortages in many sectors after the pandemic can initially be interpreted as a result of the reopening of the economy. However, high job vacancy rates and historically low unemployment in the current context of subdued economic growth suggest a possible decline in labour market sensitivity (or an increased resilience thereof) to the economic cycle. This calls for a reconsideration of the factors behind the labour market tightness that can be observed in many advanced economies, as this may exert inflationary pressures through nominal wage increases. Large nominal wage increases that are not in line with average labour productivity growth reinforce the risk of a wage-price spiral, giving rise to the need to offset pressures through a tightening of monetary policy.

This box analyses the degree of labour market tightness in the US and the euro area. It also investigates the main factors on both the supply and the demand side of labour that can shed light on labour market resilience in the current economic juncture. Understanding these factors provides useful insights into the prospects of the labour market and wage costs. Finally, the implications of labour market tightness for inflation and the ensuing challenges for the conduct of monetary policy in advanced economies are discussed.

Indicators of labour market tightness

The labour market is tight when there is excess labour demand. To examine the degree of tightness, a set of indicators is used to capture the evolution of both labour supply and labour demand.

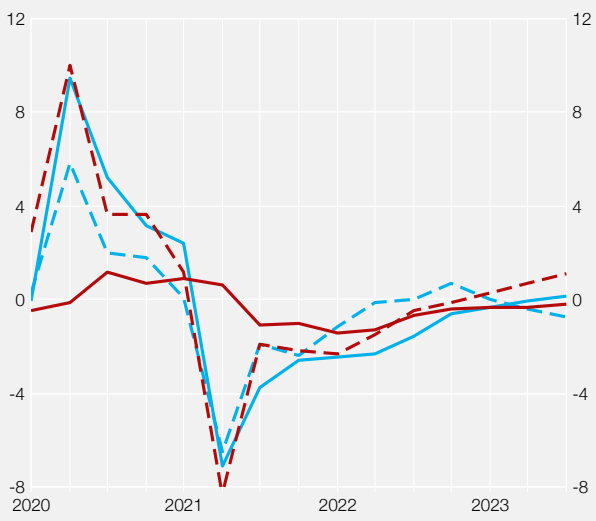
Typically, the main indicator of tightness used is unemployment as a percentage of the labour force, which should be assessed against more composite indicators, as it reacts with a lag to economic activity. In recent years, the responsiveness of the unemployment rate to the economic cycle has been inconsistent with the pre-pandemic historical unemployment-growth relationship in many advanced economies (Okun's law) (see Chart A). In 2020, unemployment's sensitivity to the economic cycle was affected by the different policies adopted to address the economic fallout of the pandemic. In the euro area, job retention schemes have contained the unemployment rate, which rose by only 0.3 percentage point on an annual basis in spite of the deep recession (-6.1%), while the prolongation of these schemes in the following years has partly contributed to the labour market tightness. By contrast, in the US direct income support to the unemployed and the lower cost of temporary lay-offs –as compared to Europe– increased the unemployment rate by 4.4 percentage points in 2020 amid a smaller annual decline in GDP (-2.2%). In other words, the increase in the unemployment rate was significantly lower in the euro area and significantly higher in the US in relation to long-run elasticities.[1] During the post-pandemic rebound of activity, the decline in the US unemployment rate was larger than expected by pre-pandemic norms. This may be explained by greater labour market flexibility and a dynamic recovery of employment reflecting high excess labour demand.[2] By contrast, in the euro area, changes in unemployment remained below estimated

1 For 2020, the annual increase in the unemployment rate based on Okun's law is estimated at 2.7 and 2.5 percentage points in the euro area and the US respectively. This follows a linear estimate of y=0.34-0.39*X for the euro area and y=1.08-0.63*X for the US, where y is the change in the unemployment rate and X is real GDP growth. The estimate covers the period from the first quarter of 2006 to the fourth quarter of 2019.

2 According to the Bank for International Settlements, an increase in the economic growth rate in advanced economies by 1 percentage point is estimated to correspond to a 0.3 percentage point decrease in the unemployment rate, compared with a 0.15 percentage point decrease in previous economic crises. See Doornik, B., D. Igan and E. Kharroubi (2023), "Labour markets: what explains the resilience?", *BIS Quarterly Review*, December.

Chart A Unemployment rate in the United States and the euro area

(%, annual change, quarterly data, Q1 2020 - Q3 2023)



Sources: Federal Reserve Bank of St. Louis, Eurostat and Bank of Greece calculations.
Note: Unemployment based on Okun's law is derived from the linear estimate linking changes in the unemployment rate to changes in real GDP (see footnote 1 of the text).

levels until 2022, partly as a result of the gradual adjustment of the labour market through the increase in hours worked, although the unemployment rate dropped to historical lows. In 2023, unemployment remained at a historical low of 6.5% in the euro area, despite monetary policy tightening and a gradual moderation in domestic demand, and at a post-1968 low of 3.7% in the US, confirming the resilience of the labour market in both economies.

A more composite indicator of labour market tightness is the vacancy-to-unemployment ratio.[3] In 2019, this indicator already stood at historically high levels both in the US and the euro area, reflecting increased tightness. Despite a significant fall in the first half of 2020 because of the impact of the pandemic, it remained higher than during the global financial crisis of 2009, pointing to a tightening of labour markets during the pandemic in comparison with other global crises. After the pandemic, the vacancy-to-unemployment ratio rebounded vigorously to record highs in both economies, mainly as a result of a rapid increase in job vacancies on the back of a strong economic recovery within a short period of time.

The job vacancy rate also points to increased labour demand. After peaking in the first quarter of 2022, it gradually declined, although it remains historically high, suggesting a partial labour market easing, particularly in the US. In the euro area, the job vacancy rate in the services sector is higher than in the other sectors of the economy, signifying higher labour shortages in services.

Moreover, the negative relationship between job vacancies and the unemployment rate (Beveridge curve) is a key indicator of labour market efficiency. A decline in domestic demand is expected to increase the unemployment rate and reduce job vacancies. However, a simultaneous increase in the unemployment rate and job vacancies implies a deterioration in job matching efficiency, which is equivalent to a tightening of the labour market. In the euro area, from the first quarter of 2020 to the third quarter of 2023, the Beveridge curve shifted upwards and to the left compared to the pre-pandemic period (see Chart B). Job vacancies thus remained at high levels despite a gradual moderation of growth, while unemployment continued to fall.[4] Empirical studies on a possible structural change in the relationship between job vacancies and unemployment in Europe confirm that after the pandemic there was no simultaneous increase in job vacancies and the unemployment rate, i.e. the Beveridge curve has not shifted upwards and to the right, which would suggest a deterioration in job matching efficiency.[5] In the US, by contrast, the post-pandemic Beveridge curve has shifted upwards and to the right, reflecting a less efficient labour market.

3 An increase in this ratio implies that labour demand is stronger than the respective supply, therefore it indicates a tighter labour market.

4 The vacancy rate is a leading indicator of the labour market response to the economic cycle, while unemployment reacts with a lag. Therefore, an increase in labour demand, such as the post-pandemic reopening of the economies, will lead to an increase in job vacancies before the unemployment rate falls.

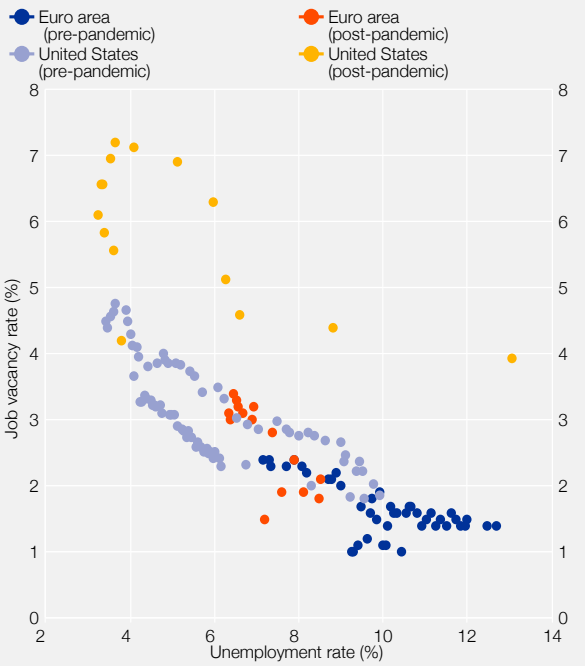
5 Kiss, Á., M.C. Morandini, A. Turrini and A. Vandeplas (2022), "Slack & Tightness: Making Sense of Post COVID-19 Labour Market Developments in the EU", European Commission, European Economy Discussion Paper No. 178, December.

As an alternative to the above indicators for the euro area, Eurostat's labour market slack indicator, which considers a wider definition of labour market underutilisation,[6] peaked in the first quarter of 2021 and has been declining since. This indicator had been standing below pre-pandemic levels already since the third quarter of 2021, pointing to tighter labour market conditions. This tightness seems to reflect for the most part a decline in the number of unemployed. It should be noted that, based on this indicator, in 2019 the euro area labour market was already tighter than in the previous decade, while the reduction of labour shortages during the pandemic was temporary.

At the same time, in the euro area the transition rate from employment to unemployment has remained stable after the pandemic, suggesting that the labour market is resilient despite a gradual slowdown in economic growth since 2022. However, the transition rate from unemployment to employment stands at historically high levels. Finally, additional indicators, such as the employment-to-working age population ratio, have exceeded pre-pandemic levels in many advanced economies.

Chart B Beveridge curve in the United States and the euro area

(%, annual change, quarterly data, Q1 2020 - Q3 2023)



Sources: Federal Reserve Bank of St. Louis, Eurostat and Bank of Greece calculations.
Notes: The job vacancy rate is defined as job vacancies as a percentage of total jobs. The pre-pandemic period refers to the years 2001-2019 and the post-pandemic period to the years 2020-2023.

Explanatory factors for labour supply and labour demand

The tightness of the labour market in many advanced economies in recent years can be explained by a variety of factors contributing to lower labour supply, higher labour demand or a combination of the two. In the US and the euro area in particular, the labour demand-supply mismatches relate to the policies pursued in response to the pandemic, to the post-pandemic preferences as regards workers' participation in the labour force and to the structural features of these two labour markets. An overall conclusion is that the post-pandemic labour market tightness in the US and the euro area can be mainly attributed to a strong growth in labour demand. This has resulted in the gap between labour demand and labour supply (i.e. excess demand) doubling in the US and more than doubling in the euro area in 2022-2023 compared to 2019 (see Chart C).

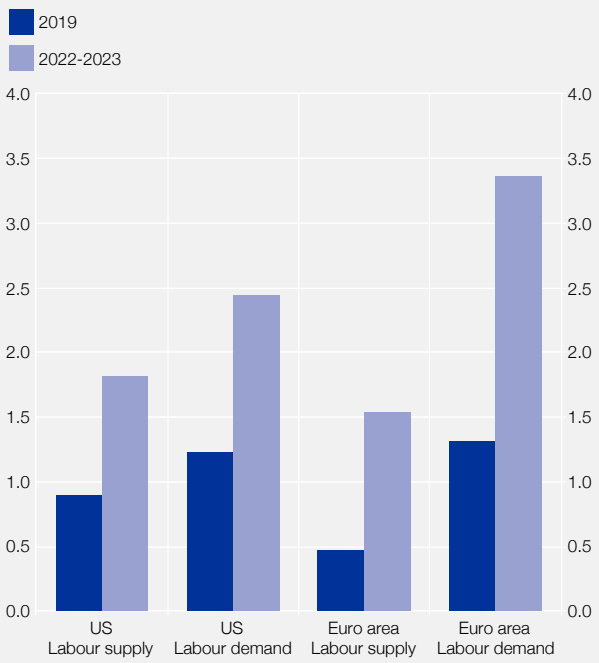
Developments in labour supply are captured by the "labour force participation rate", calculated as the share of the employed and the unemployed (i.e. active persons in the labour market, or labour force) in the total working age population. Following a temporary decline in 2020 due to pandemic-related restrictions, the labour force participation rate recovered dynamically, more so in the euro area than in the US. In the third quarter of 2023, it reached a historic high of 65.7% in the euro area and of 68.9% in the US, 1.2 percentage points higher in the euro area and unchanged in the US compared with the respective 2019 pre-pandemic levels. The more significant drop in 2020 and the slower recovery of the US participation rate vis-à-vis the euro area thereafter are probably related to reduced migration, health issues, early retirement and the existence of alternative sources of income.[7]

6 The indicator includes the unemployed, underemployed part-time workers that would like to work additional hours, persons available to work but not seeking a job and persons seeking a job but not immediately available to work.

7 Generous income support policies during the pandemic, coupled with an increase in savings, delayed the return to work. In addition, rising household net wealth, driven by very high returns on assets such as equities and housing, weighed on the labour force participation rate. See Faria e Castro, M. and S. Jordan-Wood (2024), "Pandemic Labor Force Participation and Net Worth Fluctuations", Federal Reserve Bank of St Louis Review, First Quarter 2024, 106(1), 40-58; and Abraham, K. and L. Rendell (2023), "Where are the missing workers?", BPEA Conference Draft, Spring.

Chart C Labour supply and demand in the United States and the euro area

(%, annual average change, period averages based on quarterly data)



Sources: US Bureau of Labor Statistics, Eurostat and Bank of Greece calculations.
Notes: Labour demand is calculated as the sum of the number of employed and job vacancies. Labour supply is calculated as the total labour force.

The "Great Resignation" in 2022 in the US proved to be temporary and without a significant impact on the labour force, as the workers involved did not withdraw from the labour market, but sought better paid and more qualitative jobs in an environment of abundant employment opportunities ("Great Reshuffle").

Another determinant of the labour supply is hours worked. Contrary to the US, average hours worked per person in the euro area fell sharply during the pandemic, and have since remained lower than pre-pandemic levels, even though they have increased lately, and despite the full recovery of employment and total hours worked. According to the IMF, this post-pandemic phenomenon can be mainly explained by changes in workers' preferences –especially men's (with young children) and young people's– towards fewer working hours, in line with a longer-term trend, and is not expected to reverse.[8]

Developments in labour demand are reflected both in employment – which recovered strongly after the pandemic and remained resilient in the US and the euro area – and, as mentioned above, in the job vacancy rate, which remains elevated in both economies. The strong growth in labour demand can be attributed to a number of factors. First, labour hoarding is observed in businesses, particularly in the euro area, as suggested by a decline in the transition rate from employment to unemployment or by the combination of robust employment growth and lower hours worked per employee. Companies are reluctant to proceed with lay-offs because of the costs and the difficulty of rehiring, or finding suitable staff after massive lay-offs. Second, some of the new vacancies may refer to medium-term rather than immediate staff needs in the context of staff restructuring. Third, businesses are encouraged to post more job vacancies as the relevant costs are lower and online interviews have become easier.

Implications of labour market tightness for wages and inflation

Labour market tightness increases wage and thus inflationary pressures.[9] Since mid-2022, nominal wages in the US and the euro area have increased substantially to recoup losses in workers' purchasing power due to high inflation, but in conditions of low labour productivity. In the third quarter of 2023, annual nominal wage growth based on total compensation per employee stood at 3.4% in the US (around pre-pandemic rates) and at 5.2% in the euro area (higher than pre-pandemic rates). The decline in productivity was more evident in the euro area, partly owing to different structural features of the labour market compared with the US,[10] but also to post-pandemic labour hoarding.

8 Astinova, D., R. Duval, N.-J.H. Hansen, B. Park, I. Shibata and F.G. Toscani (2024), "Dissecting the Decline in Average Hours Worked in Europe", IMF WP/24/2, January.

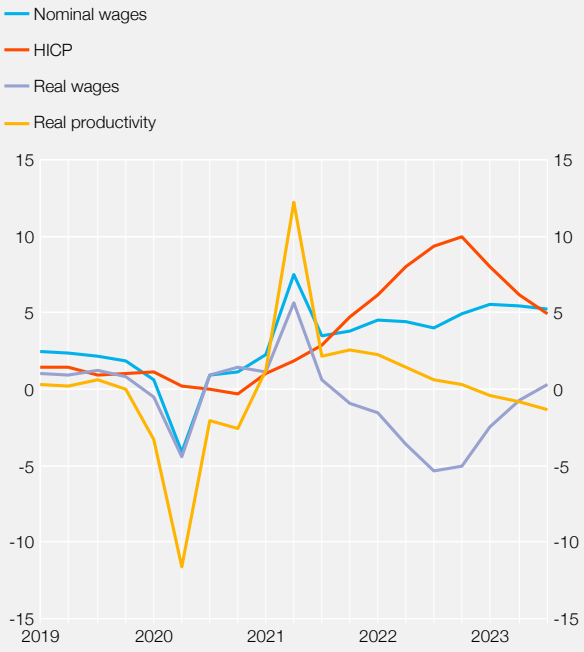
9 Studies suggest that labour market tightness is exacerbating the impact of exogenous supply-side shocks on inflation, such as the recent energy crisis, given the non-linear nature of the Phillips curve. See Ball, L.M., D. Leigh and P. Mishra (2022), "Understanding U.S. Inflation During the COVID Era", NBER Working Paper No. 30613; and Benigno, P. and G.B. Eggertsson (2023), "It's Baaack: The Surge in Inflation in the 2020s and the Return of the Non-Linear Phillips Curve", NBER Working Paper No. 31197.

10 For the most part, these include an ageing population and subdued labour force growth. Additional factors in explaining lower productivity in the euro area include reduced total factor productivity and the movement of workers towards less productive sectors. See: Deutsche Bundesbank (2021), "The slowdown in euro area productivity growth", *Monthly Report*, January.

The increase in nominal wages reflects both a tight labour market and the reaction of wages to high inflation due to the Russia-Ukraine war, and the ensuing rise in energy prices and the cost of living. In the euro area and even more strongly in the US, there is a positive relationship between job vacancies (tightness indicator) and nominal wages.[11] Moreover, high job-to-job transition rates and high rates of voluntary resignations tend to be associated with faster nominal wage growth, especially in tight labour market conditions.[12] Finally, the sensitivity of nominal wages to inflation depends on cyclical and structural factors, such as the inflation level, expectations about inflation persistence, pension and wage indexation and the institutional framework for wage bargaining.[13]

Chart D Wages, labour productivity and inflation in the euro area

(%, annual change, Q1 2019 - Q3 2023)



Sources: ECB Data Portal, Eurostat and Bank of Greece calculations.
Notes: Wages in nominal terms refer to total compensation per employee. Productivity in real terms is the output (at constant prices) per employee.

Nominal wage growth was not commensurate with consumer price inflation, leading to lower real wages in the US and the euro area. For example, real wage growth in terms of total compensation per employee was negative in the US from the second quarter of 2021 to the first quarter of 2023 and in the euro area from the fourth quarter of 2021 to the second quarter of 2023. Since then, real wages have increased slightly in both economies, reflecting both lower nominal wage growth and lower inflation, trends which are expected to continue over the medium term (see Chart D for the euro area). The slowdown in nominal wage growth, paired with the expected labour productivity growth, should dampen unit labour cost growth in the coming years, mitigating wage pressures on inflation. At the same time, it is estimated that post-pandemic business profit margins should continue absorbing part of the wage growth, as it was the case in 2023, also mitigating second-round effects of wages on inflation. Therefore, in the absence of new external shocks, the risk of a wage-price spiral appears to remain less likely in the US and the euro area as economic activity slows down, inflation de-escalates and the labour market rebalances. However, a more persistent tight labour market in certain sectors of the economy, particularly in labour-intensive services, could keep services inflation high for longer and thereby delay the decline in core inflation.

Conclusions

The labour market in advanced economies remains resilient to restrictive economic policies and the economic slowdown. In particular, the labour market continues to be tight in the US and the euro area, as suggested by a number of indicators, despite recent signs of easing. Post-pandemic tightness has mainly been associated with strong growth in labour demand, while labour supply has generally recovered to pre-pandemic levels in both economies.

11 The shift of the Beveridge curve upwards and to the right in the US implies an increase in the bargaining power of workers, as there are more jobs available for the same number of unemployed workers, and therefore stronger upward wage pressure.

12 Daly, M.C., B. Hobjin and T.S. Wiles (2011), "Dissecting Aggregate Real Wage Fluctuations: Individual Wage Growth and the Composition Effect", Federal Reserve Bank of San Francisco Working Paper 2011-23; and Engbom, N. (2022), "Labor Market Fluidity and Human Capital Accumulation", NBER Working Paper No. 29698.

13 Also, studies show that non-pecuniary benefits, such as remote working and more flexible working hours, have partly substituted wage increases. See Doornik, B., D. Igan and E. Kharroubi (2023), "Labour markets: what explains the resilience?", *BIS Quarterly Review*, December; and Maestas, N., K.J. Mullen, D. Powell, T. von Wachter and J.B. Wenger (2023), "The Value of Working Conditions in the United States and Implications for the Structure of Wages", *American Economic Review*, 113(7).

The process of labour market rebalancing in the US and the euro area is affected by structural factors in the short and the medium term. The expected economic slowdown in the US and weak growth in the euro area should initially dampen demand for new jobs and then slightly push up the unemployment rate to levels more in line with historical norms. In the medium term, the implementation of new investment projects under the European recovery instrument NextGenerationEU or the US Inflation Reduction Act should support labour demand. At the same time, labour supply will be boosted by the funding of structural measures aiming to upskill human capital, in view of the increased demands associated with digital transformation, the diffusion of new technologies (e.g. artificial intelligence) and green growth. However, the potential reallocation of the labour force across sectors due to the impact of climate change on production, as well as the possibility of stricter restrictions on migration, may delay the process of rebalancing labour supply and labour demand.

The persistence of a tight labour market increases the risk of wage and inflation pressures and calls for increased vigilance on the part of monetary authorities. However, recent positive real wage growth in the US and the euro area, as inflation falls and short-term inflation expectations return to the 2% inflation target, suggest lower wage demands in the future. Moreover, given that monetary policy changes have a lagged impact on aggregate domestic demand and subsequently on the labour market,[14] the effects of past monetary policy tightening on the labour market are expected to become more visible in the coming quarters. In the absence of new external shocks, this projected labour market cooling will make monetary policy more effective in achieving price stability.

14 See Bauer, M.D. and E.T. Swanson (2023), "An Alternative Explanation for the "Fed Information Effect", *American Economic Review*, 113(3), 664-700, suggesting that the maximum impact of a tightening of monetary policy on unemployment becomes apparent one year ahead; and D'Amico, S. and T.B. King (2023), "Past and Future Effects of the Recent Monetary Policy Tightening", *Chicago Fed Letter*, No. 483, September, demonstrating that most of the labour market effects of the current tightening cycle (more than half) have not yet been felt. Moreover, contrary to the conventional view that monetary policy only affects labour demand, a recent study suggests that tight monetary policy can increase labour supply as resignation rates fall and the unemployed intensify their efforts to find work. Excluding this effect, the overall decline in employment arising from a sudden tightening of monetary policy is twice as high (see Graves, S., C.K. Huckfeldt and E.T. Swanson (2023), "The Labor Demand and Labor Supply Channels of Monetary Policy", NBER Working Paper No. 31770, October).

Box 2

EU AND EURO AREA POLICY RESPONSES

Geopolitical turmoil: Russia's war against Ukraine and the Israel-Hamas war

In 2023, the EU adopted three additional packages of economic and individual sanctions against Russia aimed at further weakening its economic and technological base in the ongoing war on Ukraine. These sanctions included, among other things, tighter restrictions on bilateral trade between the EU and Russia and an obligation for operators to contractually prohibit the re-export of certain categories of sensitive military or hi-tech goods to Russia. At the same time, they strengthened cooperation with third countries in order to prevent the circumvention of sanctions. Since the outbreak of the war, 13 packages of sanctions have been adopted, affecting more than 2,000 individuals and entities, while in 2023 it was decided to criminalise the breach of EU sanctions. Furthermore, in February 2023, the EU, in collaboration with its international partners, imposed price caps on Russian seaborne oil exports to third countries.

Meanwhile, military, humanitarian and financial support to Ukraine continued. The suspension of all import duties and quotas on Ukrainian exports to the EU was renewed until June 2024, while the temporary protection of Ukrainian refugees in the EU was extended until March 2025. By mid-March 2024, the EU and its Member States had channelled more than €138 billion to Ukraine, at the same time committing themselves to offering sustained support for its recovery and reconstruction. Specifically, in February 2024, in the context of the revision of the EU multiannual financial framework for 2021-2027, it was decided to establish a single financial instrument (Ukraine

Facility) to support the reconstruction and modernisation of Ukraine, with a budget of €50 billion (of which, €17 billion in grants and €33 billion in loans).

The Hamas terrorist attack on Israel in October 2023 was unequivocally condemned by the EU, which stressed that Israel has the right to defend itself, in accordance with humanitarian and international law, against such brutal acts. In January 2024, the EU Council established a dedicated framework of restrictive measures specifically targeting individuals or entities that support violent actions carried out by Hamas and the Palestinian Islamic Jihad. The EU reiterated the importance of ensuring the protection of all civilians at all times and the unhindered flow of humanitarian aid to Gaza, while it remained committed to achieving a lasting and sustainable peace based on the two-state solution.

EU enlargement policy

In December 2023, the European Council decided to open accession negotiations with Ukraine and Moldova and grant candidate status to Georgia. It also stated that negotiations with Bosnia and Herzegovina would begin once the necessary degree of compliance with the membership criteria was achieved, while it called upon the Republic of North Macedonia to step up the required constitutional changes so that the opening phase of accession negotiations would be completed (see also Box II.3).

Energy policy

In 2023, the emergency measures that had been adopted following the outbreak of the Russia-Ukraine war were extended by 1-2 years, with a view to strengthening natural gas supply security in Europe, accelerating the development of renewable energy sources (RES) and protecting EU citizens from excessively high energy prices (natural gas market correction mechanism). In parallel, as part of the "Fit for 55" package, it was decided: a) to raise the share of renewable energy in the EU's overall energy consumption to 42.5% by 2030, with an additional 2.5% indicative top up to reach the target of 45% of renewables in the EU energy mix by 2030; and b) to adopt a hydrogen and decarbonised gas market package. The reform of the electricity market, which was agreed by the Council of the EU and the European Parliament in December 2023, aims to make electricity prices less dependent on the volatile prices of fossil fuels and shield consumers from price spikes. This decision complements the Regulation on protection against market manipulation in the wholesale energy market through reinforced market surveillance and increased market transparency, which was adopted in November 2023.

Strategic autonomy and industrial policy

In the context of the Green Deal Industrial Plan,[1] in March 2023 the European Commission proposed the Net Zero Industry Act and the Critical Raw Materials Act to enhance the competitiveness of the European green industry and support the swift transition to climate neutrality. In November 2023, the EU legislators reached a provisional agreement on the Critical Raw Materials Act (CRMA), which covers 34 such materials, the demand for which is expected to increase exponentially in the coming years. The new rules strengthen the EU's strategic autonomy by diversifying the supply of critical raw materials and promote circular economy. The CRMA establishes three objectives for the EU's annual consumption of raw materials: at least 10% from local extraction; at least 40% to be processed in the EU; and at least 25% to come from domestic recycled materials by 2030. The Net-Zero Industry Act, which was also provisionally agreed upon in February 2024, aims to promote green strategic technologies in industrial production through faster project authorisation, the creation of net-zero industry clusters and the introduction of new non-price criteria for net-zero technologies in public procurement procedures and renewable energy auctions. Finally, in July 2023, a regulation to strengthen Europe's semiconductor ecosystem (the Chips Act) was adopted. The programme should mobilise €43 billion in public and private investment, with the objective of doubling the EU's global market share in semiconductors, from 10% now to at least 20% by 2030.

The EU a pioneer in artificial intelligence (AI) legislation

In December 2023, the AI Act was provisionally agreed upon, the first-ever comprehensive legal framework on AI worldwide. Its principal objective is to regulate the use of AI based on the risk it poses to society (e.g. violations

1 European Commission, Green Deal Industrial Plan.

of fundamental rights or security), i.e. the greater the risk, the stricter the rules. Some AI practices pose unacceptable risks and will therefore be prohibited in the EU, while fines are laid down for businesses breaking the law.

New fiscal rules in the context of the EU's economic governance review

The package of measures that was agreed by the Council of the EU in December 2023 focuses on fiscal issues and is based on the European Commission's initial proposal on the new fiscal rules that was published in April 2023. It includes three proposals: a) a new regulation on the effective coordination of economic policies and multilateral budgetary surveillance (preventive arm of the Stability and Growth Pact-SGP); b) amendments to the current regulation on speeding up and clarifying the implementation of the Excessive Deficit Procedure (corrective arm of the SGP); and c) amendments to the EU Council's Directive on requirements for budgetary frameworks of the Member States. In February 2024, the Council of the EU and the European Parliament reached a provisional political agreement concerning the regulation on the preventive arm, while the regulation on the corrective arm and the aforementioned directive required only a consultation with the European Parliament (for more details, see Box 12).

Banking Union

In April 2023 the European Commission published a legislative proposal in order to strengthen the EU bank crisis management and deposit insurance (CMDI) framework, with a focus on medium-sized and smaller banks. The proposal will enable authorities to organise an orderly market exit for failing banks of any size and business model, using a wide range of instruments. In particular, it will facilitate the use of industry-funded safety nets (such as deposit insurance and resolution fund schemes) to enable authorities to shield depositors in bank crises, such as through the transfer from an ailing bank to a healthy one. This use of safety nets will complement banks' internal loss absorption capacity, which remains the first line of defence. The coverage level of €100,000 per depositor and per bank remains applicable for all eligible EU depositors, but the proposal extends depositor protection to public entities. Overall, the proposal under discussion seeks to further preserve financial stability, protect taxpayers and depositors, and support the real economy and its competitiveness.[2]

In June 2023, the Council of the EU and the European Parliament agreed on amendments to the capital requirements regulation and directive with a view to increasing EU banks' resilience and strengthening their supervision and risk management. This reform completes the transposition of the Basel III international agreements to EU law.

In December 2023 the Council of the EU and the European Parliament reached a provisional agreement on the Daisy Chains proposal. This proposal amends the Bank Recovery and Resolution Directive (BRRD) and the Single Resolution Mechanism Regulation (SRMR), with an aim to resolve issues regarding the accounting treatment of the "internal MREL", namely when an MREL (minimum requirements for own funds and eligible liabilities) instrument is issued by a subsidiary within a banking group and is directly or indirectly subscribed by its parent company. Specifically, the proposal lays down the conditions under which the resolution authorities will allow banking groups to comply with MREL on a consolidated basis. In these cases, banking groups' intermediary subsidiaries will not be obliged to deduct from their own funds their individual holdings of internal MREL, thus preventing disproportionate effects on banking groups' structure. Furthermore, entities within a banking group earmarked for liquidation, and therefore not subject to resolution action, are, as a rule, exempt from MREL requirements.

Capital Markets Union

In November 2023, the Council of the EU adopted a regulation that updates the rules on Central Securities Depositories (CSDs). The new rules reduce compliance costs and regulatory burdens for CSDs and improve their ability to offer services across borders, by simplifying the passporting regime while at the same time strengthening cooperation among supervisors. The new regulation also improves settlement efficiency (i.e. the rate at which

2 See Bank of Greece, *Financial Stability Review*, Box III.3 "The European Commission's proposal to adjust and further strengthen the EU's existing bank crisis management and deposit insurance (CMDI) framework", May 2023.

securities transactions settle on the intended date), as it seeks to prevent cases of settlement failure due to lack of cash or securities. It sets out the preconditions for applying so-called mandatory buy-ins, i.e. when a transaction has failed to settle at the end of an agreed period and the buyer of the securities is forced to repurchase them elsewhere, and clarifies that such buy-ins will only be introduced as a measure of last resort, where the rate of settlement fails in the EU is not improving and is presenting a threat to financial stability.

In December 2023, the EU legislators reached a provisional agreement on amendments to the "Solvency II" Directive and the adoption of an insurance recovery and resolution directive (IRRD). The new rules will boost the role of the insurance and reinsurance sector in providing long-term private funding to European businesses, while at the same time ensuring that insurers and relevant authorities in the EU are better prepared in cases of significant financial distress, so that they can intervene sufficiently early and quickly in a crisis, including across borders.

In March 2024, the Eurogroup identified three priority areas for action where measures are necessary to improve the functioning of European capital markets and called upon the European Commission to submit proposals as soon as possible in the next European legislative term 2024-2029. The first priority area concerns the architecture of the capital markets and the development of a competitive, streamlined and smart regulatory system, allowing funds to be better channelled into innovative EU businesses, with greater liquidity, risk taking and risk sharing. The second priority area aims at ensuring better access to private funding for EU businesses (in particular SMEs) to invest, innovate and grow in the EU. The third priority area focuses on citizens/retail investors and aims at creating better opportunities for EU citizens to accumulate wealth and improve their financial security.[3]

New rules for markets in crypto-assets

In May 2023, the EU Council adopted a regulation on markets in crypto-assets, setting an EU-level regulatory framework for crypto-asset issuers and crypto-asset service providers for the first time. Specifically, rules are introduced on the authorisation and prudential supervision of crypto-asset issuers and crypto-asset service providers, including requirements for transparency and information of interested parties before the tokens are offered to the public or admitted to trading on a trading platform, the operation and governance of crypto-asset issuers and crypto-asset service providers, as well as for addressing market manipulation. The crypto-assets included in the scope of the regulation are e-money tokens, asset-referenced tokens and stable coins; also covered are service providers, such as trading venues and wallets where crypto-assets are held. Crypto-asset service providers will need to be authorised in order to operate in the EU and will be subject to strict rules. The aim is to protect investors and safeguard financial stability, while fostering innovation and the role of the EU as a standard-setting body for digital policy.[4]

Establishment of a European Authority and application of stricter rules on Anti-Money Laundering

In December 2023, the EU legislators reached a provisional agreement on the establishment of a new Anti-Money Laundering and Countering the Financing of Terrorism Authority (AMLA). The AMLA will have direct and indirect supervisory powers over high-risk obliged entities in the financial sector (initially up to 40 selected obliged entities), as well as the power to impose financial sanctions. As concerns the non-financial sector, it will support and coordinate financial intelligence units.

In January 2024, EU legislators agreed on an anti-money laundering regulation on the obligations of the private sector and an anti-money laundering directive to improve anti-money laundering mechanisms at a national level. The regulation, among other things, harmonises and specifies for the first time all rules regarding money laundering in the EU, covering potential gaps in their application. It also expands the list of obliged entities to new bodies, forces all crypto-asset service providers (CASPs) to conduct due diligence on their customers and requires enhanced due diligence in business relationships involving high-risk third countries

3 For details, see Statement of the Eurogroup in inclusive format on the future of Capital Markets Union, 11.3.2024.
4 See Bank of Greece, *Financial Stability Review*, Special Feature I, "Crypto-assets: Critical ecosystem events, risks to financial stability, and regulatory developments", November 2023.

and in business relationships with very wealthy individuals, while setting an EU-wide maximum limit of €10,000 for cash payments.

Regulation on European Green Bonds

In October 2023, the Council of the EU adopted a regulation creating a European green bond standard. Under the regulation, entities acting as external reviewers for European green bonds must be registered with and supervised by the European Securities and Markets Authority (ESMA). It also introduces rules on the supervision of European green bond issuers. All proceeds from these bonds must be invested in sustainable economic activities covered by the EU taxonomy. For those sectors not yet covered by the EU taxonomy, issuers may invest up to 15% of the proceeds to other than green investments under specific terms.

Box 3

EU ENLARGEMENT: DEVELOPMENTS AND CHALLENGES FROM THE POTENTIAL ACCESSION OF UKRAINE

In 2013, Croatia became the 28th member of the European Union. Since then and until 2022 the EU's enlargement policy[1] made moderate progress, although the European Council continuously confirmed the European perspective of each candidate Member State and EU partner (currently: Albania, Bosnia and Herzegovina, Kosovo, the Republic of North Macedonia, Montenegro, Serbia, Türkiye, Ukraine, Georgia and Moldova). Some of the factors[2] that did not contribute to the acceleration of the process are: (i) the EU's lack of commitment, as this issue was not a key priority due to the successive crises which had to be addressed; (ii) bilateral disagreements between some Member States with candidate countries (e.g. Bulgaria with the Republic of North Macedonia); and (iii) the emphasis of many EU Member States on strengthening their bilateral relations with Russia, at least until 2022, for economic or foreign policy reasons.[3]

After 2022 and Russia's invasion of Ukraine, the EU is facing different challenges and appears to be changing its strategic priorities, focusing again on the enlargement process, as it recognises that further steps are necessary to achieve a geopolitically solid Union, able to prevent any form of aggression or threat. This box attempts to outline how enlargement priorities change following the acceleration of the process with the opening of accession negotiations with Ukraine and Moldova and the granting of candidate status to Georgia, as well as to summarise the potential challenges of Ukraine's accession, thus reaching certain conclusions.

The priorities of EU enlargement following Russia's invasion of Ukraine and the level of preparation of candidate countries

In successive meetings in 2023 and early 2024,[4] the EU leaders set out the future priorities of the EU's strategic agenda, which aim at defending democratic values and achieving a lasting peace for the benefit of citizens. EU enlargement, among other things, has now become a strategic priority for the EU and a geostrategic investment in stability and prosperity.[5] In view of the prospect of an even more enlarged Union, the adoption of reforms is necessary not only by the future Member States (as the gap with the EU persists),[6] but also by the EU itself in terms of its institutional architecture in such a way as to maintain a balance of power within the EU.

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1 European Council, EU enlargement policy.
2 Bechev, D. (2022), "What has stopped EU enlargement in the Western Balkans?", Carnegie Europe.
3 Karjalainen, T. (2023), "EU enlargement in wartime Europe: three dimensions and scenarios", Academy of Social Sciences, *Contemporary Social Science*, 18(5), 637-656.
4 European Council, Informal Meeting of heads of state or government, Granada, 6.10.2023, Conclusions on Ukraine, enlargement and reforms,14.12.2023, EU strategic agenda 2024-2029, 3.1.2024.
5 European Council, European Council meeting (14 and 15 December 2023) – Conclusions.
6 OECD, Economic Convergence Scoreboard for the Western Balkans 2023.

