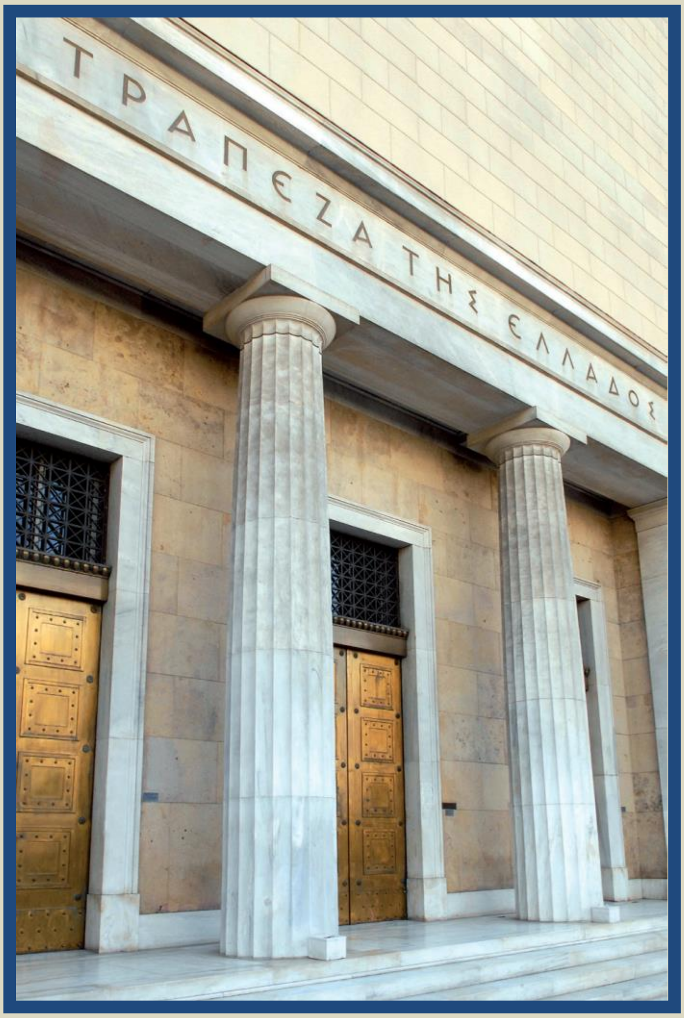
FINANCIAL STABILITY REVIEW



November
2023

BANK OF GREECE
EUROSYSTEM

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I. EXECUTIVE SUMMARY

Risks to financial stability remain elevated. The heightened geopolitical risks with the ongoing war in Ukraine and the rekindling of conflicts in the Middle East, compounded by rising food and energy prices, continue to play a key role in the persistence of inflationary pressures. The tightening of monetary policy with a view to bringing inflation back to the 2% target over the medium term is affecting economic activity, the capacity of firms and households to repay existing loans, as well as the demand for new loans. In addition, the risk of an abrupt repricing of assets in global money and capital markets remains, with potential spillover effects on the global non-bank financial system. On the upside, the banking sector's strong core profitability and the Greek sovereign's return to investment grade largely mitigate adverse effects.[1]

In the first half of 2023, the Greek economy continued to grow, while the rate of inflation slowed down. Real gross domestic product (GDP) growth maintained some of its 2022 momentum and stood at 2.4% in the first half of 2023, mainly driven by substantially stronger private consumption and investment. Overall, for 2023, the growth rate according to the Bank of Greece's latest estimates is projected to be 2.4%, remaining above the euro area average, but clearly lower than in 2022. Continued economic growth has also contributed to a further drop in unemployment.[2] Inflation slowed markedly, falling to 2.4% on an annual basis in September 2023, down from 9.3% in December 2022. Disinflationary trends already observed since September last year have strengthened, mainly on account of a gradual decline in energy prices and the impact of monetary policy measures. However, upward pressures on prices, notably of food, services and non-energy industrial goods, keep inflation high[3] and affect overall business operating costs and household disposable income.

The financial system is in a much better position than in the past to withstand potential shocks. The process of cleaning up banks' balance sheets and improving their key profitability and liquidity ratios has continued. Concurrently, with Greece's market access and investor confidence now fully restored, in the period March-October 2023 all equity prices and, in particular, the banking index rose.[4] The prospect of an upgrade of the Greek government's credit rating and improved bank results led the market to price in a positive outlook for the banking sector. However, since September the correction in global stock markets has dragged the valuations of Greek equities lower.

