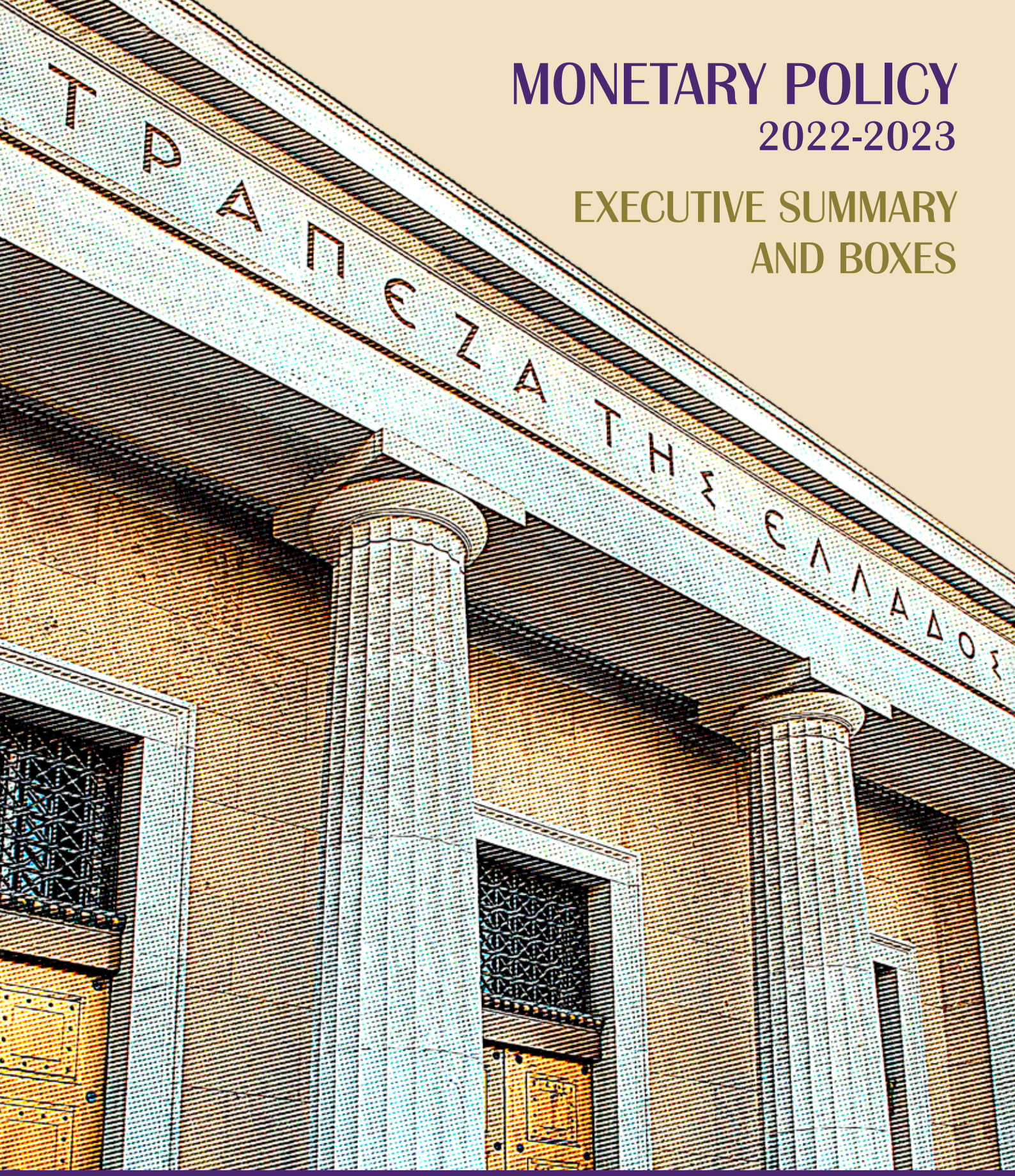
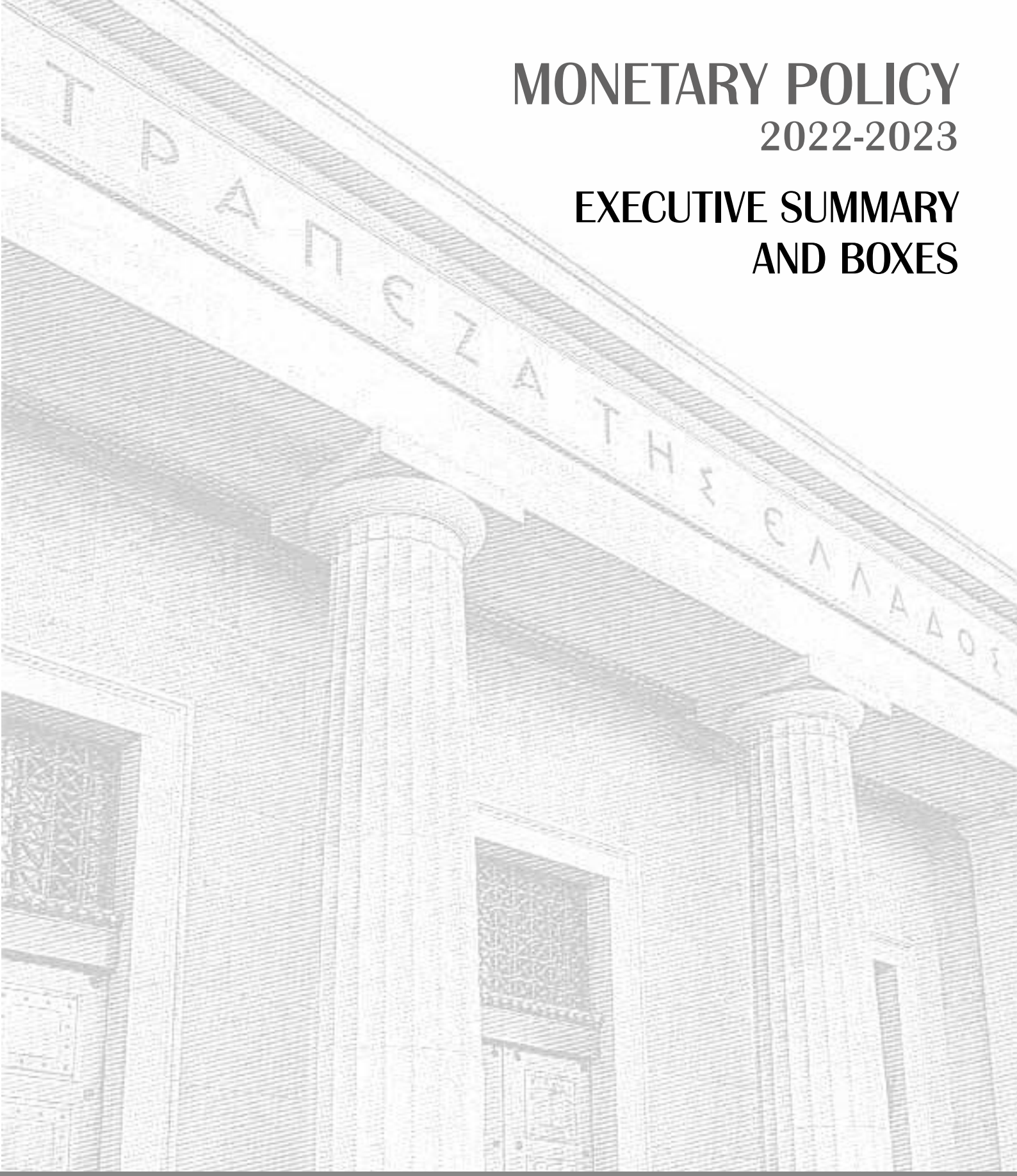
MONETARY POLICY
2022-2023

EXECUTIVE SUMMARY AND BOXES



JUNE
2023

BANK OF GREECE
EUROSYSTEM



MONETARY POLICY
2022-2023

EXECUTIVE SUMMARY AND BOXES

JUNE
2023

BANK OF GREECE
EUROSYSTEM

BANK OF GREECE

Economic Analysis and Research Department

DOI: https://doi.org/10.52903/monpol.en202306sp.ed

https://www.bankofgreece.gr/Publications/NomPol20222023_en_Summary_Boxes.pdf

ISSN: 2732-9593 (online)

TABLE OF CONTENTS

EXECUTIVE SUMMARY

AIMING AT REAL CONVERGENCE WITHOUT MACROECONOMIC IMBALANCES

1 INTRODUCTION

The global economy, weighed down by the fallout of the war in Ukraine, the energy crisis, high inflation and fast monetary policy tightening in response, is heading to a slowdown in 2023. The slowdown is expected to be more pronounced in advanced economies than in emerging and developing ones. The euro area is already in a technical recession, as GDP declined marginally, quarter-on-quarter, in the fourth quarter of 2022 and in the first quarter of 2023. Inflation in advanced economies started to ease in late 2022, on the back of falling food commodity and, mostly, energy prices. Although major central banks raised aggressively their policy rates, core inflation continued to trend upwards in many advanced economies up to early 2023, reflecting higher energy costs feeding into the prices of industrial goods and services. The drastic interest rate increases by central banks have helped to contain inflation expectations but, combined with other factors, have also led to lower expected growth rates and a tightening of financial conditions.

Against this background, the Greek economy has maintained much of its 2022 growth momentum through the first months of 2023. Meanwhile, headline inflation has been falling considerably, starting from the fourth quarter of last year, mainly due to a continued decline in energy prices. However, upward pressures on prices, in particular of services and non-energy industrial goods, are keeping core inflation high. Strong growth rates, high inflation and enhanced tax compliance have been key to a return to a primary fiscal surplus and a significant decline in the government debt-to-GDP ratio in 2022.

The reforms initiated before the pandemic, aimed at reducing the tax burden, improving the business environment and increasing the efficiency of the public sector, have already contributed to a rise in structural competitiveness and the inflow of foreign direct investment (FDI), which grew substantially in 2021-2022, hitting a 20-year high. It is worth noting that, in recent years, large multinational companies have chosen Greece for major investment projects. The significant progress achieved, despite the problems caused by the pandemic and the energy crisis, is also reflected in the low spreads of Greek government bond yields.

Looking ahead, domestic economic policy will have to operate in an environment dominated by European developments. In particular, monetary policy is expected to remain restrictive, with a view to ensuring a return of euro area inflation to 2% over the medium term. In 2024, the new EU fiscal rules are expected to enter into force, which will require a rollback of generalised support measures and a cutback in public spending, implying a restrictive fiscal policy stance. However, beyond compliance with EU rules and the required adjustment to international and European developments, domestic economic policy should primarily seek, utilising the substantial EU funding available, to achieve high and sustainable growth rates, which can ensure an increase in living standards and real convergence, alongside public debt sustainability, improved performance of the domestic financial sector, a return of the current account deficit to acceptable levels, a return of inflation to 2% and social cohesion. All these presuppose a series of critical reforms and the effective use of NextGenerationEU (NGEU) funds to promote a shift to a sustainable, extrovert and inclusive growth model that boosts productive investment and furthers the digital and green transformation of the economy. Such developments would enhance the economy's resilience to future shocks, as well as the credibility of economic policy, resulting in a continued rise in foreign direct investment and an upgrade of Greece's credit rating to investment grade.

2 THE GREEK ECONOMY: DEVELOPMENTS AND PROSPECTS

2.1 Real economy: Resilience, mild slowdown in economic activity, moderation of inflation – persistent upward trends in core inflation

Economic activity: In 2022, real GDP grew by 5.9%, overshooting its pre-pandemic levels, mainly on the back of rising private consumption, despite a marginal decline in household real disposable income amid strong inflationary pressures. Positive contributions to growth came also from exports of services, mainly due to the strong performance of tourism, as well as from investment.

Economic activity appears to have maintained much of its 2022 growth momentum through the first half of 2023, as inflation eases and the international environment stabilises. Most indicators of economic activity, such as industrial production, construction and car sales, continued to suggest positive –albeit decelerating– year-on-year growth rates. Business expectations and, to a lesser extent, consumer confidence, despite some volatility, have recouped most of the losses incurred following the outbreak of the war in Ukraine and the surge in inflationary pressures last year. The Purchasing Managers' Index (PMI) for domestic manufacturing, after a short-lived decline, has returned to expansionary levels.

As a result, economic growth continued into the first quarter of 2023, but at a slower pace than one year earlier, due to a weakening in private consumption growth from the high rates seen in the wake of the pandemic. In real terms, GDP grew by 2.1% year-on-year (seasonally adjusted data), but declined marginally by 0.1% relative to the last quarter of 2022. Strong exports, as well as an increase in private consumption and investment, were the main drivers of growth.

Inflation rates: Inflation, as measured by the Harmonised Index of Consumer Prices (HICP), averaged at an annual rate of 9.3% in 2022. Underlying this development was mainly the surge in energy inflation, abetted by higher food inflation. Starting from the last quarter of 2022, harmonised inflation has followed a downward path, which continued into the first five months of 2023. The turnaround in HICP inflation since October 2022 stemmed from falling international energy prices, combined with strong downward base effects. By contrast, food inflation peaked in December 2022, and is expected to decline only slowly. Overall, HICP inflation has been on a strong downward path since October 2022, coming to 4.1% year-on-year in May 2023 and averaging 5.6% in the first five months of 2023.

The inflationary pressures built up in the course of 2022, as a result of soaring energy and food prices, have spilled over to services and non-energy industrial goods, continuing to push core inflation upwards, which reached 8.1% by May 2023. Headline HICP inflation is expected to decline further over the remainder of this year, with core inflation persisting at relatively elevated levels.

Real Estate Market: The Greek real estate market continued to grow during the first months of 2023, especially as far as its prime segment is concerned. However, the real estate market will remain under pressure from higher inflation and interest rates, financing constraints, high energy and material costs and a broader geopolitical uncertainty. These, together with property value corrections already witnessed internationally, are expected to shift investor interest towards new sustainable investments and properties with lower operating costs, greater flexibility in uses and quality levels that can ensure income and capital gains over a long horizon.

Labour market: The labour market improved significantly in 2022, as total employment rose markedly and the unemployment rate fell to a 12-year low, close to the levels observed before the economic crisis. In the first months of 2023, labour market developments remained positive, with a rise in employment, a decline in the unemployment rate and an improvement in labour force participation. The rate of unemployment declined to 11.8% in the first quarter of 2023

(from 13.8% in the first quarter of 2022). A bright picture of the labour market also emerges from ERGANI data, showing that during the first four months of the year net employment flows have been the highest since 2001.

Alongside these favourable developments, the labour market is tightening, as evidenced by the growing number of job vacancies in the first quarter of 2023, with firms, particularly in the tourism and construction sectors, facing difficulties in recruiting staff. A tighter labour market leads to stronger wage pressures in the private sector, increasing the possibility of second-round effects on inflation.