Candidate countries for EU accession: level of preparation, progress and quantitative indices for the year 2023

Level of preparation[1] and progress for 2023					
	Albania	Republic of North Macedonia	Bosnia and Herzegovina	Montenegro	Serbia
Public administration	4	4, some progress	1	4, some progress	4
Functioning of the judiciary	4	Between 3 and 4, no progress was made	1	4, some progress	3
Fight against corruption	3	Between 3 and 4, no progress was made	Between 1 and 2	3	3
Fight against organised crime	3	3	Between 1 and 2		3
Fundamental rights	Efforts were intensified	Partially aligned with the EU acquis	The required progress was made		
Freedom of expression	Between 3 and 4	Between 3 and 4	Backsliding	3	Some progress was made
Legal framework on migration	Largely aligned with the EU acquis		Steps are being taken to align with the EU acquis	Efforts were intensified	
Economic criteria	Between 4 and 5	5	1	4	5
Structural reforms in the energy market, transport infrastructure, digitalisation of the economy and education	4, progress was made				
Public procurement	4		4	4	
Internal market (free movement of goods, services and capital)	4	4	Alignment with the EU acquis is required	Constant progress	3
Competitiveness	4	4	3		3
Green agenda and sustainable connectivity	3	5	2	3	
Resources, agriculture, regional policy and cohesion	3	4	1	2	
External relations, foreign security and defence	5	4	3	Alignment with the EU acquis is required	
Ability to assume the obligations of membership			Between 1 and 2	5	The country continues to work on alignment with the EU acquis
Good neighbourly relations and regional cooperation					5
Quantitative indices					
Global freedom status of the country for 2023[2]	Partly free	Partly free	Not free	Partly free	Partly free
Corruption Perceptions Index 2023[3]	37/100	42/100	35/100	46/100	36/100

Sources: Data compilation from: a) the European Council Conclusions (December 2023), b) the findings of the special reports of the European Commission on each country (November 2023), c) the freedom index and d) the corruption perceptions index for each country.

1 Describes the level of preparation of each candidate country for EU accession based on the Likert scale: (1) early stage, (2) some level of preparation, (3) moderately prepared, (4) good level of preparation and (5) well advanced.

2 Freedom House, Freedom in the World 2023: Marking 50 years in the Struggle for Democracy.

3 Corruption Perceptions Index 2023, Transparency International, country score on a scale of 0 to 100, where 0=highly corrupt and 100=very clean.

(continued)

Level of preparation[1] and progress for 2023					
	Kosovo	Ukraine	Moldova	Türkiye	Georgia
Public administration		3	3	Between 3 and 4, no progress was made	4
Functioning of the judiciary		3	3	1	3
Fight against corruption		3	3	1	3
Fight against organised crime		3	3	3	3
Fundamental rights		Compliance with international conventions	Commitment to meet international obligations	Backsliding	
Freedom of expression	1	Between 3 and 4, no progress was made	3		3
Legal framework on migration			Backsliding	3	Partially aligned with the EU acquis
Economic criteria		Between 3 and 4, no progress was made	2	5	4
Structural reforms in the energy market, transport infrastructure, digitalisation of the economy and education		1	2		
Public procurement				4	3
Internal market (free movement of goods, services and capital)		Good progress was made	1	5	4
Competitiveness		Efforts need to be intensified	3	4	4
Green agenda and sustainable connectivity		Progress was achieved in several areas	1	4	1
Resources, agriculture, regional policy and cohesion		Progress was achieved in several areas	1	3	1
External relations, foreign security and defence		5	Between 3 and 4, no progress was made	3	2
Ability to assume the obligations of membership		The country continues to work on alignment with the EU acquis		2	
Good neighbourly relations and regional cooperation		5	Maintains good dialogue	4	Efforts need to be intensified
Quantitative indices					
Global freedom status of the country for 2023[2]	Partly free	Partly free	Partly free	Not free	Partly free
Corruption Perceptions Index 2023[3]	41/100	36/100	42/100	34/100	53/100

Sources: Data compilation from: a) the European Council Conclusions (December 2023), b) the findings of the special reports of the European Commission on each country (November 2023), c) the freedom index and d) the corruption perceptions index for each country.
1 Describes the level of preparation of each candidate country for EU accession based on the Likert scale: (1) early stage, (2) some level of preparation, (3) moderately prepared, (4) good level of preparation and (5) well advanced.
2 Freedom House, Freedom in the World 2023: Marking 50 years in the Struggle for Democracy.
3 Corruption Perceptions Index 2023, Transparency International, country score on a scale of 0 to 100, where 0=highly corrupt and 100=very clean.

The prospect of a more enlarged Union concerns – in addition to the Western Balkans[7] and Türkiye – Ukraine, Moldova and Georgia. The European Council granted Ukraine and Moldova candidate status in June 2022, with unprecedented speed, and in December 2023 Georgia was granted candidate status as well. The first two had applied for membership as late as Q1 2022 and Georgia in March 2022 respectively.

The table above shows the progress of each candidate country in the EU accession process (i.e. level of preparation for accession by cluster and the progress made by each country in 2023). In particular, it reflects the results of the screening report carried out, both qualitative (by cluster) and quantitative (indicative relevant indices) for each country separately. Indicatively, it is mentioned that in December 2023 the European Commission: (a) expects the opening of the first category of negotiating chapters as soon as possible for Albania; (b) is ready to complete the opening phase of the accession negotiations with the Republic of North Macedonia; and (c) urges Serbia to fulfil the conditions of Chapters 23 and 24 (rule of law).

In drawing up the table, account has been taken of: (a) the December 2023 European Council Conclusions; (b) the findings of the country-specific reports[8] in November 2023, describing the clusters of the candidate countries under negotiation with the EU, as reflected in the Likert scale (evaluation scale of 1-5 measuring the level of preparation from early stage (1) to well advanced (5)); (c) each country's freedom index, which is recorded in a global report[9] on political rights and civil liberties and labels countries as free, partly free and not free; and (d) the corruption perceptions index[10] for each country, which measures the level of corruption in its public sector on a scale of 0-100 where 0 means a highly corrupt country and 100 means a very clean country.

Challenges for the EU from the potential accession of Ukraine and reforms that need to be taken into account

Following Russia's invasion of Ukraine in February 2022 and the granting of candidate status to Ukraine in December 2022, enlargement is a geopolitical objective as it is now a key EU strategic priority.

The first topic of discussion emerging as a challenge is the impact of Ukraine's final accession on the distribution of power[11] of each EU member in the Council of the EU and, in the European Parliament, on the population-based voting system. Ukraine is the second largest country in terms of population (41 million) after Türkiye. Based on the population criterion, Ukraine's accession to the EU will increase the number of seats of the European Parliament above the threshold set by the Lisbon Treaty (750 MEPs), leading to a cut in seats from the other existing Member States, as the number of seats per country is negotiable and adjustable.[12] For a decision to be taken by the Council of the EU, a favourable vote is required by at least 55% of the Member States representing at least 65% of the EU's population (qualifying majority, Article 16(4) of the Treaty).[13] The admission of new members therefore changes the balance of power and may affect the ability of the EU and the Council of Ministers to take policy decisions on sensitive issues (external policy, security policy, EU funding, sub-delegation of competences) as the distribution of votes in the voting outcome will change.

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7 It should be noted that in December 2023 the European Council called for an acceleration of the accession process of the Western Balkans with the help of a new Development Plan, with EUR 6 billion of funding for the period 2024-2027, proposed by the European Commission on 8 November 2023.

8 Albania, Bosnia and Herzegovina, Republic of North Macedonia, Serbia, Türkiye, Ukraine, Moldova, Georgia.

9 Freedom House, Freedom in the World 2023: Marking 50 years in the Struggle for Democracy.

10 Transparency International, Corruption Perceptions Index.

11 Kirsch, W. (2022), "The distribution of power within the EU: perspectives on a Ukrainian accession and a Turkish accession", *International Economics and Economic Policy*, 19, 401-409.

12 Blockmans, S. (2023), "The impact of Ukrainian membership on the EU's institutions and internal balance of power", International Centre for Defence and Security, Policy Paper, November, and Voting system of the Council of the EU.

13 Blockmans (2023), op. cit.

The second possible challenge is the impact of Ukraine's final accession on the EU budget (budgetary policy[14,15]) and on the resources allocated under the Instrument for Pre-accession Assistance[16] and the Neighbourhood, Development and International Cooperation Instrument – Global Europe to the candidate countries, as demand for additional expenditure, in particular for EU agricultural and cohesion policy, changes. The wealthiest EU countries may need to pay larger amounts than they receive from the EU, as reductions in resources to current Member States would be likely if the rules remain the same as established since 2004 when Poland joined. An increase by nine members with an unchanged budget would give Ukraine (with 25% of EU arable land) 41.7% of EU funds, while the integration of smaller candidate countries does not pose similar challenges as they have small agricultural areas (1-3 million hectares).[17] Taking into account that the possible date of accession of the Member States is 2030, the European Committee of the Regions[18] recommends that the European Commission (a) carry out a detailed evaluation and reform of the Common Agricultural Policy rules to ensure that the new rules allow for the provision of continued EU support to all regions; and (b) that the year of accession be taken into account in the design of the next Multiannual Financial Framework (2028-2034).

The third possible challenge from Ukraine's accession concerns the EU's common foreign and security policy (CFSP), which is already experiencing a remarkable change as a result of the war, with a view to maintaining the EU's resilience to hybrid threats and the future European order. Russia's conflict with Ukraine reinforced further attention to EU defence and underlines the fact that, in order to achieve these EU strategic priorities, it is necessary to: (a) facilitate joint procurement for the European defence industry with a view to replenishing Member States' stocks; (b) swiftly put in place a European defence industrial strategy – to be submitted by the European Commission and the High Representative of the Union for Foreign Affairs and Security Policy – in order to strengthen the defence sector and make it more innovative and competitive; (c) adapt the regulatory framework for public procurement; and (d) step up defence investment by the European Investment Bank (EIB), through military mobility, regular real exercises, enhanced space security and cyber threat response.

Conclusions

Following Russia's invasion of Ukraine in 2022 and the granting of candidate status to Ukraine, the EU revised its objectives and strategic priorities. As of February 2022 there has been an acceleration of the enlargement process since, within a short period of time, some countries have been given the status of candidate country and negotiations with the EU have intensified for those already possessing the said status, while the process had started many years ago.

In particular, on the one hand, the EU reassesses the enlargement policy on the basis of which it had built its relationship with the candidate countries, recognises that enlargement is now a strategic priority and concludes that reforms are necessary to maintain European balance after accession. On the other hand, based on the findings of the screening report, the level of preparation of the candidate countries is below moderate in almost all clusters, with a few exceptions (e.g. Serbia and Ukraine: well advanced in neighbourly relations and regional cooperation, Albania: well advanced in external relations, Republic of North Macedonia: well advanced in the green agenda), and they need to step up their efforts. The new Growth Plan for the Western Balkans proposed by the European Commission aims at this direction.

14 European Parliament, "Enlargement Policy: Reforms and challenges ahead", European Parliamentary Research Service (EPRS), December 2023.
15 European Commission, Communication from the Commission to the European Parliament, the European Council and the Council on pre-enlargement reforms and policy reviews, 21.3.2024.
16 Bank of Greece (2022), *Annual Report 2021*, pp. 60-61.
17 Karjalainen (2023), op. cit.
18 European Committee of the Regions, Opinion: The future of Cohesion Policy post-2027, 29-30 November 2023.

Box 4

THE MONETARY POLICY IN THE EURO AREA AND ITS EFFECTS ON THE PROFITABILITY OF CENTRAL BANKS

In July 2022, the Governing Council of the European Central Bank (ECB) increased key interest rates for the first time since 2011. Until September 2023, over just 15 months, the ECB raised key interest rates ten consecutive times by a cumulative 450 basis points to ensure that the Eurosystem monetary policy stance would gradually shift from highly accommodative to sufficiently tight, in response to the sharp and unexpected surge in inflation. This significant shift and tightening of monetary policy aims to ensure inflation's timely return to the ECB's target (2% in the medium-term). However, a side-effect of such policy shift accompanied by the interest rate hikes is an adverse impact on the profitability of the ECB and the national central banks (NCBs) of the euro area countries, including the Bank of Greece, which in certain cases has caused financial losses.

At this point, it should be noted that the primary mandate of the Eurosystem[1] is to maintain price stability in the euro area and support the overall economic policies of the European Union, without prejudice to the objective of price stability. Central banks are public institutions, therefore they are not profit-oriented, as is the case for instance with commercial banks. Thus, the efficiency of the Eurosystem must be assessed in terms of delivering its mandate effectively and not of making profits. This mandate can be fulfilled regardless of any financial losses.

This special feature focuses on the factors which affect the profitability of central banks of the Eurosystem, as well as on the causes of the reduced financial results reported in the last few years. It also explains the reasons why the efficiency of central banks is not affected by their reduced profitability and considers the key factors which suggest that central banks will soon return to positive financial results. Lastly, reference is also made to recent central bank experiences.

Drivers of the profitability of the central banks of the Eurosystem

Over the past decades, central banks mostly recorded profits, which are normally distributed to their respective national governments. However, over the last two years, many central banks, within and outside the euro area, have reported reduced profits or even losses. The Eurosystem's reduced profitability since 2022 is attributed to the significant shift in its monetary policy stance, which aimed at stabilising inflation. Following a period of an exceptionally accommodative monetary policy, marked by the adoption of non-standard measures (mainly asset purchases programmes) to address the very low, even negative, inflation rates during the previous decade and the beginning of this decade, the Eurosystem delivered bold policy rate hikes and reduced its balance sheet due to the surge in inflation.

Specifically, during the decade before the pandemic, inflation in the euro area persisted below the 2% target. The Governing Council of the ECB adopted an exceptionally accommodative monetary policy stance, primarily by maintaining low or even negative key interest rates. However, low inflation persisted and the effective lower bound of nominal rates was binding so that policy rates could not be lowered further. Thus, new measures had to be introduced which affected the size and composition of the Eurosystem's balance sheet, most notably the asset purchase programmes.

In the mid-2010s, the Eurosystem started to purchase public and private sector securities on the secondary market under the asset purchase programme (APP), increasing its assets and therefore its balance sheet, which was used as a tool in the conduct of monetary policy. The APP was effective in reducing medium-to-long term interest rates and borrowing costs for governments, firms and consumers, aiming to ultimately support investment and private consumption. Moreover, the Eurosystem conducted targeted longer-term refinancing operations (TLTROs), through which it provided ample liquidity to banks under very favourable terms, in order to encourage

1 The Eurosystem comprises the ECB and the national central banks (NCBs) of the Member States whose currency is the euro.

bank lending to firms and households. This package of measures resulted in increased effectiveness of the regular interest rate policy, thus facilitating the smooth transmission of monetary policy in the euro area.

In the years following the outbreak of the pandemic, the Eurosystem, in order to stave off its potentially negative impact on the economy and the financial markets, decided to implement the Pandemic Emergency Purchase Programme (PEPP), which involved bond purchases on a large scale, in parallel with the APP. At the same time, it made the terms of TLTRO III even more favourable, increasing thus liquidity provision to the banking system.

This bold monetary policy response ensured very favourable funding conditions to all financial sectors (households, firms, banks and governments). This stabilised financing conditions, prevented fragmentation in the euro area and increased financing to the real economy. In so doing, downward deviations of inflation from the target were contained and an economic recession was prevented.

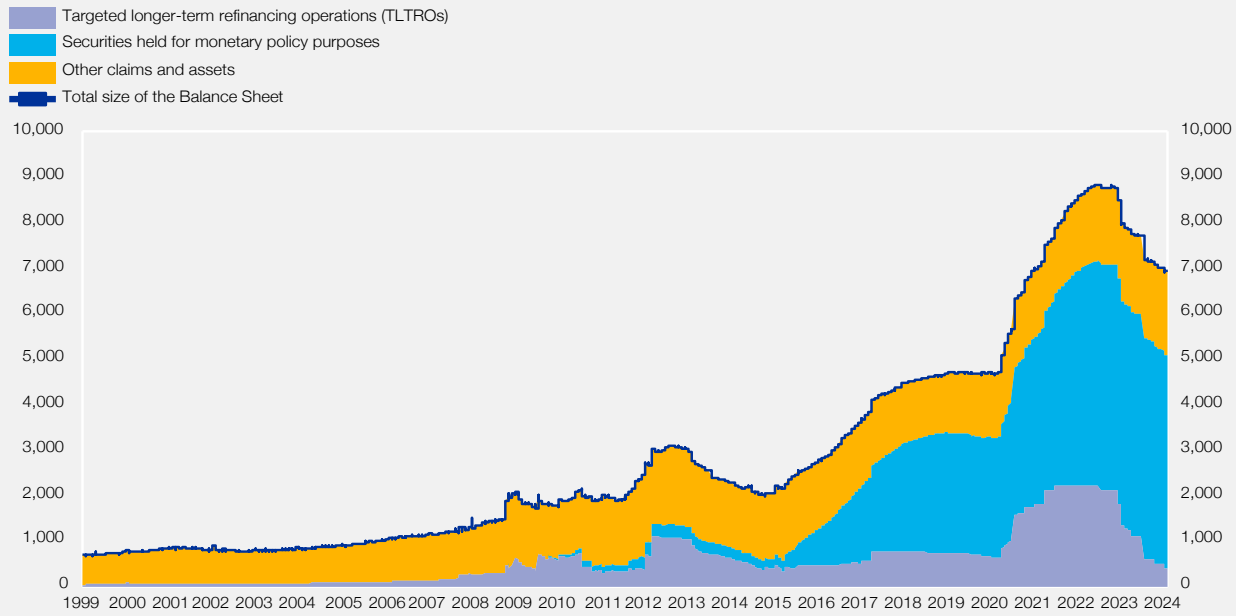
These measures led to a significant increase in the Eurosystem balance sheet, which rose from €2 trillion at the beginning of 2015 to €9 trillion in mid-2022 (see Chart A). At its peak, €5 trillion corresponded to securities acquired under the asset purchase programmes and €2 trillion to the outstanding amounts of targeted longer-term refinancing operations.

Liquidity provision to the banking system through non-standard measures significantly exceeded the funds lent by commercial banks to firms and households, resulting in the accumulation of excess liquidity in the banking system. Excess liquidity peaked at €4.7 trillion at the end of 2022, with a large part of it deposited by commercial banks to the NCBs of the Eurosystem in their current accounts and the deposit facility. For almost eight years, from June 2014 to July 2022, the Eurosystem applied a negative interest rate to the balances of the said deposits to encourage the banks to channel such liquidity to the real economy instead of depositing it to the Eurosystem.

Following this prolonged period of a relatively stable, but below-target inflation, the Eurosystem faced a new challenge. Since mid-2021, inflation started to rise significantly above the 2% target: from 1.9% in June 2021, the annual inflation rate in the euro area increased to a historical high of 10.6% in October 2022.

Chart A Eurosystem Balance Sheet

(assets, EUR billion, weekly data)



Source: ECB.

Thus, amid excess liquidity and a historically large balance sheet (€8.8 trillion in June 2022), the Governing Council of ECB decided to increase its policy rates drastically over a period of 15 months (July 2022-September 2023), to counter the inflation challenge. With interest rates hikes of 450 basis points, the interest paid by the Eurosystem NCBs on commercial banks' balances remunerated at the deposit facility rate increased significantly. On the other hand, revenues from the portfolios of securities acquired under the asset purchases programmes of the Eurosystem (which are accounted for at amortised cost) did not increase commensurately. This is due to the fact that many of these securities –in particular the sovereign bonds which make up the bulk of these portfolios– were acquired in a period of low interest rates and thus of low yields. Moreover, these securities mostly have fixed-rate coupons and long maturities. As a result, the increased interest currently paid by the Eurosystem is not offset by its revenues, due to the difference between the yield of the securities held by the Eurosystem and the deposit facility rate. Thus, net interest income, which constitutes a key component of the central bank's revenue, is significantly lower.

Central banks' reduced profitability affects the allocation of profits to national governments. It is, however, noted that, after setting rates to positive territory, the Governing Council of the ECB in September 2022 removed the 0% interest ceiling for the remuneration of government deposits, allowing the NCBs to offer positive interest rates to government deposits. This decision, which is aiming to prevent abrupt outflows of government deposits from certain NBCs, has a positive impact on the interest income received by the governments of the Member States.

It must be highlighted that central banks in the euro area had experienced a long period of positive financial results.[2] In more details, during the period 2012-2021 the Eurosystem recorded profits – of approximately €300 billion cumulatively before taxes and general provisions. These profits were mainly driven by two factors:[3] on the one hand, the revenues from securities purchased under the asset purchase programmes (as already mentioned, in order to support the economy and raise inflation from its extremely low, below-target level) and on the other hand to the negative interest rate policy, which had resulted in Eurosystem NCBs receiving interest on commercial banks' balances remunerated at the deposit facility rate, which was negative during the period June 2014-July 2022.

Part of the profits realised in the previous years had been used by the central banks to build significant financial buffers by establishing general provisions and reserves to address financial risks. These provisions may be used, and have already been used in several cases, to cover losses. In case these provisions and reserves are depleted, any remaining losses can be recorded on the annual account and be set off against future profits.

Credibility and profitability of central banks

The credibility of central banks and citizens' confidence to them are determined by their ability to fulfil their primary objective of price stability and their contribution to ensuring macroeconomic and financial stability. Recording losses for short periods of time does not jeopardise that role of the Eurosystem, as central banks can operate effectively despite the losses, without compromising their objectives, given that they are the sole issuers of legal tender. As the ECB President, C. Lagarde, also stressed,[4] "As the sole issuer of euro-denominated central bank money, the Eurosystem will always be able to generate additional liquidity as needed. So by definition, it will neither go bankrupt nor run out of money. And in addition to that, any financial losses, should they occur, will not impair our ability to seek and maintain price stability".

However, central banks must be independent in order to operate effectively, i.e. they should be shielded from external influence. Their independence has many aspects, including financial independence. Any situation whereby an NCB's net equity is below the level of its statutory capital or is even negative for a prolonged period

2 For an analysis of the Eurosystem's profitability during the period 1999-2017, see Chiacchio, F., G. Claeys and F. Papadia (2018), "Should we care about central bank profits?", *Bruegel Policy Contribution*, No. 13.

3 The profits/losses of the Eurosystem NBCs are also driven by a number of other balance sheet items, such as foreign reserve assets and own funds portfolios, which are not considered here, as they are not directly related to the conduct of monetary policy.

4 See Transcript of the hearing at the Committee on Economic and Monetary Affairs of the European Parliament, 19.11.2020.

of time should be avoided.[5] This could result in the provision by the respective Member State to the NCB with an appropriate amount to rebuild its capital, thus giving rise to concerns that the government may try to influence directly or indirectly the monetary policy decisions, which would undermine the credibility of central banks and citizens' confidence to them. For this reason, central banks ensure that adequate buffers are maintained, in order to address any financial risks and prolonged periods of reduced profitability.

Outlook of the profitability of the Eurosystem central banks

The financial results of the NCBs of the Eurosystem will continue to face pressures, including the risk of net losses, in the near future. Two factors though are expected to lead to a gradual improvement of central banks' financial results:

- First, as inflation has already started to converge to the medium-term target of 2%, the key monetary policy interest rates have not been increased since September 2023 and are expected to be cut in the future. Therefore, the interest paid by the NCBs of the Eurosystem on commercial banks' excess liquidity deposited in the deposit facility will decline, thus the difference between the yields of the securities held by the Eurosystem and the deposit facility rate will narrow.

- Second, excess liquidity, which has been declining since the end of 2022, is set to further decrease, as on the one hand TLTRO III repayments continue and, on the other hand, the monetary policy portfolio held by the Eurosystem under the APP programme will continue to shrink due to maturities of securities, while the reduction of the PEPP portfolio will also start from the second half of 2024. Therefore, excess liquidity deposited in the deposit facility will continue to fall.

According to a recent IMF paper,[6] the central banks of the Eurosystem are expected to record cumulative losses of €55 billion during 2023-2024. For certain NCBs, the loss-making period may be even longer. However, according to the same paper, the Eurosystem's and the largest NCBs' losses are expected to be temporary and to be covered in a short time with future profits. This obviates any need for any capital injections or compensation from the euro area Member States.

Recent profitability results of the central banks within and outside the Euro area

Already since 2022, many central banks within and outside the Eurosystem have posted reduced profits. More specifically:

- The ECB recorded losses in both 2022 and 2023. For 2022, the loss stood at €1.6 billion and was covered by the release of an equal sum from the provision for financial risks (see Chart B). In 2023 losses of €7.9 billion were recorded, part of which will be covered by the release of the remaining provisions for financial risks amounting to €6.6 billion. The remaining loss of €1.3 billion, which was not covered by the provisions, will be carried forward on its balance sheet and will be set off against future profits. As the ECB posted zero profits in both 2022 and 2023, no profits were distributed to the euro area NCBs.[7]

- The Bundesbank[8] recorded losses before provisions amounting to €1 billion in 2022 and €21.6 billion in 2023. After covering them by tapping its risk provisions, it reported zero profits and made no distribution to the Federal Government of Germany in both years.

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5 See ECB, *Convergence Report*, June 2022.

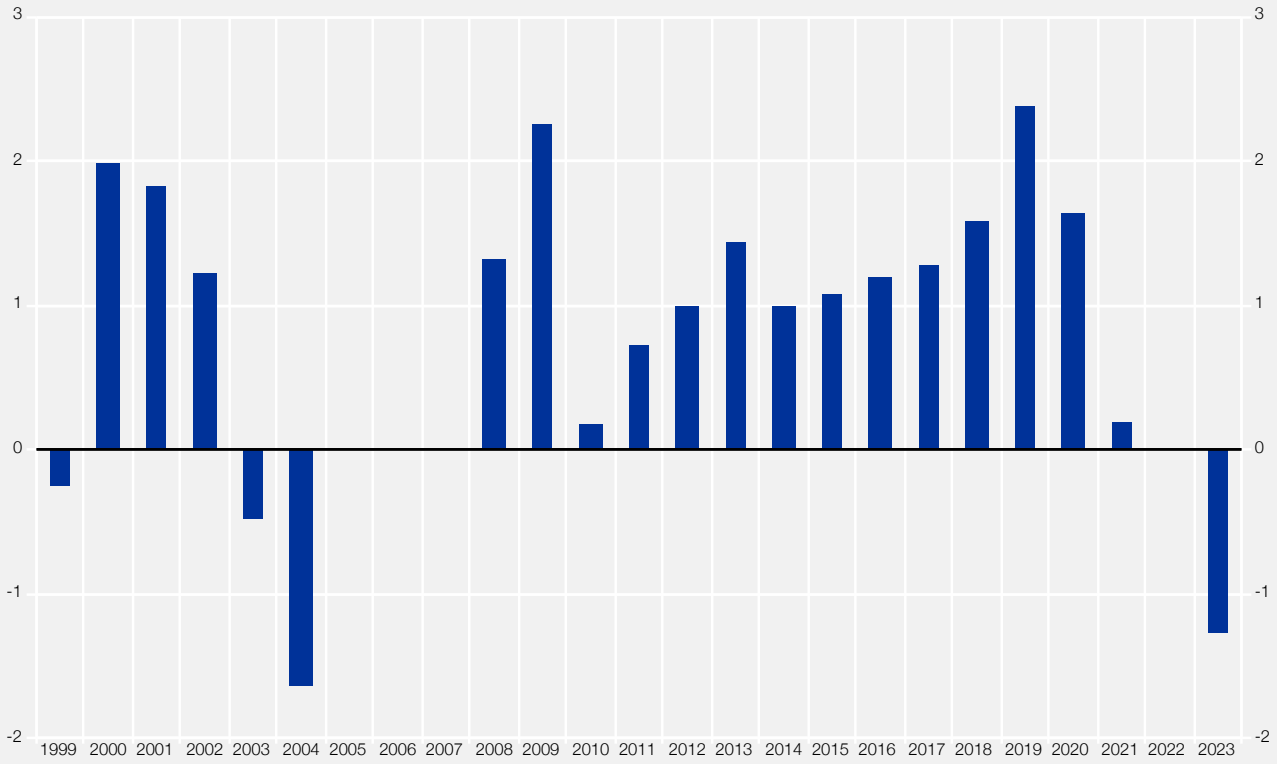
6 Belhocine, N., A.V. Bhatia and J. Frie (2023), "Raising Rates with a Large Balance Sheet: The Eurosystem's Net Income and its Fiscal Implications", IMF Working Paper WP/23/145.

7 In accordance with Article 33 of the Statute of the European System of Central Banks and of the European Central Bank, the net profit of the ECB shall be transferred in the following order: (a) an amount to be determined by the Governing Council, which may not exceed 20% of the net profit, shall be transferred to the general reserve fund subject to a limit equal to 100% of the capital; (b) the remaining net profit shall be distributed to the shareholders of the ECB in proportion to their paid-up shares. In the event of a loss incurred by the ECB, the shortfall may be offset against the general reserve fund of the ECB and, if necessary, following a decision by the Governing Council, against the monetary income of the relevant financial year in proportion and up to the amounts allocated to the national central banks.

8 See Deutsche Bundesbank, press release 1.3.2023 and press release 23.2.2024.

Chart B Financial results of the ECB

(profits/losses for the year in EUR billion)



Source:ECB.

- The Dutch central bank (De Nederlandsche Bank) [9] recorded in 2022 a loss before provisions of €460 million, which was also covered by the provision for financial risks. In 2023 losses amounted to €3.5 billion, partly absorbed through the release of the remaining provision for financial risks, whereas the remaining losses are charged to the central bank's capital and reserves.

- The Bank of Greece is one of the few central banks in the euro area that remained profitable in both 2022 (profits of €456.8 million) and 2023 (profits of €98.7 million, see *Annual Financial Report 2023*). Three main reasons contributed to this. First, the structure of the Bank's investment portfolio and its successful active management. Second, the yields of Greek sovereign bonds held in its portfolios were not so low or negative as were the sovereign bond yields of other European countries. Third, the positive effect of the redistribution of monetary income, which constitutes a complex procedure for the allocation of profits and losses from monetary policy operations conducted by the NCBs of the Eurosystem.[10]

Several central banks outside the euro area have also entered a period of low (or even negative) profitability.

- The Swiss National Bank reported unprecedented losses of CHF 132.5 billion for 2022. The losses of the Swiss National Bank are associated though with different factors, as they are mainly attributed to the collapse

9 See De Nederlandsche Bank, DNB 2022 Annual Report, March 2023, and press release 23.2.2024.

10 The positive effect of the redistribution of the monetary income was also a result of the Bank of Greece's more limited participation in the public sector purchase programme (PSPP), as Greek government bonds were not eligible for this programme given that they did not have investment grade status yet (although they were eligible for PEPP). For more details regarding the concept of monetary income, see Bank of Greece, *Annual Financial Report 2022*, "Monetary Income in the Eurosystem", p.15.

of its foreign currency positions accumulated to restrict the appreciation of the Swiss franc. It reported a loss of CHF 3.2 billion for 2023.[11]

- The US Federal Reserve reported for 2023 the largest losses in its history, amounting to $114.3 billion,[12] whereas in the previous year it has reported net profits of $58.8 billion. These losses stemmed from the surge of interest rates, coupled with the Fed's large bonds portfolio, and were recognised in its balance sheet as a deferred asset to be set off against future profits.

- The Bank of England has reported profits in recent years, given that as early as 2009 it has been decided that the profits or losses stemming from the asset purchase programmes[13] would be passed to the UK government. Until September 2022, the Bank of England transferred profits to UK government, whereas after recording losses on its bond portfolios, HM Treasury was required to transfer annually to the Bank of England significant amounts as indemnity for these losses.

- It is noteworthy that both the US Federal Reserve and the Bank of England have sold securities held in their portfolios, which had an adverse impact on their financial results.

- Lastly, the Swedish central bank reported a loss of just over SEK 80 billion for 2022. As a result, its equity turned negative (SEK -18 billion). For this reason, it has reached an agreement with the Swedish Government on its recapitalisation.[14]

Conclusions

In conclusion, the credibility of central banks is determined by their ability to fulfil their primary objective, which in the case of the Eurosystem is price stability. Losses do not jeopardise the achievement of their objective, but are the price to pay for fulfilling their mandate.[15] The monetary policy measures of the Eurosystem have been designed with a view to ensuring price stability. The Eurosystem's bold measures were indispensable so as to bring back inflation to the medium-term target of 2%, both when it was below-target and, more recently, when upwards deviations were recorded. The Governing Council of the ECB stands ready to take whatever action is needed to accomplish its mission and safeguard price stability, even if the implementation of monetary policy measures may have a temporary negative impact on the financial results of the NCBs and the ECB.

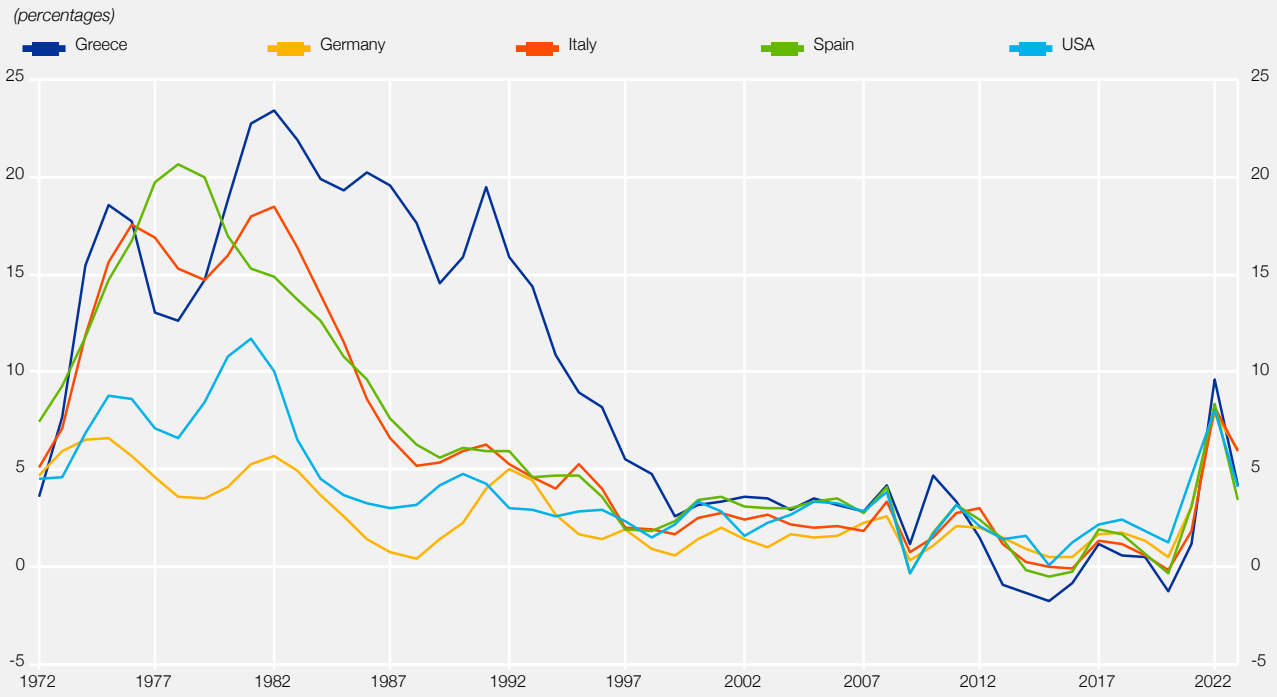
11 See Swiss National Bank, press release 4.3.2024.
12 See Federal Reserve, press release 12.1.2024.
13 See Bank of England, *Quarterly Bulletin 2022 Q1*, "QE at the Bank of England: a perspective on its functioning and effectiveness", 18.5.2022.
14 See Sveriges Riksbank, announcement 24.10.2023.
15 See Agustín Carstens, "Central banks are not here to make profits", BIS, 9.2.2023.

Box 5

DRIVERS OF INFLATION IN THE GREEK ECONOMY

The rise in global inflation over the period 2021-2023 was sharp and pronounced. After almost three decades, the rate of increase in the consumer price index (CPI) in Greece, as well as in most developed economies, was close to or above double-digit levels on an annual basis. This increase started in the second half of 2021 (see Chart A), as a consequence of the protracted disruption in global value chains caused by the coronavirus pandemic. Thereafter, inflation accelerated rapidly as a result of the war in Ukraine, which led to a surge in energy and food costs, primarily for Europe, but also for the rest of the world. Finally, the unprecedented economic support measures implemented by monetary and fiscal authorities to counteract the effects of the pandemic may also have had an upward impact on prices, pushing up demand in conditions of tight supply.

Chart A Inflation in selected economies (1972-2023)



Source: Ha, J., M.A. Kose and F. Ohnsorge (2021), "One-Stop Source: A Global Database of Inflation", Policy Research Working Paper No. 9737, World Bank, Washington, DC.

Understanding the root causes of inflationary pressures is crucial for the proper design of macroeconomic policy. Macroeconomic (monetary and fiscal) policy acts through the demand channel. Therefore, if the rise in inflation is mainly driven by increased demand, then a tightening of monetary and fiscal policy would directly result in lower inflation. On the contrary, supply shocks pose a challenge to monetary policy. While a restrictive policy reduces demand, it also increases the cost of capital and thus the overall cost of running businesses. As a consequence, a tightening of monetary policy amid supply shocks tends to intensify downward trends in output.

This box aims to empirically investigate the drivers of inflation in the Greek economy in the post-pandemic period. To this end it uses the Blanchard and Bernanke model (2023),[1] which is a theoretical framework for the structural assessment and identification of inflationary pressures, distinguishing between labour market, energy and food shocks, as well as shortages caused by problems in global value chains.[2]

Drivers of inflation

Inflationary pressures typically have three possible sources. First, they can be a result of supply shocks that increase the cost of input factors, usually energy or imported intermediate goods. This is also known as cost-push inflation. Second, they can be a result of higher demand for a given level of supply, e.g. due to capital inflows, fiscal and monetary easing or increased consumer confidence. This is commonly known as demand-pull inflation.