The liquidity and funding conditions of the Greek banking sector improved further in January - September 2023. Private sector deposits continued to increase in January-September 2023 (+2.5% on an annual basis), keeping Greek banks' liquid assets at a high level, despite the substantial repayment of a large part of European Central Bank (ECB) funding via the Targeted

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[1] On 8 September 2023, DBRS first upgraded Greece's credit rating to investment grade status (BBB low from BB high, with stable outlook), followed by Moody's on 15 September, which upgraded Greece's sovereign credit rating by two notches (one notch below investment grade), pointing to progress in the fiscal and banking sectors, as well as the prospects for average GDP growth of 2.2% over the next five years. Finally, on 20 October S&P also upgraded the Greek sovereign's credit rating to investment grade status.

[2] The unemployment rate in September stood at 10%.

[3] Core inflation (excluding energy and unprocessed food prices) remains elevated, standing at 4.7% in September 2023.

[4] Between March and October 2023, domestic equity markets were among the best performers worldwide. In particular, the Athex Composite Share Price index (Athex) rose to a nine-year high in July 2023 (1,345.95 points), before declining since end-September. Likewise, over the same period the banking index increased by up to 45.3% at the end of July compared with mid-March (or 73.3% since the end of 2022), before dropping in September and October.

Longer-Term Refinancing Operations (TLTRO III).[5] Specifically, in September 2023, the balance of residents' deposits in Greece stood at €199.4 billion, reaching a new ten-year high. However, in an environment of rising policy rates and Greek bond yields, Greek banks' funding by the Eurosystem and capital markets became more expensive.

In the first half of 2023, credit institutions' asset quality improved marginally. The ratio of non-performing loans (NPLs) to total loans in June 2023 stood at 8.6%, compared with 8.7% in December 2022. The total stock of NPLs stood at €12.7 billion, down by 3.8% or €501 million from December 2022.[6] It should be noted that all four significant banks have now reached their single-digit NPL targets, with one of them below 5%. However, despite the reduction in the overall stock of NPLs, there are concerns about a net inflow of new NPLs in the first half of the year across loan portfolios. In addition, it is worth noting that the less significant banks' NPL ratio remains particularly high, standing at 44% in June 2023.[7]

Greek banking groups' core profitability improved significantly. In the first half of 2023, profits after tax and discontinued operations amounted to €1.9 billion, against profits of €2.3 billion over the same period of 2022. Higher net interest income contributed positively, as a result of higher key ECB interest rates. As a result, income from core banking business (i.e. net interest and commission income) increased substantially by 46.7%. By contrast, the significant decrease in income from financial operations in the first half of 2023 is due to the fact that in the first half of 2022 such income included non-recurring gains from transactions in Greek government bonds and profits from derivatives and hedging instruments, as well as income from the carve-out and sale of the payment acquiring business by all four significant banks. Concurrently, operating and credit risk costs remained low. As a result, banking groups posted significant profits after tax and discontinued operations, and their Return on Assets (RoA) and Return on Equity (RoE) ratios stood at 1.2% and 12.5%, respectively.

The capital adequacy of Greek banking groups declined slightly and the quality of their prudential own funds remains low. In June 2023, the Common Equity Tier 1 ratio (CET1 ratio) on a consolidated basis dropped to 14.2%, from 14.5% in December 2022, mainly due to the negative impact from IFRS 9 implementation and the increase in risk-weighted assets.[8] This impact was mitigated by strong profitability over the half-year and capital enhancement actions by banks (e.g. issuance of securities and capital increases).[9] Similarly, the Total Capital Ratio (TCR) fell to 17.3%, from 17.5%. It should be noted that these indicators are below the European Union average (June 2023: CET1 16% and TCR 20.0%).[10] In addition, the quality of the prudential own

[5] In January-September 2023, Greek banks, taking into account the deterioration in the funding terms under the TLTRO III operations, repaid a substantial part of their take-up (December 2022: €35.4 billion, March 2023: €28.3 billion, June 2023: €20.3 billion, September 2023: 16.8 billion).

[6] With on-balance-sheet items on a solo basis. On a consolidated basis, the stock of NPLs stood at €13.2 billion, down by 5% or €0.7 billion, from €13.9 billion at the end of 2022.