Competitiveness: The international competitiveness of the Greek economy improved further in 2022, as nominal unit labour costs declined in Greece, at a time when several of its main trading partners faced increases in labour costs as a result of high inflation and strong nominal wage growth. However, profit margins rose, probably reflecting non-competitive conditions in goods and services markets. In line with domestic developments in energy prices, profit margins and headline inflation, price competitiveness improved less than unit labour cost competitiveness. In terms of structural competitiveness, Greece's ranking in relevant composite indicators is improving, reflecting efforts to strengthen the business and macroeconomic environment and the ongoing reforms that help enhance the efficiency of enterprises and public administration. This favourable development is also reflected in the attraction of sizeable foreign direct investment (FDI), mainly targeting the construction, communications, financial and real estate sectors. Importantly, non-residents' direct investment inflows to Greece in 2022 hit a 20-year high (6.4 billion euro or 3.1% of GDP). However, over the January-April 2023 period, the upward trend of FDI in Greece slowed down, with inflows standing at 1.1 billion euro, which is close to pre-2022 levels.

Current account balance: The current account balance deteriorated significantly in 2022, with its deficit reaching 9.7% of GDP (up from 6.8% of GDP in 2021), as the increase in imports of goods was stronger and more than offset a positive contribution from the export of goods, travel receipts and net sea transport receipts. It should be noted that travel receipts rose to 97.2% of the 2019 level in nominal terms, and average expenditure per trip overshot its 2019 level by 10.7%.

In the January-April 2023 period, the current account deficit dropped by 3.0 billion euro year-on-year, as the goods balance improved on account of a pick-up in exports of goods, while imports fell. At the same time, the secondary income account also improved, reflecting inflows from the Recovery and Resilience Facility (RRF) and the payment to the Greek State of the last tranche of ANFA/SMP profits. These favourable developments were partly offset by a lower surplus in the primary income account and, to a lesser degree, a lower surplus in the transport balance. Arrivals and travel receipts continued to grow in January-April 2023; non-residents' arrivals rose by 52.5% and the relevant receipts by 38.0% year-on-year, overshooting the levels of the corresponding 2019 period.

2.2 Fiscal developments: Return to primary surpluses – rapid fall in the government debt-to-GDP ratio

According to the first notification of fiscal data for 2019-2022 by the Hellenic Statistical Authority (ELSTAT) in the context of the Excessive Deficit Procedure in April 2023, the general government primary balance for 2022 turned out at a surplus of 0.1% of GDP, compared with a deficit of 4.7% of GDP in 2021 and against a target of 1.6% of GDP in the Budget. Public debt declined to 171.3% of GDP in 2022, from 194.6% of GDP in 2021, recording the largest decrease among EU Member States and marking the lowest debt-to-GDP ratio since the 2012 PSI debt restructuring. The largest contribution (22.2 percentage points) to this reduction came from the interest rate-growth differential (snowball effect), reflecting both nominal GDP growth and the stock of debt.

The improvement in the fiscal balance relative to 2021 is attributable to substantial savings resulting from the unwinding of the majority of pandemic-related measures, which was only partially offset by the budgetary burden from the extraordinary measures to address the energy crisis (4.8% of GDP, with an overall budgetary burden of 2.1% of GDP), while economic recovery also made a positive contribution. Fiscal policy is estimated to have turned restrictive in 2022, after two years of an expansionary stance. The overshooting of the Budget primary balance target was primarily due to the overperformance of tax revenues amid higher inflation and faster-than-expected economic growth, as well as improved tax compliance, which has been supported by an expansion of electronic transactions.

Based on the fiscal space created, additional temporary fiscal measures amounting to 0.4% of GDP were adopted in the first quarter of 2023. At the same time, energy and food subsidies to households and businesses were partly maintained.

2.3 Financial developments: Tighter global financial conditions and resilience of Greek bonds as a result of the upgrade of the Greek sovereign credit rating

Drastic interest rate increases by central banks have helped to rein in inflationary pressures, but have also led to a tightening of global financial conditions and, together with other factors, a decline in expected growth rates. Moreover, the recent turmoil in the US banking sector, associated with rising interest rates and their impact on the portfolio valuations of certain US banks, have contributed to a further deterioration in financial conditions globally.

In this adverse environment, Greek government bond yields moved in line with other euro area sovereign bond yields. Thus, following a sharp increase in 2022 due to key interest rate hikes, the yields on Greek government bonds declined in the first half of 2023, as did the yields on the other euro area government bonds. This development is also reflected in the yield spreads of Greek government bonds over other euro area government bonds. In particular, the 2022 increase in the yield spread of the Greek 10-year bond vis-à-vis the comparable German bond has been fully offset.

At the same time, the upgrades of the Greek sovereign by two rating agencies in 2022 and another one in early 2023 have reduced the distance to investment grade. Also, in March and April 2023, two rating agencies revised Greece's credit rating outlook to positive from stable, which bodes well for investment grade being obtained soon.

In the same vein, Greek corporate bond yields have not changed significantly over the first half of 2023. It is worth noting that both the weighted average yield on Greek corporate bonds and the trends in their yields were consistent with those for investment grade-rated European corporate bonds. Banks' bond market funding costs have also increased, in tandem with rising interest rates globally, while upgrades of banks' credit ratings are likely to have prevented a stronger rise in the secondary market yields of their bonds.

Following a marked decline in 2022, global stock prices have rebounded in the first half of 2023. Share prices on the Athens Exchange have outperformed by a considerable margin those in the United States and the euro area since the beginning of 2023. The banking index performed better than the composite index, as the concerns about global banking problems were mitigated by upgrades of Greek sovereign and bank credit ratings, the resilience of the Greek economy, the significant reduction of non-performing loans and the return of banks to profitability.

2.4 Banking sector

Interest rates, credit and deposits: Rising borrowing costs, falling credit and deposits

The tightening of the single monetary policy that began in 2022 has led to increases in bank interest rates by domestic credit institutions. Bank deposit rates have progressively been adjusted upwards since the fourth quarter of 2022, responding with a lag and not fully to policy rate hikes.

The size of the upward adjustment was moderate and inversely proportional to the liquidity of individual types of deposits. As a result, interest rates on time deposits rose more than those on savings deposits, leading to a significant widening of the interest rate spread between these two categories.

In response, households and firms shifted savings from overnight deposits to deposits with an agreed maturity. Despite this shift, the bulk of banks' deposit base continues to consist of liquid assets held in overnight accounts (76% of private sector deposits). However, the net flow of domestic private deposits was overall negative over the January-May 2023 period. Specifically, in the first five months of 2023, bank deposits by the domestic private sector declined by a cumulative 2.9 billion euro, falling more strongly than in the corresponding period of 2022.

Household deposits declined modestly by 0.1 billion euro in January-May 2023, against a slight increase in the corresponding 2022 period, and their annual growth rate decelerated, dampened by a marginal fall in real disposable income in the course of 2022, as well as by stronger household consumption expenditure also in the context of high inflation.

Business deposits decreased by 3.0 billion euro in the first five months of 2023, compared with a decline of 2.0 billion euro in the corresponding 2022 period. The annual growth rate of business deposits broadly continued to moderate until February 2023, but recovered thereafter. The evolution of business deposits largely reflects sustained robust growth rates of credit to non-financial corporations (NFCs) in 2022 and the first months of 2023, while the marked rebound in turnover and travel receipts last year, which has continued into the early part of 2023, has boosted firms' cash balances.

Bank lending rates for NFCs, on average in the first four months of this year, were more than 200 basis points higher than in the corresponding period of 2022 across most types of loans. The weighted average interest rate on loans to NFCs came to 5.4% in the first four months of 2023, compared with an average of 3% year-on-year. Bank lending rates for households increased further in 2023, but comparatively less than those for firms. The weighted average interest rate on loans to households stood at 5.8%, which was 93 basis points higher than the average for the first four months of 2022. Underlying this development were, primarily, a broadly-based upward adjustment in mortgage rates and, to a lesser extent, smaller increases in consumer credit rates.

Owing to the gradual slowdown in economic activity and rising interest rates, the net monthly flow of bank credit to non-financial corporations in January-May 2023 was lower than in the corresponding period of the previous year. Specifically, in the January-May 2023 period, the average monthly net flow of bank credit to NFCs turned negative, at -190 million euro, against 376 million euro in the first five months of 2022. It should however be noted that bank lending to businesses continues to be supported by the programmes of the European Investment Bank (EIB) Group and the Hellenic Development Bank (HDB), as well as by the Recovery and Resilience Facility (RRF). The outstanding amount of bank credit to households kept contracting in the first five months of 2023, with relatively stronger year-on-year rates of change than in 2022, mainly as a result of a faster decline in housing loans (May: -3.9%), while the rate of increase in consumer loans initially strengthened, but then returned to its end-2022 levels (May 2023: 1.1%).

In the coming years, developments in bank credit to the private sector and in private deposits should follow the course of economic activity. A continuation of increases in lending rates would have a dampening effect on credit aggregates, via a further pass-through of past, and potential future, increases in ECB policy rates. A fall in inflation would contribute to a slowdown, in nominal terms, in both bank credit and bank deposit growth. Of course, a concomitant rise in the real deposit rate or household real disposable income would have an impact in the opposite direction, boosting demand for deposits.

Banking system: Improved profitability, reduction of non-performing loans – satisfactory capital adequacy ratios

The reduction of the stock of non-performing loans (NPLs) in Greek banks led to a substantial cutback on credit risk provisions in 2022, which continued into the first quarter of 2023, thus boosting bank profitability. This development was also supported by an increase in net interest and fee income on an annual basis. The first quarter of 2023 saw a year-on-year fall in net income from financial operations and other non-interest income, which had benefited from non-recurring income in the past year.

The Common Equity Tier 1 (CET1) ratio on a consolidated basis fell to 13.4% in March 2023 (from 14.4% in December 2022) and the Total Capital Ratio (TCR) to 16.5% (from 17.4% in December 2022), both remaining below the respective euro area averages. The decline in the Total Capital Ratio was chiefly due to the impact of the fully-loaded International Financial Reporting Standard 9.

The stock of NPLs fell by 1.3%, but the ratio of NPLs to total loans for the banking sector as a whole rose marginally (March 2023: 8.8%, December 2022: 8.7%) due to a small decline in the outstanding amount of total loans. The significant improvement in asset quality in recent years should not lead to complacency, considering that the NPL ratio remains well above the average for euro area banks. It should be noted that a net inflow of new NPLs was observed during the first quarter of 2023 across all loan portfolios, as the combination of higher interest rates and inflation seems to have affected the financial condition of some businesses and households.

2.5 Projections: Acceleration of recovery after 2023, gradual decline in inflation

According to the forecasts of the Bank of Greece, the Greek economy is projected to grow by 2.2% in 2023, reflecting an expected economic downturn in the euro area and a normalisation of domestic private consumption growth. Moreover, monetary policy is expected to have a contractionary impact on economic activity in 2023, while fiscal policy is expected to be slightly expansionary, as the withdrawal of fiscal support measures is accompanied by a strong fiscal impulse from increased investment expenditure in the context of NGEU.

In the next few years, the Greek economy is expected to keep growing above potential, as it has already exceeded its level. Specifically, the growth rate is projected at 3.0% in 2024 and 2.7% in 2025. This performance can be achieved on condition that, in the external environment, the geopolitical crisis de-escalates, energy prices fall and the Eurosystem's monetary policy tightening has a limited adverse impact on the euro area economy. In addition, the projections rest on the assumption of continued support of international tourism to the Greek economy, progress with the implementation of investment projects and a solid growth path of the euro area economy, which is Greece's major trading partner.

A gradual fall in unemployment over 2023-2025 will be underpinned by the expected robust rates of economic growth, the measures introduced to support employment and the continuation of structural reforms. Total employment is projected to increase by 1.5% in 2023, as demand in the tourism, retail, industrial and construction sectors is expected to be strong. Also, the unemployment rate is projected to fall to 11.5%, about one percentage point lower than in 2022.

HICP inflation is projected at 4.3% in 2023, well below its 2022 level (9.3%), mainly reflecting the downward course of energy prices. On the other hand, food, non-energy industrial goods and services are expected to add to inflationary dynamics, owing to price inelasticities of these components. Non-food and energy inflation is projected at 6.1% in 2023 and is expected to remain high in 2024, being subject to strong inflationary pressures from the non-energy industrial goods and the services components. Headline inflation is projected at 3.8% for 2024 and 2.3% for 2025.

The current account deficit is expected to narrow in 2023, on the back of lower international energy prices, combined with upward trends in exports of goods and travel services, as well as

inflows from the RRF. In particular, the expected decline in international energy prices will contribute to a reduction in the oil deficit, while the slowdown in domestic consumption expenditure will have a dampening effect on the growth rate of consumer goods imports. However, the recovery of domestic investment, supported by RRF-funded projects, will lead to higher imports of investment goods. The ongoing recovery –albeit at a decelerating pace– of the world economy, together with improving competitiveness of the Greek economy, will have a positive impact on Greek exports of goods.

Turning to fiscal aggregates, the 2023 Stability Programme, submitted to the European Commission in April, projects a primary surplus of 1.1% of GDP, higher than envisaged in the Budget, and a further reduction of government debt to 162.6% of GDP in 2023. The improved projection for the 2023 primary balance reflects a positive carry-over effect on tax and social security contribution revenues from 2022, as well as the upward revision of the 2023 GDP growth projection.

It incorporates the additional measures adopted earlier this year and assumes that policies remain unchanged and that the measures to counter the energy crisis (1.2 billion euro) will be fully financed from the resources of the Energy Transition Fund without burdening the state budget. The primary surplus is expected to increase gradually to 2.1% of GDP in 2024, 2.3% of GDP in 2025 and 2.5% of GDP in 2026, while a further fall in public debt to 135.2% of GDP is projected for 2026, on condition that the Greek sovereign regains investment grade rating, which would enable a gradual reduction of the high cash buffers.

2.6 Risks and uncertainties: Risks are tilted to the downside, stemming from exogenous factors

Risks to the Bank of Greece projections are tilted to the downside. In more detail, risks to the outlook for the Greek economy include: (i) a further deterioration of the external environment; (ii) higher and more persistent inflation; (iii) a lower-than-expected absorption rate of NGEU funds; (iv) potential delays in implementing reforms, with negative effects on productivity and competitiveness; and (v) a further increase in interest rates, which could dampen growth and lead to the emergence of a new generation of NPLs. Upside risks, on the other hand, are associated with a faster fall in inflation and a better-than-expected performance of tourism.

3 THE EXTERNAL ENVIRONMENT OF THE GREEK ECONOMY

3.1 Developments and prospects outside the euro area: Global economic slowdown and gradually declining inflation

The global economy is poised to slow in 2023, dragged down by the impact of the energy crisis, high inflation and rising interest rates. In particular, global GDP growth is forecast by the IMF to decelerate to 2.8% in 2023 from 3.4% in 2022, before recovering slightly to 3.0% in 2024. The slowdown will be more pronounced in advanced than in emerging and developing economies, as China's strong recovery will offset the projected economic slowdown in India and in emerging economies in Latin America and the Middle East.