1 Blanchard, O. and B. Bernanke (2023), “What caused the US Pandemic-Era Inflation?”, NBER Working Paper 31417.

2 This model has been used extensively in similar ECB analyses (see Arce, O., M. Ciccarelli, C. MontesGaldón and A. Kornprobst (2024), “What caused the euro area post-pandemic inflation?”, Occasional Paper No 343, European Central Bank, and constitutes a follow-up exercise in *Governor’s 2022 Annual Report* (Box IV.1), which used the alternative simplified model of Shapiro (see Shapiro, A.H. (2022), “Decomposing Supply and Demand Driven Inflation”, Federal Reserve Bank of San Francisco Working Paper 2022-18) and identified inflationary pressures by distinguishing between supply and demand shocks. This model seeks to further refine the source of these shocks.

Lastly, they can be a result of rising inflation expectations, which incentivises economic agents to renegotiate long-term contracts at higher prices (e.g. property rents, wages).[3]

Analysing the drivers of inflation is highly relevant for monetary policy. As a rule, monetary policy is effective in responding to demand shocks by raising borrowing costs and reducing liquidity, to contain aggregate demand. By contrast, it is less effective in small and temporary supply shocks, which increase input prices and reduce output. Moreover, any change in the monetary policy stance affects the real economy with a lag of several months, implying that a response of monetary authorities to temporary shocks could generate undesirable volatility with little gain to be achieved. Therefore, if the main source of the increase in inflation are small and temporary supply shocks, the monetary authority usually does not react ("looks through"), since it is assumed that no severe second-round effects are created and thus expectations of future inflation are not affected.

This concerns temporary and limited shocks. Strong and/or prolonged supply shocks, which typically start with an increase in energy prices, risk affecting prices of other goods and services as intermediate inputs for the rest of the economy, and, over the medium term, increase inflation and inflation expectations, leading to a self-sustaining rise in inflation. This happens through second-round pressures, which affect firms' pricing policies and workers' wage demands, and thus inflation expectations.

The oil crisis of the 1970s was such a shock. The consensus view is that the belated response of monetary authorities to rising oil prices at the time allowed inflation expectations to drift upwards and, together with other measures (wage indexation), led to a large and protracted rise in inflation. Indeed, a recent study by Hazell et al. (2022) showed that the steep decline in inflation in the United States in the early 1980s, following aggressive interest rate hikes by the Federal Reserve System, was due primarily to lower inflation expectations and, secondarily, to lower demand.[4] Therefore, in order to avoid a repetition of the high inflation episode of the 1970s, the central banks of developed countries reacted strongly to the current episode by raising key interest rates rapidly and consecutively. The ECB raised all Eurosystem interest rates by 450 basis points over 13 months, while the US Federal Reserve and the Bank of England made similar moves. These moves succeeded in curbing inflationary pressures before becoming entrenched and obviated the need for more drastic action in the future. Thus, they managed to reduce inflation significantly, with little impact on the labour market.

Model methodology

This box uses the semi-structural model developed by Blanchard and Bernanke (2023), as mentioned above, in order to disentangle the sources of higher inflation among the predominant possible sources. The model consists of four equations with four unknowns: change in wages, inflation (prices), short-term inflation expectations and long-term inflation expectations. More specifically:

Change in wages
$$w_t - w_{t-1} = \left(\underbrace{p_t^e - p_{t-1}}_{expected\ inflation} \right) + \alpha \left(\underbrace{p_{t-1} - p_{t-1}^e}_{catch\text{-}up} \right) + \beta \left(\underbrace{x_t - \alpha x_{t-1}}_{labour\ market} \right) + z_w$$

Inflation rates
$$p_t - p_{t-1} = (w_t - w_{t-1}) + \underbrace{(z_{p_t} - z_{p_{t-1}})}_{price\ shocks}$$

Long-term inflation expectations
$$\pi_t^* = \gamma \pi_{t-1}^* + (1-\gamma)(p_{t-1} - p_{t-2})$$

Short-term inflation expectations
$$p_t^e - p_{t-1}^e = \underbrace{\delta \pi_t^*}_{anchoring} + (1-\delta)(p_{t-1} - p_{t-2})$$

3 Literature has focused on the first two channels, rather than on the role of expectations. The basic (neo-Keynesian) model in literature assumes that expectations have a full impact on inflation (pass-through 1:1). More recent literature shows that the pass-through can also be zero for small changes in expectations and that in general it may be significantly lower than 1:1 (see Werning, I. (2022), "Expectations and the Rate of Inflation", NBER Working Paper No. 30260). Moreover, different economic agents (households, businesses, banks, capital markets) have different expectations, with large discrepancies between them (see Reis, R. (2023), "Four Mistakes in the Use of Measures of Expected Inflation", *AEA Papers and Proceedings*, 113, 47-51).

4 Hazell, J., J. Herreño, E. Nakamura and J. Steinsson (2022), "The Slope of the Phillips Curve: Evidence from U.S. States", *The Quarterly Journal of Economics*, 137(3), 1299-1344.

Wage growth is determined by expected inflation; a "catch-up" term (α) expressing the difference in the previous period's price level and the price level that had been expected for that period, i.e. unexpected inflation; and labour market tightness (β). The term z_w encompasses all other determinants of wages, including changes in productivity.

In turn, prices depend on wage growth, as well as on any price shocks (z_p). These may be due to supply chain disruptions caused by the pandemic, which in turn caused raw material shortages, but also shortages in intermediate/final products (such as semiconductors), or disruptions in the supply of food and energy goods as a result of the war. Long-term inflation expectations have a degree of anchoring (parameter γ), but are also influenced by last period's inflation. Accordingly, short-term inflation expectations are linked both to last period's inflation and to long-term expectations (π_t^*): the stronger the anchoring of expectations to the central bank's target (anchoring, coefficient δ), the greater the price fluctuation can be without affecting expectations. The literature tends to conclude that low inflation in the previous decades has led to well-anchored expectations, as central banks had gained high credibility in their ability to fight inflation.[5] The empirical model comprises three exogenous price shocks: shortages in the supply chain, food inflation and energy inflation.

The data in the assessment come from a variety of sources. Data for the general price index and for energy and food prices are taken from ELSTAT's Harmonised Index of Consumer Prices (HICP).[6] Wages are measured on the basis of ELSTAT's wage cost index. Supply chain shortages are assessed on the basis of the Federal Reserve Bank of New York GSCPI (Global Supply Chain Pressure Index). Labour market tightness is measured by the difference between real unemployment and the non-accelerating inflation rate of unemployment (NAIRU), known as the "unemployment gap", as estimated by the Bank of Greece.[7] Finally, short-term inflation expectations are calculated on the basis of Bank of Greece forecasts. Data on long-term expectations in Greece are not available, so the corresponding series for the euro area from the Survey of Professional Forecasters is used.[8]

Empirical results

In the inflation equation, estimates are almost identical for the wage growth and inflation variables, at around 0.3 and 0.7 respectively, both for Greece and the euro area.[9] The productivity and shortage variables are not relevant for Greece relative to the euro area, while the opposite is true for food inflation. This is to some extent due to the different weights of the respective goods in the household basket, as the weight in Greece is 5 percentage points higher for food. Finally, energy inflation is just as important. Although this variable is low relative to the others, the cost of energy is highly volatile and the magnitude of the change can become very high.[10]

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5 Structural identification in the empirical model is achieved by applying restrictions. Each equation is estimated with linear regressions, with four lags of all variables and assuming that wages respond to all other variables (inflation, expectations, labour market tightness, price shocks) with a lag. Inflation is affected by wages without a lag, but by expectations with lags. It is also affected by price shocks, including energy and food price shocks, as well as shortages (zpt).

6 No official seasonally adjusted data are available for individual consumer price indices. The seasonal adjustment of official ELSTAT data is based on the X13-TramoSeat methodology, based on calculations by the Bank of Greece.

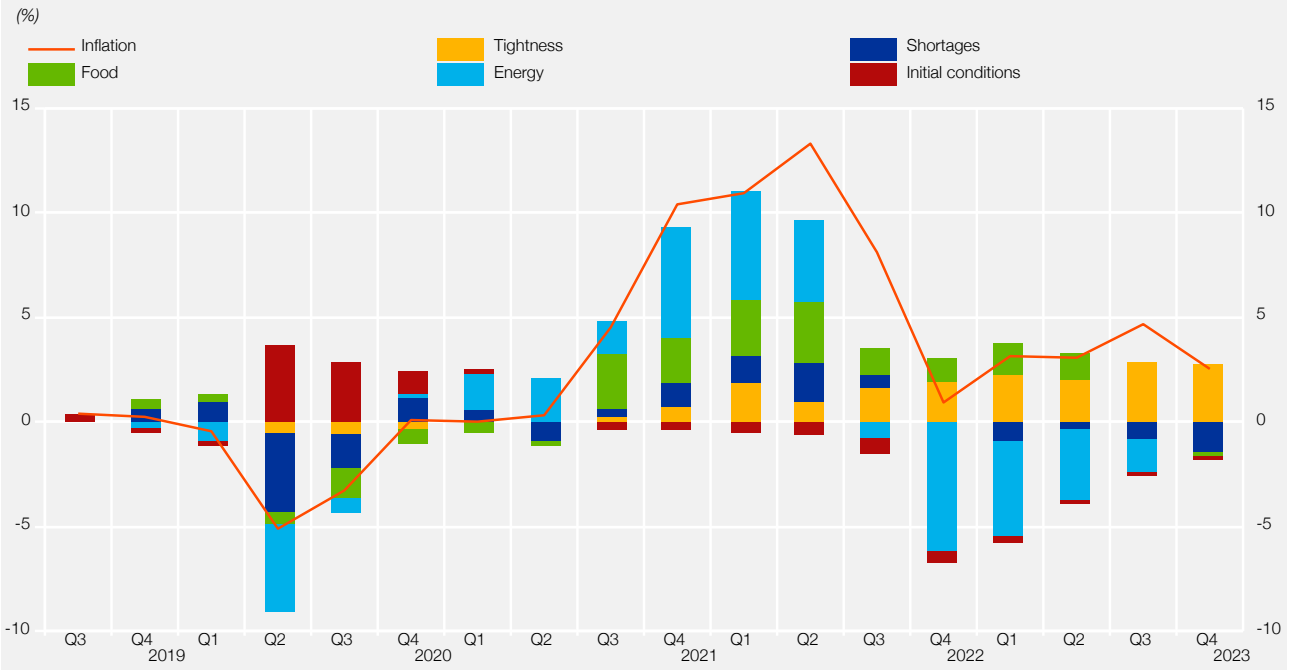
7 The original model, as well as literature in general, prefers the ratio of vacancies to the number of unemployed (v/u) as a measure of tightness. However, job vacancy data have been available since 2009 and on a quarterly basis the sample is too small to be reliable. The use of the unemployment gap is therefore preferred, but in any case the qualitative conclusions are similar.

8 Over the long term, and since the primary objective of the Eurosystem is price stability, it is assumed that inflation expectations converge across Member States.

9 The regression has been estimated with the restriction that the sum of the wage growth and inflation variables is equal to unity, implying that in the long run wage growth will be fully passed on to prices. The results for the euro area are from Arce et al. (2024).

10 For example, between the fourth quarter of 2021 and the second quarter of 2022 energy prices increased by more than 50% (on an annualised basis).

Chart B Inflation drivers (2019-2023)



Source: ELSTAT.

Using the model results,[11] Chart B shows the structural decomposition of inflation over 2020-2023 into the individual exogenous factors included in the model. Inflation in the chart is expressed as a quarterly annualised rise in prices and is therefore significantly more volatile than the more common pattern of annual price increases.[12] The sum of columns does not necessarily equal the value of inflation, as regression errors (the unexplained part) are not taken into account. The column "initial conditions" includes the sum of the regression constants, productivity developments and any pre-pandemic shocks.

The results of the chart are broadly as expected. The initial fall in inflation at the outbreak of the pandemic was primarily due to lower costs of energy goods, which subsequently rose. This increase was initially relatively small, but accelerated sharply, starting in the fourth quarter of 2021, driven by a pick-up in global demand that accompanied the gradual lifting of pandemic restrictions, and continued with the outbreak of the war in Ukraine. The same reasons also led to an increase in the contribution of food prices to overall inflation. The stabilisation of energy goods prices since mid-2022 dampened inflation, while the ensuing sharp fall in their prices reduced it even further to the point that in the fourth quarter of 2022 headline inflation was only 1% year-on-year.

Lower energy goods prices continued to lower inflation in the course of 2023, but food inflation remained high. At the same time, the increasingly improving labour market, with unemployment reaching a post-2009 low, led to a significant rise in labour costs (cumulatively up by 8% between early 2022 and the third quarter

11 As regards the wage equation, the wage growth variable is positive (0.6), higher than that of the euro area, but similar to the US one (0.5), as estimated by Blanchard and Bernanke (2023). By contrast, the short-term expectations variable (0.4) is significantly lower than that in the euro area, while it is roughly equal to that in the United States (0.5). It should be noted that the measurement of expectations is not entirely identical across samples, as for Greece it refers to inflation expectations based on Bank of Greece estimates, while for the euro area and the United States it refers to household expectations. In contrast, the role of labour market tightness is significantly greater in Greece than in the euro area and comparable to that of the US. Finally, the productivity and catch-up variables are very low and/or not statistically significant in all three economies.

12 Quarter-on-quarter changes are used for ease of model estimation and interpretation, as inflation measured as an annual change in prices is affected by base effects.

of 2023), with lagged effects on inflation (see Chapter IV). The experience in the US and the EU has been similar, despite concerns that the initial rise in inflation, coupled with a tight labour market, would trigger a wage-price spiral.[13] Shortages in global value chains affect inflation with a lag:[14] their upward contribution starts in 2021 and is intensifying in 2022. By contrast, the normalisation of supply chains in 2023 helped to contain inflationary pressures.

Conclusions

The pandemic and energy crises have induced upward pressures on inflation. The assessment of the relative contribution of the various factors to the rise in inflation at the current juncture is surrounded by considerable uncertainty. This analysis uses a new model to disentangle the sources of higher inflation in the Greek economy. The empirical model estimates that inflation fluctuations between 2020 and 2023 were driven mainly by energy market shocks and, to a lesser extent, by fluctuations in food prices. Upward price pressures from the labour market started after inflation moderated and have remained contained. Therefore, underlying inflation pressures during the peak period were mainly based on supply shocks. Such shocks pose challenges for monetary authorities, since monetary policy tools are less effective than in the case of demand shocks. However, it is important for monetary policy to react in time to prolonged supply shocks in order to prevent inflation expectations from rising, and interest rate hikes by the ECB, as well as by other central banks, have acted in this direction.

It is worth noting that recent literature has also examined whether the increase in consumer prices exceeded the rise in energy costs and, consequently, inflation has to some extent been driven by increased corporate profits.[15] Box IV.3 in this report discusses this channel. Such an analysis is not possible on the basis of this model, which includes business profit margins in the ceteris paribus conditions.

The experience of the inflationary shock in 2021-2023 is particularly useful in dealing with such supply shocks. An important conclusion is that a wage-price spiral, which occurs when rising prices lead to higher wages, which in turn cause prices to rise further, is not inevitable. According to Werning and Lorenzoni (2024),[16] when the economy is hit by a supply shock to an inelastic input, such as energy goods, prices rise faster than wages and thus real wages fall. This is because nominal wages are less flexible than prices, also because of the institutional wage bargaining framework. However, once the shock subsides, wages grow faster than prices, offsetting their earlier fall in real terms. Importantly, at the current juncture, wage increases have not been followed by a further increase in inflation for the time being, despite some fears of a wage-price spiral, given that the energy shock occurred amid tight labour market conditions.

Moreover, the decline in inflation in almost all advanced economies was not followed by wage-price spirals or by a marked increase in unemployment. By contrast, unemployment stabilised at low levels in the US and the EU, with vacancies declining. In Greece, where the labour market was less tight from the outset, unemployment continued to decline, albeit at a slower pace, but vacancies remained at historically high levels. Reducing inflation without sacrificing employment was unexpected for some scholars (e.g. Blanchard et al. 2022[17]). The commonality of inflation and unemployment trajectories in advanced economies, irrespective of the pattern of output, suggests the important role played by determined central bank action in order to prevent the destabilisation of inflation expectations.

13 See Blanchard and Bernanke (2023) and Arce et al. (2024).
14 This lag explains the negative contribution in the second quarter of 2020.
15 See Hansen, N.J., F. Toscani and J. Zhou (2023), "Euro Area Inflation after the Pandemic and Energy Shock: Import Prices, Profits and Wages", IMF Working Paper No. 2023/131, Arce, O., E. Hahn and G. Koester (2023), "How Tit-for-Tat Inflation Can Make Everyone Poorer", ECB Blog, και Colonna, F., R. Torrini and E. Viviano (2023), "The profit share and firm markup: how to interpret them?", Bank of Italy Occasional Paper No. 770, May.
16 Werning, I. and G. Lorenzoni (2024), "Wage-Price Spirals", *Brookings Papers on Economic Activity*, forthcoming.
17 Blanchard, O., A. Domash and L. Summers (2022), "Bad news for the Fed from the Beveridge space", Policy Brief PB227, Peterson Institute for International Economics.

Box 6

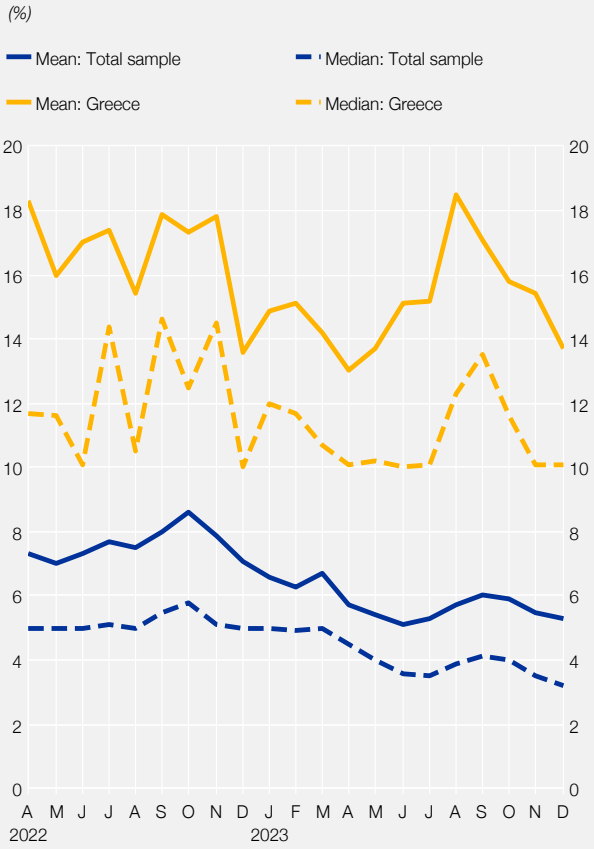
ECB SURVEY ON GREEK CONSUMER EXPECTATIONS

The ECB Consumer Expectations Survey (CES) allows for timely capture of Greek consumers' inflation perceptions and expectations. The survey has recently expanded its coverage and in January 2022 five more countries (Austria, Finland, Ireland, Greece and Portugal) were added to the six pilot euro area countries (Belgium, Germany, Spain, Italy and the Netherlands).[1] After a four-month "build-up phase", the target sample size (1,000 participants/month for each country) for these five new countries was reached in April 2022. Therefore, since then the CES has also been collecting monthly data on Greek consumers' perceptions of price developments over the past year and expectations about their future path.

Consumer expectations for inflation, unemployment and economic growth in Greece relative to the euro area

According to the CES findings, mean and median inflation expectations in Greece are higher than in the euro area (see Chart A). The survey captures consumers' inflation expectations over the next 12 months. The median, unlike the mean, is not influenced by outliers. Compared to the euro area, there is a much larger proportion of Greek consumers with very high inflation expectations, as the difference between mean and median inflation expectations is much larger in Greece than in the euro area. Mean and median consumer expectations in the euro area, based on the CES, peaked at 8.6% and 5.8% respectively in October 2022. Similarly, Greek consumers' mean and median inflation expectations reached high levels in September 2022 (17.9% and 14.6%).

Chart A Mean and median inflation perceptions: CES



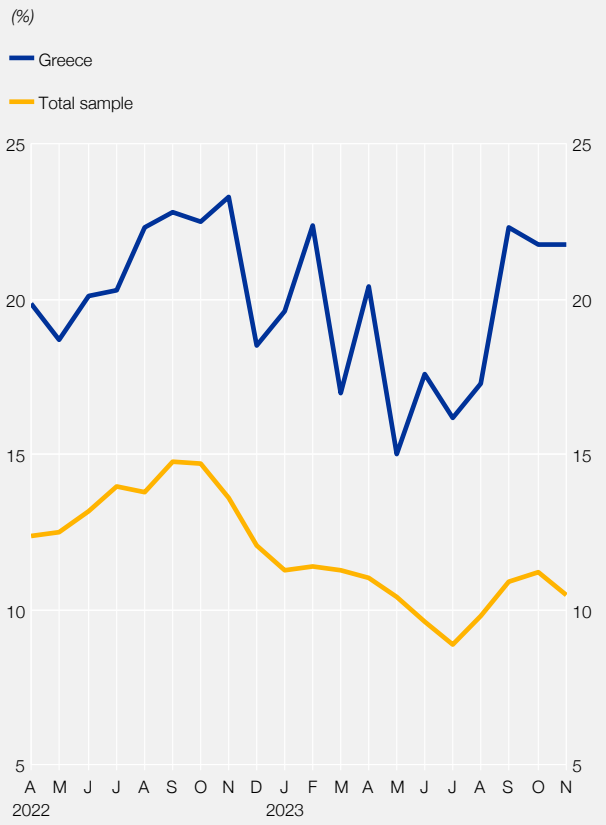
Source: ECB, Consumer Expectations Survey (CES).
Note: Mean and median inflation expectations over the next 12 months. Weighted estimates from April 2022 to December 2023.

After peaking in October 2022, mean expectations in the euro area continuously declined up to June 2023, except for a rise in March 2023. In contrast, mean inflation expectations in Greece started to rise again in April 2023 and peaked at 18.5% in August 2023, before falling significantly to 13.7%. Median expectations followed a similar pattern. This is in line with inflation expectations in the euro area, with mean expectations declining from 6% in September 2023 to 5.3% in December 2023.

The results of the CES follow the same pattern as the findings of the European Commission's survey on consumers' inflation expectations. Like the CES, the Commission's survey shows that mean consumer expectations in Greece are higher than in the euro area (see Chart B). Although there are methodological differences between the two surveys, both in the way data are collected and in the design of the questionnaire, the

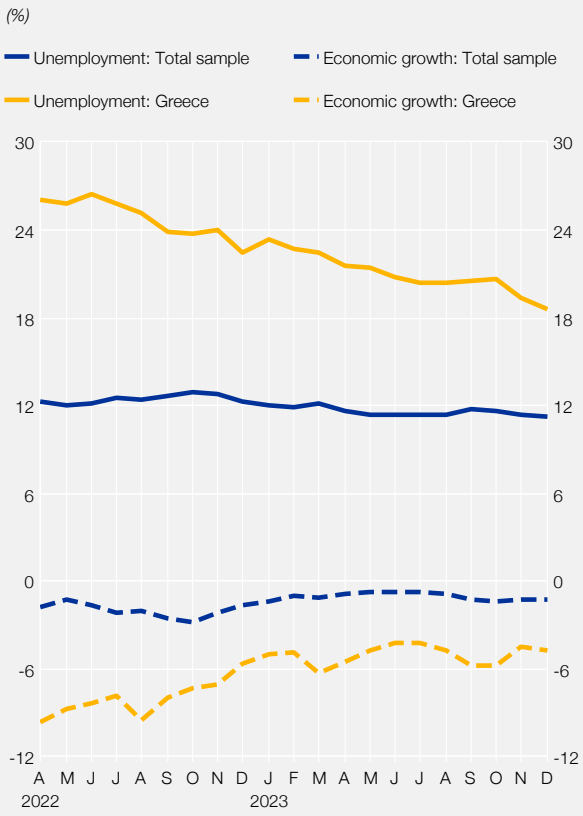
1 For a detailed description of the CES, see ECB (2021), "Consumer Expectations Survey: An Overview and First Evaluation", ECB Occasional Paper No. 287, December, και Georgarakos, D. and G. Kenny (2022), "Household Spending and Fiscal Support During the COVID-19 Pandemic: Insights from a New Consumer Survey", *Journal of Monetary Economics*, S1-S14.

Chart B Mean inflation expectations: Commission Survey



Source: European Commission Consumer Survey.
Note: Mean inflation expectations over the next 12 months. Weighted estimates from April 2022 to November 2023.

Chart C Mean unemployment and economic growth expectations



Source: ECB, consumer expectations survey (CES).
Note: Mean unemployment and economic growth expectations over the next 12 months in Greece and the euro area. Weighted estimates from April 2022 to December 2023.

Commission survey confirms the CES finding that consumers express more pessimistic inflation expectations in Greece than in the euro area.[2]

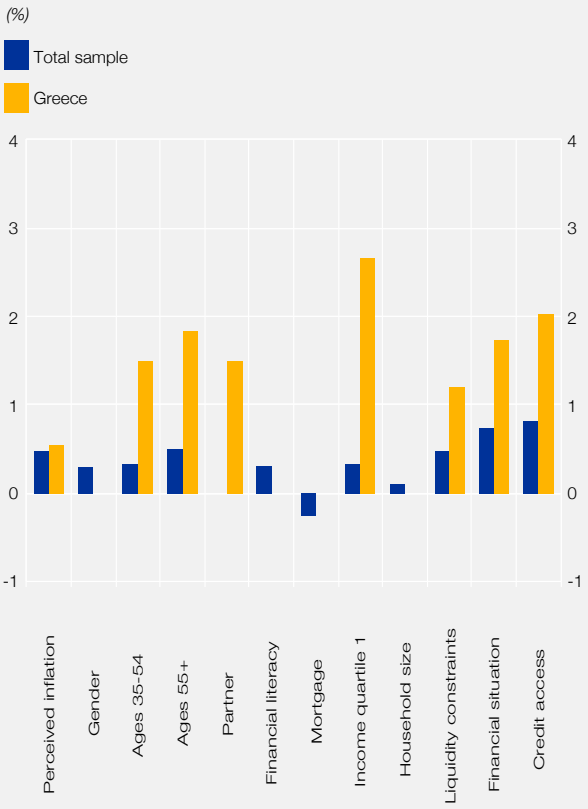
In addition to higher inflation expectations, Greek consumers are more pessimistic in their unemployment and economic growth expectations. In Greece, consumers' mean unemployment expectations are higher than in the euro area, while growth expectations are on average more negative for Greek consumers than euro area ones (see Chart C). This may be explained by the fact that Greek consumers experienced a debt crisis in Greece a few years ago, which led to a 27% spike in unemployment and a 25% contraction in GDP. However, it is noted that Greek consumers' unemployment and economic growth expectations improved significantly between April 2022 and December 2023. Specifically, Greek consumers' expectations for the unemployment rate declined on average from 26.1% to 18.6% and growth expectations became less negative, from -9.7% to -4.7%.

Identification of the determinants of consumers' inflation expectations

A linear regression model is used to assess the determinants of consumers' inflation expectations. In line with the relevant literature, the model includes the independent variables of households' perceived inflation, age group, gender, family composition, education, level of financial literacy, income quartiles, employment status, home ownership, mortgage, liquidity constraints, worse financial situation compared with 12 months ago and difficult credit access.

2 For example, the European Commission's survey has a different way of collecting data on Greece, based on telephone interviews rather than interviews via online platforms, as the CES does. Moreover, unlike the European Commission's survey, the CES does not allow for responses such as "don't know" or "no answer" to the quantitative questions on inflation expectations.

Chart D Estimated variables from the linear probability regression model



Source: Calculations based on ECB Consumer Expectations Survey (CES) data.
Note: The chart shows the estimated variables from a linear probability regression model with clustered standard errors. The regression model for Greece takes into consideration the effects of each survey wave for Greece, while for the euro area, in addition to wave effects, it also includes the effects of each euro area country. The sample comprises the following independent variables: perceived inflation, gender, age groups, partner, education, low financial literacy, mortgage, income quartile (1, 2, 3 and 4), employment status (unemployment), home ownership, liquidity constraints, worse financial situation compared to 12 months before and difficult credit access. The estimated variables shown in the chart are statistically significant at a confidence level of 1% and 5%. Estimated variables not shown in the chart are not statistically significant. Weighted estimates from April 2022 to December 2023.

The results indicate that the effect of consumers' (current) inflation perceptions on their inflation expectations is positive and strong both in Greece and in the euro area (see Chart D), but the size of inflation perceptions' pass-through to expectations is the same in both samples. Greek consumers aged 35-54 and 55+ have higher inflation expectations than younger ones (18-34). This is in line with the corresponding euro area finding, although the size of the estimated determinants for Greece is almost five times higher and almost four times the euro area figure. It is noted that consumers' inflation expectations increase as income decreases, both in Greece and in the euro area. Nevertheless, the impact of the lower income group (1st quartile) on consumers' inflation expectations is almost eight times higher in Greece than in the euro area. In addition, liquidity constraints, worse financial situation and difficult credit access have a significant positive impact on consumers' expectations in Greece and the euro area. It is worth noting, however, that the effect of these three factors is much greater on Greek consumers than on those in the euro area. Overall, the results show that Greek consumers' inflation expectations are positively correlated with age, low income levels, liquidity constraints, worse financial situation and difficult credit access, revealing what makes Greek consumers have pessimistic inflation expectations.

The presence of a household partner increases Greek households' inflation expectations, but there is no statistically significant effect in the euro area. On the other hand, while in the euro area gender (in the case of women), household size and low financial literacy increase inflation expectations, households with a mortgage have lower inflation expectations. However, in Greece, gender, level of financial literacy and mortgage are not correlated with inflation expectations.[3]

Conclusions

In conclusion, higher consumer expectations in Greece (as compared to the euro area) are correlated with a more pessimistic view on income, financial situation, liquidity and credit access. This is in line with the study by Coibion et al. (2023), who argue that, in general, consumers do not tend to associate high inflation with higher demand and higher economic growth.[4] By contrast, they associate inflation with bad news and a more pessimistic forecast of the economy and their financial situation. In addition, Greek consumers aged 35-54 and 55+, who have the highest inflation expectations, were those who were affected the most by the Greek debt crisis, since their income declined significantly at the time.

3 Education, employment status (unemployment) and home ownership are not correlated with inflation expectations in Greece and the euro area.

4 See Coibion, O., D. Georgarakos, Y. Gorodnichenko and M. van Rooij (2023), "How Does Consumption Respond to News about Inflation? Field Evidence from a Randomized Control Trial", *American Economic Journal: Macroeconomics*, 15(3), 109-152.

Box 7

PROFIT MARGINS IN THE GREEK ECONOMY

Corporate profits are directly linked to the growth of production costs (wages, intermediate goods and fixed capital costs). Firms determine their desired profits by setting prices at a certain level in excess of costs in order to achieve remuneration on their capital. Developments in wages and profits, as captured by the GDP deflator, are important determinants of underlying inflation, as evidenced by the strong correlation between the GDP deflator and indicators of underlying inflation, such as the Harmonised Index of Consumer Prices (HICP) excluding energy and food, or HICP excluding energy. This box analyses developments in profit margins and their impact on domestic inflation using national accounts data.[1]

Macroeconomic calculations of profit margins are surrounded by a degree of uncertainty, as they may be affected by measurement errors in other economic variables included in the indirect profit margin estimation. For this reason, we attempt to proxy profit margin developments in the Greek economy by using two indicators that are widely employed in the Eurosystem's macroeconomic projection exercises: the profit margin indicator and the unit profit indicator.

Profit margin evolution over time

The high inflation of recent years provides the basis for a more detailed monitoring of the evolution of profit margins. In particular, input price increases (e.g. for energy) raise production costs for firms. These additional costs can either be absorbed, reducing firms' profit margins, or passed on to consumers and, provided market conditions allow for it, may increase firms' profit margins. The relatively small size of the Greek product market for goods and services relative to other euro area countries, and, in some cases, the insufficient implementation of adequate structural reforms during the three economic adjustment programmes for Greece, are key factors contributing to a lack of competition and, economic conditions permitting, a widening of profit margins.[2]

As mentioned above, two widely used measures for gauging profit margins are the unit profit indicator and the profit margin indicator. The unit profit indicator is defined as gross operating surplus and gross income per unit of real GDP.[3] A change in unit profits indicates that profits contribute to a change in the GDP deflator (GDP_DEFL). The profit margin indicator, on the other hand, is defined as the ratio of the gross value added (GVA) deflator (GVA_DEFL) at basic prices to unit labour costs (ULC), calculated as the ratio of compensation per employee to labour productivity.[4] A change in the unit profits indicates the profits' contribution to a change in the GDP deflator.[5] The unit profit indicator and the profit margin indicator are used as alternative measures of profit margins.

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1 Indicative sources include: ECB (2004), "Measuring and analysing profit developments in the euro area", Monthly Bulletin, Issue 1/2004; ECB (2009), "Developments in profit margins", *Monthly Bulletin*, Box 6, Issue 11/2009; Bragoudakis, Z. (2014), "An empirical investigation of the relationship between unit labour cost and price developments: The case of Greece", Bank of Greece; *Economic Bulletin*, No. 40, 31-58; Hahn, E. (2021), "The role of profit margins in the adjustment to the COVID-19 shock", ECB, *Economic Bulletin*, Issue 2/2021; Hahn E. (2023), "How have unit profits contributed to the recent strengthening of euro area domestic price pressures?"; ECB, *Economic Bulletin*, Issue 4/2023; and Central Bank of Malta (2023), "Recent developments in profits and forecast implications", *Outlook for the Maltese Economy*, 3, 13-16.

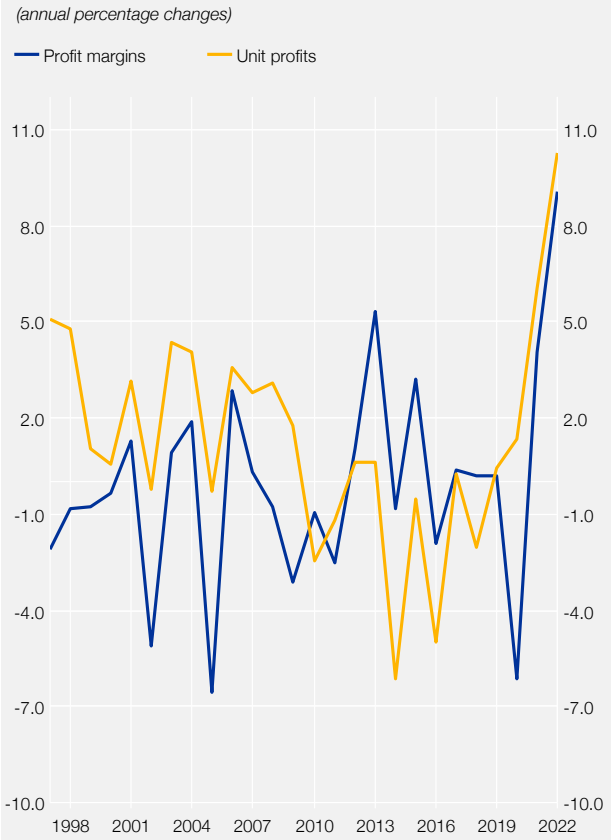
2 Bragoudakis, Z. and D. Sideris (2021), "Asymmetric price adjustment and the effects of structural reforms and low demand in the gasoline market: the case of Greece", *Journal of Applied Economics*, 24(1), 504-522; and Bragoudakis, Z. (2018), "Are price adjustments asymmetric in basic food categories? The case of the Greek food market", Bank of Greece, *Economic Bulletin*, No. 47, 75-92.

3 The indicators referred to in this analysis have been calculated using ELSTAT and Eurostat data.

4 More specifically, the profit margin indicator is calculated as: $PR\_MARG_t = GVA\_DEFL_t / ULC_t$, where GVA_DEFL_t, representing the gross value added deflator in year t, is defined as: GVA_NOM_t / GVA_REAL_t, and unit labour costs are obtained as: $ULC_t = CPE_t / LAB\_PROD_t$, where CPE_t is the compensation per employee in year t, while LAB_PROD, representing labour productivity, is calculated as: $GVA\_REAL_t / EMPL\_TOT_t$, where $EMPL\_TOT_t$ refers to the total workforce. Since GDP data by sector are unavailable, we use instead real GVA data (2015=100).

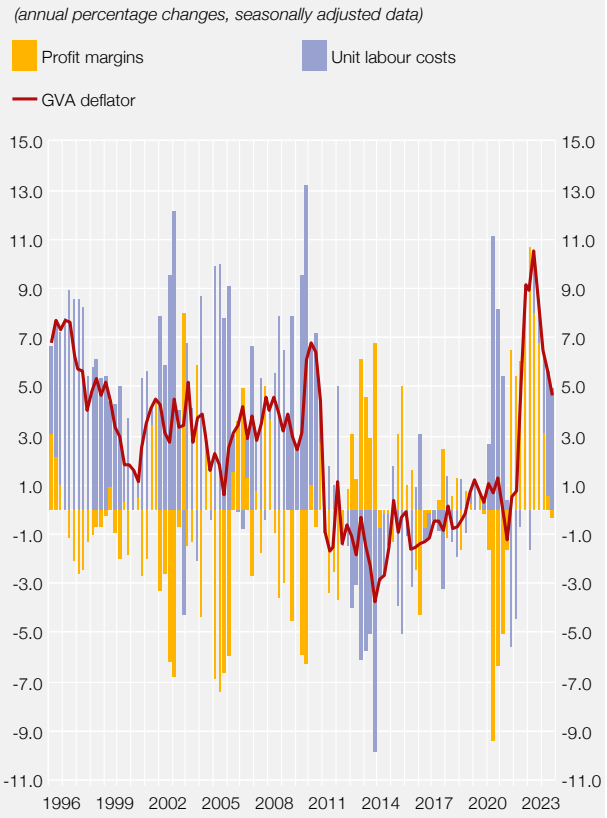
5 Assuming that compensation conditions remain unchanged, an increase in labour productivity will lead to a decrease in ULC.