[7] For LSIs, the NPL ratio has decreased by 1 percentage point since end-2022. It should be noted that the high NPL ratio is partly related to the fact that smaller banks are facing difficulties in meeting the conditions of the "Hercules" state guarantee scheme necessary to join it.

[8] In more detail, risk-weighted assets for credit risk increased as a result of a credit institution's shift from the Internal Ratings Based Approach (IRB) to the Standardised Approach, an increase in positions in debt securities and credit growth.

[9] In February 2023, Alpha Bank issued an Additional Tier 1 bond, raising €400 million, while two months later, in April 2023, Attica Bank completed a share capital increase of €473 million.

[10] Source: European Banking Authority, Risk Dashboard, Q2 2023 EBA Dashboard - Q2 2023.pdf (europa.eu).

funds of Greek banks remains low. In June 2023, Deferred Tax Credits (DTCs) amounted to €13.4 billion, representing 51% of total prudential own funds (down from 52% at end-2022). In addition, prudential own funds of banking groups include Deferred Tax Assets (DTAs) of €2.4 billion, which make up around 9%. It should be noted that, although deferred tax assets (DTAs) of €3.9 billion are not included in banks' prudential own funds, sufficient future profitability is necessary in order for them not to pose a risk to banks' capital base over the medium to long term.

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The implementation of macroprudential policy measures enhances financial stability. The Bank of Greece, as macroprudential authority, assesses on a quarterly basis the intensity of cyclical systemic risk and the appropriateness of the countercyclical capital buffer rate (CCyB) for Greece and sets or adjusts it, if necessary. For 2023, this rate was maintained at 0%, the lowest possible level. The analysis of the additional indicators examined by the Bank of Greece points to emerging cyclical systemic risks in certain areas, such as residential real estate prices and the current account. Overall, however, it confirms that there is no excessive credit growth and leverage. In addition, the Bank of Greece identified Other Systemically Important Institutions (O-SIIs) in Greece for the year 2023, applying the relevant European Banking Authority (EBA) guidelines, and set the O-SII buffer rate for 2024 at 1.25% for Eurobank Ergasias Services and Holdings S.A. on a consolidated basis and at 1.00% for other O-SIIs.[11] Finally, the Bank of Greece assesses the merits of implementing borrower-based measures, such as a cap on the loan-to-value ratio.

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In the first half of 2023, insurance undertakings' financial situation improved in comparison with 2022. As a result of the structure of their investment portfolios vis-à-vis their insurance liabilities, the benefits of higher interest rates outweigh the costs due to inflation. However, climate change has already started to negatively affect non-life insurers providing fire and flood cover. According to an initial estimate by insurance undertakings, the total cost of insurance claims from the recent floods in Thessaly amounts to more than €350 million. However, it should be noted that most of the claims will ultimately be borne by international reinsurance undertakings.

The smooth operation of financial market infrastructures, i.e. payment, clearing and settlement systems, contributed positively to the stability of the domestic financial system through the efficient processing of transactions. As regards the electronic means of payment used, the first half of 2023 saw a significant increase in the number and value of transactions, as well as a rise in the fraud-to-transaction ratio in terms of number and value of fraud incidents.

In the first half of 2023, the total value of exposures managed by Credit Servicing Firms (CSFs)[12] amounted to €89.4 billion, of which 77% relates to exposures managed by CSFs on

[11] Specifically, for Alpha Bank S.A. (on a solo basis), Alpha Services and Holdings S.A. (on a consolidated basis), Eurobank S.A. (on a solo basis), National Bank of Greece S.A. (on a solo and a consolidated basis), Piraeus Bank S.A. (on a solo basis) and Piraeus Financial Holdings S.A. (on a consolidated basis).

[12] Exposures include all debt instruments (loans and advances and debt securities), excluding off-balance-sheet exposures and write-offs. It should be noted that Bank of Greece Executive Committee Act 206/1/03.06.2022 modified, inter alia, supervisory data and information to be submitted by CSFs to the Bank of Greece.

behalf of credit acquiring firms[13] and the remaining 23% concerns the management of exposures on behalf of credit institutions. Most of exposures under management by CSFs on behalf of credit acquiring firms have been assigned to them over the past three years in the context of NPL reduction strategies of credit institutions. In light of the performance so far, the management of these loans by CSFs needs to improve significantly. It should be noted that satisfactory CSF performance is a prerequisite for the success of the "Hercules" scheme, the effective management of non-performing private debt and the reuse of idle productive resources.