Despite the easing of global supply bottlenecks, world trade is slowing in 2023, as a result of weaker global demand, geopolitical tensions, trade barriers and a strong dollar over the past year. However, it is expected to recover in 2024 as the post-pandemic recovery of the Chinese economy gathers pace and uncertainty recedes. According to IMF projections, global trade growth in volume terms (goods and services combined) will slow down to 2.4% in 2023, from 5.1% in 2022, amid weaker global demand.

High inflation has proved more persistent than monetary authorities had expected. After reaching a post-1982 high in 2022, inflation in advanced economies is projected to ease in 2023 and 2024 as a result of monetary policy tightening, the global economic slowdown and the fall in

energy and food commodity prices. In the first five months of 2023, international crude oil prices dropped by 21.8% year-on-year, contributing to an easing of imported inflationary pressures in many economies. The large decline of world crude oil and gas prices is due to weaker global demand, the mild winter, as well as a number of important initiatives by EU Member States to reduce reliance on Russian fossil fuels. Although major central banks increased their policy rates quickly and to high levels, core inflation continued to trend upwards in many advanced economies until early 2023, reflecting higher energy costs feeding into the prices of manufactured goods and of services and a tight labour market in many economies. An upward spiral of nominal wage and price increases is not observed for the time being, but wage pressures are expected to strengthen in 2023-24, while total unit labour costs are projected to increase significantly in both the United States and the euro area. According to the IMF, global inflation will decrease from 8.7% in 2022 to 7.0% in 2023, with the decline being faster in advanced economies than in emerging and developing ones. For most of the countries pursuing inflation targeting, the IMF does not expect inflation to return to the target before 2025.

3.2 Euro area developments and prospects: Milder-than-expected slowdown – persistent upward pressures on core inflation

The euro area entered a technical recession, as GDP declined marginally, quarter-on-quarter, in the fourth quarter of 2022 and in the first quarter of 2023, with heterogeneous developments across countries. Italy came out of the recession of the fourth quarter of 2022, but Germany was in recession for a second consecutive quarter (technical recession). Fiscal policy measures to counter the energy and cost-of-living crisis continued to support real incomes, together with the resilience of the labour market. The adequacy of Europe's energy reserves and a marked fall in international energy prices from last year's record highs improved economic sentiment in the euro area. Optimism, however, was dented by turmoil in the financial sector, mainly in the United States and Switzerland, in early 2023.

In 2023, the tightening of monetary policy by the European Central Bank (ECB), more restrictive financing conditions, high inflation and a gradual withdrawal of fiscal support, together with uncertainty about Europe's energy supply next winter (2023-2024) are expected to dampen economic expansion. However, the slowdown is likely to be milder than what was expected six months ago, as the European economy has successfully weathered the challenges of high inflation and energy sufficiency thanks to important decisions made at the EU level as regards strategic autonomy. Specifically, according to the June 2023 Eurosystem staff projections, euro area GDP growth is expected to slow down to 0.9% in 2023, from 3.5% in 2022, before rebounding to 1.5% in 2024.

Inflation in the euro area has been on a downward path since November 2022, reflecting a significant decline in international energy prices and an unwinding of supply-side disruptions. Yet, the fall in inflation has been smaller than expected, due to persistent core inflation, which however dropped to 5.3% in May following a long period of increases. According to the Eurosystem staff projections (June 2023), headline HICP inflation is expected to decrease to 5.4% in 2023, from 8.4% in 2022, and further to 3% in 2024 and 2.2% in 2025. While food inflation reached a historical high of 17.9% in March 2023, it is expected to moderate in the course of the year as pipeline price pressures recede. Inflation excluding energy and food is expected to exceed the headline index in the coming months and remain above it until early 2024, albeit following a downward path from the second half of 2023, as the indirect impact from past increases in energy prices gradually fades. However, unit labour costs will sustain core inflation at high levels.

3.3 Risks and uncertainties: Elevated downside risks – deteriorating financial conditions

The current forecasts for the global and the European economy are surrounded by high uncertainty, and the downside risks, albeit somewhat lower than in 2022, remain elevated. Geo-economic fragmentation in international trade and financial transactions is steadily on the rise and has the potential to curb external demand and stoke imported inflation. Also, possible upward pressures on commodity prices as a result of stronger demand by China in the context of its

post-pandemic recovery could worsen the euro area's terms of trade and erode incomes. At the same time, an abrupt further repricing of financial risks or a deterioration in the fiscal positions of vulnerable economies could hinder more dynamic growth and negatively affect financial stability. A continued tightening of monetary policy needed to contain inflation expectations and bring inflation back to the medium-term target is an additional challenge that could prolong weak growth. Finally, stronger wage and corporate profit growth could keep core inflation higher for longer, increasing the risk of a de-anchoring of inflation expectations.

4 THE SINGLE MONETARY POLICY

Interest rate increases for a sustained reduction in inflation

According to the ECB Governing Council, inflation is projected to remain too high for too long. However, both headline and core inflation are expected to gradually decline as the contractionary impact of the single monetary policy on aggregate demand deepens and the upward pressures from reopening the economy subside and supply bottlenecks and energy input cost pressures ease.

The Governing Council of the ECB has noted on several occasions that its future policy rate decisions will continue to be data-dependent and follow a meeting-by-meeting approach. Against this background, in February, March, May and June 2023, the ECB Governing Council raised the key interest rates, continuing the hiking cycle that had started in July 2022. Keeping interest rates at restrictive levels will over time reduce inflation by dampening demand and will also guard against the risk of a persistent upward shift in inflation expectations. In any case, most measures of longer-term inflation expectations currently stand at around 2%.

As a consequence of the increases in policy rates, banks' funding costs have started to rise since 2022 and bank lending rates for firms and households have been raised in response. The lag with which interest rate increases will have an impact on the real economy is still uncertain, as is the extent of the actual effects of rising interest rates. However, past ECB rate increases are already being transmitted forcefully to financing conditions and are gradually having an impact across the economy.

When financial market tensions emerged towards the end of the first quarter of 2023, the Governing Council of the ECB noted that the euro area banking sector is resilient, with strong capital and liquidity positions, and reiterated that the ECB's policy toolkit is fully equipped to provide liquidity support to the euro area financial system if needed and to preserve the smooth transmission of monetary policy.

In June 2023, the Governing Council announced that key ECB interest rates will be brought to levels sufficiently restrictive to achieve a timely return of inflation to the Eurosystem's medium-term target and will be kept at those levels for as long as necessary. The Governing Council will determine, in light of the incoming economic and financial data, the appropriate level and duration of restriction.

It should be recalled that since March 2023 the portfolio acquired by the Eurosystem through the APP is being reduced by 15 billion euro on average per month. In July 2023, reinvestments of the principal payments from maturing securities in this portfolio will be discontinued. It should be noted that reinvestments of the principal payments from maturing securities already purchased by the Eurosystem under the most recent asset purchase programme (PEPP - the Pandemic Emergency Purchase Programme) will continue until at least the end of 2024.

By the end of 2023, the Governing Council will also review its operational framework for steering short-term interest rates, which will provide information regarding the endpoint of the balance sheet normalisation process.

5 CHALLENGES

Investment grade: The main challenge for economic policy is to obtain investment grade and, at a later stage, exceed it. This would enhance the resilience of the Greek economy to exogenous shocks and episodes of volatility in international markets, reduce the cost of raising capital for the public and private sectors, facilitate public debt management and foster investment and economic growth.

Sustained deceleration of inflation: Tightening monetary policy is necessary in order for inflation in the euro area to continue decelerating and return to 2% over the medium term. As long as the ECB tightens its monetary policy stance in response to high inflationary pressures, the fiscal policy stance needs to remain restrictive in order to speed up the decline in inflation. In the contrary case, a further tightening of monetary policy would be required, with adverse implications for the duration and the extent of the negative effect of monetary tightening on economic activity. At the same time, both price increases in goods and services and wage growth should be consistent with the medium-term inflation target (2%), also considering that firms' profit margins remain high.

High public debt-to-GDP ratio: Public debt as a percentage of GDP remains the highest in the European Union and the second highest in the world. In the medium term, risks to debt sustainability are contained, provided that the fiscal measures taken in response to the pandemic and energy crises are temporary and that the available European funds are effectively utilised. In the longer term, however, there is increased uncertainty, as the gradual refinancing of accumulated debt to the official sector on market terms will increase the exposure of Greek government debt to interest rate and market risk, leaving no room for easing of the agreed fiscal targets. An additional source of uncertainty is the climate crisis, which is expected to have a negative effect on the sustainability of public debt.

High current account deficit: Reducing the current account deficit is a major challenge, although the high deficit recorded in 2022 (9.7% of GDP) was due by about 40% to higher fuel prices and is expected to moderate to 7% of GDP in 2023. An economy which is in a process of catching up with its partners in terms of per capita GDP and which seeks to increase its share of national investment (currently 14% of GDP) to the EU average (22% of GDP) and spends on its national defence a share of GDP well above the EU average will inevitably run current account deficits. However, a deficit of more than 4% of GDP that persists over the medium term is in conflict with the EU macroeconomic imbalances procedure, but also, and more importantly, implies that national spending significantly and consistently exceeds domestic output or, equivalently, private and public investment is significantly higher than the corresponding savings.

Non-performing loans and private debt overhang: Despite its marked reduction, the ratio of non-performing loans (NPLs) is still well above the euro area average, while total private debt as a percentage of GDP remains at very high levels and hampers new borrowing and investment activity.

High unemployment and job mismatches: 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, leading to an obsolescence of the skills of the labour force. 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. Moreover, the problem of job mismatches remains significant, as firms in certain sectors find it difficult to hire suitable workers to meet their needs. Major staff shortages are recorded in particular in the tourism and construction sectors. In a survey conducted by the Institute for Tourism Research and Forecasting (ITEP), hotels reported 60.2 thousand vacancies in 2022 or 23% of the jobs envisaged in their organisational charts.

Chronic weaknesses: Despite improvements over the past five years, the Greek economy still ranks relatively low in international structural competitiveness indicators, due to persistent inherent weaknesses. Such weaknesses, which impair competitiveness and create disincentives to investment, include delays in the delivery of justice; red tape and remaining inefficiencies in some areas of public administration (e.g. property transfers, land use planning, completion of the National Cadastre, digitalisation of public services); shortcomings in some key infrastructures; insufficient combatting of pervasive tax evasion; quasi-oligopolistic conditions in specific goods and services markets; and energy market distortions. Additional examples of inherent weaknesses include low female and youth labour force participation rates, coupled with adverse demographic trends; increased risk of poverty and social exclusion; significant regional disparities; shortcomings in the so-called "knowledge triangle" (education – research – innovation); and high reliance of the Greek economy on fossil fuels.

Low per capita GDP: Greece's per capita GDP corresponds to about 55% of the per capita GDP of euro area countries, compared with about 70% before the debt crisis. Catching up requires sustained growth rates well above the euro area average. Otherwise, it could take more than 15 years for the Greek economy to regain its pre-debt crisis level relative to the euro area. This necessary continued convergence process requires the implementation of substantial investments, which must either be financed by national savings or be covered by capital inflows from abroad. However, to enhance investment, in particular to attract foreign funds, the appropriate conditions have to be in place, i.e. a business-friendly environment, highly qualified and skilled human resources, high-level infrastructure and networks. Inevitably, the catching-up process, to the extent that investment cannot be covered by domestic savings, implies a growing current account deficit, which has to be financed by RRF inflows or FDIs. The catching-up process also tends to lead to higher inflation, but as potential GDP is in line with actual GDP growth, the impact on inflation will not be significant. Nevertheless, leaving the Greek economy's structural weaknesses unaddressed would make it vulnerable to exogenous shocks that may halt the convergence process that has resumed in the past few years.

6 POLICY RECOMMENDATIONS

Taking into account uncertainties and risks associated with the international economic environment, the new and pre-existing challenges facing the Greek economy and the need to accelerate the real convergence of Greece's per capita GDP with the EU average, the following are recommended:

1. Implementation of the reforms included in the National Recovery and Resilience Plan to enhance overall productivity, potential output growth and structural competitiveness, thereby increasing the economy's capacity for higher (mainly investment) spending without harming the external balance. The main focus should be on areas that can directly affect the potential growth rate of the economy, such as measures related to broadening the participation of young people and women (labour market) or the swift administration of justice (institutions and governance) and the rapid implementation of private sector investment initiatives (investment environment and red tape).

2. Effective and rapid use of resources from the EU Structural Funds and the Recovery and Resilience Facility to boost public and private investment and narrow the investment gap. 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. The productive utilisation of already higher foreign direct investment (FDI) flows will also help in this direction. The aim is to increase the share of foreign direct investment that is channelled into the productive sector of the economy and expands its productive capacity (greenfield investments).

3. Addressing the current account deficit by enhancing the competitiveness and extroversion of the economy. A condition for reducing the current account deficit is a further increase in exports, import substitution and promotion of energy autonomy to reduce energy import needs.

4. Further reduction of the government debt-to-GDP ratio. This requires a return to constant primary cyclically-adjusted budget surpluses of 2% of GDP. This is necessary in the medium term as rising borrowing costs and lower growth and inflation reduce the dampening contribution of the implicit interest rate-growth differential to debt dynamics. As a result, the initially beneficial impact of inflation on the reduction of the debt-to-GDP ratio is gradually fading, and sustainable primary surpluses are therefore needed to avoid undermining the continued downward path of public debt.

It should be noted that the introduction of new fiscal rules in the EU next year will lead to a significant change in medium-term fiscal planning, with constraints on additional fiscal measures. At the core of the new rules will be the reduction of public debt and the mitigation of risks to its sustainability in the medium-to-long term by controlling public expenditure growth. This means that compliance with the new rules will encompass not only the achievement of a fiscal deficit below 3% of GDP, but also the growth of public expenditure at a rate below that of medium-term potential GDP growth. Thus, any fiscal space would be used either to build up 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. 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.

5. Ensuring a further decline in inflation. This requires: First, that wage increases do not exceed productivity growth, and that secondary inflationary pressures –fed by higher wages– be avoided. Second, that actions are taken and inspections are conducted in the goods and services markets in order to prevent excessive price increases that are inconsistent with the medium-term inflation target, also considering that profit margins in many sectors are already high. Looking ahead, competition should be improved in these markets, by removing obstacles and eliminating distortions, in order to curtail oligopoly practices.

6. A further decline in the rate of unemployment and addressing the problem of job mismatches. The significant recovery in economic activity and the implementation of reforms have contributed to raising total employment, reducing the unemployment rate and improving the labour force participation rate. However, the unemployment rates of women, young people and the long-term unemployed remain significantly above the EU averages, with several businesses finding it difficult to hire suitable workers to meet their needs. It is therefore necessary to upgrade technical and technological education and to implement targeted training programmes for the workforce. Measures are also needed to improve the work-life balance, to integrate and keep in the labour market the inactive population, with a focus on women and youth. Institutional interventions to cut or subsidise social security contributions would reduce non-wage costs and contribute, together with a stepping-up of inspections, especially in sectors with increased contribution evasion, to limiting undeclared or underdeclared work. Overall, the improvement in the labour market is expected to continue over the medium term, as an additional positive impact should come from the implementation of the National Recovery and Resilience Plan “Greece 2.0”, which will increase private investment, leading to the creation of new and better-paid jobs.