Chart A Profit margins



Sources: ELSTAT and Eurostat.

Chart B Profit margins, GVA deflator and unit labour costs at quarterly frequency



Sources: ELSTAT and Eurostat.

Chart A illustrates the historical trends of the above two measures of profit margins for the Greek economy. Both indicators rose sharply to historic highs during the 2021-2022 period, as the post-pandemic increase in consumption and elevated production costs, notably for energy and imported intermediate goods, contributed to strong price increases and hence higher profit margins.[6] This suggests that the solid growth in profit margins in 2021-2022 was likely a result of both supply and demand shocks.[7]

The profit margin indicator provides a basis for a more detailed analysis of developments in profit margins, the gross value added deflator and unit labour costs.[8] Chart B suggests that, during the first quarters of 2023, profit margin growth declined considerably from the highs reached in 2021-2022 in the economy as a whole. This is likely to reflect an easing of production costs (mainly energy), as well as a further dampening effect from the positive rates of change observed in compensation per employee since the second half of 2022.

Profit margins by sector

As mentioned above, developments in profit margins are not only analysed at the level of the Greek economy as a whole (that is, for GDP measured on the output side), but also by production sector. More specifically, sectoral analysis is conducted at different levels of aggregation, i.e. separately for each GVA production sector but aggre-

6 For a discussion of the main drivers of high inflation rates in 2021 and 2022, see Bank of Greece (2023), Annual Report 2022, Box IV.1.

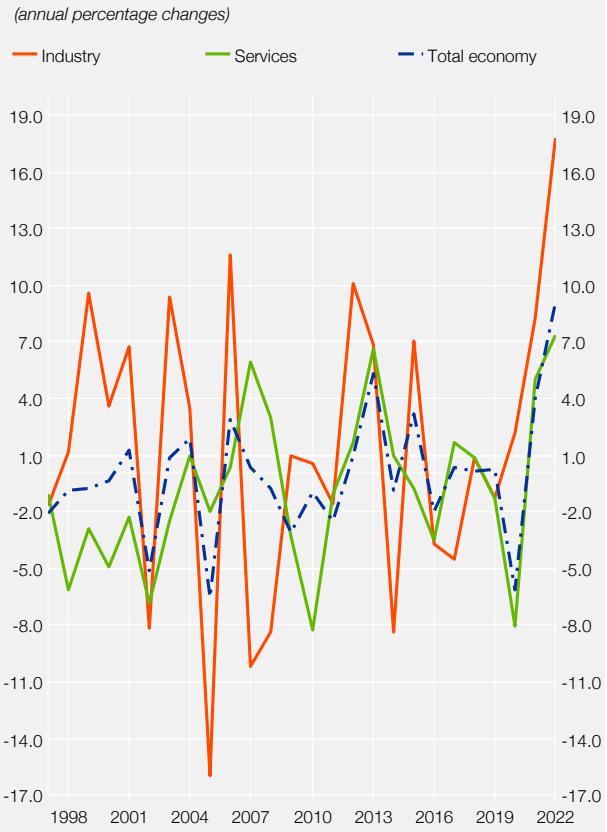
7 For more details on supply- and demand-side drivers of inflation, see Kofina, I. and F. Petroulakis (2023), "Drivers of inflation in the Greek economy", Bank of Greece, *Economic Bulletin*, No. 57, 31-46.

8 The profit margin indicator was selected instead of the unit profit indicator because available data enable this indicator to also be measured at the sector level, which is not the case for unit profits.

gated across the component sectors of two selected broad sectors: "industry" and "services".[9] Within these two sectors, as shown in the table, the bulk of gross value added in 1996-2022 was generated in: (i) "industry (excluding construction)", representing an average share of 13.9%; (ii) "trade, hotels and restaurants, transportation and storage" (25.6%); (iii) "real estate activities" (14.3%); and (iv) "public administration and defence" (19.4%).

In both industry and services, profit margins grew strongly in 2021 and 2022, as shown in Chart C. In the industry sector, they even hit decades-highs. This could be put down to a combination of high energy costs and rising demand over this period. In other words, it seems that not only did higher energy costs pass through to final prices, but also that final prices rose significantly more than would have been justified by this pass-through alone, due to heightened demand. Turning to the services sector, the positive rates of change in profit margins in 2021 and 2022 can be considered to have stemmed from the recovery of economic activity following the first wave of the COVID-19 pandemic, and the resultant increase in labour productivity, which drove down ULC. Relatively low, below-inflation growth in compensation per employee up to the end of the first half of 2022 was another factor behind the drop in ULC.

Chart C Profit margins in industry and services



Sources: ELSTAT and Eurostat.

The analysis of the evolution of the profit margin indicator for industry reveals a surge in the period between the outbreak of the health crisis in early 2020 and 2022, as not only did industrial production manage to stay on par with its pre-pandemic levels, but there was also an acceleration in GVA growth over this period. By contrast, the services sector in 2020 had experienced a sharp decline in production and negative GVA growth of -15.8%, which led to positive rates of change in ULC and, therefore, a decrease in profit margins. Despite the fact that the services sector entered the pandemic with negative GVA growth, the rapid economic recovery that followed in 2021, coupled with rising production costs, sent the sector's profit margins soaring at rates of 5.0% in 2021 and 7.4% in 2022.

Within these two sectors, the highest profit margins in 2021-2022 were in "industry (excluding construction)"; "trade, hotels and restaurants, transportation and storage"; "construction"; and "arts, entertainment and recreation" (see table). Notable exceptions include "information and communication" and "real estate activities",[10] where the profit margin indicator posted negative growth during this period, declining by a cumulative 6.0% and 10.9%, respectively.

9 "Industry" comprises "Mining and quarrying, manufacturing, energy, water supply, sewerage, waste management and remediation" and "Construction". "Services" comprise "Wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food services"; "Information and communication"; "Real estate activities"; "Professional, scientific and technical activities, administrative and support service activities"; and "Arts, entertainment and recreation, repair of household goods and other services".

10 When it comes to growth in the profit margin indicator for the "real estate activities" sector, there are caveats as to the representativeness of the relevant calculations. Such caveats arise from the fact that, although financial costs and depreciation charges may constitute the main component of total costs in some segments of the real estate sector, they are excluded from the calculation of gross value added. As a consequence, productivity in this sector appears higher than it actually is, affecting calculations of the sector's unit labour costs and of changes in the relevant profit margin indicator (Source: Eurostat, Archive: Real estate statistics NACE Rev. 1.1 Statistics Explained).

Profit margins by sector

(percentage points)	Average share in total GVA (1996-2022)	2019	2020	2021	2022
Total economy	100.0	0.2	-6.1	4.0	9.0
Agriculture, forestry and fishing	4.7	5.2	0.1	-9.0	1.0
Industry (excluding construction)	13.9	-3.3	1.6	6.5	19.5
Construction	4.8	10.7	1.7	3.6	12.4
Trade, hotels and restaurants, transportation and storage	25.6	-2.0	-10.3	11.1	17.0
Information and communication	3.6	-1.2	6.4	-1.0	-5.1
Financial and insurance activities	4.7	3.8	-2.0	2.4	5.1
Real estate activities[1]	14.3	-19.2	-11.2	-4.4	-6.5
Professional, scientific and technical activities	5.3	2.1	-9.1	0.5	5.1
Public administration and defence	19.4	-0.4	-3.0	1.1	2.2
Arts, entertainment and recreation	3.7	1.0	-16.3	7.9	7.2

Sources: ELSTAT and Eurostat.
1 See footnote 10 of the text.

In both industry and services, profit margin growth showed a pronounced downward trend in the first three quarters of 2023, which can largely be justified by the unwinding of excess pandemic demand, the fall in production costs through the reduction of input prices (energy, etc.), and the persistence of positive rates of change in labour costs. Industry, in particular, which was apparently more affected than services, experienced negative growth in profit margins of -3.2% in Q1 2023, -6.9% in Q2 2023 and -10.3% in Q3 2023. During the same period, profit margins in the services sector also declined from 2021-2022 levels, though to a lesser degree, and their growth rates stood at 4.1% in Q1 2023, -1.1% in Q2 2023 and 0.1% in Q3 2023, in line with the pattern seen for the Greek economy as a whole.

Conclusions

The euro area's high inflation readings over recent years have affected several economic variables, including profit margins. With specific regard to the Greek economy, the analysis of profit margin developments based on national accounts data revealed a significant increase in 2021-2022. More specifically, growth in the profit margin indicator for the economy as a whole exceeded historical averages by 4% in 2021 and 9% in 2022. Turning to broad economic sectors, in 2022 the rate of change in profit margins reached a historical high of 17.8% in industry and a notable 7.4% in services. Within these two broad sectors, the largest increases in profit margins were observed in "industry (excluding construction)", "trade", "construction", and "arts and entertainment". The relatively small size of the Greek product market and the insufficient implementation of adequate structural reforms – notably during the three economic adjustment programmes for Greece – are key factors contributing to a lack of competition and, economic conditions permitting, a widening of profit margins.

The rise in profit margins in 2021-2022 was likely due to firms' practice of setting higher prices to offset increased production costs, as well as to excess demand in the period following the post-pandemic reopening of the economy. These factors, alongside negative average growth in unit labour costs, seem to have driven up profit margins in 2021-2022. However, based on data from the latest quarters, profit margins seem now to have fallen back, driven by higher rates of change in compensation per employee since the second half of 2022 and a gradual normalisation of inflation rates mainly due to monetary policy tightening and the unwinding of excess demand.

Box 8

DEVELOPMENTS IN GREEK-ISRAELI TRADE AND THE IMPACT OF THE CONFLICT IN THE MIDDLE EAST

At the start of the fourth quarter of 2023, the military conflict between Israel and Hamas exacerbated geopolitical concerns, particularly for the South Eastern Mediterranean and the Middle East, raising questions about the potential impact on the Greek economy and, more specifically, on Greece's trade balance. This impact can be both direct and indirect, stemming from the conflict's effects on Greek-Israeli trade and from higher energy and other commodity prices and rising global uncertainty. This box primarily attempts to provide an overview of Greek-Israeli trade and analyse foreign direct investment (FDI) flows from Israel in order to assess the possible direct impact of the conflict on the Greek economy.

Balance of goods and services between Greece and Israel

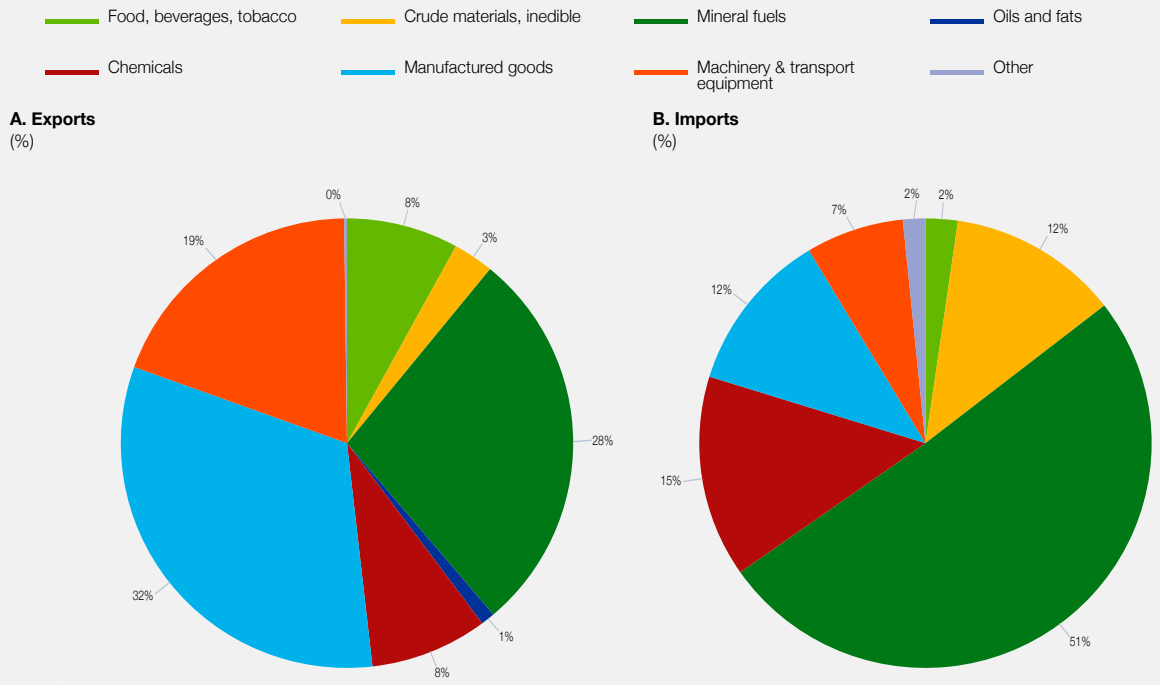
Greece's overall balance of goods and services with Israel is positive, with a surplus recorded both in the balance of goods and in the balance of services. However, the main driver of this surplus is the balance of services, with travel receipts being its main component. More specifically:

Balance of goods

According to Bank of Greece data, exports of goods to Israel accounted for about 1.4% of Greece's total exports of goods, while imports of goods from Israel accounted for less than 1% of the country's total imports over the past five years (2019-2023). Even in 2023, the balance of goods in the bilateral trade between Greece and Israel showed a surplus, albeit small (about €200 million). The main categories of goods exported to Israel include manufactured goods, mineral fuels and machinery and transport equipment, while imports consist mostly of chemicals and crude materials (see Chart A). Therefore, the bilateral trade of goods bet-

Chart A Structure of bilateral trade in goods between Greece and Israel by sector

(2019-2023 average)



Source: Eurostat trade statistics, COMEXT database.

ween Greece and Israel is relatively small and no significant negative impact on Greece's balance of goods is anticipated. More specifically, according to fourth-quarter 2023 data, total exports to Israel have not recorded a downturn.[1]

Balance of services and travel services

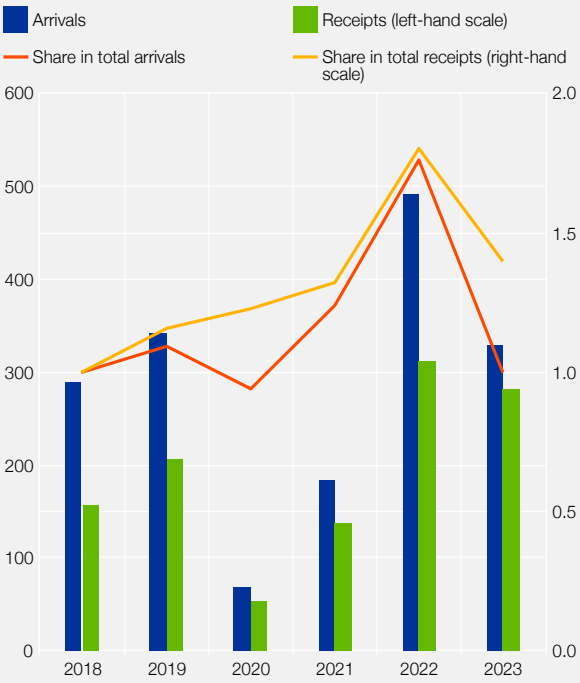
The balance of services surplus accounts for almost two thirds of the overall balance of goods and services surplus in Greek-Israeli trade, with travel receipts being its main component.

While Israel is not among Greek travellers' top destinations, Greece is one of the main travel destinations for Israeli residents. Outbound tourism from Israel is estimated at 3 million travellers in 2023.[2] Top international destinations for these travellers include, in descending order, Turkey, the USA, Greece and Austria, while top destinations in the Mediterranean include, by order of preference, Turkey, Greece, Cyprus, Spain and Italy.

Tourist arrivals from Israel to Greece and the corresponding receipts have followed an upward trend in recent years. In particular, the share of tourists from Israel in inbound travellers was close to 2% in 2022 in terms of both arrivals[3] and receipts, above the corresponding 2019 levels (1% in arrivals and receipts) (see Chart B). This points to a rising momentum of tourist arrivals from Israel, although their share in the total is small. The average expenditure per trip of Israeli travellers in Greece in 2022 exceeded the national average, while their average duration of stay was shorter compared with total travellers. These indicators show that travellers from Israel have a higher than average income level, although their length of stay is shorter.

Chart B Arrivals and travel receipts from Israel (2019-2023) and their shares in the respective totals

(arrivals in thousand travellers, receipts in EUR million, shares in percentages)



Source: Bank of Greece, Border Survey.

If the military conflict continues into 2024, the loss of receipts from Israeli travellers may be partly offset by a higher number of cruise ships calling at Greek ports due to cancellations of calls at Israeli ports. This would further enhance growth in the Greek cruise market, as also demonstrated by the construction of home-porting infrastructures in Greece.

Seat scheduling in incoming flights from Israel

Before the onset of the conflict, 112.9 thousand air seats from Israel had been scheduled for October 2023, corresponding to 11.8% of all seats in flights from Israel for the period January-October 2023.[4] However, the conflict led to extensive military conscription in Israel, which minimised travel abroad,[5] while a number of international

1 According to trade statistics (Eurostat, COMEXT database), in the fourth quarter of 2023, exports of fuels to Israel recorded a significant increase year-on-year.
2 UNWTO Tourism Recovery Tracker.
3 Israel is among the top 20 countries of origin for Greek tourism, although it holds a relatively small share in total arrivals and receipts.
4 According to seat distribution data from INSETE's Airdata Tracker.
5 With the exception of Israelis' arrivals in Athens who had no military obligations and opted to come to Greece in order to limit risks for themselves and their families. Meanwhile, the repatriation of Israelis still in mainland Greece and the islands continued, as they were required to report for duty due to the war in their country.

Scheduled air seats on inbound international flights[1] from Israel

A. Distribution of air seats per month - Summer period

Country of origin: Israel	April	May	June	July	Aug.	Sep.	Oct.	Total
Athens	45,674	48,139	52,523	50,737	50,496	49,243	39,907	336,719
Rhodes	14,749	16,822	24,466	33,329	33,195	31,634	25,306	179,501
Heraklion	10,105	11,050	18,338	33,023	33,081	30,473	24.752	160.822
Thessaloniki	4,786	7,101	6,931	7,836	7,632	7,835	5,891	48,012
Mykonos			4,676	8,377	8,066	7,892	5,794	34,805
Kos	945	189	3,591	5,859	5,859	5,670	4,914	27,027
Corfu		720	6,417	8,109	8,127	8,145	6,417	37,935
Chania		1,296	1,476	1,656	1,665	1,656	1,296	9,045
Aktion	360	1,620	1,800	2,340	2,520	1,440	1,440	11,520
Santorini	189		1,479	2,409	2,586	744	744	8,151
Kalamata				945	756	945	567	3,213
Total	**76,808**	**86,937**	**121,697**	**154,620**	**153,983**	**145,677**	**117,028**	**856,750**

B. Annual change (%) in air seats

Country of origin: Israel	April	May	June	July	Aug.	Sep.	Oct.	Total 2023/24
	-20.2%	-17.6%	-11.7%	-3.1%	-5.4%	-3.3%	2.1%	-7.6%

Source: Airdata Tracker INSETE, 22.3.2024.
1 Seats available for reservation in airline systems.

airlines (such as Cathay, Lufthansa and Air France) suspended flights to Israel. Thus, in the fourth quarter of 2023 air passenger arrivals from Israel at airports across Greece fell by 71% year-on-year.[6]

With hostilities still unfolding in the first quarter of 2024, the extent and duration of the conflict's impact is surrounded by uncertainty. The impact of the conflict seems to be reflected in scheduled air seats from Israel for 2024. More specifically, during the summer period of 2024 (April-October), the number of scheduled air seats from Israel to destination airports in Greece (Athens, Thessaloniki, Heraklion, Mykonos, Santorini, etc.) fell by 7.6% to 856.8 thousand seats (from 927.1 thousand seats in the corresponding period of 2023) (see table, panels A and B).

Foreign direct investment from Israel in Greece

Over the past five years (2019-2023),[7] foreign direct investment (FDI) flows from Israel to Greece represented on average only 1.3% of total FDI inflows, although Israel ranks second among Middle Eastern countries, behind the United Arab Emirates.[8] Investor interest from Israel mainly focuses on the real estate market, as investment from Israel held a share of 4.1% in total real estate FDIs in 2023. This development is also reflected in the number of permanent residence permits for investors (Golden Visa programme) granted to Israeli nationals, which almost doubled by end-2023 compared to 2022,[9] although still accounting for about 1.6% of the total number of such permits (against 1.0% at end-2022).

6 On an annual basis, air passenger arrivals from Israel to all Greek airports (excluding the Athens International Airport) fell by 15% compared to 2022 (482 thousand travellers from Israel in 2023, against 570 thousand in 2022), according to data from the Civil Aviation Authority.
7 The main countries of origin for 2023 include China-Hong Kong, Germany, the United Kingdom, the USA and Belgium.
8 It should be noted that FDI inflows to Israel from Greece (i.e. Greek investment in Israel) are close to zero and the relevant FDI stock is very low.
9 At end-2022 they stood at 101, compared with 188 at end-2023. Data from the Greek Ministry of Migration and Asylum, https://migration.gov.gr/wp-content/uploads/2024/01/ΠΑΡΑΡΤΗΜΑ-Β_Δεκέμβριος_2023_ΥΜΑ-GR-Ενημερωτικό-Δεκέμβριος-Β-Νόμιμη-Μετανάστευση.pdf (in Greek).

Conclusions

The direct impact of the armed conflict between Israel and Hamas on Greece's current account is estimated to be small, provided that military operations remain limited in space and time. If the conflict continues into 2024, but remains geographically limited, the decline in the number of travellers from Israel is not expected to have a significant impact due to the small size of this market and the diversification of Greece's inbound tourism markets, as well as the potential substitution by other dynamic markets, such as the US.

Of greater concern would be a further escalation of the war in the Middle East with the involvement of other countries and a protracted duration of the conflict. Such developments could have an indirect negative impact on the current account through channels mainly associated with fuel prices and increased uncertainty, which would affect the choices of all travellers, transport and supply chains. Already, attacks by Houthi rebels in the Red Sea have led to a rerouting of merchant ships away from this region, with vessels now following the longest route (around Africa) rather than sailing through the Suez Canal. More specifically, the balance of payments and, more broadly, the Greek economy are expected to be affected through the following channels: a) reduced external demand for Greek products and postponement of travels due to geopolitical developments and the fear of terrorist attacks, resulting in smaller inflows under the balance of payments; b) rising fuel prices, with upward pressures on the prices of oil, natural gas and, therefore, electricity; c) transport and supply chain bottlenecks triggering a rise in the prices of imported raw materials; and d) postponement of investment projects, reduced FDI flows and possibly tighter financing conditions in the global and domestic economies due to increased uncertainty and risk repricing.

Box 9

THE TWIN DEFICITS IN THE GREEK ECONOMY: RECENT DEVELOPMENTS AND PROSPECTS

The Greek economy has historically been characterised by high current account deficits. Nevertheless, the past decade saw a gradual improvement in competitiveness and an increase in the export orientation of the economy, which contributed to a reduction in the current account deficit, from close to 15% of GDP in 2007-2008 to 1.5% at end-2019. However, the outbreak of the pandemic in 2020 and subsequently the war between Russia and Ukraine halted the improvement, driving the current account deficit to levels above 6% in 2020-2021 and over 10% in 2022, also as a result of higher energy prices. 2023 saw a significant decrease of the current account deficit, to 6.3% of GDP, with further improvement expected in the coming years. Moreover, extraordinary fiscal interventions in the form of support measures for addressing the pandemic, which were launched in 2020 and continued into 2021, compounded by fiscal measures in response to high energy prices due to the war between Russia and Ukraine in 2022, led to a worsening of the budget balance during these years. However, the withdrawal of these measures since 2023, helped to improve the budget balance. Specifically, the general government budget balance (national accounts data, convergence criterion), which was in surplus (0.9% of GDP) in 2019, turned into a deficit of 9.7% of GDP in 2020, 7% of GDP in 2021 and 2.4% of GDP in 2022 and is estimated at a deficit of 2.3% of GDP in 2023.

A conjunctural re-emergence of the twin deficits, i.e. the external deficit and the fiscal deficit, raises questions about whether the Greek economy will return to its pre-pandemic and pre-war state and resume its upward trajectory in 2022, while the fiscal balance improved, the current account further deteriorated. This analysis provides an overview of recent developments in the current account in the context of the twin deficits hypothesis and attempts to estimate whether the fiscal deficit contributes to the current account deficit, also quantifying their correlation in the recent past, based on information available so far.

The twin deficits

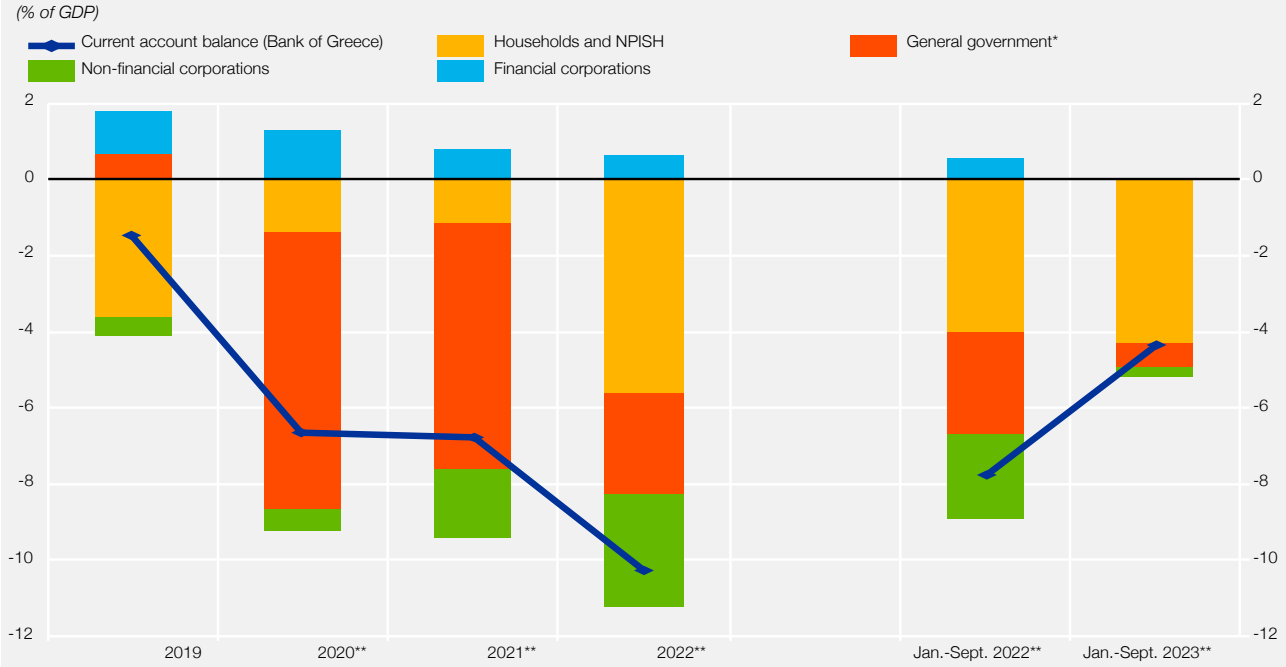
According to the system of national accounts, the current account deficit can be associated with the general government deficit via the gap between saving and investment as follows:[1,2]

$$CAB = S - I = (S_p - I_p) + (S_g - I_g) \quad (1)$$

where S is gross saving and I is gross capital formation (investment) of the private sector (p) and the government sector (g).

The two terms of the sum denote the saving gap of the private sector (households and firms) and of general government, respectively. Thus, identity (1) links the budget balance ($S_g - I_g$) with the current account balance.[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.

Chart A Evolution of the current account balance and the saving gap (S-I)



Sources: Bank of Greece for balance of payments data, ELSTAT for savings-investment data and Bank of Greece calculations.
* The saving gap of general government approximates the budget balance.
** Provisional data.
Note: Due to different data sources, the saving gap is not identical to the current account balance.

1 For an analysis of current account developments in terms of saving and investment during 2000-2018, see Bank of Greece Annual Report 2014, Box IV.4.

2 Gross domestic product (GDP) is defined as: GDP = C + G + I + X - M, where C and G are household and government consumption, respectively, I is government and private sector gross capital formation (investment), 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 (CAB) is defined as: CAB = X - M + NY + NCT, where NY and NCT are net income and net current transfers from abroad. Given that gross national disposable income (GNDY) is defined as: GNDY = C + G + I + CAB and gross saving is defined as: S = GNDY - C - G, CAB can be expressed as the gap between saving and investment. For a detailed calculation of the current account based on identity (1), see IMF (2009), Balance of Payments and International Investment Position Manual, Sixth edition (BPM6), Chapter 14.

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 cover investment activity, the current account balance is negatively affected, as this gap must be covered by the external sector of the economy.

Following a widening in the 2020-2021 period as a result of the pandemic, the saving-investment gap of general government registered a significant contraction in 2022, which continued into the first nine months of 2023. This is mainly attributable to a rise in saving and chiefly reflects a recovery in tax revenue as a result of a rebound in economic activity, as well as a gradual withdrawal of fiscal measures to address the pandemic and higher energy costs. The household saving-investment gap followed an opposite trajectory, expanding in 2022, as household saving decreased and household investment increased. Lower household saving mainly reflects stronger consumption, which more than offset an increase in households' disposable income. The first nine months of 2023 witnessed a further increase in household investment, while household saving, although remaining negative, registered a small improvement year-on-year. A worsening of the saving-investment gap of non-financial corporations in 2022 is associated with an increase in their investment, which was larger than the corresponding rise in their saving to finance this investment. In January-September 2023, the gap contracted substantially, as the saving of non-financial corporations covered almost the total of their investment. Overall, a contraction in the general government saving gap only partially offset the broadening of the corresponding gap primarily for households and secondarily for non-financial corporations, leading to a deterioration of the current account in 2022 (see Chart A).[4]

An empirical investigation of the twin deficits hypothesis after the pandemic

Previous studies on the Greek economy empirically confirm the validity of the twin deficits hypothesis in the Greek economy, examining different periods.[5] On the basis of a simple linear model[6] estimated for the period Q1 2002-Q3 2023 that links the two deficits with the current account as the dependent variable, the estimated long-term correlation between the two deficits is positive and statistically significant, though not particularly strong (almost 0.24).[7] This implies that improvements in the fiscal deficit translate into marginal improvements in external imbalances, as reflected in the current account.

The abovementioned model is an average estimate of the degree of correlation during the period under review. An alternative linear model[8] using the same set of variables illustrates the correlation between the twin deficits over time. It appears that the period prior to the adoption of the first economic adjustment programme was marked by a strong increase (decrease) in the degree of correlation; this trend was reversed after 2010 during the period of fiscal stabilisation (see Chart B). Moreover, following the pandemic and at the beginning of the war in Ukraine, the correlation of the fiscal deficit with the current account appears to increase slightly (0.31), before declining through to the third quarter of 2023 (0.21) and converging towards the historical average. This highlights the temporary nature of the twin deficits at the current juncture, as reflected in a comparatively lower degree of correlation compared with the historical correlations of the two deficits.[9] Hence, the return of the Greek economy to

4 The data used in the analysis are drawn from the quarterly 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).

5 See for instance Chronis, P. and G. Palaiodimos (2014), "Optimal fiscal policy mix and current account imbalances: the case of Greek economy", Banca d'Italia workshop on Fiscal Policy and Macroeconomic Imbalances, No. 16, 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; 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.

6 A linear model illustrating the long term relationship between quarterly variables of the current account balance (% of GDP); fiscal balance (% of GDP); credit to the private sector (% of GDP); and real effective exchange rate, is employed suggesting causality from the fiscal balance to the current account balance, using Fully Modified OLS estimators (given that the series are non-stationary and cointegrated).

7 The estimated pass-through is about 0.24, i.e. an improvement (deterioration) of 1 percentage point (pp) of GDP in the fiscal balance leads to an improvement (deterioration) of 0.24 pp in the current account balance.

8 Using least squares recursive coefficients.

9 Similar results are obtained using the alternative ARDL (autoregressive distributed lag) methodology.

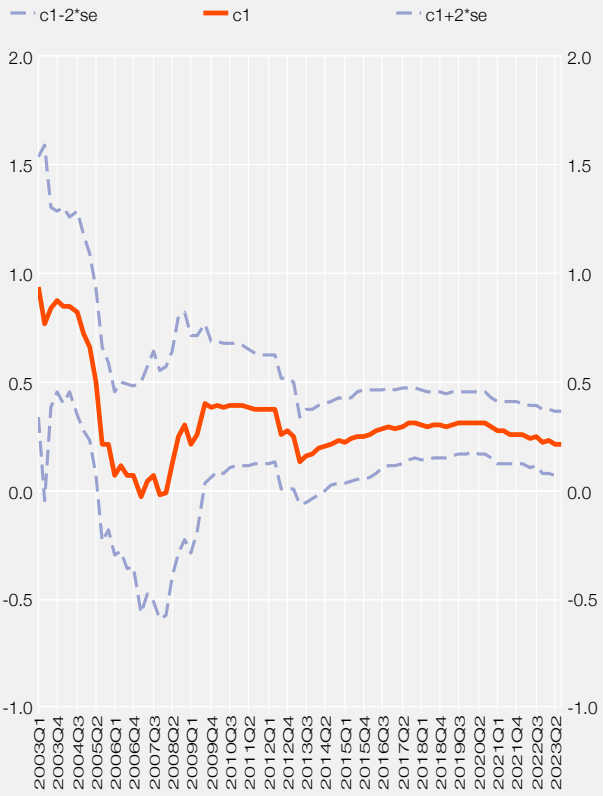
fiscal surpluses should, ceteris paribus,[10] contribute marginally to a further improvement in the current account over the short to the medium term.

Conclusions

The return of the twin deficits, initially as a result of the COVID 19 pandemic and then due to the Russia-Ukraine war, should –on the basis of recent data releases– be regarded as temporary, as it is largely associated with the fiscal expansion that took place during the pandemic and developments in energy prices during the same period. This conclusion is confirmed by the empirical analysis, which also reveals that the withdrawal of the emergency fiscal policy measures during 2022 and 2023 and the gradual return to fiscal sustainability should henceforth, ceteris paribus, have a limited contribution to a further improvement in the current account.

The increase in the current account deficit in 2022 raised concerns about the country's possible return to conditions similar to those observed in 2007-2008, which led to the 2010 crisis. However, a number of features highlight the conjunctural differences, such as the reduced budget deficit, improved price and cost competitiveness since 2010 and a higher share of goods and services exports in GDP. Nevertheless, the above-mentioned qualitative differences between the 2007-2008 and 2022 periods should not give rise to complacency. If the current account is to further improve, structural reforms should be accelerated, with the aim of further enhancing the competitiveness and export orientation of the economy, as well as promoting the share of Greek goods and services in foreign markets. In this context, effective and timely use of NGEU funds and promotion of reforms set as milestones for the disbursement of those funds are expected to play a significant role. Lastly, Greece's credit rating upgrade to investment grade, which is expected to keep borrowing costs at lower levels, should also boost the necessary –public and private sector– investment.

Chart B Recursive coefficients for the impact of the fiscal balance on the current account



Source: Bank of Greece calculations.
Note: c1: linear model-recursive LS coefficients, se: standard deviation.

10 It should be noted that other determinants such as (unexpected) supply and demand shocks currently affecting inflation could also have an impact on the current account.

Box 10

MARITIME CLUSTERS: GLOBAL EXPERIENCE AND THE CASE OF GREECE

The Greek-owned fleet accounts for almost 1/6 of the world's tonnage and a large part of it is managed in Greece. The sector's activity would thus benefit from a cluster of maritime enterprises sharing common geographical and business features. This box first explains the concept of business clusters and discusses their significance for the Greek and European economies. Then, acknowledging the pivotal role of shipping in Greece's economic and social life, it examines the functioning and the key success factors of a maritime cluster.

Clusters in Europe

A "business cluster" is a geographic concentration of interconnected businesses that opt to cooperate in order to enhance their competitiveness and foster innovation. This collaborative approach allows the members of the cluster to tap business opportunities through enhanced knowledge sharing, access to financing on potentially more favourable terms and achieving economies of scale. At the core of a business cluster lies the notion that, while individual firms maintain their autonomy, the cluster itself operates as a gathering that benefits all participating businesses, tapping both the resources and the business environment. In this sense, it fosters research/development and innovation, attracts skilled human resources, disseminates knowledge, nurtures new business startups and ultimately promotes industry and regional growth.[1] The cluster can be managed formally, i.e. by a dedicated body overseeing its activities and fostering synergies, or informally, taking advantage of the geographical proximity of enterprises and organisations within the cluster.

At the EU level, clusters are identified as a driver of innovation, excellence and competitiveness. This is because a cluster combines the advantages of a sector of activity, the research centres specialising in this sector and the competent authorities. As early as 2008 the European Commission concluded that "clusters play an important role in driving competitiveness, innovation and job creation in the EU".[2] Hence, both the European Commission and the European Council have endorsed initiatives such as the European Clusters Alliance aiming at stimulating practical cooperation between regional governments,[3] or the European Cluster Collaboration Platform (ECCP), which merged with the European Observatory for Clusters and Industrial Change in 2020. Today, more than 1,500 clusters are scattered across over 200 EU regions,[4] while in terms of employment they account for almost 25% of total employment in the EU.[5]

In Greece, under Law 4399/2016[6] (Article 52), business clusters are identified as eligible beneficiaries and the role of the cluster's management body is defined, implicitly underscoring its importance. This management body "acts as the authorised representative of the cluster, responsible for pursuing and implementing activities aimed at its growth, and adding value to each of its participants."