7. Accelerating the energy transition and reducing reliance on fossil fuels. Increasing the share of renewables in the energy mix requires, in addition to new investment, also 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 and digital transition of the economy requires, in addition to new investment, the existence of staff appropriately trained in new technologies.

8. A further strengthening of the banking system. The Greek banking sector has made remarkable progress in recent years and is again able to successfully continue its intermediation role and benefit from the prospects of the Greek economy and the expected return of the Greek sovereign to investment grade. However, challenges remain, related to the need to maintain strong profitability and further reduce non-performing loans. Moreover, deferred tax credits (DTCs) still make up a large part of banks' capital. Bank profitability benefits from higher interest rates, the resilience of non-financial corporations to observed shocks and the prospect of an RRF-supported credit expansion.

At the same time, however, higher interest rates and disturbances in the banking sector, mainly in the United States, are pushing borrowers' interest payments up and could dampen demand for new non-RRF loans. The high interest rate environment becomes a significant risk as Greek banks continue to issue bonds in order to meet the Minimum Requirement for own funds and Eligible Liabilities (MREL). In this context, the upgrade of the Greek sovereign to investment grade would also be an important development for banks, as it is expected to be followed by similar upgrades of Greek banks' credit ratings, thereby containing their borrowing costs on international capital markets.

At the same time, the significant improvement in asset quality in recent years should not lead to complacency, considering that the NPL ratio remains well above the average for euro area banks. It should be noted that a net inflow of new NPLs was observed during the first quarter of 2023 across all loan portfolios, as the combination of higher interest rates and inflation seems to have affected the financial condition of businesses and households. Moreover, a deterioration in economic activity could put upward pressure on the cost of credit risk in the future.

It should be noted that the collapse of certain US medium-sized banks and the acquisition of Credit Suisse by UBS have brought to the fore weaknesses in the banking system amid a tightening of monetary policy. At the same time, it underscored the importance of prudent risk management by credit institutions and of strong supervision by competent authorities. However, it is important to stress that Greek banks do not have the weaknesses identified in the United States, as most of their deposits are insured, they have a different asset structure, which is tilted towards loans, abundant high-quality liquid assets, strong internal control and risk management systems, and are subject to strict supervision by the ECB and the Bank of Greece.

Nevertheless, the recent turmoil in international capital markets highlighted the need to complete the Banking Union and improve the EU crisis management framework and the Deposit Insurance Framework (CMDI). Against this background, in April 2023, the European Commission published legislative proposals to reform the existing EU CMDI framework. The main elements of the proposed reform include: (i) expanding the scope of resolution to include medium-sized and smaller banks; (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; and (iii) other amendments, such as improvements to early intervention measures and increased cooperation between supervisory and resolution authorities.

The proposals put forward by the European Commission are in the right direction for ensuring smooth management of banking crises and protection of depositors, and it is important that EU Member States reach an agreement in this regard, so that the reform is implemented as soon as possible. However, there is a need for additional changes to ensure, among other things, the effectiveness of the framework in the event of a systemic crisis, given that the current framework is designed to resolve a bank-specific crisis. Above all, the adoption of a common European deposit insurance scheme at banking union level is essential to consolidate depositor confidence, especially in the event of cross-border shocks and systemic crises.

***

The Greek economy has made substantial progress since the severe debt crisis of the past decade, which built up after years of imprudent fiscal policies and competitiveness losses. This progress and the enhanced credibility of economic policy, which is now visible and reflected mainly in the low spreads of Greek government bonds –and also in many other indicators of the real economy, public finances, exports and the financial sector– is the result of several factors. Above all, however, it is the result of a hard-won fiscal consolidation, ample refinancing and radical restructuring of public debt on very favourable terms, wide-ranging and difficult reforms in the labour, product and services markets, in the pension and tax systems, as well as an extensive restructuring and recapitalisation of the banking sector. As a consequence of the above changes, Greece is back on a path of real convergence with the EU average in terms of per capita GDP; the public debt-to-GDP ratio has fallen significantly, with risks to its sustainability remaining contained over the medium-term, due to the favourable profile of the Greek debt; and Greek government bonds are currently just one notch short of investment grade, which signals and confirms a return to normality.

As challenges for global financial stability remain high, with successive crises and pervasive heightened uncertainty, the greatest risk to the prospects of the Greek economy would be the loss of hard-won policy credibility, a breach of commitments and a return to past practices. Responsibility and commitment of economic policy-makers is needed to safeguard the sacrifices of the past decade and continue the progress achieved so far.

In this regard, it should be noted that the current favourable profile of the accumulated public debt will not be permanent, but merely provide an important window of opportunity for public debt to remain sustainable going forward, as the concession loans under the MoUs gradually mature and are replaced by new borrowing on market terms. This requires a prudent economic policy aiming for cyclically adjusted primary surpluses of 2% of GDP; continued reform efforts; reducing the stock of non-performing loans; stepping up the fight against pervasive tax evasion; and an efficient and timely use of the available Recovery and Resilience Facility resources to boost investment in human capital, green energy and digital technologies. These policies will consolidate Greece's credibility in the international investor community, thereby gaining investment grade and, at a later stage, exceeding it, so as to strengthen the Greek economy's resilience to exogenous shocks and episodes of international market volatility; lower the cost of raising capital for the public and private sectors; and foster investment, faster economic growth, real convergence and social cohesion.

Box 1

GEOECONOMIC FRAGMENTATION AND STRATEGIC AUTONOMY: POTENTIAL COSTS AND BENEFITS

In the past few years, geopolitical factors have played an increasingly important part in international economic relations, causing a revision of the existing approaches, but also posing new political economy dilemmas for states and international organisations.

The role of geopolitical factors, which was important during the Cold War era, had gradually declined following the collapse of the eastern political-economic bloc in 1989-1990. The globalisation of markets has accelerated since then, aided by the entry of India (1995) and China (2001) into the World Trade Organisation (WTO), but also by technological progress. This surge of globalisation, particularly in the 2000s when it peaked, had, overall, positive results at an international level, despite the criticism it attracted, as the reduction of tariff and non-tariff trade barriers boosted global trade, creating jobs, supporting innovation and development, and decreasing the income and technology gap between advanced and emerging economies.[1] The internationalisation of production and supply chains enhanced prosperity both in low-cost developing economies, mainly in terms of income, and in advanced economies in terms of prices and costs.

A series of events, such as Brexit in 2016, the trade war between the United States and China, the coronavirus pandemic in 2020 and supply chain disruptions and, lastly, the war following the Russian invasion of Ukraine in 2022, reignited geopolitical tensions and increased concerns over the economic security of states. Even the tackling of climate change is in danger of being approached with nationalistic criteria, as e.g. specific terms of national policies for green subsidies breach the rules of the World Trade Organisation. The measures now taken at international and European level aiming to ensure the energy and supply security of states and their strategic autonomy, albeit necessary in many cases, lead to a global economic and financial fragmentation along geopolitical lines, i.e. to a geoeconomic fragmentation.

Geoeconomic fragmentation, as a complex process of economic disintegration and as a result of policy choices by states and enterprises, includes initiatives, *inter alia*, for reshoring, friend-shoring and FDI screening.

Geoeconomic fragmentation, as important as it may be for national and economic security and for maintaining technological advantages, entails inevitable costs and implications (short-term and long-term) on income, inflation, capital flows and the banking system.

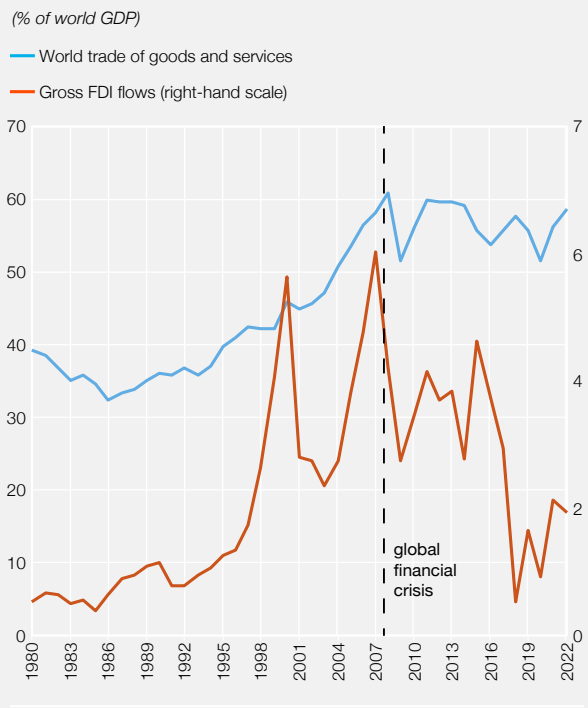
This box briefly reviews the characteristics of geoeconomic fragmentation. The European Union (EU) perspective is set out and the initiatives aiming at its strategic autonomy are summarised. Finally, estimations are made of the potential cost of the initiatives undertaken by states and enterprises that lead to geoeconomic fragmentation.

Slowbalisation and geopolitical tensions

Globalisation as a process of constant increase of global trade and foreign direct investment (FDI) has not been reversed (i.e. there is no "deglobalisation"); yet, it seems to have slowed down ("slowbalisation").[2] A decline of FDI as a percentage of GDP has already been observed following the global financial crisis. Globally, gross FDI flows as a percentage of GDP deteriorated from 3.3% in the 2000s to 1.3% in 2018-2022.[3] Likewise, the world trade (imports and exports) to global GDP ratio reached 41% in 1997 and 61% in 2008 from 30% in 1980. Since

1 The overall favourable effects are also evidenced by the increase of the Member States of the World Trade Organisation to 164, compared with 23 states that participated in the GATT.
2 Panetta, F. (2023), "United we stand: European integration as a response to global fragmentation", speech at "Integration, multilateralism and sovereignty: building a Europe fit for new global dynamics", Bruegel, Brussels, 24 April.
3 IMF (2023a), *World Economic Outlook*, Chapter 4, "Geoeconomic fragmentation and FDI", April.

Chart A "Slowbalisation"



Source: IMF, *World Economic Outlook*, April 2023.

then it declined marginally but, following the pandemic, it recovered reaching 57% in 2021 and 61% in 2022 (see Chart A).

Geopolitical risks, as measured by various indices, have increased internationally, particularly following the Russian invasion of Ukraine. During the last decade, international military disputes have almost tripled, while disagreement between the United States and China in United Nations voting has increased.[4]

Since 2017, the emphasis placed by the US foreign policy on the motto "America First" reintroduced geopolitics and geoeconomics in the public debate.

The United States, starting from July 2018, imposed tariffs on iron and aluminium, as well as a ban on technology imports from China, aiming to reduce dependency from the latter. The trade war that ensued, with an almost immediate retaliation by China and a number of measures and countermeasures by both sides until the execution of the "Phase One" agreement in January 2020,[5] hit global trade.

The COVID-19 pandemic and the supply chain bottlenecks observed due to the high dependency on China reopened the debate on the benefits and losses from the integration of economies into global value chains (GVCs). Recent literature highlights the fact that, although this interdependence reduces production costs, it propagates and amplifies shocks.[6] During the pandemic crisis it became clear in the advanced economies, and particularly in the EU, that international interdependence in certain crucial sectors may also become **a source of vulnerability and/or weakness**. The flipside of free trade is **interdependence**. Excessive reliance of economic growth on exports or imports may become a weakness, as it provides the other major states with the opportunity to weaponise it.

As a result of these developments, France started to promote the "Made in Europe" strategy, while the EU institutions are drafting the European answer to the subsidies policy for the domestic industry of the United States implemented through the US Inflation Reduction Act. As regards semiconductors, the United States propose the Chip 4 Alliance with three Asian economies in order to form a semiconductor supply chain which will be independent from China. In the same vein, the EU proposes the "European Chips Act", with investments amounting to 43 billion euro which aim to support the semiconductor industry, so that until 2030 the respective European production will reach 20% of the global production capacity.

Strategic autonomy in the European Union

The term Strategic Autonomy (SA) refers to the EU's ability to act autonomously on issues of strategic importance, such as defence and the economy, without depending on third countries. This term appears for the first time in an official EU document in December 2013 in the European Council's conclusions in the context of the discussion on the common security and defence policy.

4 IMF (2023b), *Global Financial Stability Report*, Chapter 3, "Geopolitics and financial fragmentation: implications for macro-financial stability", April.

5 For an analytical chronology of the decisions of the United States and China on the trade war between them, see IMF (2023a), Box 4.1.

6 BIS, *Quarterly Review*, March 2023, "Global supply chain interdependence and shock amplification – evidence from Covid lockdowns" and Caldara, D. et al. (2023), "Do Geopolitical Risks Raise or Lower Inflation?", 15.2.2023.

The SA debate in the EU went through various phases. In 2013-2016, it mostly referred to security and defence issues. In 2017-2019, SA took the form of an EU reaction aiming to protect its interests against a rather hostile geopolitical environment, dominated by Brexit, the Trump administration's stance vis-à-vis the EU and the constantly increasing economic power of China. In 2020, the pandemic shifted the focus of the SA debate to the question how to tackle the consequences of the increased dependence of the EU on supply chains outside of it. Already as of October 2020, the EU Heads of State or Government had stressed that achieving SA while maintaining an open economy constitutes a key objective of the Union. Charles Michel, the President of the European Council, had referred, in various speeches as of 2020, to the need of the EU for strategic autonomy as regards its access to critical resources such as healthcare products, rare earths, semiconductors, space and cybersecurity, highlighting SA as the new common goal of the EU for the current century. Since 2021, the concept of SA acquired broader dimensions, encompassing almost all the policy areas of the EU, even fundamental values, defence of human rights and democratic principles.[7]

Soaring natural gas prices since mid-2021 and the Russian invasion of Ukraine in February 2022 were catalysts of developments in the EU. With the Versailles Declaration, which was adopted at the informal meeting of the EU Heads of State or Government on 10-11 March 2022, it was decided to limit EU dependence on Russian fossil fuels, bearing also in mind the EU climate-related targets for 2050, to bolster the Union's defence capabilities and to build a more robust economic-industrial base. It was agreed that the Member States will gradually reduce fuel imports from Russia, diversifying energy supply and the supply routes, including liquefied natural gas (LNG); speeding up the development of renewable energy sources and hydrogen; improving the interconnections among the EU energy networks; and increasing energy efficiency.[8]

Limiting EU dependence on Russian fuel is crucial for the enhancement of the **energy resilience** and autonomy of the EU, particularly in case of energy shortages, and also constitutes an opportunity to accelerate the shift to renewable energy sources.