According to the assessment carried out by the ECCP in 2022,[7] the score of Greece in terms of maturity of cluster policy at the national level is 5 out of 8. The methodology used scores: (a) the existence and scope of the national policy; (b) its continuity; (c) evidence of its performance; and (d) the existence of cluster support instruments. (For example, the Netherlands, Norway, Germany and France score 8/8, Denmark, Austria and Estonia 7/8.)

The importance of shipping for the Greek economy

The Greek-controlled fleet ranks first globally in terms of tonnage (dwt), accounting for more than 17% of the world fleet.[8] However, only 13% of the Greek-controlled fleet is registered under the Greek flag, although a large

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1 The literature on the advantages of geographic concentration dates back to 1890, when Alfred Marshall referred to localised industries (Marshall, A. (1890-1920/2009), *Principles of Economics* [1890], Complete 8th Edition, New York: Cosimo Classics), while the term "cluster" was coined by Porter (Porter, M. (1990), "The Competitive Advantage of Nations", *Harvard Business Review*, March-April, 73-91). For Greek shipping in particular, see the University of Piraeus research paper entitled: *Maritime clusters: exploring the case of the Greek maritime cluster and its potential role in steering the Greek economy out of crisis*, Department of Maritime Studies, 2014 (in Greek).

2 European Commission, *Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy*, COM (2008) 652 final/2.

3 European Council (2006), Council conclusions on a broad-based innovation strategy: Strategic priorities for Innovation action at EU Level, 2769th Competitiveness (Internal Market, Industry and Research) Council Meeting, Brussels, 4.12.2006.

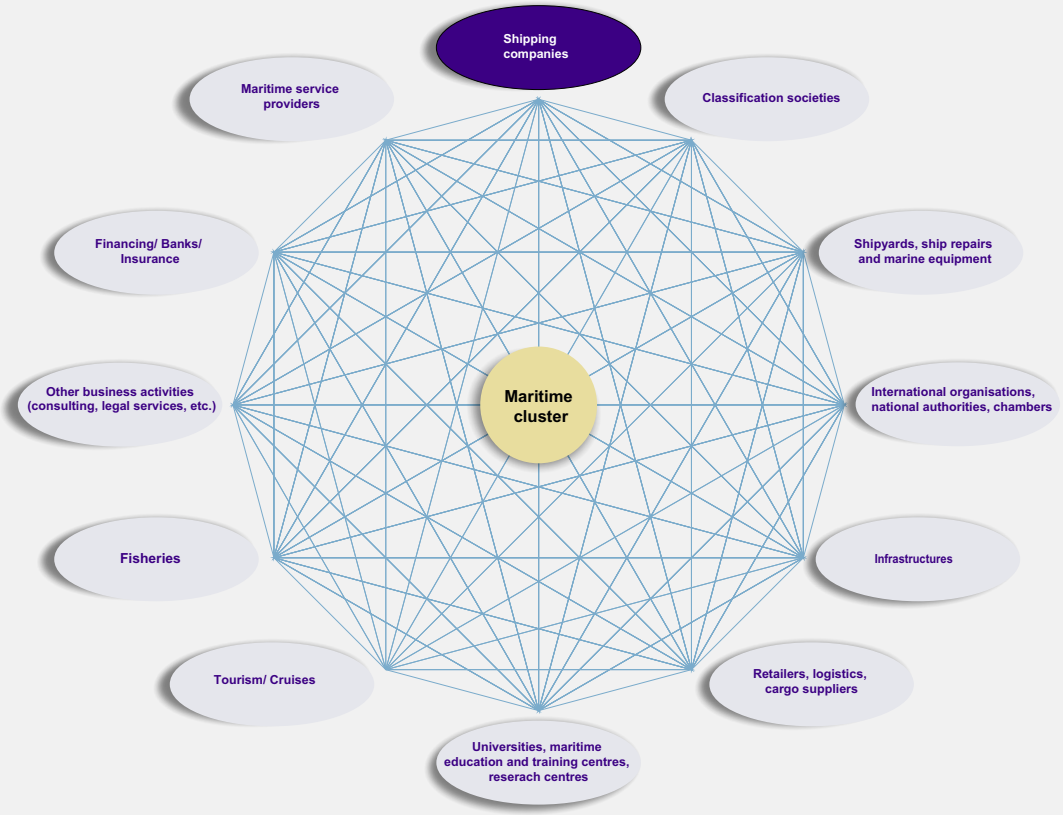
4 For more details, see the interactive map of the European Cluster Collaboration Platform. Although the map does not show a national cluster association, it does feature a cluster located in Northern Greece.

5 European Commission, Cluster policy.

6 "Institutional framework for establishing Private Investment Aid schemes for the country's regional and economic development - Establishing a Development Council and other provisions", Government Gazette A 117/22.6.2016.

7 ECCP (2022), Country factsheet: Greece.

8 UNCTAD, Review of Maritime Transport 2023, UN, Geneva.



Source: Bank of Greece (adapted from Innovation types in the Finnish maritime cluster).

part of it is managed in Greece. Effectively, ship management is the core operation of the Greek shipping industry, around which a variety of supporting and other related activities are developed.[9]

To illustrate the importance of shipping activity in the Greek economy, it is worth mentioning that, under the current account, sea transport receipts, which in 2022 reached an all-time high of EUR 21 billion, over the past five years (2019-2023) accounted for more than 42% of total services receipts and 21% of total exports of goods and services. A recent study estimates the total share of Greek-owned shipping in GDP at 7.9% (2018-2021 average).[10] However, according to the Input-Output Tables,[11] over 60% of direct inputs in the sea transport services sector in Greece are imported, with the remainder being domestic. The primary input, both imported and domestic, is from intra-industry sources (i.e. from within the maritime sector itself), while the second most significant input is associated with the fuel industry.[12] Substituting imports with domestically produced intermediate products could potentially enhance the contribution of Greek shipping to the economy by decreasing the sector's reliance on imports while enhancing the prospects for boosting the exports of companies within a shipping cluster.[13]

Maritime clusters

A shipping cluster may encompass businesses engaging in purely maritime activities (fisheries or sea transport of passengers and cargo), alongside a wide range of ancillary services including port services, outfitting, logistics,

9 See also: Vaggelas, G.K. and A.A. Pallis (2019), "Configuration and Prospects of the Piraeus Shipping Cluster", *SPOUDAI – Journal of Economics and Business* [Online], 69(1-2), 3-17.
10 IOBE (2023), "The contribution of Shipping to the Greek economy: prospects and challenges".
11 Source: Eurostat, Symmetric Input-Output Tables for 2020.
12 Other important inputs include storage, architectural and engineering services, financial services and retail trade.
13 See, for example, IOBE (2022), "Marine equipment manufacturing: Trends, prospects and contribution to the Greek economy".

marine insurance, shipyards, nautical and leisure activities, transport, energy, services, research and innovation, shipping finance, legal services, education and training.

Maritime clusters can play a crucial role in both the sector and the national/regional economy. For instance, in the Netherlands, the maritime cluster had a total output of approximately EUR 55.1 billion in 2017 and employed 260,000 individuals. Moreover, a substantial number of suppliers offering related products and services were integrated within the same cluster, with over half of firms' expenditures allocated within its ecosystem.[14,15]

The largest maritime cluster in Greece is Maritime Hellas, established by the Hellenic Chamber of Shipping, the Union of Greek Shipowners and the Piraeus Chamber of Commerce and Industry. It currently comprises 234 members (2023 data) and it brings together businesses from seven sectors: (a) ship management; (b) maritime technology, research and education; (c) manufacturers and dealers of marine equipment; (d) sea tourism; (e) maritime tradition and water sports; (f) administrative services-services to shipping; (g) logistics and forwarding services,[16] and aims to enter three new markets: marine equipment manufacturing, green shipbuilding and green ship breaking.

Success factors – Proposals

At the heart of a business cluster is the simultaneous growth of a sufficient number of different businesses, tapping synergies and fostering healthy competition. In particular, the gathering, unlike each individual firm, can benefit from more favourable and quicker access to resources and sources of financing, while synergies among individual businesses help to overcome external difficulties more easily, since the strength of a number of businesses within the cluster can support and make up for the weaknesses of others.

However, the success of a cluster is not solely determined by the willingness of its members. Three key factors contribute to this, namely:

- Support by regional/national authorities fostering an environment in which clusters can flourish,[17] e.g. by offering incentives or integrating them into regional investment projects.

- The engagement of educational institutes and research centres within the cluster, which contribute by providing vocational training and by staffing businesses within the cluster with highly skilled personnel. Additionally, they play an active role in promoting research and adopting innovation.

- A clear structure. To operate effectively and thrive, a cluster should be perceived as an autonomous entity, where members share common goals and are committed to fostering a network of knowledge for the benefit of all. It should have a well-structured organisation, clear governance, sufficient financial and human resources, expertise, and the capability to tap or, most importantly, attract available resources.

In conclusion, Greek shipping –especially amid ongoing historical changes in the regulatory framework, fuel use, geopolitical dynamics and shifts in global trade– may benefit from the successful operation of a dynamic shipping cluster. At the national level, this could benefit the Greek registry, as it promotes the Greek flag. Moreover, implementing a national policy may be more feasible at the cluster level than at the individual firm level, which could be particularly beneficial in advancing green solutions for shipping.

14 Li, M. and M. Luo (2021), "Review of existing studies on maritime clusters", *Maritime Policy & Management*, 48(6), 795810, doi: 10.1080/03088839.2020.1802786

15 De Langen, P.W. (2002), "Clustering and performance: the case of maritime clustering in the Netherlands", *Maritime Policy & Management*, 01/3, 209-221, doi: 10.1080/03088830210132605

16 See: https://www.maritimehellas.org/el/.

17 "… an environment in which clusters can flourish": Opinion of the Committee of the Regions on 'Clusters and cluster policy'.

Box 11

THE KEY FEATURES OF FISCAL EXPENDITURE RULES

The primary objective of fiscal rules is to introduce incentives and restrictions in order to ensure fiscal prudence and promote sustainable policies. The implementation of fiscal rules became necessary, as the past few decades saw: (i) a rise in deficits and public debt-to-GDP ratios across most advanced economies;[1] and (ii) a tendency among governments to pursue procyclical fiscal policies (amid a strong political cycle), leading to considerable macroeconomic imbalances and instability. Ideally, fiscal rules should be designed to promote in tandem fiscal discipline and macroeconomic stabilisation, taking into account key elements such as early monitoring mechanisms and appropriate corrective procedures, with a view to ensuring their effectiveness. Surveillance mechanisms include, among other things, operational rules for the monitoring of various indicators serving as operational tools, such as expenditure growth, revenue growth, the change in the structural fiscal balance and the pace of reduction in public debt.

The recent agreement on the reform of the economic governance framework of the European Union (EU),[2] with the long-term sustainability of public debt at its core,[3] includes the primary expenditure rule as the main operational tool to achieve fiscal targets. Expenditure rules present a number of features that make them a more effective tool in policymaking relative to other types of fiscal rules,[4] as they can promote a better balance between the fiscal discipline and macroeconomic stabilisation objectives.[5]

This box seeks to shed light on the key characteristics of this type of fiscal rule, focusing on: (i) the design of the expenditure rule, based on the experience of different countries under the current fiscal framework and the specification of a number of desirable features, as well as their incorporation into the reform proposal; (ii) their effectiveness in pursuing a counter-cyclical fiscal policy; and (iii) EU countries' compliance with the current European "expenditure benchmark".

Design

Expenditure rules have the following main characteristics:[6]

- They are aimed at public expenditure, i.e. the budget item that is **more directly under the government's control, thus reducing uncertainty** as to the achievement of a specific fiscal target and ensuring **greater accountability**.
- The government is publicly committed to a medium-term **visible and operational target**. This creates a **transparent and simple system for monitoring compliance** with fiscal rules. Contrary to alternative indicators, such as the structural balance, expenditure rules **rely less on unobservable variables** (such as the output gap) and are therefore more transparent and easier to monitor in real time.
- They are aimed at the **elimination of procyclical expenditure overruns** against the initial targets, which are the key factor behind large deficits and increasing debt ratios and a source of fiscal risks.

1 According to the International Monetary Fund (IMF, World Economic Outlook Database, October 2023), the debt-to-GDP ratio increased by 42 percentage points on a cumulative basis over the 2001-23 period in advanced economies. The budget deficit also followed an upward trend (2001-10 average: 3.7% of GDP; 2011-20 average: 4.2% of GDP; 2021-23 average: 5.3% of GDP).
2 Council of the EU, Press Release, 21.12.2023.
3 For further details about the proposal of the European Commission on the new fiscal rules, see EC proposal for a regulation: New economic governance rules fit for the future, 26.4.2023.
4 E.g. structural budget balance rule, debt rule, or revenue rule.
5 Ayuso-i-Casals, J. (2012), "National Expenditure Rules – Why, How and When", *European Economy – Economic Papers*, No. 473, European Commission.
6 Belu-Manescu, C. and E. Bova (2020), "National Expenditure Rules in the EU: An Analysis of the Effectiveness and Compliance", European Commission Discussion Paper No. 124.

- **They do not hamper the operation of automatic stabilisers**, especially on the revenue side, and discourage higher expenditure in good times.

- They can greatly **improve the composition of government expenditure** by breaking down the overall expenditure ceiling into separate ceilings for each main expenditure item, which in turn provide clear policy guidance and set priorities for the relevant policymakers.

Most EU countries have adopted the "expenditure benchmark" in the context of the Stability and Growth Pact (SGP) reform in 2011 ("Six-Pack" reform).[7] Notwithstanding this, the European expenditure rule was never actually implemented in the context of monitoring compliance with the Fiscal Compact. As a result, the national expenditure rules that are currently in force in different Member States vary in terms of legal status,[8] scope of coverage of public expenditure,[9] reference time horizon and the possibility of revising the expenditure benchmark,[10] as well as the degree of automatic triggering of the correction mechanism in the event of non-compliance.

In light of the above, the existing national expenditure rules are weakly designed in comparison with other fiscal rules, on the basis of the Fiscal Rule Strength Index (FRSI)[11] of the European Commission.[12] Looking into the individual elements of the index, the binding nature of expenditure rules and the ease of their monitoring appear to be the main advantages that enhance their effectiveness in achieving the objective of fiscal discipline, if properly designed. By contrast, the main disadvantages of expenditure rules are reduced implementation incentives in good times, as well as lack of an effective sanction mechanism in case of non-compliance.

The appropriate design of expenditure rules should have a number of desirable features:

- The target should be defined as either the **growth rate** or the **level of expenditure (in euro)** so as to avoid procyclicality in fiscal policy.

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7 The European "expenditure benchmark" provides that the annual growth rate of expenditure must not exceed the medium-term growth rate of potential GDP in nominal terms, unless such expenditure increases are matched by discretionary revenue measures.

8 In some countries expenditure rules are legally binding under their constitutions, whereas in other countries they are enshrined in statute law or government practice. Another important institutional feature of expenditure rules is the degree of monitoring and enforcement by an independent fiscal body (e.g. Fiscal Board).

9 For example: central government, general government, local and regional governments, social security sector, autonomous entities (for federal states).

10 The ease with which expenditure ceilings can be modified and the type of such modifications give a good sense of the binding nature of the rule.

11 The **Fiscal Rule Strength Index** (FRSI) or **design index** is a composite indicator that is calculated for each fiscal rule after assessing five specific dimensions: (1) legal base; (2) binding nature of the rule; (3) mechanisms for the monitoring and enforcement of the rule; (4) existence of ex-ante defined correction mechanisms in case of non-compliance; and (5) resilience to exogenous shocks outside the control of the government.

12 The Commission's database comprises data about the four principal rules of the current SGP: **(1) Deficit rule:** the general government deficit must be equal to or below 3% of GDP or, in case that this threshold has been exceeded, the deviation must remain small (up to 0.5 percentage points of GDP) and must be limited to a single year. **(2) Debt rule:** the general government debt-to-GDP ratio must be below 60%. In case that this threshold has been exceeded, the debt-to-GDP ratio must be reduced by 1/20 of its distance to the 60% reference value on average per year over a period of 3 years. **(3) Structural budget balance rule:** the general government structural budget balance must be equal to or higher than the medium-term objective (MTO), implying a relatively balanced budget in structural terms. The MTO is different for each country depending on its debt level. In case that the MTO has not yet been met, the structural balance must be improved by at least 0.5 percentage points of GDP per year or by its remaining distance to the MTO per year, if this distance is smaller than 0.5 percentage points of GDP. **(4) Expenditure rule:** 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.

- In the short term, it is advisable that annual targets are expressed in **nominal terms**, for reasons of transparency and better monitoring.[13]

- **Interest payments, cyclically sensitive items** (cyclical expenditures, e.g. unemployment benefits), **public investment** and **EU co-financed programmes** should be excluded from the rule.

- The expenditure rule should also cover **social security spending**, which accounts for a substantial part of total public expenditure in most EU countries.

Regarding the time horizon, a multi-annual rule is better than a rule that only sets a target for one year, since medium-term planning is more binding and circumvention becomes more difficult. Annual expenditure ceilings allow for some discretion on the part of policymakers who can freely adjust their levels, failing to maintain fiscal discipline. Against this backdrop, targets that are set on a yearly basis do not exercise a permanent constraint on fiscal policy and suggest a weak fiscal governance framework. Conversely, expenditure rules that are embedded in medium-term budgetary frameworks, as part of a comprehensive fiscal strategy, may better adapt to country-specific economic circumstances, while making stabilisation and consolidation objectives more compatible. Furthermore, a medium-term perspective in the management of public expenditure allows taking into account the future impact of current spending policies on economic growth rates and setting expenditure targets in line with the macroeconomic outlook, tax revenue developments and the degree of tax compliance, public debt sustainability and other policy priorities (e.g. green and digital transitions).

The recent agreement reached by the ECOFIN (see Box 12) on the reform of the fiscal rules provides for an expenditure rule which encompasses all of the above desirable features. In greater detail, **net primary expenditure**, i.e. nationally financed expenditure excluding interest payments and cyclical unemployment expenditure, net of discretionary revenue measures, is set as a single indicator for monitoring compliance with the new fiscal framework. It should also be noted that national expenditure on EU co-financed programmes is excluded, thereby creating more incentives for public investment. According to the proposed rule, the growth rate of net primary expenditure should not exceed the medium-term growth rate of potential output in nominal terms. Thus, any fiscal space would be used either to build up fiscal buffers or to reduce public debt, while any extraordinary fiscal measure on the expenditure side should be financed by a revenue-increasing measure of an equal size. Expenditure ceilings are defined on a multi-annual basis and reflect the required structural fiscal adjustment that Member States must implement in order to fulfil the fiscal sustainability criteria, as set out in their national medium-term fiscal-structural plans. In addition, a control account will be set up to monitor deviations from the agreed net primary expenditure paths. With regard to compliance and enforcement, an excessive deficit procedure will be triggered in the event that – among other things – the deviations recorded in the control account of the Member State either exceed 0.3 percentage points of GDP annually or 0.6 percentage points of GDP cumulatively over the fiscal adjustment period.

Counter-cyclicality – Effectiveness

Properly designed expenditure rules contribute to the promotion of counter-cyclical fiscal policies, while sustaining growth-enhancing expenditure targets. An expansionary fiscal stance during an adverse shock is

13 The definition of the annual expenditure target in nominal terms ensures that the target is not modified/revised at the budget execution phase to accommodate changes in inflation. If the target is expressed in real terms at the planning phase of the budget process, compliance is not affected by inflation developments and it may be relatively difficult to measure and assess its fulfilment at the execution phase (it should be noted that price deflators vary across different categories of public expenditure and may also differ from the GDP deflator). Moreover, the translation from the real ceiling to a nominal spending figure may open the door to revising the deflator in order to obtain additional spending room, thus undermining the transparency and credibility of the fiscal framework. Therefore, a real expenditure target may not be appropriate if it is used as an operational target in the short term, as it may imply significant adjustments in line with price developments and frequent in-year revisions, which may also complicate the annual budgetary execution. However, real targets may be more appropriate over a medium-term perspective, in particular by adjusting multi-annual ceilings in line with inflation surprises. Real expenditure targets are regarded as more suitable if the government does not aim at fiscal discipline but, rather, intends to keep the volume of goods and services provided by the public sector stable.

feasible if revenue windfalls (during a positive shock) have created fiscal space. The counter-cyclicality of expenditure rules is enhanced if automatic stabilisers on the expenditure side are excluded from the operational indicator and are let free to accommodate a negative shock. Moreover, observance of the expenditure rule does not exclude the preservation of growth-friendly expenditure with a high multiplier effect (such as public investment), while leading to a greater restraint on other expenditure categories. Empirical studies have shown that when fiscal expenditure rules are in place and highly complied with, procyclicality in fiscal policy is reduced, as higher fiscal buffers can be built to support the economy in the face of negative shocks.[14]

Expenditure rules, where applied in the EU, have played a key role in the most ambitious and successful fiscal consolidation plans over the past decades. As a consequence, these rules are associated with a high degree of effectiveness in terms of fiscal discipline.

As suggested by empirical studies,[15] the most successful fiscal adjustments are those that are largely expenditure-based; this is due to the fact that fiscal adjustments that are based on (tax) revenue increases have a stronger negative impact on GDP dynamics. In addition, an expenditure-based fiscal consolidation appears to have positive effects on business confidence and private investment, mitigating losses in national output.

Compliance

Undeniably, compliance with fiscal rules also depends on the quality of national fiscal frameworks. In other words, a properly designed expenditure rule, with the aforementioned desirable features, and the presence of independent national fiscal institutions (e.g. Fiscal Boards) will lead to a high Strength Index, which in turn is positively correlated with a high degree of compliance.[16]

In 2010-19, Greece was one of the two countries throughout the EU that were fully in line with the European "expenditure benchmark", whereas the other euro area high-debt countries saw their compliance indicators worsen considerably.[17] It should be pointed out that Greece outperformed its euro area partners in terms of meeting the expenditure target under the current European rule, thanks to major reforms in the management of public finances.[18]

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14 Belu-Manescu and Bova (2020), op. cit. See also Turrini, A. (2008), "Fiscal Policy and the Cycle in the Euro Area: The Role of Government Revenue and Expenditure", European Commission, *European Economy – Economic Papers*, 323, Brussels, who estimates fiscal reaction functions using strong and weak rules, on the basis of the expenditure rule index from the Commission's Fiscal Governance Database, and finds that countries with strong expenditure rules are less likely to implement procyclical policies. For further details about the relationship between compliance with fiscal rules and the cyclicality of fiscal policies, see Larch, M., J. Malzbubris and S. Santacroce (2023), "Numerical Compliance with EU Fiscal Rules: Facts and Figures from a New Database", *Intereconomics – Review of European Economic Policy*, 58(1), 32-42; and Larch, M., E. Orseau and W. Van der Wielen (2020), "Do EU Fiscal Rules Support or Hinder Counter-Cyclical Fiscal Policy?", JRC Working Paper on Taxation and Structural Reforms No. 01/2020.

15 Coenen, G., M. Mohr and R. Straub (2008), "Fiscal consolidation in the euro area: long-run benefits and short-run costs", ECB Working Paper No. 902; 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; Alesina, A., O. Barbiero, C. Favero, F. Giavazzi and M. Paradisi (2015), "Austerity in 2009-13", *Economic Policy*, 30(83), 383-437; Alesina, A., C. Favero and F. Giavazzi (2015), "The Output Effects of Fiscal Consolidation Plans", *Journal of International Economics*, 96 (Supplement 1): S19-S42; Guajardo, J., D. Leigh and A. Pescatori (2014), "Expansionary Austerity? International Evidence", *Journal of the European Economic Association*, 12(4), 949-968; Alesina, A., O. Barbiero, C. Favero, F. Giavazzi and M. Paradisi (2017), "The Effects of Fiscal Consolidations: Theory and Evidence", NBER Working Paper No. 23385; and Hondroyiannis, G. and D. Papaoikonomou (2015), "When does it pay to tax? Evidence from state-dependent fiscal multipliers in the euro area", *Economic Modelling*, 48, 116-128.

16 According to the guidance provided in the 2011 reform of the SGP ("Six-Pack" reform). See Beetsma, R., X. Debrun, X. Fang, Y. Kim, V. Lledó, S. Mbaye and X. Zhang (2019), "Independent fiscal councils: Recent trends and performance", *European Journal of Political Economy*, 57, 53-69.

17 For more details, see Ventouris, N. and G. Palaiodimos (2022), "Proposals for the reform of EU fiscal rules", Bank of Greece, *Economic Bulletin*, No. 55; and Bank of Greece, *Annual Report 2021*, Chapter V, Special feature "Proposals for the reform of the EU fiscal rules", 173-184.

18 In Greece, the average annual rate of reduction in primary expenditure over the period 2010-14 was around 6% (higher by 6.2 percentage points than the "expenditure benchmark" under the fiscal rule), whereas in 2015-19 the average annual growth rate of primary expenditure was close to zero (lower by 3.9 percentage points, respectively).

Conclusion

Properly designed expenditure rules are expected to support fiscal discipline, with a view to safeguarding the sustainability of public finances in a counter-cyclical manner. At the same time, they present a number of desirable features in terms of transparency, simplicity and ease of compliance monitoring, thereby strengthening the credibility of the fiscal framework. However, expenditure rules should be matched by other types of rules, so as to ensure the overall objective of fiscal discipline. In fact, this is the goal of the recent reform of the EU's economic governance framework, which puts the lasting and sustainable reduction of debt at its core, by specifying medium-term fiscal adjustment trajectories in structural primary balance terms, which translate into an operational expenditure rule.

Box 12

THE NEW FISCAL RULES IN THE CONTEXT OF THE EU ECONOMIC GOVERNANCE REFORM

After nearly four years of consultations and negotiations among EU Member States, European organisations and other institutions,[1] on 20 December 2023 the ECOFIN reached an agreement on the review of the EU economic governance framework. The legislative package, which was agreed by the EU Council,[2] focuses on fiscal issues and is based on the European Commission's initial proposal on the new fiscal rules that was published in April 2023.[3] The package includes: (i) a new regulation on the effective coordination of economic policies and multilateral budgetary surveillance (preventive arm of the Stability and Growth Pact, SGP);[4] (ii) an amendment to the current regulation on speeding up and clarifying the implementation of the excessive deficit procedure (corrective arm of the SGP);[5] and (iii) an amendment to the EU Council Directive on requirements for budgetary frameworks of the Member States.[6] On 10 February 2024, a provisional political agreement was reached between the EU Council and the European Parliament on the proposed reform of the economic governance framework.[7]

The objective of the reform is to address shortcomings in the existing fiscal framework. More specifically, the reform seeks to ensure that the new fiscal rules are simpler, more transparent and effective, with greater national ownership and better enforcement and monitoring. The new rules of fiscal discipline take into account the

1 For a detailed overview of the various proposals on the reform of the EU fiscal rules, see European Commission, Report on Public Finances in EMU 2021, Institutional Paper 181, July 2022, 33-44. For the results of the Commission's online public consultation, see European Commission, "Online public consultation on the review of the EU economic governance framework. Summary of responses. Final Report", Commission Staff Working Document, Brussels, 28.3.2022.

2 Council of the EU, Press Release, 21.12.2023.

3 EC proposal for a regulation: New economic governance rules fit for the future, 26.4.2023.

4 Proposal for a Regulation of the European Parliament and of the Council on the effective coordination of economic policies and multilateral budgetary surveillance and repealing Council Regulation (EC) No 1466/97 – Mandate for negotiations with the European Parliament (Brussels, 20.12.2023).

5 Proposal for a Council Regulation amending Regulation (EC) No 1467/97 on speeding up and clarifying the implementation of the excessive deficit procedure – Agreement in principle with a view to consulting the European Parliament (Brussels, 20.12.2023).

6 Proposal for a Council Regulation amending Regulation (EC) No 85/97 on speeding up and clarifying the implementation of the excessive deficit procedure – Agreement in principle with a view to consulting the European Parliament (Brussels, 20.12.2023). This directive sets out the details about Member States' compliance with the fiscal rules.

7 Council of the EU, Press Release, 10.2.2024; European Parliament, Press Release, 10.2.2024; European Commission, Press Release, 10.2.2024. The provisional political agreement on the preventive arm of the economic governance framework is subject to approval by the Council of the EU in the Committee of Permanent Representatives and by the European Parliament Committee on Economic and Monetary Affairs before going through a formal vote in both the Council and the Parliament. Once adopted, the text will be published in the Official Journal of the EU and will enter into force the following day. The regulation on the corrective arm and the aforementioned directive only require the European Parliament to be consulted.

need to reduce increased public debt levels, including as a result of the COVID-19 pandemic, in a realistic, gradual and sustained manner. The new economic governance framework of the EU also builds on the lessons learned from the policy response to the global financial crisis and the euro area debt crisis, whereby procyclical fiscal adjustment policies were pursued and a lack of investment was observed, which hampered a swift economic recovery.

Key points of the agreement on the new fiscal framework

While maintaining the budget deficit and public debt reference values provided for in the EU Treaties, the new fiscal rules introduce a number of novelties, setting the long-run sustainability of public debt as the primary policy objective. Namely, the deficit reference value of 3% of GDP and the public debt reference value of 60% of GDP under the current SGP are preserved. A main novelty under the new framework is the suspension of horizontal numerical rules with the adoption of a differentiated approach towards each Member State to take account of heterogeneity in fiscal positions, public debt and economic challenges, as well as of sustainability risks (risk-based approach). Against this backdrop, multi-annual cross-country fiscal trajectories will be defined for each Member State with a view to ensuring the long-term sustainability of public debt in a durable way.

Medium-term fiscal-structural plans become a key component of economic policy design, aiming to reduce deficits and debt ratios and to promote investment and reforms (see the chart). Each Member State will prepare a medium-term plan spanning over four or five years, committing to a fiscal trajectory as well as public investments and reforms that together ensure sustained and gradual debt reduction and sustainable economic growth. Furthermore, national medium-term plans will also include actions to address any macroeconomic imbalances in line with the European Commission's recommendations (Macroeconomic Imbalance Procedure, MIP).

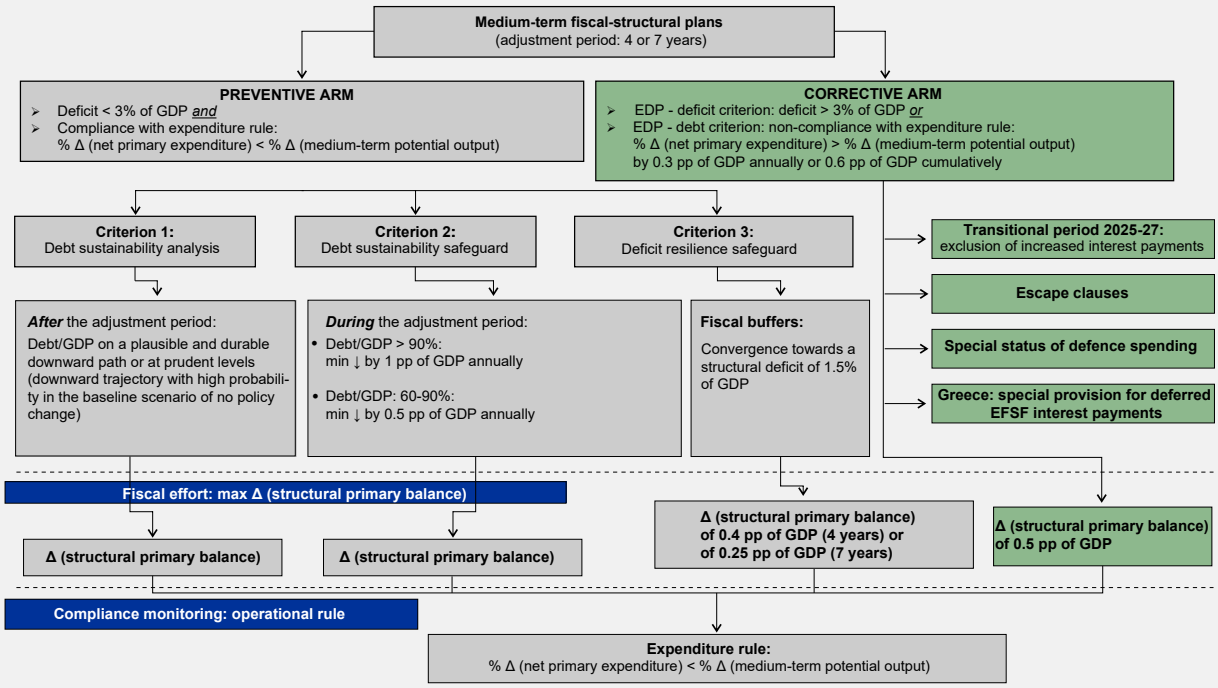
The fiscal adjustment period is set at four years, which may be extended to a maximum of seven years, if Member States commit to implementing certain reforms and investments that improve economies' growth potential and adjustment to the current conditions, in line with the common priorities of the EU.[8] Such priorities include achieving a fair green and digital transition, ensuring energy security and strengthening social and economic resilience, as well as defence capabilities. A Member State may also request to revise its plan before the end of the adjustment period, either in the event of a new government or if there are objective circumstances preventing the implementation of the original plan. The integration of fiscal, reform and investment objectives into a single medium-term plan will help to create a coherent and streamlined process. This provides Member States with greater leeway in preparing their fiscal-structural plans and strengthens the national ownership of fiscal adjustment measures. At the same time, the dialogue between EU Member States and institutions is enhanced, increasing transparency and accountability for decisions on fiscal targets. Each Member State will present an annual progress report[9] in the context of the European Semester, whereby the implementation of the medium-term national plans will be monitored.

Fiscal adjustment is defined as an improvement in the structural primary budget balance. Member States with a public debt above 60% of GDP or a government deficit above 3% of GDP will receive from the Commission –after an optional pre-dialogue with it– a differentiated and risk-based "reference trajectory",[10] which will determine their fiscal adjustment needs measured in structural primary balance terms and will be expressed as an operational expenditure rule. For Member States with a government deficit below the 3% of GDP reference value and public debt below 60% of GDP, the Commission will provide (at the request of the Member State) "technical information" regarding the structural primary balance necessary to ensure that the headline deficit is maintained below 3% of GDP without any additional policy measures over a 10-year period after the end of the national medium-term fiscal-structural plan.

8 Reforms and investment commitments of the national Recovery and Resilience Plans (RRPs) in the context of NGEU will be taken into account for an extension of the adjustment period in the first round of the plans.

9 Annual progress reports will replace the stability programmes submitted by Member States every three years as well as the national reform agendas, which outline policy actions and economic reforms under way.

10 Previously called "technical trajectory".



Compliance is monitored using a single operational expenditure rule. The expenditure rule (see Box 11), which sets a limit on the growth rate of net primary expenditure,[11] will serve as an indicator for monitoring compliance with the new fiscal framework. Besides, it signals the efforts to streamline the surveillance process, reduce pro-cyclicality in fiscal policies and enhance the effectiveness and transparency of fiscal rules. At the same time, a **control account** will be set up for each Member State to record deviations from the agreed net expenditure path.

The objective of fiscal adjustment is to ensure long-term public debt sustainability and sustained government deficits below the 3% of GDP reference value. At the end of the adjustment period, the public debt-to-GDP ratio must be on a plausibly and durably downward path or stay at prudent levels below 60% in the baseline scenario of no fiscal policy change that is considered in the Commission's debt sustainability analysis. When defining the fiscal adjustment path in structural primary balance terms, fiscal risk assessment is also introduced, according to which debt should be put on a downward course with high probability (stochastic analysis). In practice, this means that the fiscal effort should be such that, after the adjustment period, debt continues to be reduced at a satisfactory pace and its downward course is not endangered in either the baseline scenario or a series of adverse alternative scenarios.

Moreover, two additional criteria (safeguards) are introduced to ensure a decrease in the debt-to-GDP ratio during the adjustment period, as well as deficit resilience with the creation of fiscal buffers. Such safeguards actually determine the minimum fiscal adjustment that leads to compliance with the new fiscal framework and ensure the front-loaded nature of the fiscal effort, as well as adherence to fiscal limits even in adverse economic circumstances.[12] More specifically:

According to the **debt sustainability safeguard**: (i) countries with public debt above 90% of GDP should reduce their debt by at least 1 percentage point of GDP on average per year during the adjustment period, while (ii)

11 Net primary expenditure means *nationally* financed expenditure excluding interest expenditure and cyclical unemployment expenditure, net of discretionary revenue measures. It should also be noted that the exclusion of national expenditure on EU co-financed programmes is envisaged, incentivising public investment and facilitating transition to a new growth model that addresses the new challenges. According to the proposed expenditure rule, the growth rate of net primary expenditure should not exceed the medium-term growth rate of potential output in nominal terms.

12 Member States will make the maximum fiscal effort needed to fulfil all of the criteria at once (Criterion 1: Debt sustainability analysis; Criterion 2: Debt sustainability safeguard; Criterion 3: Deficit resilience safeguard) (see the chart).

countries with public debt between 60% and 90% of GDP should reduce their debt by at least 0.5 percentage points of GDP, respectively. This safeguard was introduced to ensure that debt levels gradually decrease during the adjustment period as well, given that the expenditure rule refers to primary expenditure and an increase in interest expenditure could in theory lead to a temporary rise in the debt-to-GDP ratio, without breaching the operational compliance rule and without jeopardising the achievement of the fiscal target (in structural primary balance terms). This helps to improve predictability in the outcome of the framework and to reinforce equal treatment across Member States that must undergo a fiscal adjustment. At the same time, a new reference value is introduced for public debt, in addition to the 60% of GDP reference value which is included in the current SGP.

The **deficit resilience safeguard** provides a safety margin below the Treaty deficit reference value of 3% of GDP. This safeguard mainly applies to countries with low sustainability risk, whose debt is diminishing at a satisfactory pace (or is below 60% of GDP) and whose government deficit is below 3% of GDP. Such countries should undertake a fiscal adjustment effort with a view to converging towards a structural deficit of 1.5% of GDP. The annual improvement in the structural primary balance to achieve the required margin is set at 0.4 percentage points of GDP for countries implementing a four-year adjustment plan and at 0.25 percentage points of GDP for countries implementing a seven-year plan. The aim of this safeguard is to make the new framework more resilient to uncertain developments of macro-fiscal variables, through the build-up of fiscal buffers for adverse economic circumstances, thereby facilitating the conduct of counter-cyclical policies.

Excessive deficit procedure

An excessive deficit procedure (EDP) is initiated on the basis of the following two criteria: (i) the **deficit criterion**, where the government deficit is higher than the 3% of GDP reference value; and (ii) **the debt criterion**, in case of breach of the expenditure rule, i.e. when deviations exceed a specific limit (either 0.3 percentage points of GDP annually or 0.6 percentage points of GDP cumulatively according to the EU Council), for countries with a debt ratio above 60% of GDP. **Fiscal adjustment** under the EDP remains unchanged relative to the previous framework, with a minimum annual structural improvement of at least 0.5% of GDP as a benchmark. The **fine** in the event of non-compliance will amount to up to 0.05% of GDP and will be accumulated every six months until effective action is taken.[13]

In general, all relevant factors affecting a Member State's compliance with the deficit and/or debt criteria will be assessed, including the degree of public debt challenges in line with the most recent update of the Debt Sustainability Monitor, the medium-term economic outlook, the size of the deviation from the net expenditure path, progress in the implementation of reforms and investments and, if applicable, increased defence spending. More specifically, defence spending is to be granted special status, so that, if a Member State has higher investment in defence relative to the EU average or is considerably increasing its government investment in defence, such spending is not taken into account during the EDP assessment.

The agreement foresees a generous transitional period for full activation of the EDP. For a transitional period of three years (2025-2027) it was decided to exclude increased interest expenditure[14] when assessing the adjustment effort within the EDP.

The Council also clarified the conditions on escape clauses. The possibility to deviate from the projections of the fiscal adjustment plans is expressly acknowledged, either in the event of a severe economic downturn in the euro area or the EU as a whole ("general escape clause") or in the event of exceptional circumstances that are outside the control of national governments and have a major impact on their public finances ("country-specific clause").

13 The amount of the fine may not exceed a cumulative of 0.5% of GDP.

14 The exclusion of increased interest expenditure will reduce fiscal adjustment needs, applying mainly to countries that are faced with a considerable increase in interest expenditure as a result of monetary policy tightening, as well as countries with a high share of variable-rate debt or countries that had issued inflation-linked bonds.

Assessment

The revision of the fiscal rules is a major reform which changes the way fiscal policy is designed to reflect the post-pandemic reality of high public debt ratios and rising government deficits. The new fiscal rules clearly provide greater flexibility and lay down lower and more realistic adjustment requirements relative to the current framework. Ensuring public debt sustainability in the face of adverse shocks lies at the heart of the new rules. Horizontal numerical rules, implying unrealistic levels of fiscal adjustment that in turn would lead to ineffective procyclical policies, are abandoned.[15] By contrast, a fiscal discipline approach that rather rests on sustainability rules (rules-based approach) is adopted. In determining the fiscal effort account is now taken of the specific economic and structural characteristics of each country, while realistic fiscal targets tailored to each Member State's economic conditions are defined (country-specific fiscal consolidation). Therefore, the required annual pace of reduction in public debt is comparatively milder, while the adjustment period is extended, thereby enhancing the credibility and effectiveness of the new framework. At the same time, the long transitional period for full EDP activation enables Member States to make the most of the time until end-2027 and to utilise the available NGEU resources, with a view to mitigating the impact on economic growth rates from the necessary improvements in their budgetary positions.[16]

Drafting national medium-term fiscal-structural plans strengthens national governments' ownership of the new fiscal framework and helps to protect public investment. Although the exclusion of investment expenditure is not specifically foreseen, the possibility of extending the adjustment period, subject to credible investment and reform plans, acts as a deterrent to the standard practice of cutting public investment in order to meet the fiscal targets, also given the pressing needs for the green and digital transitions in the years ahead.[17] Besides, since the new framework gives priority to public debt reduction as a policy objective, the exclusion of investment expenditure financed by new borrowing is not allowed. In addition, excluding various expenditure categories, which are complex to classify in any event, would hamper the simplification and credibility of the fiscal framework. Nevertheless, the proposed expenditure rule provides for the exclusion of national spending on EU co-financed programmes, thereby creating more incentives for public investment. Finally, the experience gained from the implementation of national recovery and resilience plans in the context of the NGEU will greatly contribute to preparing credible medium-term national structural-fiscal plans.

The monitoring of compliance with the new rules is significantly streamlined. The application of an operational expenditure rule for monitoring compliance with the new fiscal framework increases transparency and simplifies fiscal surveillance. In parallel, expenditure rules reduce procyclicality in fiscal policies, promoting more effective strategies for the consolidation of public finances, while limiting heavy reliance on non-measurable variables (such as the output gap).[18] Furthermore, the automatic triggering of the EDP and the independent assessment of compliance with the new rules by the European Fiscal Board, with a strengthened role and in a permanent capacity, enhance the credibility of the new framework and shield it against political interference. The role of national independent fiscal institutions (IFIs) mainly focuses on the following tasks: (i) endorsement of budgetary forecasts; (ii) assessment of debt sustainability analyses and policy impacts; and (iii) ex-post assessment of fiscal plans.[19]

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15 The requirement under the existing debt rule, which provides that the debt-to-GDP ratio must be reduced annually by 1/20 of its distance from the 60% of GDP reference value, is actually abolished.

16 In practice, with the December 2023 agreement, which excludes increased interest expenditure from the EDP until 2027 and provides the possibility of extending the adjustment period in medium-term national plans, an effort is made to postpone the required fiscal adjustment (which for some countries is significant), shifting the burden on future governments.

17 The past practice of cutting public investment, weighing heavily on economic growth, was a preferred policy option by governments that were unwilling to adopt structural fiscal measures to meet the fiscal targets.

18 For an analysis of expenditure rules, see Box 11.

19 Moreover, the new framework seeks to ensure that national IFIs are more operationally independent and have better access to additional resources and information, as there are large differences in their role and responsibilities across Member States. For further details about the capacity of national IFIs to play an enhanced role in the EU's new economic governance framework, see Network of EU IFIs, Note on IFIs capacity, 17.10.2022.

On the other hand, the transition to a framework that is tailored to the economic circumstances of each country inevitably complicates the formulation of the final fiscal target. First of all, the public debt sustainability models employed by the European Commission, the assumptions concerning the various economic variables and the different scenarios considered, as well as the introduction of stochastic processes in weighting sustainability risks make analysis even more complex. In addition, the multiple criteria which are taken into account in the final determination of the required fiscal effort in structural primary balance terms and the conversion of such adjustment needs into an ultimate expenditure rule undoubtedly add to the complexity of the new framework, possibly leading to lengthy technical negotiations on the final targets. Transparency in methodology will increase the credibility of the new rules and reduce uncertainty. However, it appears that the suspension of horizontal numerical rules and the transition to a framework that takes account of cross-country heterogeneity will automatically result in more elaborate methodological approaches.

Although control over government spending assumes a central role in determining the stance of fiscal consolidation, EU countries will be confronted with strong pressures to increase spending in the coming years. The experience from various programmes that countries have implemented in order to correct their fiscal imbalances has shown that the most successful fiscal adjustments are largely spending-based. At the same time however, there are several structural factors in the current economic environment which warrant a considerable increase in public spending by national governments. Such a critical factor is adverse demographic trends. The worsening of the old-age to working-population dependency ratio will be exerting strong pressures to increase expenditure on pensions and health care, while the tax base of the active population will be shrinking. Furthermore, the need to tackle climate change in a timely manner, hence the EU's ambitious environmental goals for a green transition, the intention to further strengthen the strategic autonomy of the EU in a changing geopolitical context and increased borrowing costs compared with the past ten years will require higher government spending. Against this backdrop, it is imperative to implement structural policies and reforms in all of the above areas with a view to safeguarding fiscal sustainability.

Decisions regarding the review of the economic governance framework do not specifically provide for the establishment of a central fiscal capacity. Despite the fact that the new fiscal rules will apply to the EU-27 as a whole, it would be useful to include a special provision on a more effective coordination of fiscal policies at the euro area level (20 countries), so that the recommendations issued and the policies designed also take into consideration the overall fiscal position of the euro area. A better coordinated fiscal policy improves interaction with the ECB's monetary policy, ultimately leading to more efficient macroeconomic stabilisation policies. The lack of a special provision on the establishment of a central fiscal capacity is a missed opportunity for deeper fiscal integration and higher resilience to negative shocks in the euro area.

The implications for Greece

The agreement contains a special provision on Greece's deferred interest payments on part of the EFSF loan. Specifically, it is ensured that the inclusion of deferred interest on official sector loans in government debt, which is scheduled for 2033, will not be taken into account in the calculation of Greek public debt dynamics in the context of the new fiscal rules. In this way, the temporary reversal in the downward path of the debt ratio, which is anticipated in 2033 due to the aforementioned inclusion of deferred interest, will not be taken into consideration in the application of the debt sustainability safeguard and, thus, no need for further fiscal adjustment should be expected.[20]

All in all, Greece stands out among high-indebted EU countries as a notable example of fiscal resilience, thanks to the structural fiscal adjustment achieved over the past ten years, the favourable profile of its public debt and the timely withdrawal of the expansionary emergency support measures adopted in 2020-23. According to the Commission's latest debt sustainability analysis across EU Member States, Greece is projected to achieve the largest reduction in the debt-to-GDP ratio over the next decade. This is primarily due to the debt-reducing contribution of the "snowball effect" and secondarily to primary surpluses and Greece's favourable fiscal

20 In 2033, when deferred interest payments on the largest part of EFSF loans are set to become due, the debt-to-GDP ratio is projected to rise, as the stock of deferred interest will start to be paid (about 8% of GDP in 2033 or EUR 27 billion).

position.[21] The resilience of Greek public debt sustainability is evidenced by the slim probability of a reversal in debt's downward path, as suggested by stochastic analysis both by the Bank of Greece and by the European Commission.[22] This means that the downward trajectory of public debt is not impaired, even in the adverse scenarios of the debt sustainability analysis. In addition, Greece is one of the few EU countries that exhibit strong compliance with the current expenditure rule, in line with the Commission's recommendations on 2024 national budgets.[23] On the basis of preliminary Bank of Greece estimates, a cyclically adjusted primary surplus of 2% of GDP fulfils both the debt sustainability safeguard and the deficit resilience safeguard, without requiring additional fiscal adjustment to comply with the new rules.[24]

Conclusions

The reform of the EU's economic governance framework, which was a result of a lengthy consultation and negotiation process, is undeniably a positive development, addressing several weaknesses and shortcomings in the previous framework. Similar steps forward had also been made with past reforms of the SGP in 2011-13[25] and in 2015.[26] The changes that were eventually accepted may be less ambitious than initially expected, but in any event the fiscal framework of the EU is gradually adjusting to changing circumstances. After all, the effectiveness of the new framework will depend on its robust application.

21 European Commission, Debt Sustainability Monitor 2023, Institutional Paper 271, March 2024.
22 In particular, there is a slim probability (12%) that Greek public debt four years ahead (2027) exceeds its 2022 level, i.e. the starting point for the analysis. In other words, Greek debt is on a stable downward path with a high (above 70%) probability.
23 European Commission, Communication on the 2024 Draft Budgetary Plans: Overall Assessment. The recommendation regarding the growth rate of net primary expenditure rests on the assumption that the primary balance improves by 0.5 percentage points of GDP annually towards the medium-term budgetary objective (MTO) of each country. Overall, only seven Member States are considered to be in line with the expenditure rule and with the Commission's recommendations in their 2024 draft budgetary plans.
24 However, according to some other estimates, a slight further fiscal adjustment of 0.29 percentage points of GDP per annum for four years (or of 0.21 percentage points of GDP for seven years) in structural primary balance terms will be needed to meet the deficit resilience safeguard (see Bruegel, First glance: Assessing the Ecofin compromise on fiscal rules reform, 21.12.2023).
25 Referring to a set of regulations, directives and international treaties known as "Six-Pack", "Fiscal Compact", "Two-Pack" (see Regulation (EU) 472/2013, Regulation (EU) 473/2013, Regulation (EU) 877/2013) and European Semester.
26 This reform provided a reinterpretation of the way in which the European Commission would take into account public investment, structural reforms and cyclicality in assessing Member States' fiscal positions (for details, see Communication from the Commission to the European Parliament, the Council, the European Central Bank, the Economic and Social Committee, the Committee of the Regions and the European Investment Bank, "Making the best use of the flexibility within the existing rules of the Stability and Growth Pact", Strasbourg, 13.1.2015).

Box 13

THE CONTRIBUTION OF FINANCIAL INSTRUMENTS AND LOANS OF THE RECOVERY AND RESILIENCE FACILITY TO THE EXTERNAL FINANCING OF DOMESTIC NFCs

In 2023, credit to domestic non-financial corporations (NFCs) and sole proprietors rose in volumes while lending cost declined due to loans related to financial instruments (FIs) and the Recovery and Resilience Facility (RRF). Micro, small and medium-sized enterprises have particularly benefited, as their access to low-cost financing in general becomes more difficult compared to large firms as monetary policy is tightened, leading to higher bank lending rates.

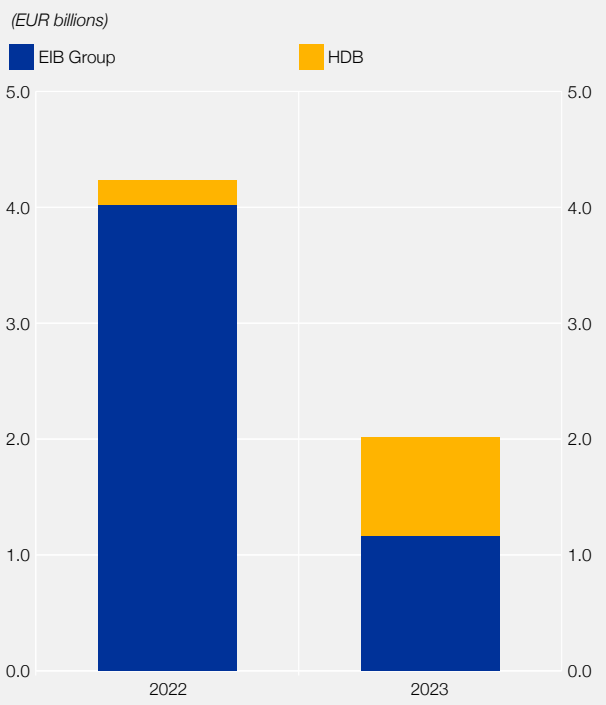
Developments in 2023

a) Financial instruments

In 2023, NFCs and sole proprietors received EUR 2 billion of bank loans (2022: EUR 4.2 billion) which were related to FIs offered by the European Investment Bank Group (EIB Group)[1] and the Hellenic Development Bank

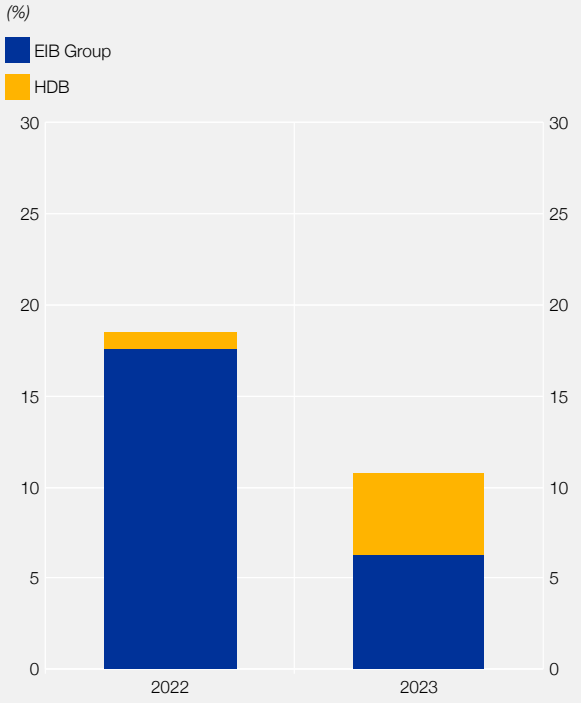
1 The EIB Group consists of the European Investment Bank (EIB) and the European Investment Fund (EIF).

Chart A Disbursements of bank loans to non-financial corporations and sole proprietors related to financial instruments



Sources: Hellenic Development Bank and Hellenic Bank Association.
Note: HDB: Hellenic Development Bank, EIB Group: European Investment Bank (EIB) and European Investment Fund (EIF).

Chart B Share of financial instruments in new bank loans to non-financial corporations



Sources: Hellenic Development Bank and Hellenic Bank Association. Bank of Greece calculations.
Note: HDB: Hellenic Development Bank, EIB Group: European Investment Bank (EIB) and European Investment Fund (EIF).

(HDB) (see Chart A). More than two-thirds[2] of the amount was directed to sole proprietors and micro, small and medium-sized enterprises, which reflects the long-standing focus of European and national policy on supporting small and medium-sized enterprises. In fact, all the funds made available through the HDB programmes were entirely targeted at small and medium-sized enterprises, while in the co-financing schemes more than 75% of the beneficiaries qualified as micro-enterprises.[3]

The share of FIs in the total bank financing of NFCs and sole proprietors fell to 11% in 2023, down from 18% in 2022 (see Chart B). This development is mainly driven by a shift in demand from many enterprises towards loans under the Recovery and Resilience Facility. Taking into account the RRF loans, disbursements of bank loans supported by national and European funds accounted for 19% of total bank lending in 2023, about the same as in 2022.

Among categories of FIs, the largest share in terms of disbursement value (57%) corresponded to co-financing schemes (2022: 15%) and the remainder (43%) to guarantees (2022: 85%). The rise in the cost of borrowing that took place in 2023 increased the importance of co-financing schemes, which are linked to favourable pricing terms. Generally, in the co-financing schemes, the State finances part of the loan at an extremely low or even zero interest rate, thus the weighted average interest rate on business loans is significantly lowered, while in some cases the enterprise is exempt from levy under Law 128/1975.[4]

In the period under review, the most important programmes in terms of value of disbursements were: a) "Liquidity Co-Financing Loans" of the Hellenic Development Bank and (ii) "Global Loans" of the European Investment Bank, which together accounted for 51% of the total.

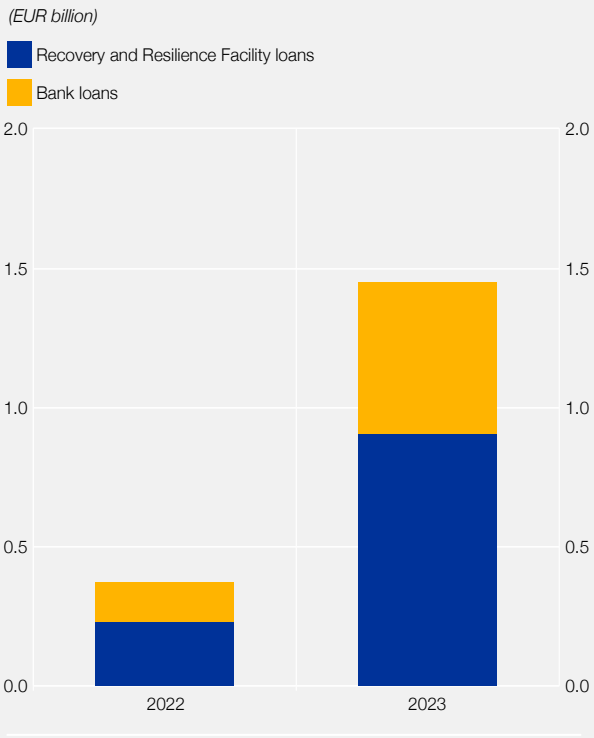
2 EUR 1.4 billion out of a total of EUR 2 billion.
3 75% of the beneficiaries employed up to 10 staff and 81% had a turnover of up to EUR 2 million.
4 Under this law, a levy of 0.6% per annum in favour of the State is charged on the nominal interest rates on bank loans to NFCs.

b) Recovery and Resilience Facility

As a complement to financial instruments, domestic NFCs were supported last year by low-interest loans granted under the Recovery and Resilience Facility (RRF). Overall, in 2023, EUR 1.45 billion of business loans were disbursed under the programme's loan segment[5] (2022: EUR 0.36 billion, see Chart C), of which around EUR 0.9 billion were RRF funds and the rest bank funds. The bulk of disbursements, above 90%, were channelled through six domestic commercial banks.

Overall, 271 loan agreements amounting to EUR 8 billion had been signed between June 2022 (first loan agreement) and 25 January 2024.[6] Around half of the loan agreements[7] (EUR 1.2 billion) targeted small and medium-sized enterprises. Data suggest that banks contribution to total financing was above the minimum defined by the programme,[8] a favourable development, as it implies higher leverage of public funds. The weighted average interest rate on RRF loans stood at 2.1%, i.e. about 360 basis points lower than the corresponding average rate of common bank business loans in 2023.[9] The very low lending rates increased lending demand, as indicated by the number of applications.[10]

Chart C Disbursements of bank loans through the Recovery and Resilience Facility



Sources: Ministry of Economy and Finance, Hellenic Bank Association and Bank of Greece.
Note: Equity financing is not included.

Outlook

Business financing is expected to continue to be supported in the coming years:

– By the low-interest loans under the Recovery and Resilience Facility. Following the European Commission's approval of the revised National Recovery and Resilience Plan "Greece 2.0",[11] the total European funds for the loan component of the Facility were increased by EUR 5 billion to EUR 17.7 billion. So far, receipts from EU have reached EUR 7.3 billion and EUR 4 billion have been transferred to co-operating banks for granting business credit.

– By the availability of new financing programmes developed in the context of the implementation of the NSRF 2021-2027 and the Development Law (Law 4887/2022). In particular, it is expected that Funds will be set up to provide: (a) loan guarantees; (b) co-financing loans with zero interest rate on the part of the loan financed

5 This includes disbursements of business loans by domestic and foreign banks financed by public and bank resources. Equity financing is not included.
6 EUR 4.5 billion of public resources (RRF loans) and EUR 3.5 billion bank resources (bank loans). Source: Special Recovery Fund Coordination Service.
7 128 out of 271. Source: Recovery and Resilience Facility Coordination Agency.
8 According to the programme's characteristics, the co-financing scheme for the total investment expenditure is defined as follows: maximum 50% public financing (RRF loans), minimum of 30% bank loans (co-financing loans) and a minimum of 20% investor's own contribution.
9 The 2023 average interest rate on business loans with an agreed maturity amounted to: a) 5.7% for all businesses, b) 5.8% for small and medium-sized enterprises and c) 6.3% for sole proprietors.
10 By 25 January 2024, 640 loan applications had been submitted, amounting to EUR 17.1 billion (EUR 9.4 billion RRF loans, EUR 7.8 billion bank loans). Source: Recovery and Resilience Facility Coordination Agency.
11 See the announcement of the Ministry of Economy and Finance, 21.9.2023.

by the State; (c) grants with interest subsidies and/or capital rebates; and (d) co-investments, e.g. investments in venture capital. In order to achieve optimal utilisation of public funds, a linkage between the achievement of policy objectives and types of schemes is introduced. A prominent example is the "Innovation Fund" of the Hellenic Development Bank, through which companies benefit from lower collateral requirements (due to the provision of guarantees by the HDB) and, if they fulfil ESG (environmental, social and governance) and innovation criteria, they receive additional funds in the form of capital rebates. At the same time, the types of financing to be supported by resources from the National Strategic Reference Framework (NSRF) are being expanded by the inclusion of new tools such as leasing, microfinancing and quasi equity. Expanding the types of financing is significant, as it allows for better utilisation of public funds in terms of leverage, absorption and recycling, i.e. it creates the conditions for increasing the multiplier of public funds, resulting in greater benefit for the real economy.

Box 14

FINANCING CONDITIONS FOR SMEs: INSIGHTS FROM THE SAFE SURVEY

The results of the latest round of the Survey on the Access to Finance of Enterprises (SAFE) show that in April-September 2023 Greece reported an increase in the availability of bank loans. This increase, combined with the relative deceleration in enterprises' external financing needs, contributed to a decline in the overall external financing gap indicator, which fell below the European average. Reflecting the increase in ECB interest rates, the survey recorded the highest historical net percentage of small- and medium-sized enterprises (SMEs) in Greece and the euro area reporting an increase in bank lending rates. At the same time, both in Greece and the euro area, the main challenges for most small- and medium-sized enterprises in the sample were finding skilled labour and managing increased production or labour costs.

External financing gap and financing obstacles

For the second consecutive survey round, the improvement in the availability of bank credit, coupled with the reduction in firms' external financing needs, contributed to a decline in the external financing gap indicator in Greece, to levels similar to the euro area average (Greece: 6%, euro area: 7%; see Chart A). At the same time, firms in Greece reported that the overall financing obstacles indicator reached the lowest level recorded since the launch of the survey (15%), while it declined slightly in the euro area (8%) (see Chart B).

Availability of external financing to SMEs

In the most recent survey round, SMEs in Greece continued to report a positive net percentage[1] (7%) in terms of the evolution of availability of bank loans (see Chart C), as well as credit lines or overdrafts (12%). By contrast, for the third consecutive round, euro area enterprises reported a reduction in the availability of bank loans (-11%) (see Chart C), as well as credit lines (-9%). With regard to their access to other non-bank sources of external financing, after a temporary deterioration over the October 2021-March 2022 period, SMEs in Greece signalled increases in the availability of leasing or hire-purchase[2] (2%) and trade credit (9%) for the third consecutive round. By contrast, in the most recent survey round, euro area enterprises reported a decline in the availability of leasing or hire-purchase (-3%) and trade credit (-2%).

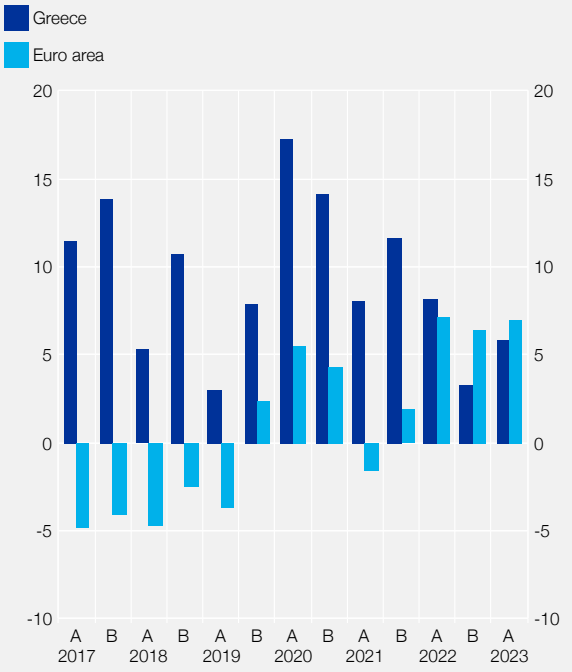
With respect to factors affecting the availability of external financing, firms in Greece continued to report a positive impact from banks' willingness to provide credit (23%), while in the euro area firms reported a negative impact

1 The results refer to net percentages of respondents, which are defined as the percentage of enterprises reporting that, during the past six months, a given factor (e.g. availability of bank loans) increased minus the percentage of those reporting that it 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 immediate ownership of the asset.

Chart A Change in the SMEs overall external financing gap indicator in Greece and the euro area

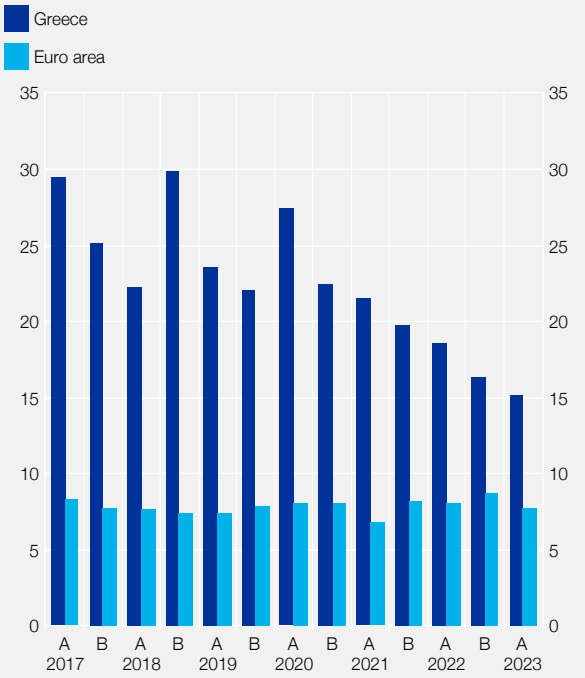
(in the corresponding six months,[1] net percentage of respondents[2])



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 overall external financing gap indicator is calculated as the weighted average of financing gaps (needs minus availability) for each of the five sources of external financing: a) fixed-maturity bank loans, b) credit lines or bank overdrafts, c) trade credit, d) equity, and e) debt securities.

Chart B Change in the SMEs overall financing obstacles indicator in Greece and the euro area

(in the corresponding six months,[1] 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 overall financing obstacles indicator is calculated as the sum of the percentages of firms reporting loan applications which were rejected or for which only a limited amount was granted, as well as the percentage of firms which refused to take the loan due to high borrowing costs and those that did noy apply at all for fear of being rejected by the bank.

for the third consecutive round of the survey (-2%). In Greece, the overall impact of the factors determining firms' solvency[3] was increasingly positive, while in the euro area firms reported a positive but significantly weaker impact. By contrast, firms continued to report a negative impact due to the general economic outlook[4] in Greece (-15%) and much more so in the euro area (-40%). In addition, unlike successive previous findings after the April-September 2020 period indicating the supportive role of fiscal measures[5] during the pandemic, for the third consecutive round firms reported that the public financing support did not help improve the availability of external financing (Greece: -9%, euro area: -16%).

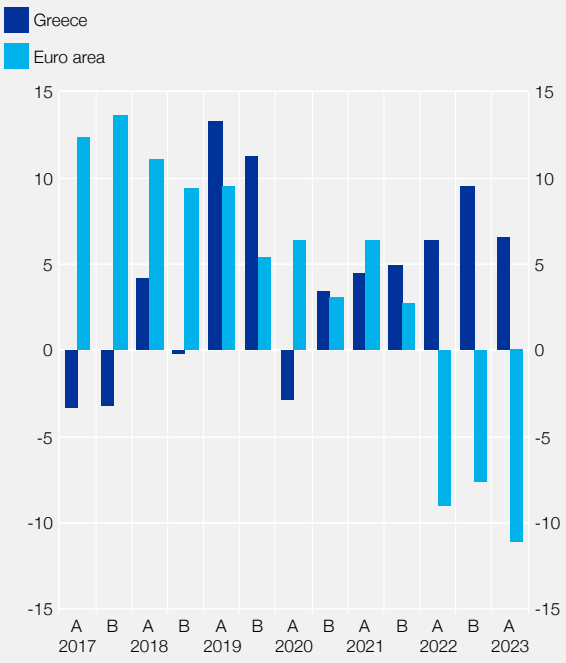
SMEs' external financing needs

Compared with the findings in the period immediately after the outbreak of the COVID-19 pandemic, firms continued to report significantly weaker increases in their needs (i.e. demand) for bank loans (Greece: 13%, euro area: 1% – see Chart D) and for credit lines (Greece: 21%, euro area: 9%), as well as for trade credit (Greece: 22%, euro area: 10%) and leasing or hire-purchase (Greece: 13%, euro area: 11%).

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 number of enterprises reporting that macroeconomic developments did not affect the availability of external financing during the period under review was higher than those reporting a positive impact on availability.
5 SMEs' access to fiscal support measures includes, inter alia, public co-financing or guarantee schemes for bank loans.

Chart C Change in the availability of bank loans to SMEs in Greece and the euro area

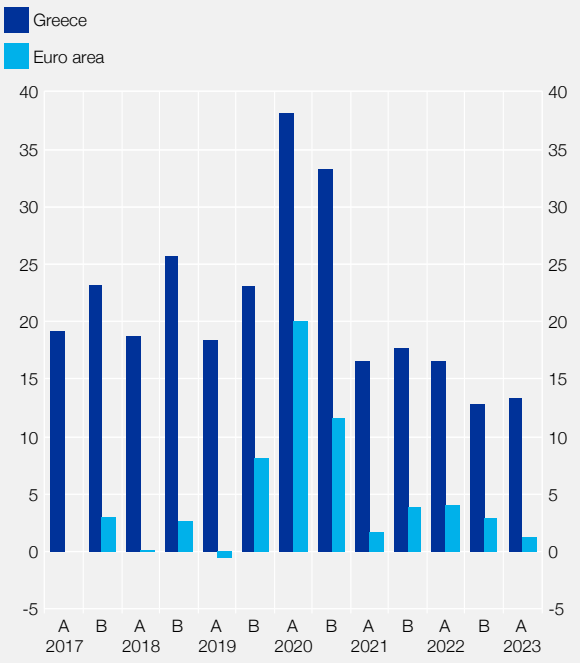
(in the corresponding six months,[1] net percentage of respondents[2])



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 net percentage is the percentage of firms reporting that the availability of bank credit increased minus the percentage of firms reporting that it decreased.

Chart D Change in SMEs' needs for bank loans in Greece and the euro area

(in the corresponding six months,[1] 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 net percentage is the percentage of firms reporting that firms' needs for bank loans increased minus the percentage of firms reporting that they decreased.

Outcome of bank loan applications

In the period under review, the decline observed after the first phases of the pandemic in the percentage of firms that applied for bank loans continued (Greece: 19%, euro area: 21%); the percentage of SMEs that were discouraged from applying for fear of rejection remained low (Greece: 10%, euro area: 5%), while the percentage of SMEs that did not apply because of sufficient internal funds rose (Greece: 40%, euro area: 46%). As regards the outcome of bank loan applications, the percentage of applications that were fully or mostly granted decreased slightly both in Greece (59%) and the euro area (72%). At the same time, the rejection rate fell in Greece (10%) and the euro area (6%) close to its historically lowest levels since the launch of the survey in 2009.

Bank financing terms and conditions

As regards bank financing terms and conditions, the most recent survey round recorded the historically highest net percentage of SMEs, both in Greece and the euro area, reporting an increase in interest rates on bank loans[6] (Greece: 84%, euro area: 82%). At the same time, for other costs of financing (i.e. charges, fees and commissions), the net percentage of enterprises reporting increases in Greece (64%) came close to its historical highest level, while a new historical high net percentage of enterprises was recorded in the euro area (61%).

Main challenges for SMEs

In the most recent survey round, most SMEs of the sample reported that their main concerns were the lack of skilled staff or experienced managers (Greece: 33%, euro area: 31%) and the increase in production or labour

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

costs (Greece: 19%, euro area: 18%); the next major problem for firms in Greece was access to finance (12%) while in the euro area it was finding customers (17%).

Conclusions

SMEs in Greece reported an increase in the availability of bank loans, supported by banks' increasing willingness to provide credit, although, according to firms, the general economic outlook had a negative impact (albeit not as much as in the euro area). By contrast, in the euro area the availability of bank loans declined, mainly on account of banks' reduced willingness to provide credit, but also due to a significant deterioration in the economic environment. At the same time, for the first time since the launch of the survey and for two consecutive rounds, the external financing gap indicator declined in Greece to levels lower than the European average. In addition, firms in Greece reported that the overall financing obstacles indicator reached the lowest level recorded since the launch of the survey in 2009, mainly reflecting a decrease in the percentage of firms that reported either that their application was rejected or partially granted, as well as those that did not apply for fear of rejection. By contrast, financing terms and conditions deteriorated significantly, as a historically high percentage of firms reported increases in interest rates on bank loans as well as in other costs of financing (i.e. charges, fees and commissions) both in Greece and the euro area.

Box 15

THE BANK LENDING SURVEY[1]

The latest rounds of the Bank Lending Survey, which look at developments in 2023, provide mixed evidence of loan demand in Greece, with corporate loan demand remaining broadly unchanged, while a decline in both housing and consumer loan demand was reported for most quarters. In the same period, negative developments were reported in the euro area in the demand across all loan categories. On the supply side, banks in Greece reported that credit standards remained broadly unchanged,[2] but overall terms and conditions[3] on loans to enterprises eased somewhat. By contrast, in the euro area, banks mostly reported a tightening in credit standards, as well as in terms and conditions across all loan categories.

Loan demand

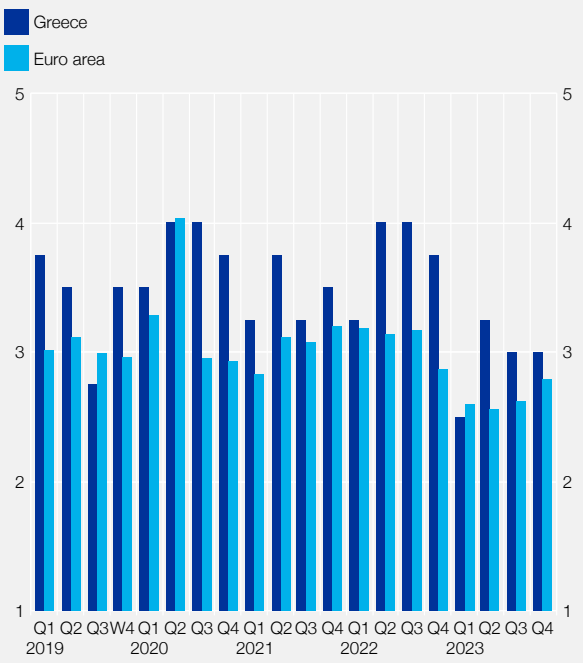
Credit institutions in Greece report that firms' demand for loans was relatively volatile in the first half of 2023, but remained stable in the second half of the year (see Chart A). Regarding the determinants of demand for loans to enterprises in Greece, banks reported a slight positive effect from the increase in firms' needs for financing fixed investment, but at the same time some negative effect originating from higher overall interest rates, reduced demand for financing inventory and working capital, as well as their improved ability to finance their activities internally. Euro area banks reported successively small decreases in demand for loans to enterprises throughout all quarters of 2023 (see Chart A), mainly stemming from the increase in the overall level of interest rates and the decrease in firms' needs to finance fixed investment and, to a lesser extent, their improved ability to finance their activities internally and fewer needs to finance mergers/acquisitions and restructuring.