Responding to the leaders' call for a plan that would implement their decision on Russian imports, the European Commission presented the **REPowerEU** plan in May 2022. Based on this plan, the EU established a voluntary energy platform, which supports the coordinated joint energy purchases for all EU countries and for certain European partners. At the same time, the acceleration of the green transition was promoted. The EU countries have committed to meeting the targets **of the European Green Deal** to reduce greenhouse gas emissions in the EU and to achieve climate neutrality in the EU by 2050. In March 2023, the EU Council launched a set of proposals known as **Fit for 55 package**, which aim at the reduction of net greenhouse gas emissions by at least 55% by 2030.

The complex strategy followed by the EU in the context of the new geoeconomic environment is also summarised in the recent report by President Charles Michel to the European Parliament plenary session (29.3.2023):[9] "Trade is influenced by geopolitics and we must navigate our trade relations in this complex landscape. In relation to the US, we are a close and strategic ally. In recent months, we have discussed our economic cooperation, notably on the IRA and WTO reform. We are working together with the United States to find a solution to the issues raised by the IRA. As for China, we face the reality as it is today. China is a major trading partner and has become more assertive and more challenging. So we need to be clear on our goal: we want to de-risk, not to decouple."

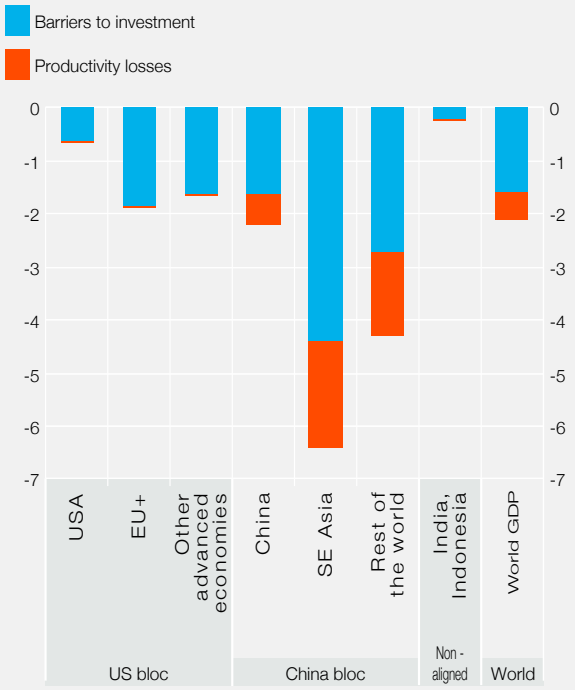
Fragmentation risks and costs

The strategic choice of less international economic integration mainly affects the prosperity of more open and extrovert economies such as the EU. The EU was a champion of free trade internationally in the post-war era. The euro area is still the largest exporter in the world, with a share of 26% in total exports, compared with 12.8% for China and 9.1% for the United States, which are larger economies on the basis of their GDP (IMF data for 2021).

7 European Parliamentary Research Service – EPRS (2022), "EU Strategic Autonomy 2013-2023, From Concept to Capacity", EU Strategic Autonomy Monitor, July.
8 https://www.consilium.europa.eu/media/54773/20220311-versailles-declaration-en.pdf.
9 Report by President Charles Michel to the European Parliament plenary session – Consilium (europa.eu).

Chart B Impact of investment flow barriers on GDP

(% deviation from no-fragmentation scenario)



Source: IMF calculations (WEO, April 2023) of a baseline fragmentation scenario that represents barriers generating a 50% decline in investment input flows between China and US blocs, with a low elasticity of substitution between foreign sources of investment inputs.

As regards international trade, geoeconomic fragmentation is estimated to constitute a lose-lose situation, with the cost in terms of higher prices and lower prosperity depending on the intensity of its implementation. At the same time, the repercussions are significantly heterogenous among economies, while they seem to moderate over the longer term, as resources are reallocated and redirected.

In a recent study it was calculated that the cost of GVC fragmentation in terms of higher price levels globally may range from 4.8% in the short term to 0.9% in the long term.[10] The effect on the United States stands at 4.9% and 1.7% respectively, while it is slightly lower on the euro area, 3.9% to 0.7%, due to smaller upward pressures from relocation effects. In terms of income, the potential losses are minor for the large economies of the United States and China (about 1%), significant for the euro area (between 1% and 2.3%) and very significant for economies more deeply integrated into the global supply chains, such as Singapore, Vietnam and South Korea (from 2% up to 11%).

A study on the EU estimates that the change of key suppliers as a result of pursuing strategic autonomy may in the short term create income losses of between 0.08% and 0.15% of the EU-27 GDP. According to this study, long-run impacts, which reflect losses to productivity and innovation, could be much more significant, with national income per capita falling by up to 0.5% to 0.75%. The costs are not evenly distributed across the EU-27. Larger countries like France and Germany are less impacted than smaller ones, notably Ireland and the Baltic states.[11]

Geoeconomic fragmentation has far-reaching implications across many domains of policymaking, including monetary policy.[12] The energy crisis proved that geopolitical shocks may trigger uncertainty and, through multiple spillover channels, persistent output and inflation volatility. In addition, fragmentation could influence the natural rate of interest and borrowing costs. Efforts to diversify imports and reduce foreign dependencies on specific countries may reduce productivity and curb the demand for safe assets coming from these countries, which possess high national savings, thus pushing up interest rates.[13]

In parallel, the gradual shift of production from low-cost countries to others with more expensive yet "safer" intermediate goods and raw materials may affect the international division of labour, leading, *inter alia*, to an increase of the bargaining power of workers in advanced economies and, thus, to a change of wage growth dynamics and, finally, of headline inflation.[14]

10 Attinasi, M.-G., L. Boeckelmann, and B. Meunier (2023), "Friend-shoring global value chains: a model-based assessment", ECB, *Economic Bulletin*, Issue 2/2023.
11 Bauer, M. (2022), "The Impacts of EU Strategy Autonomy Policies – A Primer for Member States", European Centre for International Political Economy (ECIPE), Policy Brief, No. 09/2022.
12 See ECB (2023), "Central banks in a fragmenting world", Speech by the President of the ECB Christine Lagarde at the Council on Foreign Relations, 17.4.2023.
13 Panetta, F. (2023), *op. cit*.
14 ECB (2023), International Relations Committee, Work stream on Open Strategic Autonomy, "The EU's Open Strategic Autonomy from a central banking perspective – challenges to the monetary policy landscape from a changing geopolitical environment", ECB, Occasional Paper Series, No 311, March.

It is estimated that the impact of market fragmentation on FDI, according to various scenarios reviewed by the IMF (see IMF, *op. cit*.), may amount to 2% of global GDP in the long term. The results appear to be asymmetric, at the expense mostly of emerging and developing economies, which face greater difficulties with regard to their access to funding than advanced economies (see Chart B).

The increase of geopolitical tensions and financial sector fragmentation in general may also have significant implications for the resilience of states and enterprises, since they reduce the options for funding source diversification and risk sharing. This fragmentation poses financial risks, as it increases banks' funding costs, reducing their profitability and lowering their provision of credit to the private sector. Geoeconomic fragmentation also has a sizeable effect on cross-border banking claims and portfolio allocation, as well as on cross-border capital flows, while a sharp deterioration may cause a sudden reversal of flows, with the effect being more pronounced for emerging and developing economies.[15]

Conclusions

The principle of multilateral economic cooperation which was adopted after the Second World War is taking a severe blow today, as new challenges lead to fragmentation tendencies in global trade and in international financial markets. During the previous decades, international economic relations prioritised cost savings on the basis of optimal international division of labour and global growth relied on soaring offshore activities in low-cost economies. However, following the pandemic and energy crisis, strategic autonomy, in the sense of enhanced capacity to secure food, fuel and critical raw materials, as well as the protection of national security have emerged as equally important priorities.

In general, the trade and activity friend-shoring or the investment reshoring process may increase inflation and decrease prosperity in the short term, while making the weaker economies more vulnerable, as it entails a reduction of diversification and risk sharing.

The short-term costs of the ongoing geoeconomic fragmentation, in terms of income, inflation and interest rates, should be compared with the medium-to-long-term benefits of a more balanced global interdependence and, thus, of an enhanced resilience to external shocks. The cost of the prioritisation of energy, food and supply security in general constitutes a risk premium to be paid by states and societies against a potential high future cost from a severe external shock or from a potential weaponisation of trade and financial relations by a state.

The EU, as the largest exporter in the world and as a pillar of the global multilateral economic system, should continue supporting open economies, opting for a greater diversification of its supply sources, a greater utilisation and deepening of its common market, without, however, unnecessary trade frictions that will lead to a loss of prosperity.

15 IMF (2023b), *op. cit*.

Box 2

NEW INTERNATIONAL EMPIRICAL EVIDENCE REGARDING THE SLOPE OF THE PHILLIPS CURVE

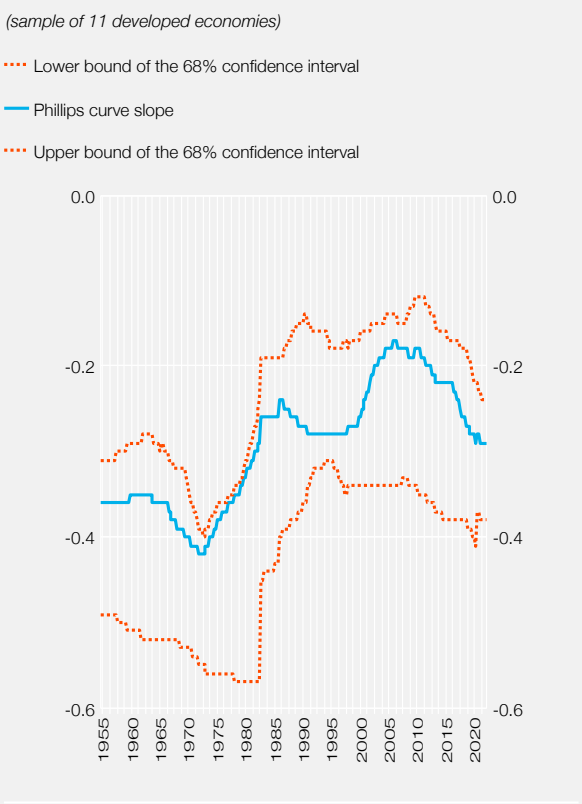
Central banks closely monitor the relationship between economic activity and inflation, in the context of monetary policy making. It is known that there is a correlation between lower growth, or –correspondingly– higher unemployment rates, and lower inflation, as pressures for wage increases ease. The negative correlation between unemployment and inflation is known in economic literature as the Phillips curve. Over the past few decades, it has been observed that the sensitivity of inflation to changes in unemployment, i.e. the slope of the Phillips curve, has decreased globally. In other words, it appeared that a reduction in the unemployment rate was feasible with a

smaller increase in inflation than what would have been necessary in the past. A number of possible interpretations have been proposed for this shift. The increasing weight of the Chinese economy in world trade over the past few decades is seen as an important factor behind the reduced sensitivity of inflation, as very low wages and strong labour supply in China for years allowed the domestic economy to respond to any increases in global demand without raising average wages and, consequently, the prices of goods produced. At the same time, the globalisation of production chains and the resulting weakening of trade unions further reduced the correlation between the business cycle and wage changes in developed economies over the past decades. Lastly, the strengthened credibility of central banks is also thought to have played an important role, as by the mid-1990s most of them had made ensuring price stability the primary objective of their monetary policy, thereby contributing to a moderation in inflation fluctuations over the business cycle. However, given the recent surge in inflation, a fresh look is needed into the sensitivity of inflation to changes in economic activity, in the largest possible sample of countries.

Phillips curve estimation

This box estimates the Phillips curve for a sample of 11 developed economies, comprising the seven most advanced economies (G7), i.e. the United States, Canada, the United Kingdom, Germany, France, Italy and Japan, as well as four euro area periphery countries, i.e. Greece, Spain, Portugal and Ireland. The model used is based on Chan et al. (2016), yet it features some key innovations.[1] It is a bivariate model consisting of two equations, which specify the dynamics of inflation and unemployment, respectively, and the inflation-unemployment relationship. The independent variables are incorporated in the model as deviations: one variable is the deviation of inflation from inflation expectations, and the other is the deviation of unemployment from the long-run equilibrium below which inflation increases (non-accelerating inflation rate of unemployment – NAIRU). The expected level of inflation itself is also estimated as a function of the estimated long-run trend inflation. Both inflation and its expected level are affected by shocks that follow stochastic volatility. The inflation equation is a form of the Phillips curve whose estimated slope captures the sensitivity of inflation to the level of unemployment. The model is highly flexible and, through the time-varying slope coefficient of the Phillips curve, may identify possible changes over time in the inflation-unemployment relationship for each economy in the sample.

Time-varying estimations of the Phillips curve slope: summary of results



Source: Bank of Greece econometric estimations.

The statistical data used for inflation, based on the consumer price index (CPI), as well as the unemployment rate are quarterly, covering a maximum period from the first quarter of 1955 to the first quarter of 2022.[2] The model is estimated using Bayesian methods, which allow the generation of estimates for the entire distribution of the model parameters.

The chart presents the estimated median time-varying slope of the Phillips curve for the 11 economies included in the sample, as well as the respective confidence interval. First, we note that the slope takes only negative values,

1 See Chan, J.C.C., G. Koop, and S.M. Potter (2016), "A bounded model of time variation in trend inflation, NAIRU and the Phillips curve", *Journal of Applied Econometrics*, Vol. 3, No. 3, 551-565.

2 For most economies, the available sample is smaller and usually starts in early 1980. Data were drawn from the OECD database.

as would be expected on the basis of the relevant theory. In other words, it is found that a decrease in unemployment relative to its long-run trend is indeed correlated with an increase in inflation. In addition, the estimated slope coefficient of the Phillips curve has shown significant volatility over the past 70 years or so. The median slope of the Phillips curve had been declining (in absolute terms) during the first years of the sample, i.e. roughly until 2005, ranging approximately from -0.4 to -0.2. Thereafter, it has followed an upward trend, especially from 2017 onwards, which continued during the COVID-19 pandemic and up until the end of the sample in early 2021, when the median slope of the Phillips curve appears to have stabilised close to -0.3. These findings are consistent with the relevant empirical literature and recent reports by international organisations, attesting to a flattening of the Phillips curve during the first period of the sample.[3] Furthermore, they empirically establish for the first time that, in a large sample of countries, inflation sensitivity to shifts in economic activity has rebounded over the past few years.

Conclusions

The above findings provide valuable insight into the potential path of global inflation in the medium term. The aforementioned estimated increase in the median slope (steepening) of the Phillips curve suggests that monetary policy may be becoming more effective, in the sense that a one-unit rise in unemployment as a result of the monetary policy tightening leads to a larger decline in inflation, compared with the past 20 years. Against this backdrop, as the supply-side shocks that have driven the recent surge in inflation are gradually fading, its reduction will become more feasible. Certainly, in the short run, exogenous inflationary pressures are likely to persist, e.g. due to global energy prices, supply chain disruptions, etc. Besides, the effective use of NGEU resources is expected to strengthen growth rates in several European economies and to further reduce unemployment, which has already hit historic lows in Europe and other large economies, thus adding to inflation. Nevertheless, on the basis of the model estimates, inflation is expected to converge over time towards its long-run trend, which for most European countries of the sample, as well as for the United States and Canada, is estimated close to 2.0%, in line with the Eurosystem's objective for price stability.