Banks reported mixed changes in households' demand for loans. Specifically, demand for housing loans declined in Greece, with the exception of the increase observed in the second quarter, driven mainly by an increase in the general level of interest rates and deteriorating household savings. In the euro area, demand for housing

1 The Bank Lending Survey (BLS) is conducted by the Eurosystem on a quarterly basis, using a sample of about 150 banks across the euro area, including the four Greek systemic banks.
2 The survey defines credit standards as the internal guidelines or loan approval criteria shaping each bank's credit policy, such as new loans sought, geographical areas of activity, type of eligible collateral etc.
3 Loan terms and conditions are defined as the actual terms and conditions agreed in loan contracts, such as the margin by which lending rates exceed bank financing costs, the level of commissions or other non-interest payments, usual maturity and amount of loans, other loan clauses etc.

Chart A Change in demand for loans by non-financial corporations in Greece and the euro area[1]

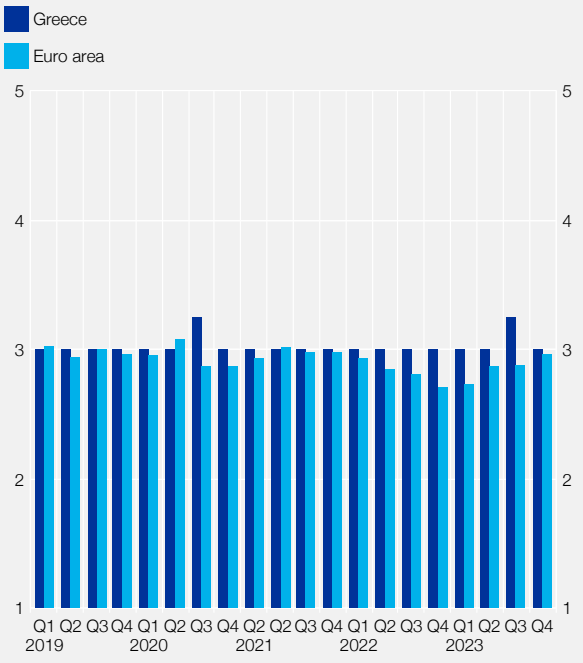
(in the corresponding calendar quarter; average[2])



Source:ECB/Bank of Greece, Bank Lending Survey.
1 Banks' perceived changes in demand for loans over the corresponding calendar quarter.
2 Average of banks' responses using a five-point scale, where demand for loans 1 = "decreased considerably", 2 = "decreased somewhat", 3 = "remained unchanged", 4 "increased somewhat", and 5 = "increased considerably".

Chart B Change in credit standards on loans to non-financial corporations in Greece and the euro area[1]

(in the corresponding quarters; average[2])



Source: ECB/Bank of Greece, Bank Lending Survey.
1 Banks' perceived changes in credit standards in the corresponding calendar quarter.
2 Average of banks' responses using a five-point scale, where credit standards 1 = "tightened considerably", 2 = "tightened somewhat", 3 = "remained unchanged", 4 = "eased somewhat" and 5 "eased considerably".

loans declined in all quarters of 2023, driven mainly by the higher general level of interest rates, as well as by deteriorating consumer confidence and housing market prospects. With the exception of stability in the fourth quarter of 2023, credit institutions in Greece reported successively small increases in demand for consumer credit and other loans, supported at the beginning of the year by increased spending on durable consumer goods and later by improved consumer confidence. In the euro area, demand for housing loans declined slightly throughout all quarters of 2023, driven mainly by the higher general level of interest rates, as well as by deteriorating consumer confidence.

Loan supply

According to the banks surveyed, credit standards in Greece remained mostly unchanged across all loan categories, except for some easing reported in the third quarter in loans to enterprises (see Chart B). In any event, in all quarters of 2023 banks in Greece reported that pressure from competition contributed somewhat to the easing in credit standards for loans to enterprises. In the euro area, credit standards for loans to enterprises recorded a small but durable tightening in 2023 (see Chart B), mainly due to the deteriorating overall expectations regarding economic activity, and industry- or firm-specific outlook in particular, as well as to banks' lower risk tolerance. As regards housing loans, credit standards in the euro area tightened somewhat, reflecting an overall deterioration in the economic outlook, as well as in borrower's creditworthiness and housing market prospects, and also the contribution of banks' lower risk tolerance. Similarly, with regard to consumer credit, in the euro area credit standards tightened somewhat throughout the year, mainly driven by the deterioration in the economic outlook and in consumers' creditworthiness, as well as banks' lower risk tolerance.

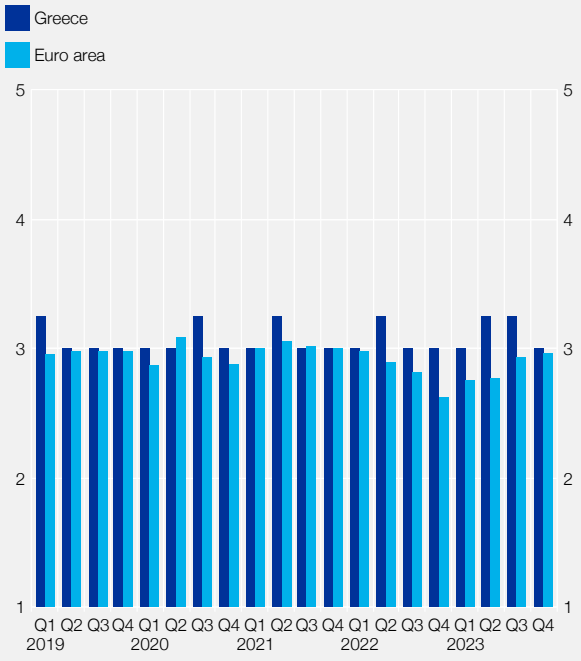
As regards terms and conditions on loans to enterprises in Greece, the sample reported a relative easing in the second and third quarters (see Chart C), mainly due to the narrowing of margins on average- and high-risk loans.

As for loans to households, banks in Greece reported that terms and conditions on consumer loans remained broadly unchanged, except for some easing in the first quarter owing to a respective decrease in non-interest charges. They also reported that terms and conditions on housing loans were relatively volatile in the first half of 2023, mainly due to the relative volatility of the interest rate margin on average-risk loans, but remained unchanged in the second half of the year. In the euro area, credit institutions reported a small tightening of the terms and conditions on loans to enterprises throughout 2023 (see Chart C), mostly reflected on the widening of interest rate margins on average- and high-risk loans. They also reported a tightening in the terms and conditions on consumer loans and most housing loans, for which terms and conditions remained unchanged in the fourth quarter of 2023.

Credit institutions in Greece reported that the share of rejected applications for loans to firms remained unchanged in all quarters of 2023. As regards loans to households in Greece, the share of rejected applications decreased slightly, except for some increase in the second quarter, while it remained unchanged for consumer credit and other loans, except for a small decrease in the first quarter. In the euro area, the share of rejected applications for all loan categories increased slightly during all survey rounds in 2023.

Chart C Change in terms and conditions on loans to non-financial corporations in Greece and the euro area[1]

(in the corresponding quarters; average[2])



Source: ECB/Bank of Greece, Bank Lending Survey.
1 Banks' perceived changes in credit standards in the corresponding calendar quarter.
2 Average of banks' responses using a five-point scale, where terms and conditions on loans 1 = "tightened considerably", 2 = "tightened somewhat", 3 = "remained unchanged", 4 = "eased somewhat", and 5 "eased considerably".

Survey results on ad hoc questions

In response to ad hoc questions regarding their funding sources, in 2023 banks in Greece reported mostly improved access to medium-to-long-term debt financing, as well as short- and long-term deposits. At the same time, euro area credit institutions reported mostly improved access to long-term deposits, but also a deterioration in short-term deposits and the issuance of medium-to-long-term debt financing in the first half of the year.

In addition, credit institutions in Greece and the euro area as a whole reported that the evolution of the NPL ratio did not affect credit standards or terms and conditions across all loan categories.

As regards TLTRO III funding, banks in Greece reported that their participation had improved their profitability and their ability to meet regulatory and supervisory requirements, but had a slight negative effect on their liquidity and terms and conditions on loans.[4] Credit institutions in Greece reported a neutral impact of TLTRO III on lending volumes, credit standards and terms and conditions on loans. In the euro area, banks reported that in 2023 their TLTRO III funding had a small negative effect on their funding terms and conditions, as well as on their ability to improve their profitability and liquidity, but had favourably affected their ability to meet regulatory or supervisory requirements.

Banks' responses in Greece and the euro area as a whole reflect the positive effect of the ECB's key interest rate decisions on bank profitability, as they reported improved net interest income due to widened interest rate margins.

4 As of late 2022, the conditions for the provision of liquidity to banks by the Eurosystem through TLTRO III were tightened, and three additional dates were given for early repayment by banks of liquidity raised through TLTRO III to ensure that these operations were consistent with tightened monetary policy stance. For these reasons, substantial amounts were repaid to the Eurosystem for financing through TLTRO III operations in the course of 2023.

Credit institutions in Greece reported that the APP had a neutral impact on lending volumes, as well as on credit standards and terms and conditions on loans, except for some favourable effect on loans to enterprises volumes during the second and third quarters of 2023. In the euro area, banks mostly reported that the APP led to some deterioration in lending volumes and, at the same time, some tightening in credit standards and terms and conditions on all categories of loans.[5]

Banks in Greece reported in 2023 that the APP brought about an overall small decrease in their assets, but also boosted their profitability and capital position, while they also reported a neutral impact on their liquidity and funding conditions. In the euro area, banks reported a deterioration in their assets, liquidity and funding conditions, but also an improvement in their profitability and capital position.

Credit institutions in Greece and the euro area as a whole reported that changes in excess liquidity held by banks with the Eurosystem had a neutral impact on their funding terms and conditions and lending volumes.

Lastly, as regards the new ad hoc question gauging the impact of climate change on bank credit in the past twelve months, credit institutions in Greece and the euro area as a whole reported increased demand for loans by "green firms" (firms that do not contribute or contribute little to climate change), as well as "firms in transition" (firms that contribute to climate change, but are making considerable progress in the transition).

Conclusions

In 2023 Greek banks did not report any substantial change in credit standards, but some easing in corporate and consumer loan terms and conditions. By contrast, in the euro area, banks mostly reported a tightening in credit standards, as well as in terms and conditions across all loan categories.

In terms of demand for loans, credit institutions in Greece reported that demand for loans to enterprises remained broadly unchanged, while they also reported a decrease in demand for housing loans and a slight increase for consumer and other loans. Over the same period, negative developments were reported in demand for all categories of loans in the euro area.

Answering ad hoc questions, credit institutions in Greece mostly reported an improvement in their access to retail and wholesale funding, and the fact that their participation in TLTRO III operations and the APP supported the improvement in their profitability. At the same time, in the euro area, banks mostly reported a deterioration in their access to retail and wholesale funding, and that their participation in TLTRO III operations had a slight negative impact on their ability to improve their profitability, while the APP had a favourable impact on their profitability. In addition, credit institutions in Greece and in the euro area as a whole reported an increase in demand for loans to "green firms" and "firms in transition".

5 Net purchases of securities under the APP ceased in mid-2022, while from March 2023 onwards, reinvestments of the principal payments from maturing securities purchased by the Eurosystem under the APP were gradually reduced to zero in July 2023.

Box 16

DETERMINANTS OF GREEK BANKS' FUNDING COSTS

The financial sector serves as an intermediary between economic agents with a surplus of funds and those in need of external financing to carry out their activities. Financial institutions, such as banks, obtain short-term funding from the interbank market and customer deposits and long-term funding from capital markets. Financial institutions then transform short-term funds into long-term lending to the economy. Consequently, the role of fi-

nancial intermediation is both to finance the deficit agents of the economy and to transform short-term funds into long-term investments, with implications for the real economy.[1]

In the banking intermediation process, banks' cost of raising funds from depositors and investors are a crucial determinant of the cost of financing the economy, as it is an input for determining banks' lending rates. Banks' funding costs are affected, inter alia, by changes in monetary policy rates and have an impact on the financing costs of the economy through the bank lending channel.[2] Therefore, any changes in banks' funding costs affect the rate of credit growth to the real economy, while also affecting the profitability of the banking sector and thus the stability of the financial system. This box examines the different sources of funding for Greek banks as components of their total funding costs, during the period of monetary policy tightening by the European Central Bank (ECB) in 2022-2023. It also studies the extent to which changes in bank funding costs are passed through to lending rates to non-financial corporations (NFCs), compared to the European average.

Banks' funding sources

Banks raise funds from deposits (of NFCs and households) and financial markets for financing their lending activities. These funds represent the largest item on the liability side, with retail funding being the most stable and often the cheapest component.[3] Unlike investors, the private sector (NFCs and households) holds deposits with banks not only to earn a return on their surplus funds, but also for managing other needs, such as for transaction purposes. Capital markets constitute a significant source of bank wholesale funding, which has recently gained importance particularly due to banks' need to meet regulatory compliance targets (e.g. MREL). As the cost of wholesale funding is more sensitive to economic and financial conditions, it is more volatile than that of retail funding and is likely to increase significantly in periods of heightened economic uncertainty and credit risk.

The composition of Greek banks' liabilities

The impact of the pass-through of policy rate hikes on banks' funding costs depends, inter alia, on the composition of banks' liabilities and on the interest rate on each funding source. The Greek banking system as a whole follows the traditional business model, hence relying mainly on private sector deposits to finance banks' lending activities. In particular, as shown in Chart A.1, NFC and household deposits constitute the largest and most stable source of liquidity for Greek banks, accounting for around 80% (± 5%) of their total funding, i.e. well above that of European banks as a percentage of total funding (around 55-60%, see Chart A.2).[4] During

1 In particular, Diamond (see Diamond, D. (1984), "Financial intermediation and delegated monitoring", *Review of Economic Studies*, 51, 393-414) shows that, by financing long-term business plans, banks assume a risk that depositors are unwilling to take, as they have the necessary tools and expertise to analyse the risks associated with lending to the economy. Financial intermediation has proved to have a significant impact on the real economy. Bernanke was the first to show that (see Bernanke, B. (1983), "Nonmonetary effects of the financial crisis in the propagation of the Great Depression", *American Economic Review*, 73, 257-276) the financial crisis of 1930-33 reduced the effectiveness of bank financial intermediation, leading to a significant decline in aggregate demand in the US economy, while after the global financial crisis of 2008-09 the literature on the financial impact on the real economy has grown significantly (see, inter alia, Borio, C. (2014), "Financial cycle and the macroeconomy: what have we learnt?", *Journal of Banking and Finance* 45, 182-198, and Christiano, L.J., R. Motto and M. Rostagno (2014), "Risk shocks", *American Economic Review*, 104(1), 27-65).

2 See for example: Gerlach, J.R., N. Mora and P. Uysal (2018), "Bank funding costs in a rising interest rate environment", *Journal of Banking and Finance*, 87, 164-186.

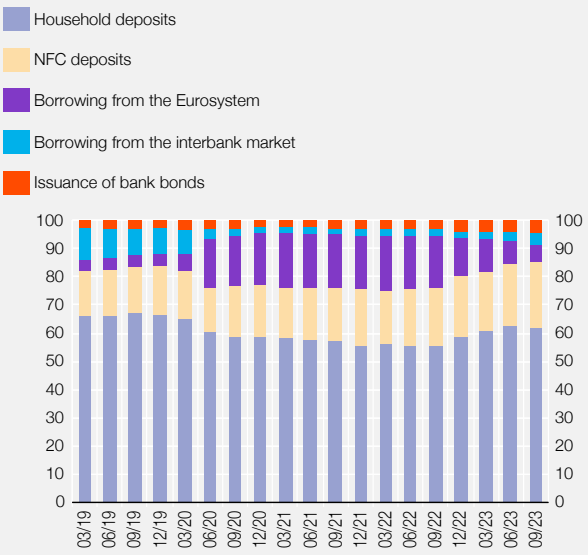
3 See, for example: "Article: Recent developments in the composition and cost of bank funding in the euro area", ECB, *Economic Bulletin*, Issue 1/2016, and Beau, E., J. Hill, T. Hussain and D. Nixon (2014), "Bank funding costs: what are they, what determines them and why do they matter?", Bank of England, *Quarterly Bulletin* 2014 Q4. According to the literature, wholesale funding allows banks to expand their assets more quickly and to control the risk of their activities more effectively, but it also increases the volatility of overall funding costs as it is more sensitive to market conditions. See, for example Ivashina, V. and D. Scharfstein (2009), "Bank lending during the financial crisis of 2008", *Journal of Financial Economics*, 97, 319-338, Huang, R. and L. Ratnovski (2011), "The dark side of bank wholesale funding", *Journal of Financial Intermediation*, 20, 248-26, and Calomiris, C. (1999), "Building an incentive-compatible safety net", *Journal of Banking and Finance*, 23, 1499-1519.

4 Data refer to euro area systemic banks supervised by the Single Supervisory Mechanism (Supervisory Banking Statistics for significant institutions).

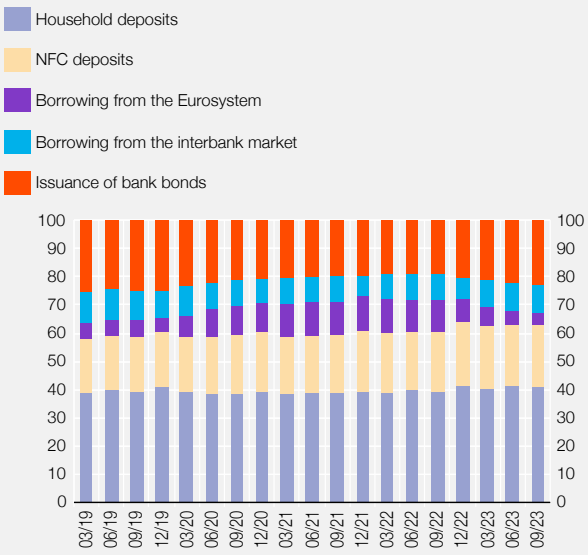
Chart A Funding sources of Greek and European banks

(percentages %)

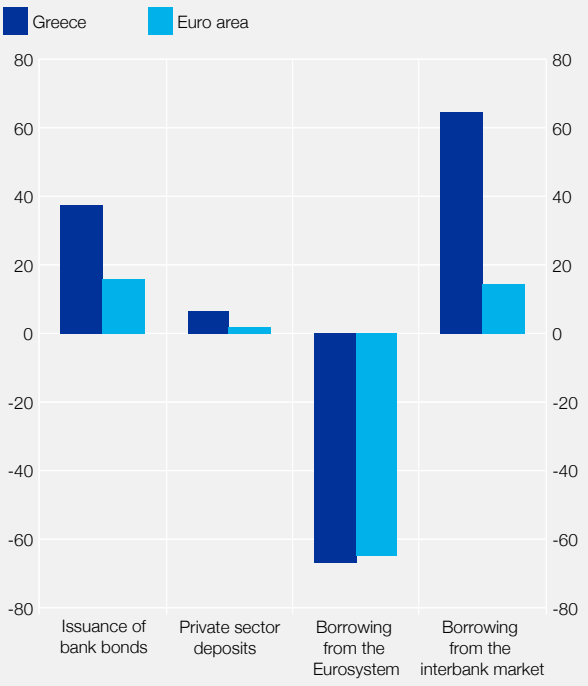
1) Greek banks' liabilities



2) European banks' liabilities



3) Percentage changes in bank funding since the start of the policy rate hikes



Sources: ECB and Bank of Greece.
Note: In panels (1) and (2), the vertical bars show the individual share of each funding component in the total funding of Greek and European banks, respectively, in percentage points.
Panel (3) depicts the percentage changes of the funding components for the period June 2022-September 2023.

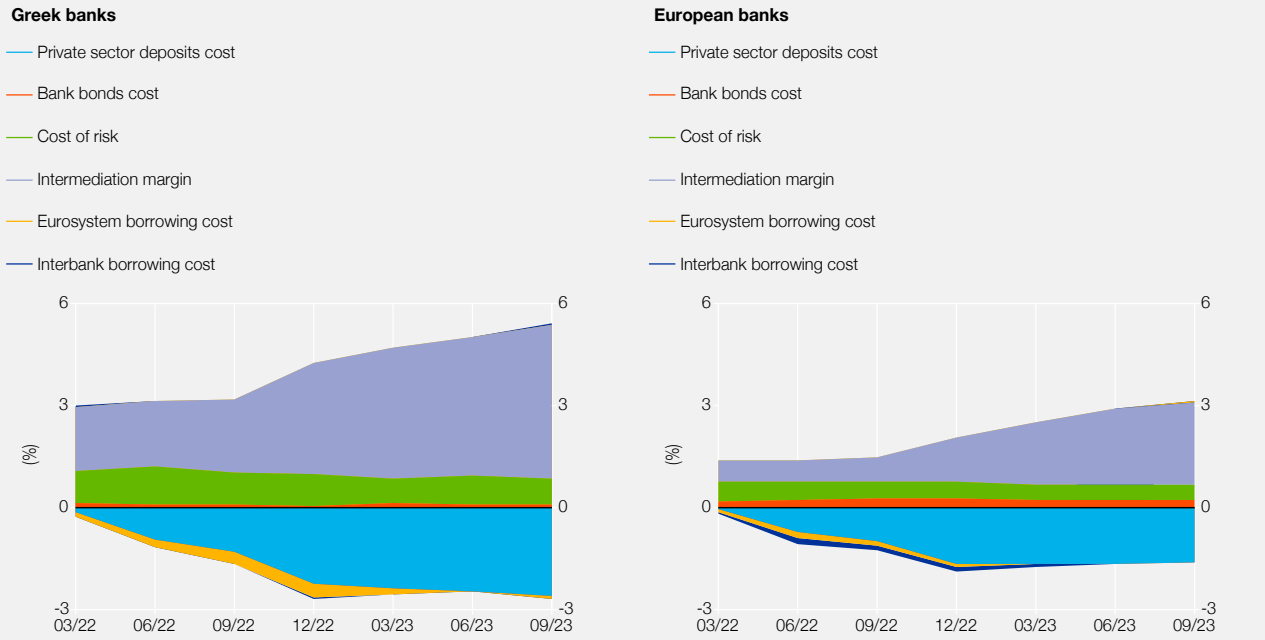
the pandemic, however, customer deposits decreased as a share of total liabilities, owing to the increased liquidity raised from the Eurosystem, mainly through accessing the targeted longer-term refinancing operations (TLTROs) (see Chart A.1). As this liquidity gradually declines towards pre-pandemic levels and interbank market funding has not recovered, private sector deposits are at historical highs (around 84% of banks' total liabilities), compressing the shares of other funding sources. It is worth noting that bank bond issuance has become the second most important source of funding for Greek banks after retail deposits, having increased by 100% since 2019 and by 38% since the ECB started raising policy rates in July 2022 (see Chart A.3). Yet, the level of funding flows from capital markets to Greek banks is significantly below that to European banks (see Chart A.2).

The impact of higher policy rates on banks' funding costs

The greater reliance of Greek banks on private sector deposits vis-à-vis European banks, together with the weak pass-through of ECB policy rates to euro area deposit rates,[5] is associated with comparatively milder increases in Greek banks' funding costs. For the purposes of this empirical analysis, a simple model was employed

5 See the relevant results in the recent study by Beyer, R.C.M., R. Chen, C. Li, F. Misch, E.O. Ozturk and L. Ratnovski (2024), "Monetary policy pass-through to interest rates: Stylized facts from 30 European countries", IMF Working Paper WP/24/9.

Chart B Cost determinants of bank lending rates to non-financial corporations (NFCs)



Sources: ECB, Bank of Greece, LSEG and Bank of Greece calculations.
Note: The chart shows the bank lending rate to NFCs as a cumulative effect of bank funding cost components. The lending rate is the composite bank lending rate calculated by the ECB as the weighted average of the interest rates on short-term and long-term loans to NFCs. The cost determinants take into account the interest rates on private sector deposits, the Eurosystem and interbank borrowing rate as well as the bank bond issuance rate, expressed as spreads vis-à-vis the benchmark rate (the 3-year overnight index swap), weighted by their respective importance in banks' funding mix. The residual, after also deducting the cost of risk, up to the nominal lending rate is used as a proxy of the bank intermediation margin.

for disentangling the individual components of banks' funding costs, while also examining their contribution to the NFC lending rate.[6]

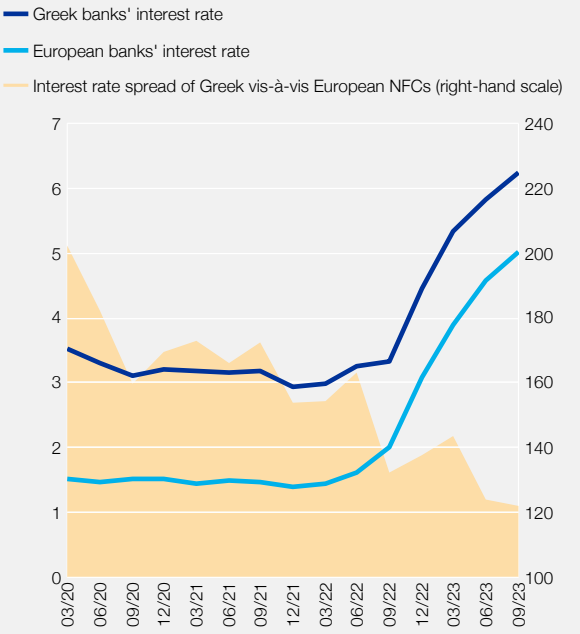
The results from studying the funding costs of banks, both Greek and European, suggest that the pass-through of the monetary policy tightening to deposit rates is weak (see Chart B). In fact, in the Greek banking system, the transmission of policy rate increases to deposit rates is comparatively weaker, highlighting the heterogeneity in deposit shares and deposit rates, as presented above. Consequently, there appears to be a notable increase in the bank intermediation margin over the same period, which is proxied by the residual of the lending rate after deducting the components determining the funding costs and credit risk. Thus, while lower deposit rates and higher profit margins contributed almost equally to higher lending rates in euro area banks during the ECB's policy rate hike cycle, in Greek banks the individual contributions were around 1/4 and 3/4 respectively.

The relatively larger share of bank intermediation margins in the pricing of NFC loans in the Greek banking system has sustained the rise in nominal lending rates in absolute terms. Compared to euro area banks, however, the rise in lending rates was smaller (see Chart C). In particular, the interest rate spread on Greek NFC loans vis-à-vis European NFC loans has decreased by around 20% since the start of lending rate hikes in early 2022. As a result, it is estimated that the cost of bank lending to Greek NFCs is around 90 basis points lower than the

6 This approach has also been followed by the ECB in recent presentations (see e.g. the speech by Executive Board member Philip R. Lane, "Inflation and monetary policy in the euro area", 28 November 2023). According to this approach, the cost of bank funding is the weighted average of individual sources of funding (private sector deposits, issuance of bank bonds, borrowing from the interbank market and the Eurosystem), with weights defined by the share of each source in the total cost. The cost of risk is added to this cost, with the residual up to the nominal lending rate being used as a proxy of the intermediation margin.

Chart C Bank lending rate to non-financial corporations

(interest rates in % and interest rate spread in basis points)



Sources: ECB and Bank of Greece calculations.
Note: The lending rate is the composite bank lending rate calculated by the ECB as the weighted average of short-term and long-term lending rates to NFCs.

level it would have been had the cost of Greek bank deposits followed the path of the costs of European bank deposits over the same period.[7] This leads to a convergence of bank lending rates to NFCs, reflecting the relatively lower funding costs of Greek banks, but also the improvement in the domestic economic environment. This convergence presumably has improved the competitiveness of Greek NFCs.

Conclusions

Since the start of the ECB interest rate hike cycle in July 2022, Greek banks have contained the full pass-through of policy rate increases to the cost of lending to NFCs, thus significantly reducing the Greek NFC lending rate spread vis-à-vis European NFCs. This outcome is attributed to their comparatively lower funding costs, which comes as a result of higher shares of retail deposits in their total liabilities and the overall compression of deposit rates in the euro area. However, the normalisation of monetary policy conditions may weaken the benefit of the high reliance of Greek banks on private sector deposits. An increase in time deposit balances and other banks' liabilities may also increase banks' funding costs.

7 The estimate was based on a sensitivity analysis on the cost of funding from deposits, ceteris paribus. In particular, the interest rate on lending to NFCs was calculated based on the assumption that Greek banks have a share of deposits in total liabilities weighted by the deposit rate of European banks. The estimate decreases to approximately 40 basis points if the sensitivity analysis retains the shares of deposits in the liabilities of Greek banks.

Box 17

NEW LAW ON CREDIT SERVICERS AND CREDIT PURCHASERS

Law 5072/2023 transposes into Greek law the provisions of Directive (EU) 2021/2167 on credit servicers and credit purchasers. These are the Credit Servicing Firms (CSFs), as regulated by Law 4354/2015, the relevant provisions of which are replaced in their entirety.

The new law further specifies the authorisation framework for CSFs, providing for more specific conditions and establishing the procedure for the authorisation of CSFs by the Bank of Greece. The new law requires by 29 June 2024 the re-authorisation of all CSFs which had been granted an authorisation under the previous regime, and if it is found that any companies are unable to comply with the new rules, the Bank of Greece may take supervisory measures or even withdraw their authorisation. The new law places great emphasis on the assessment of the members of the Board of Directors and the persons directing the business of CSFs, while qualifying shareholders are assessed both at the time of authorisation and during operation in the event of acquisition or increase of a qualifying holding. In addition, specific provisions are laid down for CSFs in case they receive and hold funds from borrowers, as well as the obligation to have in place procedures to record and handle complaints. In addition, the new law further specifies both the contractual relationship between a

credit servicer and a credit purchaser and the conditions for outsourcing part of the credit servicing activities by a credit servicer.

The Bank of Greece remains the competent authority for the authorisation of CSFs while its supervisory role is further strengthened, as the new law introduces stricter requirements for corporate governance and the internal control system. To this end, Executive Committee Act 225/1/30.1.2024 outlining the terms and conditions for authorising these companies was issued, to be followed by a new decision from the Bank of Greece regarding the supervision of CSFs.

The new CSF authorisation framework is now aligned with that applicable to credit servicers in the other Member States of the European Union (EU), thus promoting the cross-border credit servicing activity. The new law sets out the procedure by which authorised credit servicers in the EU can perform cross-border activities freely (with or without establishment in Greece) and lays down provisions for the supervision of such servicers and the cooperation between competent authorities.

With a view to further strengthening borrower protection, the new law sets forth general principles of conduct of CSFs and credit purchasers in their communication with borrowers and introduces requirements to inform borrowers after the transfer of their loans and before the first collection of their debt, as well as upon their request, assigning the relevant responsibilities to the Ministry of Economy and Finance. CSFs are also required to have an electronic system of personalised information, through which borrowers receive direct information about their debt, and the minimum content of such information is defined.

Finally, the new law establishes a stronger framework for administrative sanctions and remedial measures that the Bank of Greece can apply to CSFs, credit purchasers and institutions transferring their loans in cases of breaches of the legislation and Bank of Greece's decisions.

Box 18

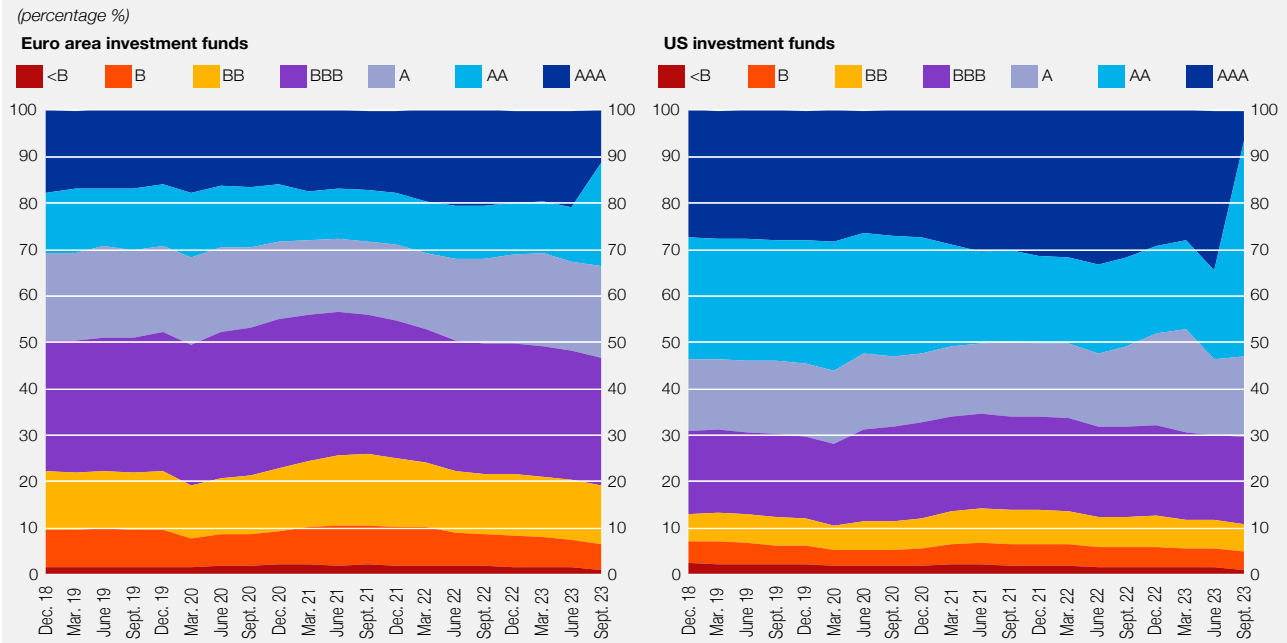
THE ALLOCATION OF INVESTMENT FUNDS' PORTFOLIOS IN GREECE AND INTERNATIONALLY

Investment funds are entities that take individual investors' contributions and invest them collectively in equity shares, bonds and other securities portfolios, while the management of these portfolios is delegated to professional fund managers. Together with insurance companies, investment vehicles and pension funds, they belong to the category of non-bank financial intermediaries.

According to the findings of a relevant ECB report issued in the context of the review of its monetary policy strategy, the role of the non-bank financial intermediaries has strengthened significantly over the past decade.[1] According to the Financial Stability Board, the value of the assets of non-bank financial intermediaries amounts to USD 218 trillion, of which investment funds hold about 30%.[2] At the same time, as the role of investment funds is to invest their resources by financing the economy through capital markets, their impact on financing economic activity has increased substantially.[3]

1 See Workstream on Non-Bank Financial Intermediation (2021), "Non-bank financial intermediation in the euro area: implications for monetary policy transmission and key vulnerabilities", ECB Occasional Paper No. 270.
2 See Financial Stability Board, "2023 Global Monitoring Report on Non-Bank Financial Intermediation".
3 Indicatively, recent research argues that capital raising through the issuance of corporate bonds has doubled since 2009 (see OECD (2020), "Corporate bond market trends emerging risks and monetary policy"), namely in a period of constrained bank lending, reflecting the significant increase of investment funds' activities (see Altavilla ,C., M.D. Pariès and G. Nicoletti (2019), "Loan supply, credit markets and the euro area financial crisis", *Journal of Banking & Finance*, 109, 105658).

Chart A Portfolio structure of European and US investment funds



Sources: Lipper for Investment Management and Bank of Greece calculations.
Note: The panels show the percentage distribution of the value of the portfolios of European (left panel) and US (right panel) investment funds in terms of the credit ratings of the securities held. Included are securities rated by at least one of the three rating agencies (S&P, Moody's and Fitch), according to Lipper's definition.

Developments in the international portfolios of investment funds

This box provides an overview of the findings of research conducted by the Bank of Greece on investment funds' positions internationally, with a view to linking them to monetary policy, as well as to the financing of the economy through their holdings of sovereign bonds or bank and corporate equity shares and bonds. To this end, portfolio data have been collected for the period from the fourth quarter of 2018 to the third quarter of 2023.[4] Based on the characteristics of the investment funds' holdings, there follows an analysis of their portfolio strategy and its changes. Focusing on EU and US investment funds, their structure is examined in terms of geographical origin and credit ratings of investment positions.

As regards the geographical structure of investment fund portfolios, US funds have invested around 80 % (±2%) in US securities over time, while European funds invest around 45% (±3%) in European securities and around 34% in US securities. Of course, one reason why international investment funds hold securities originating from the USA is the role of the dollar as an international reserve currency and, for US funds, the need to not incorporate exchange rate risk in their portfolios.[5] At the same time, though, the high credit rating of the United States also affects investment decisions significantly, resulting in US Treasury bonds being considered safe in terms of credit risk. This explains the high share of US securities in both US and European investment fund portfolios.

With regard to the role of credit ratings in the structure of investment fund portfolios, Chart A shows that both European and US investment funds hold a very large proportion of their portfolios in investment grade securities. Specifically, 80% of the value of European investment funds' portfolios and around 88% of the value of US investment funds' portfolios are in investment grade securities, in line with their investment man-

4 In particular, data have been collected for around 120 thousand international investment funds, with a total value around EUR 54 trillion, excluding funds of funds. The source of data is Lipper for Investment Management. These data provide information on the investment funds themselves, such as the economy from which they originate, but also on the characteristics of their holdings (type of securities, credit ratings of the legal entities financed, geographical origin of the securities, etc.).

5 See Longaric, P.A. and M.M. Habib, "The US dollar bias of US-fixed income funds" (Box 4), ECB, *The international role of the euro*, June 2021.

dates.[6] In fact, these percentages remain broadly stable for the period under review, indicating the importance of credit ratings in investment funds' strategy design.