3 See for instance *BIS Bulletin* No. 47, "Labour markets and inflation in the wake of the pandemic", 27.10.2021, p. 5, where, on the basis of data on 16 OECD countries, it is estimated that the largest part of the flattening of the Phillips curve (in absolute terms) occurred until 2010.

Box 3

THE FACTORS BEHIND THE OVERPERFORMANCE OF TAX REVENUE AFTER THE PANDEMIC

Tax revenue in 2022 and during the first months of 2023 has exceeded the State Budget estimates, driven by a number of factors, some of which are conjunctural, such as the exogenous inflationary shock, better-than-expected economic activity and the emergency tax on the windfall profits of electricity producers. However, in tandem with the temporary impact of the above factors, the performance of tax revenue also reflects several positive effects of a permanent and structural nature, such as the increased use of electronic payments, long-term consumption patterns and the enhanced tools of the tax administration.

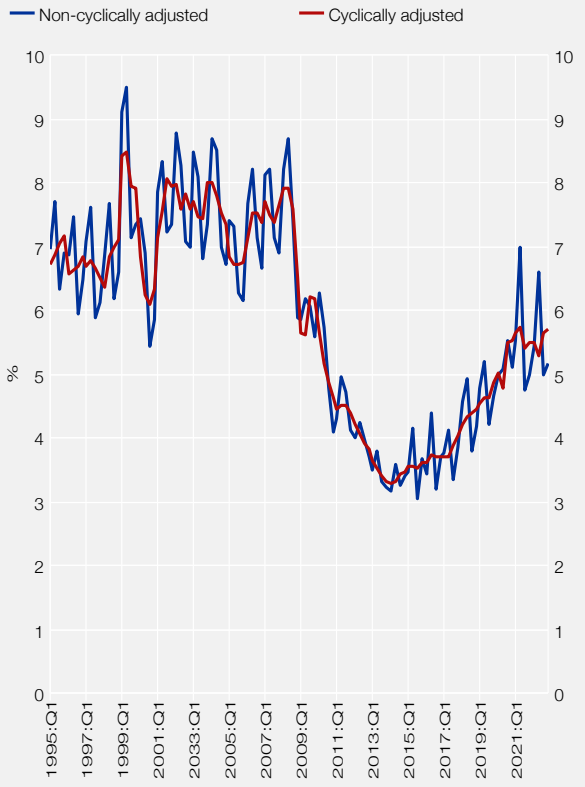
Macroeconomic effects

Inflation exerts a transient upward effect on tax revenue, which reflects the enlargement of the nominal tax base[1] (especially in the case of indirect taxation) as well as the non-indexation of tax brackets in the case of direct taxation. The positive impact of inflation varies in duration and size, depending on the nature of inflationary pressures. Recent literature[2] concludes that the effects on the level of revenue are comparatively more favourable

1 See Bank of Greece, *Monetary Policy Report 2021 – 2022 - Executive Summary and Boxes,* Box 3 "Impact of high inflation on public finances".

2 Lazaretou, S. and G. Palaiodimos (2023), "An assessment of the impacts of inflation on Greek public finances: macroeconomic effects and policy implications", Bank of Greece, Economic Bulletin, No. 57, forthcoming.

Chart A Share of durable goods in household consumer spending



Source: Calculations based on ELSTAT data.

and tend to last longer when inflation is demand-driven rather than supply-driven. This is explained by the fact that these two types of shocks do not affect the real economic growth rate and real tax bases in the same way. Accordingly, an inflationary shock that is largely supply-driven, as is the case at the current juncture, is not expected to have a lasting positive effect on tax revenue.[3]

Apart from the nominal enlargement of tax bases, the performance of indirect taxes has also been boosted by a qualitative shift in consumer spending. More specifically, VAT receipts have benefited from the increased share of durable goods in private consumption, as tax rates on durables tend to be higher. The share of household consumer spending on durable goods is rising over the past few years and has recovered from a mere 3.0% in the third quarter of 2015 to 5.6% on average in 2021-22 (see Chart A). This share, despite the observed increase in durable goods consumption, remains significantly lower than its pre-2008 average (7.3%), which leaves room for further improvements in the performance of tax revenue. Moreover, it should be stressed that, in contrast with the positive impact of inflation, the gains from the more favourable composition of private consumption are not conjunctural, as these have been sustained over the past few years and are associated with gradually rising incomes.

Increase in electronic transactions

The improved performance of VAT revenue has greatly benefited from the increased use of electronic transactions, which –unlike cash transactions– are detectable, thereby facilitating the work of audit mechanisms and reducing the room for tax evasion.[4] The use of electronic transactions became more widespread during the pandemic. For instance, the share of private consumption spent using payment cards rose from about 20% in 2019 to over 37% in 2022.[5] The rise in electronic transactions has led over time to a remarkable increase in the tax base elasticity of VAT revenue (see Chart B). Before the imposition of capital controls in 2015 and the ensuing increase in electronic transactions, a 1 percentage point (pp) increase in the tax base was estimated to lead to higher VAT revenue by about 0.8 pp (i.e. VAT revenue elasticity was 0.8 pp). By the end of 2022, the elasticity of VAT revenue was estimated to have surpassed 1.7 pps, of which around 0.4 pp was added during the pandemic.[6]

3 For an analysis of the supply- and demand-side factors driving inflation in advanced economies, see Bank of Greece, Annual Report 2022, April 2023, Box II.1 "The role of supply and demand as drivers of inflation in advanced economies".

4 Hondroyiannis, G. and D. Papaoikonomou (2017), "The effect of card payments on VAT revenue: New evidence from Greece", *Economics Letters*, 157, 17-20, and Hondroyiannis, G. and D. Papaoikonomou (2020), "The effect of card payments on VAT revenue in the euro area: evidence from a panel VECM", *Journal of Economic Studies*, 47(6), 1281-1306.

5 According to a relevant study by IOBE (2023), "Electronic payments in Greece during the pandemic – Key findings", the total value of domestic transactions using Greek payment cards outstripped the amount of cash withdrawals for the first time in 2022.

6 The estimates are based on the following revised version of the time-varying coefficient (TVC) model by Hondroyiannis and Papaoikonomou (2017, see footnote 4), which was estimated using the Kalman filter on the basis of quarterly observations for the period Q1 2000-Q4 2022.

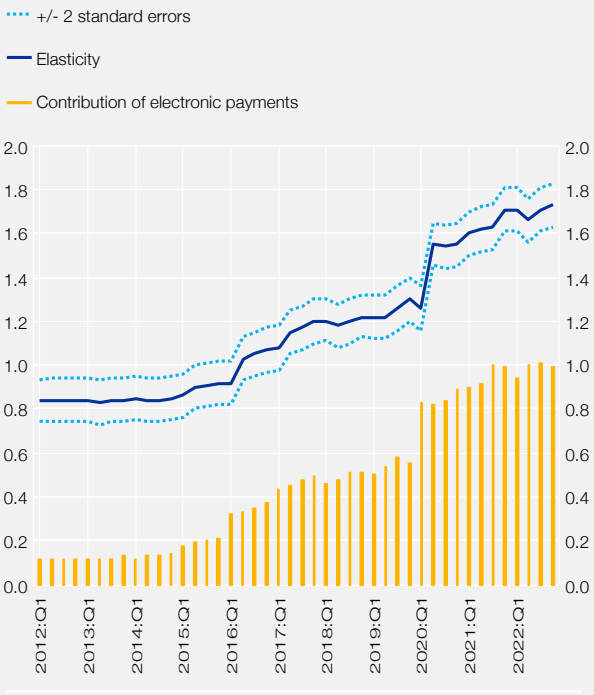
$$\Delta^4 \ln (VAT_t) = \beta_{1,t} + \beta_{2,t} \Delta^4 \ln(base_t) + \beta_{3,t} \Delta^4 (rate_t) + \beta_{4,t} \Delta^4 (durables_t) + \varepsilon_t \quad (1)$$

$$\beta_{i,t} = \overline{\beta}_i (1-\rho)+\rho\beta_{i,t-1}+\mu_i (cards_t)+u_{i,t}, \; i = 1,\ldots, 4 \quad (2)$$

where $\Delta^4 x_t \equiv x_t - x_{t-4}$, ln() is the natural logarithm, β_i, ρ and μ_i are the constant parameters, ε_t and $u_{i,t}$ are the random residuals with stable variance, *VAT* is VAT revenue, *base* is the tax base, *rate* is the standard tax rate, *durables* is the share of household consumption spent on durable goods, and *cards* is the share of private consumption spent using payment cards.

As a result of the increased elasticity, the projected economic growth in the coming years and the concomitant rise in the share of durable goods purchases in consumer spending is expected to continue driving upwards VAT revenue. Furthermore, these gains could be boosted considerably by a further increase in electronic transactions through a wider use of POS terminals in a growing number of economic activities/industries[7] and through further incentives for debit card or bank payments. It should be noted that, despite the marked rise seen in recent years, the share of private consumption spent using cards in Greece (around 37% in 2022) is still well below the euro area average, which stood at 46% in 2021.

Chart B Tax base elasticity of VAT revenue



Source: Bank of Greece estimations.
Note: Elasticity refers to the coefficient $\beta_{2,t}$ of the model, as specified in footnote 6 herein.

Upgraded tools of AADE

The role of the Independent Authority of Public Revenue (AADE) is crucial for enhancing tax collection efficiency. Along with the independence granted to AADE, a number of actions were taken for the reorganisation and modernisation of audit and collection methods (e.g. risk analysis of targeted audits, information cross-checking with other data sources, etc.), with priority being given to new tax cases, large debtors and strategic defaulters. This was made possible thanks to the application of new technologies and the introduction of novel electronic tools for real-time information exchange via AADE's central IT system "taxis"[8] (e.g. "myDATA" application, POS/cash registers interconnection, etc.).[9]

At the same time, at the institutional level, the ratification of the updated and simplified Code for the Collection of Public Revenue has enhanced tax collection efficiency by reducing compliance costs, as the new Code combats legislative complexity, systemises and clarifies scattered legal provisions, whilst repealing obsolete legal arrangements. Furthermore, according to the OECD,[10] such measures as lowering the cash payment ceiling on retail transactions (currently standing at 500 euro) also helped to curb tax evasion, thereby improving revenue collection efficiency.

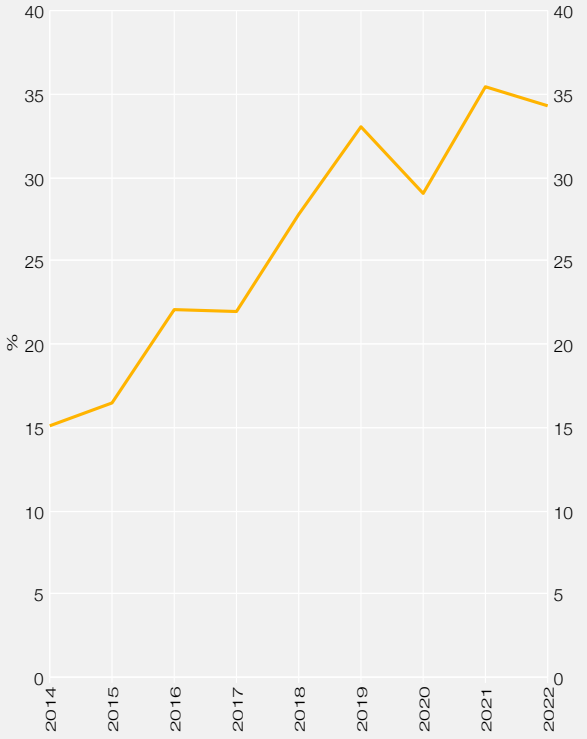
The trends towards improved collection efficiency are captured by the Key Performance Indicators (KPIs), published by AADE. As suggested by these indicators, the collection of new arrears has gradually improved (see Chart C),[11] with receipts having increased from 2 billion euro in 2014 to around 2.5 billion euro at end-2022. At the same time, the possibility of paying the tax bill earlier and in more instalments has greatly benefited tax compliance indicators, in particular for individual and corporate income taxes, as well as for the VAT and the "ENFIA" property tax (see Chart D).

Conclusions

Provided that the reforms for curbing tax evasion continue, it can be expected that the overperformance of tax revenue will be sustained in the years ahead. The continued upgrading of AADE's electronic tools expands the

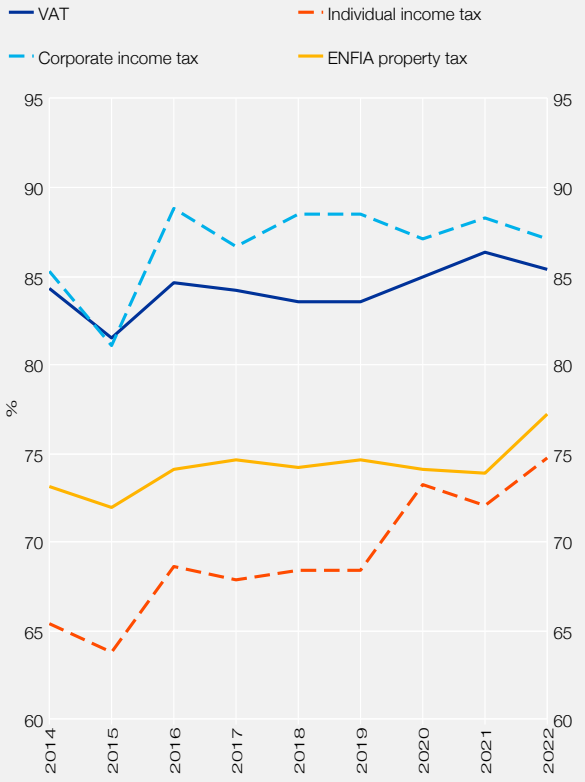
7 The planned broadening of occupational categories which will be obliged to use POS terminals should help.
8 See AADE (2022), Annual Report 2021, p. 8 (in Greek), citing all electronic platforms that were developed by AADE.
9 Measures such as electronic bookkeeping and digital clienteling, as well as e-invoicing and online consignment notes are expected to complement this effort.
10 OECD (2018), *OECD Economic Surveys: Greece 2018*, OECD Publishing, Paris.
11 This gradual improvement is due to the fact that receipts of new arrears have increased above the respective receipts of 2014, while the overall level of arrears has decreased markedly over the reviewed period (from about 14 billion euro in 2014 to about 7 billion euro in 2022).

Chart C Collectibility of new arrears (KPI 2)



Source: AADE.
Note: Receipts of new arrears (billion euro) as a percentage of the new arrears added to books up until the month preceding the reference month (billion euro), excluding non-tax categories (minus uncollectible debt). New arrears refer to the outstanding amount of debt that fell due during the current year (KPIs: Key Performance Indicators).

Chart D Compliance indicators: timely payments (KPI 8)



Source: AADE.
Note: Compliance indicators capture the ratio of timely payments to total tax due (KPIs: Key Performance Indicators).

scope for the management and utilisation of information collected through electronic transactions. The ongoing interconnection of cash registers with the tax authorities will also make a positive contribution in this direction. Nevertheless, the tax incentives currently in place to disclose transactions in occupational categories most prone to tax evasion remain ineffective.[12] The improved performance of tax revenue could be channelled to fund more effective tax incentives (e.g. in the form of tax exemptions for the disclosure of transactions in industries with high tax evasion rates), which in turn would reduce tax evasion incentives. Lastly, an increase in the tax-free threshold should be accompanied by an enlargement of the tax base through improved tax compliance.

12 As noted by the European Commission in its special publication on Greece (Commission Staff Working Document, 2023 Country Report – Greece, 23.5.2023, pp. 11-12), according to data released by the tax administration, there is ample room for enlarging the tax base and improving tax compliance in the case of the self-employed, whose turnover grew sharply, whereas their declared incomes hardly rose. This discrepancy is likely to imply substantial tax evasion and losses in tax revenue.

Box 4

THE IMPACT OF HIGHER LENDING RATES ON BANK CREDIT IN GREECE

Monetary policy tightening has a restrictive effect on credit expansion. In the July 2022-March 2023 period, the ECB raised its key interest rates by a cumulative 350 basis points. Greece witnessed an increase of 256 bps in

interest rates on loans to non-financial corporations (NFCs) and of 87 bps on loans to households (until April 2023). Interest rates on loans to NFCs and households increased less than ECB interest rates, as higher policy rates feed into bank lending rates with a lag. For example, banks reset their interest rates on loans with floating rates only after a certain period of time (e.g. one month for housing loans, or in December and June for business loans). In addition, a bank's pricing policy may provide for only partial or gradual pass-through of interest rate costs to borrowers, and there are differences between banks in terms of the extent and speed of incorporation of ECB interest rate increases.

Moreover, the loan component of the Recovery and Resilience Facility (RRF) provides for substantial public resources at very low interest rates to be made available to businesses (through banks). It should be noted, however, that bank credit to NFCs does not include these low-interest loans (as they are not essentially bank loans); however, it includes banks' co-financing loans (with their own resources) for investment under the RRF loan component, which are provided at current market rates.

Therefore, through bank lending –whether under the RRF or not– the increase in interest rates dampens the annual growth rate of bank credit to NFCs. This box reviews the impact of the increase in interest rates over the recent months on the annual growth rate of credit, as well as the possible after-effects.

Analysis of simulation results

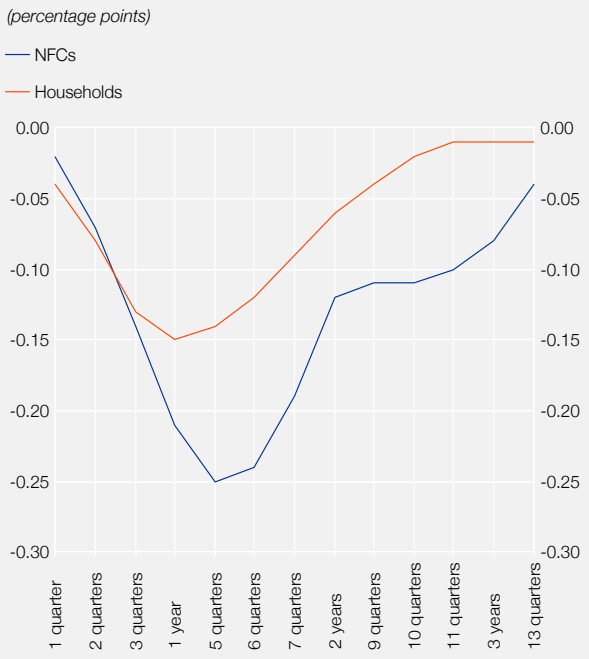
The contribution of interest rate hikes to the growth rate of bank credit is investigated using two econometric models for NFCs and households, estimated for samples of historical observations for the period from the first quarter of 1995 to the fourth quarter of 2022. The models incorporate bank loan supply and demand variables. These multiple equation models are autoregressive with error correction and include time-varying parameters. Simulation exercises are then conducted, registering the impulse response function of the loan variable to shocks to the interest rate variable.

According to the simulation results, a positive shock from an increase in the ECB's key policy rate is passed on to bank lending rates, leading to a decline in outstanding credit. Loan dynamics in the model are influenced by an adjustment towards a long-term demand relationship, according to which an increase in interest rates, among other factors, has a negative impact on loans, as expected based on relevant theory. This impact in the model may vary over time and, particularly during the pandemic until end-2022, estimates show that it decreased for NFCs in absolute terms. This is a reasonable outcome, considering the remarkable external (positive) impact on loans from credit support schemes by the Hellenic Development Bank (HDB) and the European Investment Bank (EIB) Group in 2020-2022, which weakened the effects of macroeconomic factors such as interest rates (and GDP).[1] It should be noted that, in the simulation, the outstanding amount of credit is also affected by the negative impact of rising interest rates on loan supply-side variables, such as banks' reduced liquidity and increased credit risk.

Chart A shows, for NFCs and households, the estimated response of (the change in) outstanding bank credit to a shock identified as a 50 bps increase in the ECB's key interest rate that is embedded in the interest rate equation. The effect of this increase is maximised after four and five quarters (for households and NFCs, respectively), when the annual growth rate of loans to NFCs declines by around 0.3 percentage point (households: 0.2), tending to zero after 2-3 years. Chart B shows estimates of the overall impact of increases (by 375 basis points) in ECB key interest rates from July 2022 to date (last increase: 10 May 2023) on the annual growth of credit (in nominal terms) to NFCs and households. This impact, for NFCs and households, is initially estimated to have been minimal until December 2022; in the first quarter of 2023 it was around -0.2 pp, before increasing to -0.4 pp in the second quarter of 2023 and -0.7 pp (households: -0.6) in the third quarter of 2023. After the third quarter of 2023, the impact increased to -1.60 pps for NFCs until the second quarter of 2024 (the recorded annual growth rate of loans to NFCs was 8.7% in April 2023) and to -1.00 pp for households (annual growth rate of loans to households

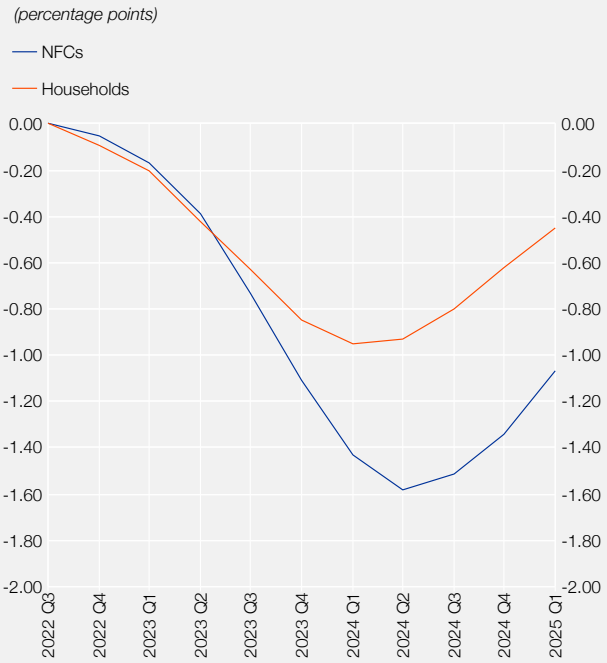
1 On the other hand, following the start of interest rate increases, the outstanding amount of bank credit was negatively affected by (total or partial) loan repayments by some NFCs and households aiming to reduce their servicing costs. The sample of historical observations incorporates these effects, extending to the end of the fourth quarter of 2022.

Chart A Impact of a 50 bps increase in ECB key interest rates on the annual growth rate of credit



Source: Bank of Greece econometric estimates.
Note: The horizontal axis shows the time period (in quarters/years) after which the interest rate increase causes the estimated impact. The estimated effects for each period are not cumulative.

Chart B Overall impact of ECB key interest rate increases (July 2022-May 2023) on the annual growth rate of credit



Source: Bank of Greece econometric estimates.
Note: The overall estimated impact ignores any positive contribution from an increase in loan-deposit margins, which is estimated to be small (see text). The estimated effects per quarter are not cumulative.

in April 2023: 2.7%), then it decreased. To sum up, results indicate that the effects of increases in ECB policy rates on credit growth have not yet materialised fully and are expected to intensify in the remainder of this year and in 2024-2025, although they should not be particularly large.[2] It should be noted that model estimates based on a sample of observations up to the outbreak of the pandemic show a stronger response of credit to interest rate changes.[3]

Lastly, a different simulation experiment illustrated the contribution of a widening of the interest rate margin (i.e. the spread between the bank lending rate and the deposit rate) to outstanding bank credit. The banks' interest rate margin, or profit margin, influences the supply of loans with a positive coefficient. It is estimated that, between July 2022 and March 2023, this margin increased by 267 basis points for business loans, slightly strengthening the average annual growth rate of credit to NFCs in the first quarter of 2023 by 0.2 pp, while the corresponding impact on loans to households was close to zero. Thus, including the contribution of profit margins to loan supply, the overall impact on the growth of credit from interest rate increases was marginally positive in the first quarter of 2023, before turning negative thereafter.

Conclusions

The negative contribution of interest rate increases so far to the annual growth rate of credit to NFCs and households appears to have been limited until the first quarter of 2023, with estimates suggesting that it will rise to moderate annual rates this year and the next. The contribution was smaller for credit to households than to NFCs.

2 The lags with which higher interest rates translate into a tightening of credit are in line with the relevant empirical literature.
3 According to these estimates, i.e. based on a historical sample up until the pandemic, the impact of a 50 bps interest rate increase could reduce the annual growth rate of loans to NFCs after 4 quarters by 0.8 pp, compared with a drop of 0.2 pp according to current estimates (see Chart A). In the case of loans to households, the corresponding figures are -0.3 pp (prepandemic sample) and -0.15 pp (current estimates).

Time-varying coefficients in the model, as well as a comparison with pre-pandemic estimates of the impulse response function, point to a decline in the interest rate elasticity of loans to NFCs following the outbreak of the pandemic, possibly due to fiscal credit support schemes implemented during the pandemic. This means that, as an important boost to credit to enterprises is expected in 2023-2025 under the RRF loan component, the negative effects of both recent and possibly upcoming increases in ECB key interest rates should remain mild.

Box 5

THE IMPACT OF INTEREST RATE HIKES AND CREDIT RATING UPGRADES ON GREEK GOVERNMENT BOND YIELDS

Government bond yields affect not only the cost of funding of public debt, but also corporate and bank bond yields and consequently the cost of funding of the private sector. With the use of established yield curve models, the impact of monetary factors on sovereign bond yields may be decomposed from the impact of other factors such as credit risk, which relates to the credit rating of bond issuers.

At the current juncture, Greek government bond yields are driven by two countervailing developments: the interest rate hikes by the European Central Bank (ECB) and the Greek sovereign credit rating upgrades. Greek government bond yields have risen markedly since end-2021, when the ECB signalled a shift in its highly accommodative monetary policy and a gradual policy tightening thereafter with a view to reining in inflation. A similar rise is also observed in the yields of government bonds issued by other euro area countries. At the same time, the multiple sovereign credit rating upgrades of the Greek economy suggest that the rise in Greek government bond yields is actually more modest than what would have come about in the counterfactual scenario of no upgrades.

The aim of this box is to quantify the contribution of the factors relating to (i) the key policy rate hikes and (ii) the level of credit risk, as captured by credit ratings. Measuring the contribution of these two key factors is useful for forming expectations about the future path of Greek government bond yields, on the basis of the expected path of key interest rates and the anticipated sovereign credit rating upgrade of Greece to the Investment Grade (IG).

The impact of interest rate hikes

Affine term structure models are usually employed for the estimation of the impact of expected short-term rates on government bond yields across the maturity spectrum. More specifically, in such models, long-term bond yields reflect expectations about the path of short-term interest rates, for the horizon spanning the term to maturity of the bond, based on short-term yields and standard compounding formulas. In this way, it is possible to isolate the expectations component of long-term bond yields from other determinants such as the credit risk premium, the term premium or liquidity risk.

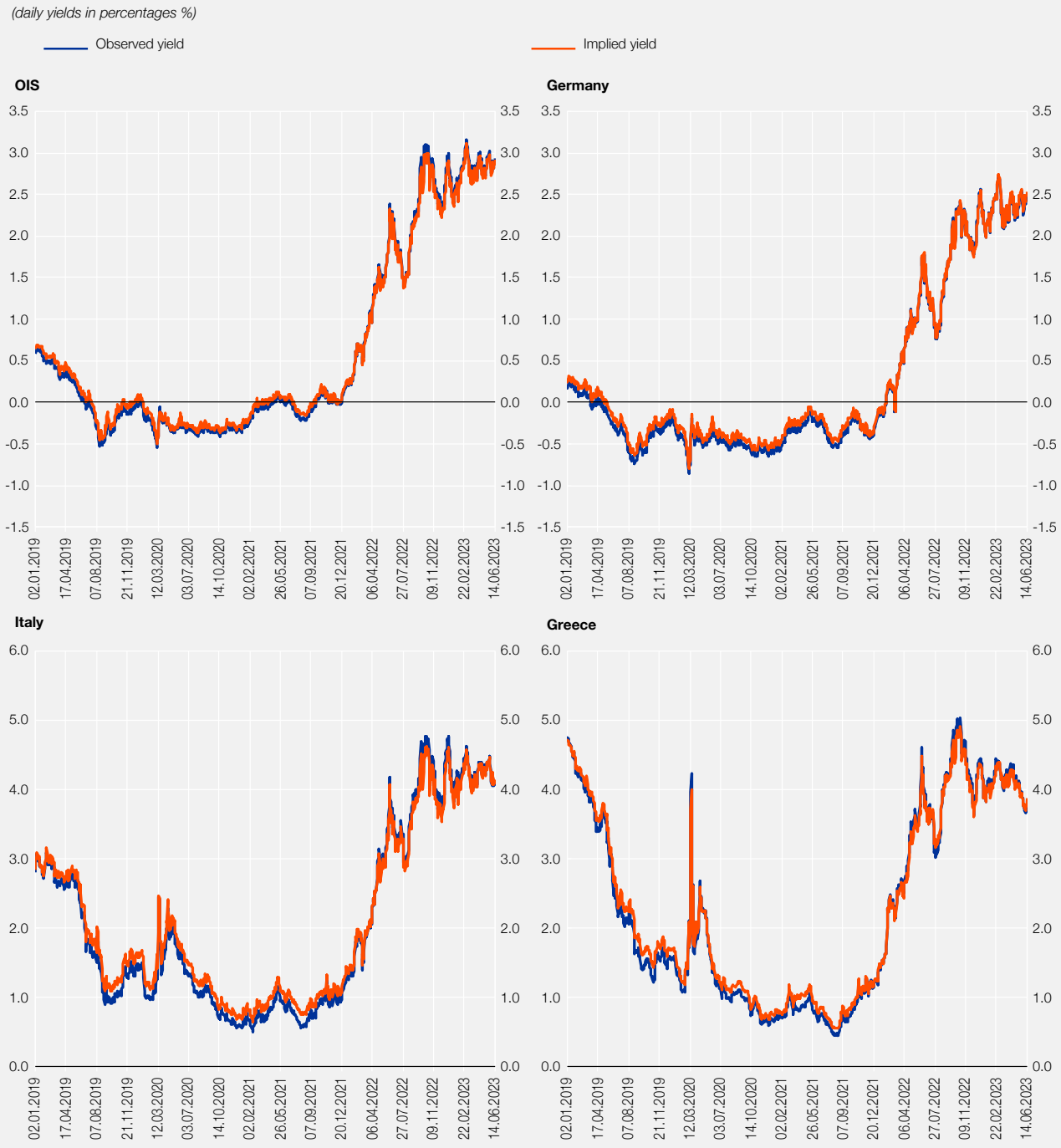
For the purposes of the present analysis, we use the dynamic factors Nelson-Siegel model.[1] On the basis of this model, we derive the estimated zero-coupon bond yields for Greece, Germany and Italy, as well as the OIS curve (overnight index swap rates).[2] Chart A shows the observed and the implied yields for the period from 1 January 2019 to 15 June 2023.