However, it is evident that since the fourth quarter of 2021, both European and US investment funds have increased their holdings in higher-rated securities, decreasing their holdings in lower-rated securities. In particular, European funds have increased their holdings of investment grade securities by 6 percentage points (pps) and reduced by an equal amount their holdings of lower-rated securities (i.e. non- investment grade). Similarly, US funds have increased their holdings of investment grade securities by 5 pps, reducing their holdings of lower-rated securities commensurately. Consequently, it appears that the period since the Federal Reserve signalled a gradual tightening of monetary policy is characterised by a rebalancing of the portfolios of European and US funds towards higher-rated securities.[7]

Developments in investment fund portfolios holding Greek securities

During this period, when investment funds worldwide reduced their positions in non-investment grade securities, Greek securities and entities did not have an investment grade rating. However, at the same time, Greece's sovereign credit rating was consistently being upgraded, while prospects for the continuation of this upward trend were visible.[8] Consequently, while the general trend in investment fund portfolios was in the direction of reducing the exposure to non-investment grade securities, investment funds increased their positions in Greek bonds and stocks, possibly in anticipation of the upgrade of Greece's sovereign credit rating.

In order to draw conclusions on changes in the positions of investment funds in Greek securities, the sample was limited to the portfolios of investment funds holding Greek sovereign bonds or stocks. As can be seen from the top panel of Chart B, the total value of international investment fund positions in Greek securities amounted to EUR 18 billion in the third quarter of 2023, of which EUR 7.5 billion held by European funds and EUR 5.8 billion by US funds. These positions have been on a continuous upward trend, starting in the fourth quarter of 2022 and, as a result, the total value of investment fund positions in Greek securities increased by around EUR 5.9 billion. Around EUR 2.1 billion of this increase corresponds to a rise in the value of Greek bond holdings, mainly sovereign bonds, and EUR 3.5 billion to an increase in the value of stocks.

Is this a result of improved valuations of Greek bonds and stocks? In order to answer this question, the value of investment positions in Greek bonds and stocks was recalculated, net of the impact of their valuations.[9]

The middle panel of Chart B shows the evolution of investment funds' positions in Greek bonds, net of the impact of the appreciation of Greek bonds. Thus, the EUR 2 billion increase in holdings of Greek bonds reflected an increase in investment fund positions mainly in Greek sovereign bonds. At the same time, it appears that the increase in Greek sovereign bond positions was related to a significant decline, by around 150 basis points, in the spread of Greek sovereign bonds over the ten-year Bund, while it is, by definition, unaffected by it. In other words, it appears that the significant increase in investment positions, which took place ex ante to the upgrade of Greece's sovereign credit rating to investment grade, explains the decline in spreads of Greek sovereign bonds over German and other euro area sovereign bonds.

The lower panel in Chart B shows the corresponding evolution of investment fund positions in Greek stocks, net of the effects of the rise in their prices on their valuations in investment funds' financial statements. As in the case of

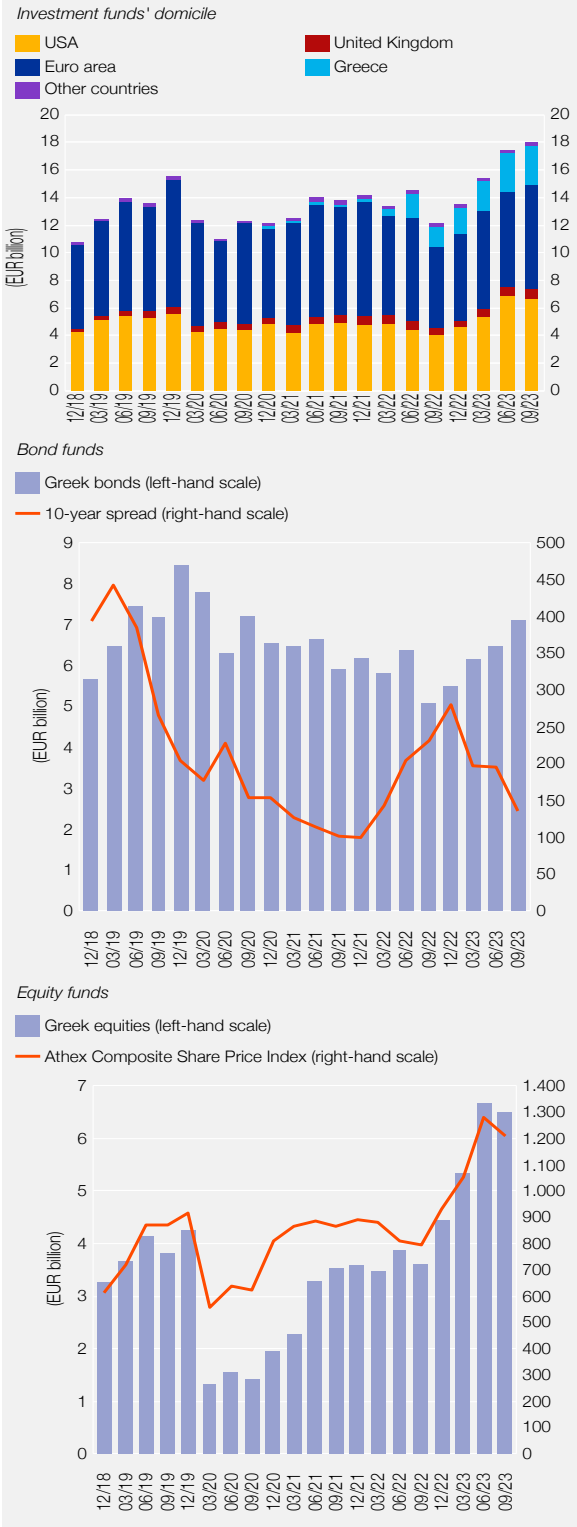
6 See Baghai, R., B. Becker and S. Pitschner (2023), "The use of credit ratings in the delegated management of fixed income assets", Management Science (article in advance).

7 In December 2021, the Federal Reserve started tapering its asset purchases, in accordance with the FOMC's decision of 3.11.2021. The tightening of the US monetary policy, which would at first become less accommodative and gradually restrictive, had already been signalled by Fed officials' statements in the previous months.

8 Specifically, the outlook for Greece's sovereign rating was positive for all three major rating agencies (Fitch announced the change of outlook to positive on 14.1.2022, S&P on 21.4.2023 and Moody's on 21.3.2023).

9 In particular, changes in the market value of investment funds' positions were divided by changes in bond or equity prices (depending on the type of security), thereby isolating the effect on the value of positions stemming from the change in securities' prices for the period under review, so that adjusted values reflect only net changes in investment fund positions.

Chart B Total value of Greek securities in international investment fund portfolios



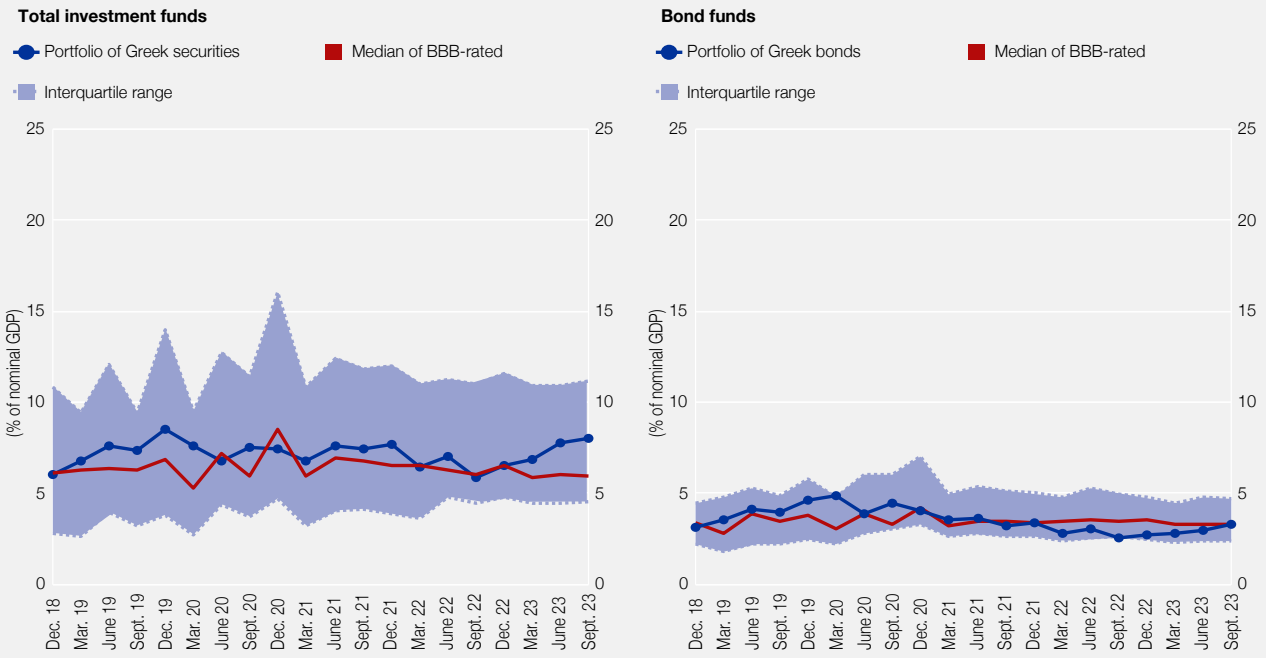
Sources: Lipper for Investment Management, LSEG and Bank of Greece calculations.
Note: The panels show the total value of Greek securities in investment funds portfolios classified by country of origin (top panel). Bond funds are shown in the middle panel and equity funds in the lower panel. The values of equity and bond positions are net of the effect of price changes. Data for the third quarter of 2023 are preliminary.

bonds, investment funds' new positions in Greek equity shares amount to around EUR 2.9 billion. Thus, also in the case of stocks, investment funds seem to have increased their positions in advance of the upgrade of Greece's sovereign credit rating to investment grade, and this increase explains the rise in share prices. Again, this development is related to, but not affected by, the period of strong stock price increases on the Athens Stock Exchange.

Subsequently, the analysis of broader changes in the portfolios of investment funds holding Greek securities (see Chart C) shows that the increase in Greek securities is largely a result of developments related to the Greek economy, such as the anticipated upgrade of Greece's sovereign credit rating to investment grade, rather than broader changes in the composition of these portfolios. Specifically, Chart C displays the average weights for all types of securities (left panel) and bonds (right panel) from the Greek economy and from BBB-rated economies, relative to the size of each economy. Both panels show that investment funds hold a broadly stable percentage of BBB-rated securities, taking into account the size of the underlying economies. At the same time, however, it appears that the increase in exposure to Greek equities and bonds since the fourth quarter of 2022 is not explained by a corresponding increase in the relative size of the Greek economy. Moreover, it appears that the exposure of investment funds to all types of securities (left panel) has risen significantly more than their exposure to Greek sovereign bonds (right panel). Consequently, it appears that since the fourth quarter of 2022 the exposure of investment funds to the Greek economy has increased, from which the private sector of the Greek economy benefits the most, through a relatively higher increase in equity holdings.[10]

10 The economic effects of stock prices on the real economy are explained by the Tobin's Q model, according to which an increase in a firm's share price facilitates the attraction of capital and investment. The link between stock market valuations and investments in the economy has been documented by relevant studies (see e.g. Eberly, J., S. Rebelo and N. Vincent (2012), "What explains the lagged-investment effect?", *Journal of Monetary Economics*, 59, 370-380), even if stock valuations diverge significantly from the companies' fundamentals (see Gilchrist, S., C.P. Himmelberg and G. Huberman (2005), "Do stock price bubbles influence corporate investment?", *Journal of Monetary Economics*, 52, 805-827). Moreover, the same mechanism also operates through the bond market (see Philippon, T. (2009), "The bond market's q", *Quarterly Journal of Economics*, 124(3), 1011-1056), while recent research indicates a strong link of investment with the credit risk pricing (for instance, see Lin, X., C. Wang, N. Wang and J. Yang (2018), "Investment, Tobin's q, and interest rates", *Journal of Financial Economics*, 130(3), 620-640).

Chart C Evolution of positions in Greek securities and BBB-rated securities



Sources: Lipper for Investment Management, IMF (World Economic Outlook) and Bank of Greece calculations.
Note: The chart shows the evolution of the value of investment fund portfolio positions in Greek securities and BBB-rated securities. The left panel includes stocks and bonds, while the right panel only includes bonds. Specifically, the chart depicts investment positions in the Greek market (blue line), as well as the distribution over time of investment positions in countries with a BBB credit rating weighted by the nominal GDP of each country (the red line depicts the median and the shaded area the interquartile range 75%-25%).

Conclusions

Investment funds, like all other types of non-bank financial intermediaries, have an increasingly important role as a source of finance globally. Around 80% of the European funds' and 88% of the US funds' holdings are in investment grade securities. In recent years, and in particular since the fourth quarter of 2021, there has been a shift in their holdings internationally towards higher-rated securities. This observation relates to the tightening of monetary conditions worldwide, leading to a reduction in the exposure of funds to riskier assets.

At the same time, however, investment funds' purchases of Greek bonds and equities increased by EUR 2.1 billion and EUR 3.5 billion, respectively, already in the fourth quarter of 2022, i.e. ex ante to the upgrade of Greece's sovereign credit rating to investment grade. This increase appears to explain the significant decline in Greek sovereign bond spreads and the increase in equity prices for the period up to the third quarter of 2023. In other words, international investment funds seem to have anticipated the upgrade of Greece's sovereign credit rating to investment grade, as during the same period they reduced their exposure to non-investment grade securities. Finally, it is also noteworthy that the increase in the exposure of investment funds benefited significantly the private sector of the Greek economy, as shown by the strong rise in investment funds' holdings of Greek equities.

Box 19

STOCKTAKE TOWARDS THE ACHIEVEMENT OF THE PARIS AGREEMENT GOALS

The Paris Agreement (hereinafter the "Agreement"), reached in December 2015 in the context of the 21st UN Climate Change Conference (COP21), sets as a key goal to hold the increase in the global average temperature

to well below 2°C above pre-industrial levels, while trying to limit the temperature increase even further to 1.5°C by 2050.

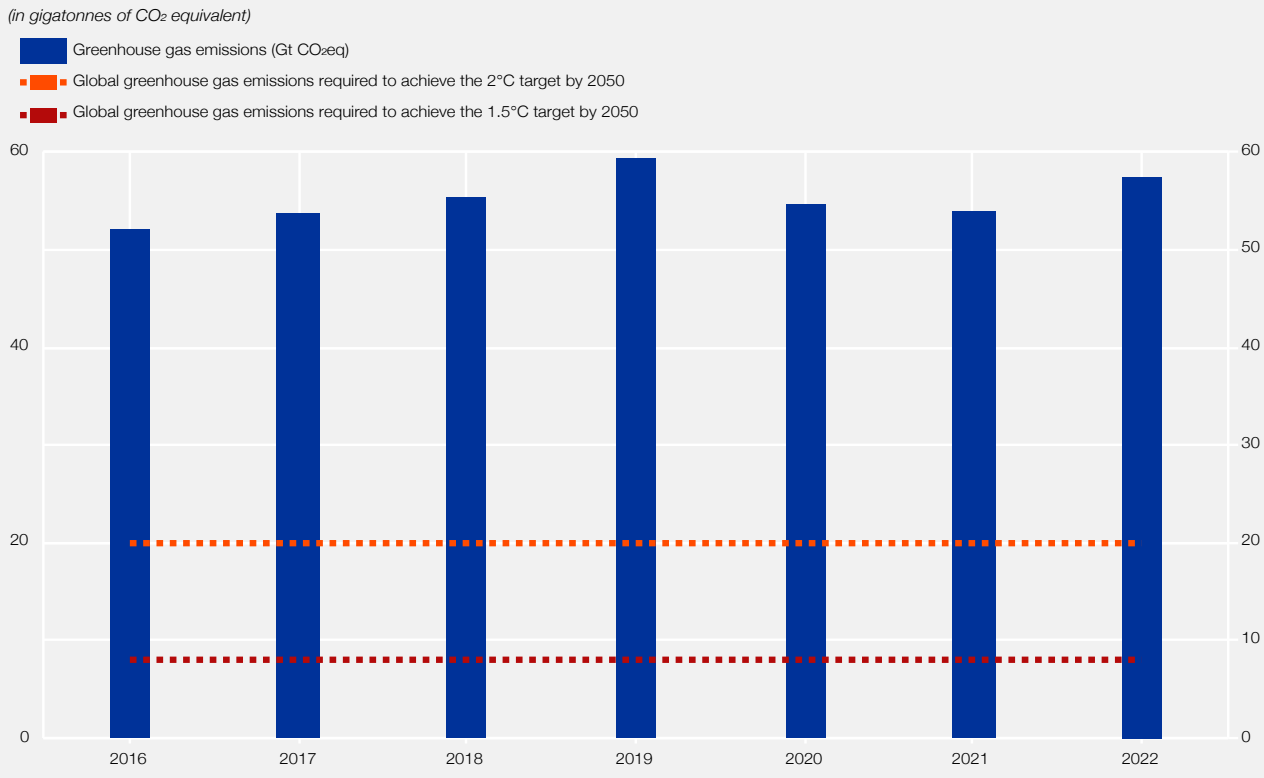
The 195 countries that have signed the Agreement commit, inter alia, to periodically review their overall progress in achieving its long-term goals. In addition, they commit to renew every five years their national action plans which list their goals and national measures to limit greenhouse gas emissions and strengthen their resilience to the impacts of climate change.[1]

Global Stocktake

The latest UN Climate Change Conference (COP28) that took place in Dubai, United Arab Emirates, in December 2023, discussed the first Global Stocktake towards the achievement of the Agreement's goals. It was found that, on the basis of the measures already adopted, there is a significant deviation from the goal to contain the global average temperature increase. In particular, there is a significant gap between the estimated greenhouse gas emissions and those that would reduce the temperature increase by 1.5°C. This "emission gap"[2] is equal to 19 gigatonnes (i.e. billion tonnes) of carbon dioxide equivalent (Gt CO_2eq).[3] Chart A shows the levels of global greenhouse gas emissions from 2016 to 2022 and the corresponding levels required by 2050 in order to achieve the goal of holding the temperature increase below 2°C and 1.5°C respectively.

The gap is also confirmed by the temperatures throughout 2023, which goes down in history as the warmest calendar year on record. 2023 marks the first time on record that every day within a year has exceeded 1°C above

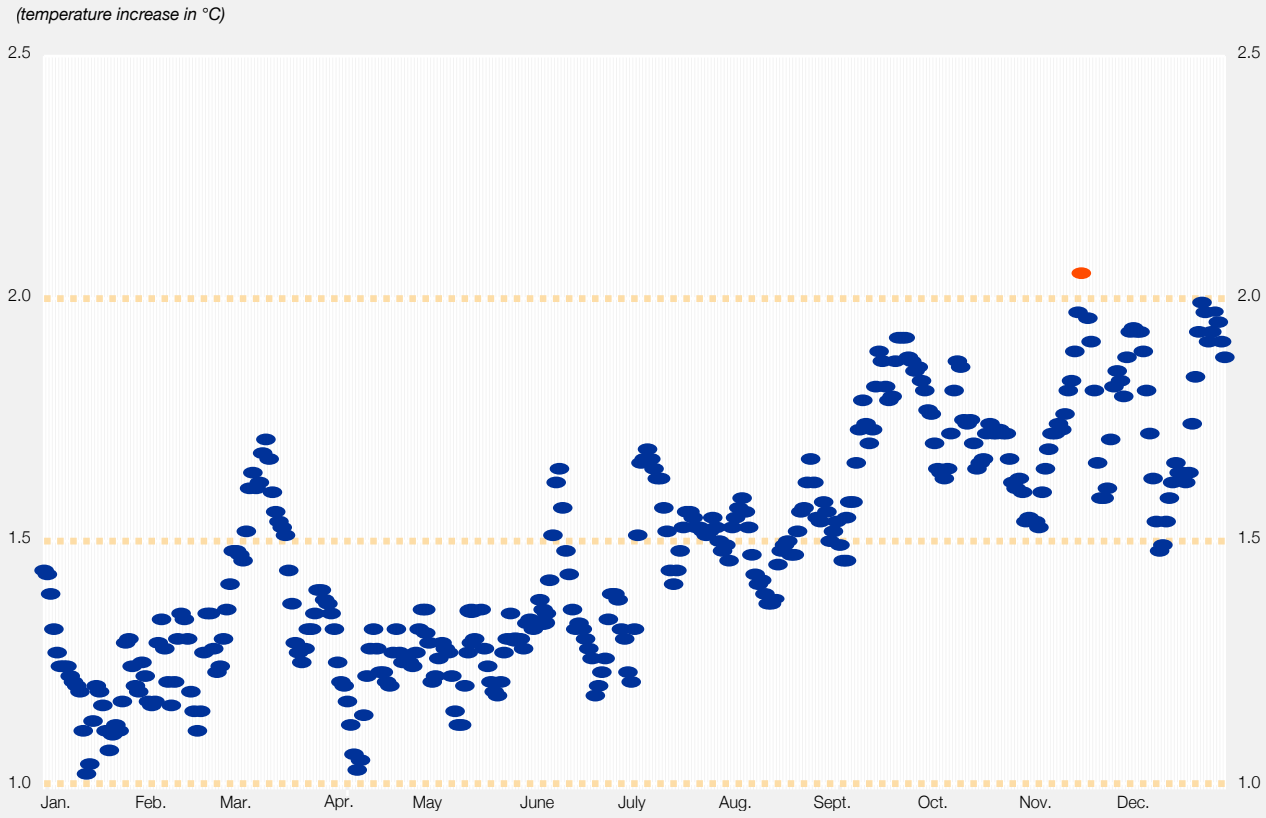
Chart A Global greenhouse gas emissions (2016-2022)



Source: United Nations, Emissions Gap Report for the years 2017 to 2023.

1 United Nations, All About the NDCs.
2 The emission gap is defined as the difference between the estimated global greenhouse gas emissions resulting from the full implementation of the most recent Nationally Determined Contributions (NDCs) and the levels in line with the transition pathways to meet the long-term goals of holding the temperature increase under the Paris Agreement.
3 United Nations (2023), Emissions Gap Report 2023.

Chart B Daily global average temperature increase above pre-industrial levels (1850-1900) in 2023



Sources: Copernicus and ERA5.

the pre-industrial levels. Moreover, close to 50% of days were more than 1.5°C warmer than the pre-industrial levels and two days in November were, for the first time, more than 2°C warmer[4] (see Chart B).

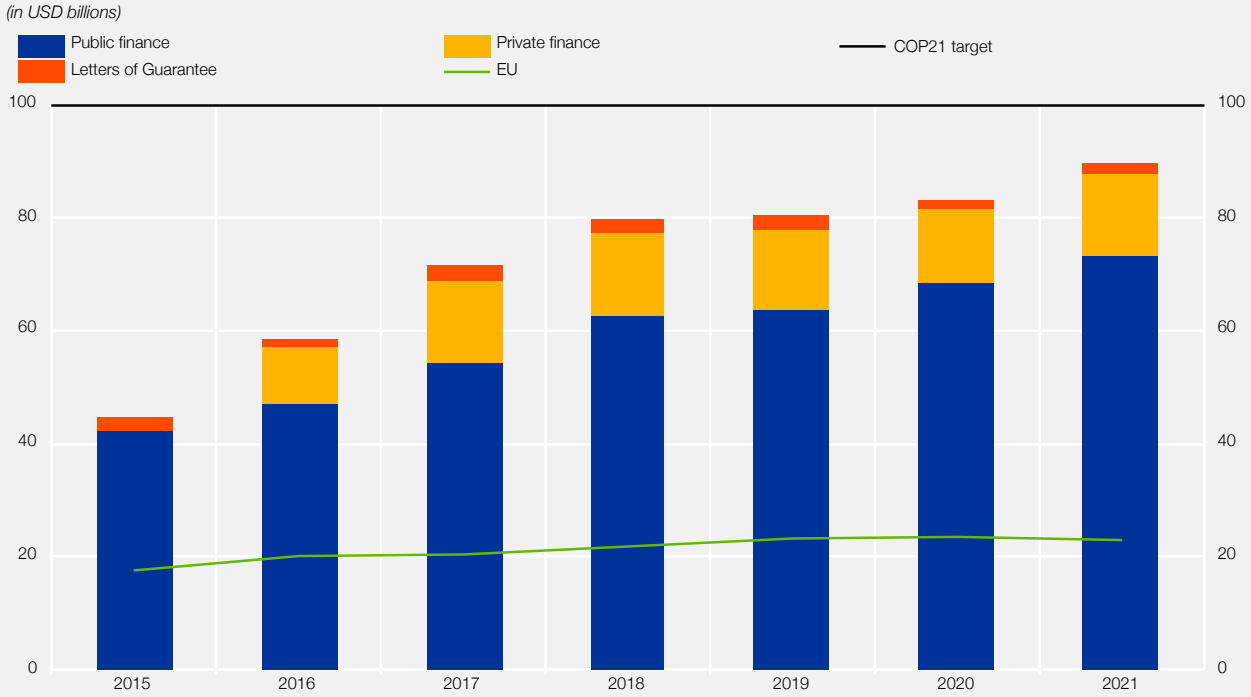
The analysis from the Global Stocktake notes that, in order to align with the goals of the Agreement towards a zero-emission economy by 2050 and limit the global average temperature increase, transformations are needed across all sectors of economic activity, as well as national partnerships and more ambitious measures to reduce greenhouse gas emissions and adapt to climate change. Specifically, greenhouse gas emissions need to be reduced by 43% by 2030, 60% by 2035 and 84% by 2050, compared with the 2019 levels, in order to limit global warming to 1.5°C.[5]

With regard to adaptation to climate change, the Global Stocktake analysis highlights, among other things, the need for more decisive and effective adaptation strategies, such as the involvement of local communities, which are experiencing the consequences of climate change, in decision-making, as well as enhanced transparency on progress in adaptation.

Furthermore, it notes that financial flows should be scaled up in order to achieve the goals of the Agreement, as the issue of funding constitutes an important part of it. Among other things, while the Agreement set a target of USD 100 billion per annum for developed countries to contribute to international climate finance by 2025, there was a funding gap of USD 192 billion from 2015 to 2022 according to OECD data. There is a general need to accelerate climate finance from all sources, private, public, domestic or international, with developed countries providing financial assistance and support to developing countries. It is worth noting that the European Union is

4 Copernicus, Global climate highlights 2023.
5 United Nations (2023), Technical dialogue of the first global stocktake.

Chart C Finance provided to developing countries to fight climate change for the period 2015-2022 per finance type



Sources: OECD and European Commission.
Note: The Paris Agreement set a target of USD 100 billion per annum for developed countries to contribute to international climate finance by 2025.

one of the largest providers of climate finance worldwide. In 2022 it contributed EUR 28.5 billion to climate actions finance from public sources[6,7] (see Chart C).

As far as the European Union is concerned, the Global Stocktake points are confirmed and reinforced by the recent report of the European Scientific Advisory Board on Climate Change, which proposes both immediate and medium-term measures to achieve the EU's "climate neutrality" objectives by 2030 and 2050.[8] Moreover, a report by the European Commission, published on 6.2.2024,[9] estimated that, in order to achieve a 90% reduction in emissions by 2040 and full climate neutrality in the EU economy by 2050, investments of EUR 1.53 trillion per annum will be required over the period 2031-2050 (EUR 660 billion per annum net of the investment in transport and purchase of new vehicles cost, estimated at EUR 870 billion per annum).

Decisions of the 28th UN Climate Change Conference

The undeniable culmination of the latest UN Climate Change Conference (COP28) is the final consensual text, which, among other things, speaks of moving away from fossil fuels in energy systems, tripling renewable energy capacity by 2030 and expediting the energy transition in a just, orderly and equitable manner, accelerating action over the remainder of this critical decade in order to achieve carbon neutrality by 2050.[10,11,12]

6 OECD (2023), Climate Finance Provided and Mobilised by Developed Countries in 2013-2021.
7 Council of the EU, Infographic – Europe's contribution to climate finance.
8 European Scientific Advisory Board on Climate Change, Towards EU climate neutrality: progress, policy gaps and opportunities – Assessment Report 2024.
9 European Commission Communication: Securing our future: Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society.
10 McKinsey, "Outcomes from COP28: What next to accelerate climate action?", 21.12.2023.
11 International Energy Agency, "IEA assessment of the evolving pledges at COP28", 10.12.2023.
12 United Nations, "COP28 Agreement Signals 'Beginning of the End' of the Fossil Fuel Era", 13.12.2023.

Important decisions were also taken on critical issues. For the first time, methane emissions were specifically mentioned. This gas is considered to be a super pollutant. The EU and the US committed to take concrete measures to contain them.

It was also recognised that it is now of strategic importance to speed up implementation or research (as appropriate) for critical technologies classified as "green", such as renewables, nuclear energy (for which serious objections have been raised), carbon sequestration technologies and nuclear fusion (the actual use of which on a massive scale is estimated to require decades). To this end, it was decided to triple electricity production from renewable energy sources (RES), double energy efficiency measures, introduce new standards to liberalise the hydrogen market, triple electricity production from countries with nuclear power plants and reduce to the greatest degree possible Scope 1 and Scope 2 emissions[13] from all countries.

The energy, industrial and transport sectors, which are regarded as high greenhouse gas emissions-generating sectors, have decided to cooperate, invest in research and development and move faster towards a zero-emission economy. For the first time, representatives of 130 countries signed the declaration on sustainable agriculture, resilient food systems, and climate action at COP28, which sets specific targets by 2025.

It is worth noting that an agreement has been reached on the application of the rules of the Loss and Damage Fund. The members' financial pledge so far amounts to USD 726 million and it has been agreed that the World Bank will be responsible for its initial management.

It was also decided that the targets and structure of the adaptation measures of the signatories to the Agreement would be aligned with a framework for a Global Goal on Adaptation (GGA). All of them are now required by 2030 to adopt concrete measures and actions for their respective national adaptation policies.

COP28 was concluded leaving several open issues. In particular, there was no clear reference to the complete and definitive elimination of fossil fuels, there was no agreement on a common practice to finance poorer states towards climate transition and to reduce the funding gap from developed countries to developing countries, while the latter's funding needs in this respect are more urgent than ever. Finally, there was no reference to the establishment rules of the global emissions trading system, nor to general or specific funding issues.

At the same time, however, the foundations for future action plans were laid. All parties involved will have to submit their revised targets for limiting greenhouse gas emissions in the first four months of 2025, so that the targets are compatible with the aim of limiting the global average temperature increase to 1.5°C.

At the next United Nations Climate Change Conference (COP29), to be held in Azerbaijan, all governments involved will have to set specific climate finance goals and then at the 30th Conference (COP30) they must come prepared with new and concrete nationally determined contributions that are economy-wide. Finally, the total greenhouse gas emissions from the production process in each country should be fully in line with the global goal of limiting temperature increase to 1.5°C.

Conclusions

The first stocktake towards the achievement of the Paris Agreement goals demonstrates the need to accelerate actions to tackle the climate crisis. It is stressed that the issue of climate change should be addressed jointly by all institutions and national economies as a problem which requires a holistic approach. Cooperation and solidarity between nations, but also local societies, are now necessary to achieve the goals relating to the transition to zero-emission energy systems, climate finance and adaptation efforts. The climate crisis must mobilise us towards a unified and ambitious action by all parties involved, potentially leading us to a collective climate-neutral future, in terms of emissions.

13 "Scope 1 emissions" are defined as direct greenhouse gas emissions from sources owned or controlled by the financial entity concerned. "Scope 2 emissions" are defined as indirect emissions resulting from the consumption of electricity purchased by the financial entity concerned (see https://ghgprotocol.org/).

Box 20

THE DEGRADATION OF ECOSYSTEMS AND BIODIVERSITY LOSS POSE RISKS TO THE ECONOMY AND THE FINANCIAL SYSTEM

Biodiversity, an important element of ecosystem functions, contributes inter alia to ensuring adequate air quality for people to breathe, to the provision of food (and food security) and to pharmaceuticals, as well as to climate regulation through carbon capture and storage.[1,2] In addition, more than 50% of global GDP depends on nature and the services it provides, with construction, agriculture, as well as the food and beverages sector heavily dependent on it.[3]

Nature is in a crisis situation, which threatens human existence and well-being

Human activity is exerting increasing pressure on nature, reducing its ability to support the planet by providing sufficient resources and services. Indicatively, out of the nine planetary boundaries which constitute the safe operating space for humanity, it is estimated that six have already been transgressed, a fact that increases the risk of abrupt or irreversible environmental changes of a significant scale.[4] Studies also show that over the last four decades, almost three quarters of the Earth's surface have been altered, while the biodiversity loss rate has been constantly increasing – perhaps it is the highest ever, with a significant number of living things at risk of extinction and/or having already been extinct.[5]

The main reasons for the loss of ecosystem services[6] are: (a) changes in the use of land and water; (b) overexploitation of natural resources and ecosystems; (c) increase in greenhouse gases (leading to climate change); (d) pollution; and (e) invasive alien species.[7] Climate change is also found to be interrelated with nature; it affects and is affected by nature. For example, extreme weather events (such as a flood) destroy natural resources, while the reduction of nature's ability to regulate the climate, due to the destruction of the natural environment, is exacerbating climate change.

The risk of biodiversity loss and ecosystem collapse is assessed as the world's fastest growing risk for the next decade, according to the World Economic Forum, with significant social and economic consequences. Indicatively, the loss and degradation of land and biodiversity have the effect of reducing crop and catch yield, as well as increasing economic loss from flooding and other disasters.[8]

The loss of ecosystem services and resources creates financial risks

Nature-related and ecosystem financial risks are divided into physical and transition risks, as is the case with climate-related financial risks. In particular, physical risks may arise from acute and chronic events, while transition risks may be caused by changes in policies, technologies and consumer and investor preferences.[9]

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1 See The Economics of Biodiversity: The Dasgupta Review (2021).
2 Biodiversity is defined as the variety of ecosystems (natural capital), species and genes in the world or in a particular habitat (see European Environment Agency, "Biodiversity – Ecosystems").
3 World Economic Forum (2020), *Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy*.
4 The planetary boundaries are: climate change, biosphere integrity, land system change, freshwater use, biogeochemical flows (nitrogen cycle, phosphorus cycle), chemical pollution, ocean acidification, atmospheric aerosol loading and stratospheric ozone depletion. The first six of these boundaries have already been transgressed, while ocean acidification is close to the safe operating space threshold for humanity. See Richardson et al. (2023), "Earth beyond six of nine planetary boundaries", *Science Advances*, 9(37).
5 IPBES (2019), *Global Assessment Report on Biodiversity and Ecosystem Services*.
6 Ecosystem services can be divided into provisioning, regulating and cultural services (see European Environment Agency, What are ecosystem services?).
7 See IPBES (2019), op. cit. and IPBES (2023), *Thematic Assessment Report on Invasive Alien Species and their Control*.
8 World Economic Forum (2023), *The Global Risks Report 2023*.
9 ECB/ESRB (2023), Towards macroprudential frameworks for managing climate risk – December 2023.

The economy and the financial system can be affected by the loss of ecosystems and their services directly and indirectly. These risks are therefore direct and indirect. In particular, direct risks may arise from the direct dependence of economic activities, such as agriculture, mining and infrastructure, on the ecosystem or from its impact on them. Indirect risks can be created through the value chain and thus affect economic activities that are not directly related to nature, such as services. In addition, economic activities may also affect these ecosystems and the services they provide, i.e. there is a two-way relationship between economic activities and ecosystems. Recent examples of such risks in Greece, with nature and biodiversity interacting with the economy, include the wildfires in Rhodes and the Dadia Forest National Park, Thrace, in the summer of 2023, the floods in Thessaly in September 2023 and –two years earlier– the wildfires in Euboea in August 2021, while a prominent international example were the record-breaking wildfires in Canada's forests in the summer of 2023, which affected a vast amount of land with their pollutants.

These risks affect individuals, businesses, industries, local and national economies, i.e. they have micro and macroeconomic effects, potentially affecting the economy, financial institutions and the financial system. In a joint study, the European Central Bank and the European Systemic Risk Board estimate that in the euro area around 75% of bank loans to non-financial corporations and more than 30% of insurers' investments in corporate bonds and equity are directed towards firms that have a high dependency on at least one ecosystem service.[10] These services mainly include: surface and ground water, mass stabilisation and erosion control, as well as flood and storm protection. The relevant sensitivity analysis exercise found that the credit risk of the bank credit portfolios examined increases in biodiversity loss scenarios. Moreover, the same study states that the economic activities of euro area non-financial corporations have an impact on nature comparable to the loss of 582 million hectares of "pristine" nature.

Central banks focus on nature-related and ecosystem risks

Nature-related and ecosystem risks have not been sufficiently analysed so far, due to their peculiar characteristics, such as the significant degree of uncertainty surrounding their impact, non-linearity, tipping points[11] and complexity. However, as the economy is inextricably linked with nature and while the primary responsibility for addressing these challenges lies with governments, central banks should also take into account nature-related risks in fulfilling their mandate.[12] Significant analyses on these issues, such as those of the Network for Greening the Financial System (NGFS) and the European Central Bank (ECB) (see Chapter X, Section 1 of the Bank of Greece's *Annual Report 2023*), help to properly assess and address these risks with a coherent and comprehensive approach, together with climate-related issues. Indicatively, in a recent communication on the orientation of its actions for 2024-2025, the ECB mentions nature-related risks as one of the three focus areas.[13] Further actions in this direction, such as the production of relevant research, the understanding of the transmission channels of these risks and the quantification of the impact, will contribute to a more complete and sound management of nature-related risks.

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10 Op. cit.

11 Tipping points refer to critical thresholds in a system that, when exceeded, can lead to a significant change in the state of the system, often with an understanding that the change is irreversible (see IPCC (2019), *Special Report – Global Warming of 1.5 ºC*, Chapter 3).

12 See Frank Elderson, "The economy and banks need nature to survive", *The ECB Blog*, 2023.

13 "ECB steps up climate work with focus on green transition, climate and nature-related risks", press release, 30.1.2024.

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