As clearly illustrated in Chart A, the dynamic term structure model employed herein captures quite accurately the observed development of yields on Greek 10-year government bonds and on their German and Italian coun-

1 See Diebold, F.X. and C. Li (2006), "Forecasting the term structure of government bond yields", *Journal of Econometrics*, 30(2), 337-364.

2 The estimation is based on daily data for the yields of Treasury bills with maturities of 3, 9 and 12 months and of zero-coupon bonds with a maturity of 2-30 years. The estimation period extends from 14 March 2012 to 15 June 2023.

Chart A Model-based estimates of bond yields

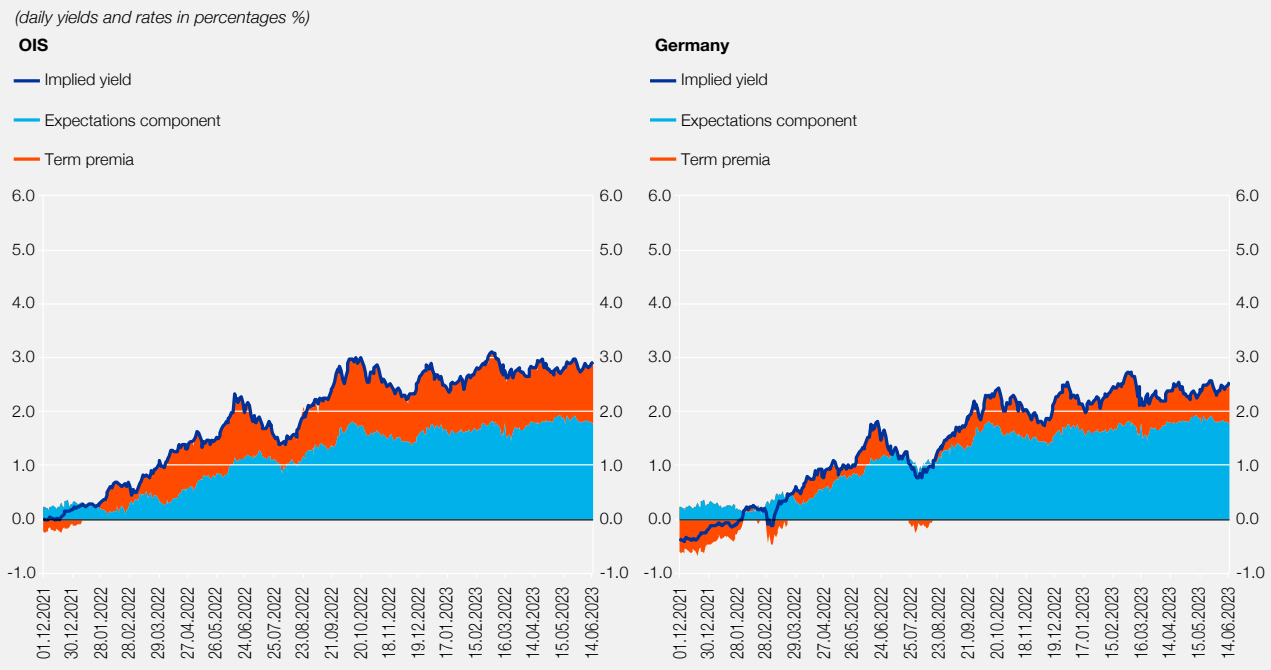


Sources: Refinitiv (data) and Bank of Greece (econometric estimations).
Note: In each panel, the blue line denotes the path of 10-year bond yields without the impact of coupon rates on bond prices, while the orange line depicts the yield implied by the dynamic affine term structure model.

terparts, as well as the respective OIS rate.[3] Thus, we may use model-based bond yields in order to infer the driving factors for observed ones.

3 By way of illustration, for the period depicted in Chart A, the mean coefficient of determination R2 ranges between 97.7% (for the 10-year OIS rate) and 98.7% (for Italy), while the RMSE, which measures the accuracy of the model predictions across the yield curves reviewed in this box, ranges between 8 and 14 basis points.

Chart B Expectations about short-term rates and term premia in 10-year German bonds and OIS rates



Source: Bank of Greece econometric estimations.

In this regard, it is possible to estimate the impact of expectations about the future path of interest rates on yields, based on suitable econometric techniques.[4] This step mainly applies to risk-free yields, because they reflect expectations about the path of short-term interest rates and term premia, i.e. determinants other than credit risk, such as liquidity of underlying bonds or uncertainty regarding monetary policy and inflation. The expectations component of bond yields is thus isolated first from term premia. Chart B presents the estimations of both components for German 10-year bond yields and the 10-year OIS rate.

As shown in Chart B, risk-free yields, such as the 10-year Bund yields or the 10-year OIS rates, had already started to increase significantly since the very beginning of the ECB policy rate hikes. Overall, from July 2022 onwards, when the ECB raised its key interest rates for the first time, and until recently, the observed rise in the 10-year Bund yields is almost entirely explained by the expectations of higher interest rates, in weighted average terms, over a horizon of ten years. In the case of the OIS rates, the expectations component accounts for nearly 80% of the rise in yields over the same period, while term premia explain the remaining 20%.[5] It should be noted that the contribution of term premia to the OIS rates mainly reflects the uncertainty regarding inflation and short-term interest rates.[6]

The impact of Greece's sovereign credit rating upgrades

Yields are closely connected to the credit rating of bonds.[7] Thus, the upgrades of Greece's sovereign credit rating during the reviewed period are expected to have counterbalanced the effects exerted by interest rate hikes. In

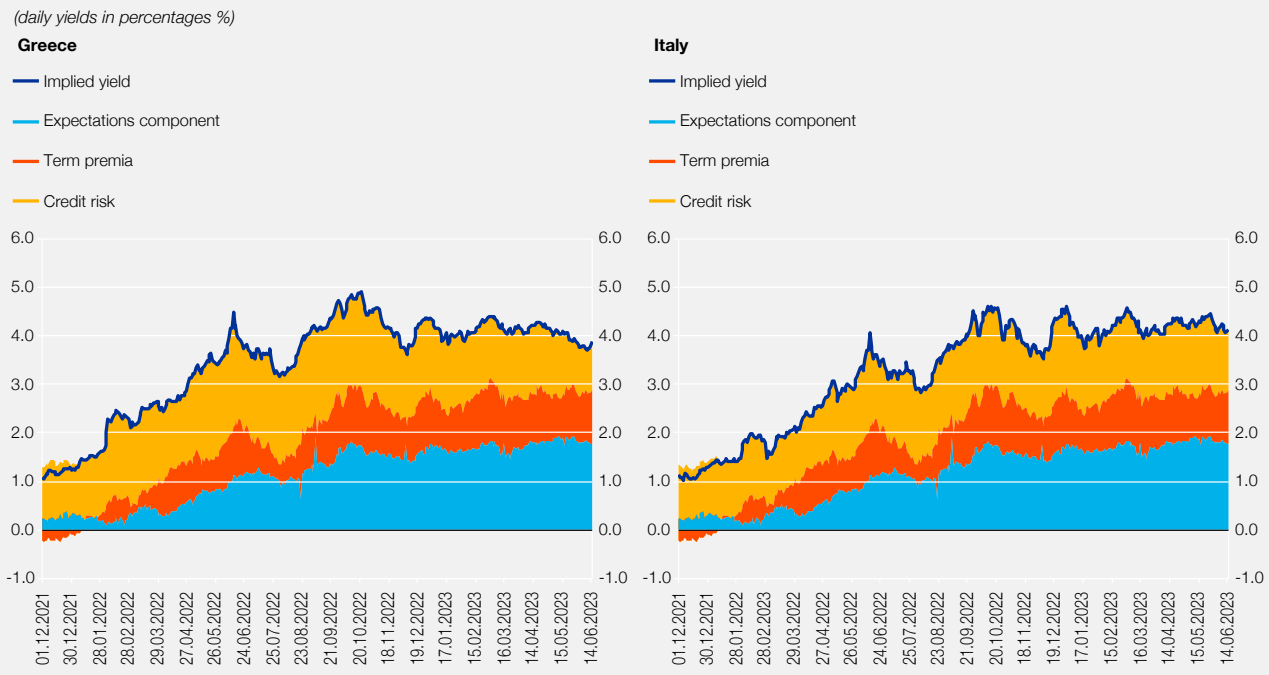
4 See Bauer, M.D. and G.D. Rudebusch (2020), "Interest rates under falling stars", *American Economic Review*, 110(5), 13161354.

5 It should be noted that the impact of other determinants on OIS is stronger than on German bonds, as, according to earlier studies, investors prefer to pay higher prices for Bunds, which are regarded as safe assets – see for instance Cabalero, R.J. and E. Farhi (2018), "The safety trap", *Review of Economic Studies*, 1(302), 223-274, and Caballero, R.J., E. Farhi and P.-O. Gourinchas (2018), "The safe assets shortage conundrum", *Journal of Economic Perspectives*, 31(3), 29-46.

6 The contribution of "other determinants" also includes a liquidity premium, which may vary significantly across countries. This premium does not have a qualitative effect on the results of the present analysis, to the extent that it is assumed to be stable.

7 See, *inter alia,* Malliaropulos, D. and P. Migiakis (2018), "The re-pricing of sovereign risks following the Global Financial Crisis", *Journal of Empirical Finance*, 49, 39-56.

Chart C The expectations and the credit risk components of Greek and Italian 10-year government bond yields

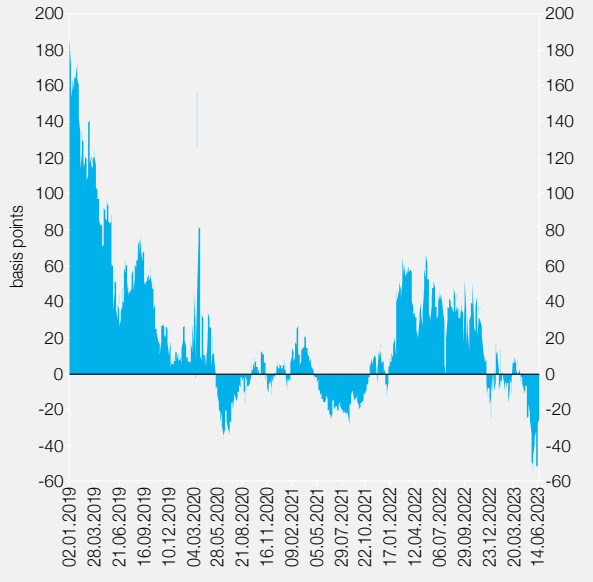


Source: Bank of Greece econometric estimations.

particular, the monetary policy tightening has an increasing effect on yields, while credit rating upgrades are expected to exert a downward effect on the credit risk premium of Greek government bonds.

The quantification of the credit risk component for Greek and Italian government bonds is facilitated by the aforementioned estimation of the expectations component and the term premia component, as performed on the OIS rates. Specifically, as monetary policy is common in all euro area economies, expectations about key interest rates are the same for risk-free bonds and for lower-rated bonds, such as Greece's and Italy's. The same also holds true for the contribution of uncertainty about the ECB's future interest rates to the yields of all euro area government bonds with similar maturities. As a result, the credit risk premium required by investors on Greek and Italian government bonds can be determined as their yield spread vis-à-vis the OIS rate.

Chart D Differential in the credit risk components of Greek and Italian 10-year government bond yields



Source: Bank of Greece econometric estimations.

Chart C shows that credit risk is a key component of both Greek and Italian government bond yields. To be more precise, the credit risk related to Greece's low credit rating is thought to be currently adding around 100 basis points (bps) to Greek government bond yields, while in 2019, on average, credit risk was estimated to add an extra 270 bps to Greek government bond yields. Meanwhile, the credit rating agencies that are recognised by the Eurosystem have upgraded Greece's sovereign credit rating several times, bringing it today as high as BB+, i.e. just one notch short of Investment Grade. Against this background, despite a substantial increase

of 200 bps in the expected interest rates over a horizon of ten years, the yields of Greek 10-year government bonds are currently 170 bps lower than their (hypothetical) levels if Greece's sovereign credit rating had not been upgraded.

In tandem with this favourable development, a comparison between the credit risk components of Greek and Italian government bond yields provides an estimate of the expected downward effect from Greece's upgrade to the Investment Grade. In greater detail, as shown in Chart D, the differential in the credit risk components of Greek and Italian government bonds has narrowed to negative territory, from about 150 bps in early 2019. A possible explanation for this development is that the bond market has already –and to a large extent– discounted a potential upgrade of the Greek sovereign credit rating to the Investment Grade.

Conclusions

The direct benefit from an upgrade of Greece's sovereign credit rating to the Investment Grade would be considerable for reducing yield volatility, but rather limited for lowering the cost of borrowing, as the improvement of borrowing costs appears to have already –and to a large extent– been discounted for by the market. This notwithstanding, as the rating upgrade of the Greek economy is expected to improve liquidity for Greek bonds on the back of a wider pool of investors, bond yields are likely to decline further after the upgrade. In addition, given that the credit risk component of Greek government bond yields continues to be sizeable, any further improvements in Greece's sovereign credit rating are expected to reduce its borrowing costs on a lasting basis, with important gains for the domestic economy. Finally, the broader effects on the Greek economy are deemed very important, since an upgrade would signal lower country risk, which in turn would reduce the country risk premium on bond yields and borrowing costs for banks and non-financial corporations.

ISSN: 2732 - 9593 (online)