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High uncertainty and risks to the global financial environment leave no room for complacency. The outlook for the Greek banking sector is positive and the Hellenic Financial Stability Fund (HFSF) has started divesting its shares in banks.[14] The Greek sovereign's return to investment grade is also expected to have a positive impact on banks,[15] as the overall improvement in their fundamentals is undeniable. Against this background, the recent submission of a binding proposal by a European banking group of international standing to a significant Greek bank for a strategic partnership in Greece and the merger of their Romanian subsidiaries reflects the momentum in the banking sector.[16] However, any deterioration in the external environment undermining investors' confidence in global financial markets could also have adverse effects for Greece. As the recent banking crises in Switzerland and the United States of America have shown, in the modern financial environment contagion risk is high and requires swift coordinated action by all stakeholders.

In the short term, banks face challenges in further cleaning up their balance sheets. Successive increases in key ECB interest rates, in the context of monetary policy tightening, are testing the resilience of firms and households. The servicing costs of existing loans and the demand for new loans have been significantly affected. Therefore, the rise in interest rates may also have a lagged effect on the quality of banks' assets. In this context, efforts to consolidate and resolve the banking sector's legacy problems should continue. Actions aimed at resolving the legacy stock of NPLs and converging with the European average (June 2023: 1.8%),[17] as well as the final resolution of other outstanding issues are seen as positive steps and should be a priority for banks.

[13] Any discrepancies between supervisory data in the Financial Stability Review and data regularly posted on the Bank of Greece website may be attributed to the different perimeter of each data release.

[14] In October 2023, Eurobank acquired all the shares (1.4%) held by the HFSF in its share capital for €94 million. It should be noted that the HFSF still holds a stake of 8.9% in Alpha Services and Holdings S.A., 40.39% in National Bank of Greece, 27% in Piraeus Bank and 69.51% in Attica Bank.

[15] In September 2023, Moody's upgraded by two notches to Baa3 (investment grade) the long-term counterparty risk rating of all four significant banks and the long-term deposit rating in two of them (see Moody's Communications). In the same month, Fitch upgraded the credit rating of two significant banks to two notches below investment grade (see Fitch Communication).

[16] In more detail, on 23 October 2023, the UniCredit banking group submitted a binding offer to the HFSF to purchase all the shares held by the latter in Alpha Services Holdings S.A. (see 20231023-deltio-typou-new-en.pdf (alphaholdings.gr)). It should be noted that this proposal is the first major investment by a foreign banking group in a significant bank in Greece since the debt crisis. The two banking groups also announced their intention to merge their Romanian subsidiaries. Upon completion of the transaction expected in 2024, subject to due diligence and envisaged regulatory approvals and consents, Alpha Bank is expected to receive €300 million and hold 9.9% of the share capital in the new entity in Romania.

[17] Source: European Banking Authority, EBA Dashboard – Q2 2023.pdf (europa.eu). It should be noted that EBA data are calculated on a consolidated basis and include loans to credit institutions and central banks; therefore, they are not directly comparable with Bank of Greece data. Indicatively, if loans to credit institutions and central banks are included, the NPL ratio for domestic significant credit institutions on a consolidated basis stands at 4.7%.

The sustainability of banks' profits is also a challenge. The impact of interest rate hikes on banks' net interest income is positive, as the bulk of their loans carry floating rates. This is reflected in strong profits and high profitability ratios. However, banks' funding costs are expected to increase in the medium term due to the gradual increase in deposit rates and the increased cost of issuing bonds to meet minimum requirements for own funds and eligible liabilities (MREL). The achievement of banks' objectives to expand their loan portfolios, amid reduced economic activity and high funding cost, is a prerequisite for maintaining the current high profitability ratios.

The banks' current capital adequacy is satisfactory, but banks need to further strengthen their capital buffers. Increased profitability creates favourable conditions for internal capital generation. Coupled with the implementation of banks' corporate actions (e.g. synthetic securitisations, capital increases by less significant banks) and the issuance of Additional Tier 1 and Tier 2 instruments to meet supervisory requirements, increased profitability creates the conditions for a further strengthening of capital buffers above the required minimum. Nevertheless, banks' dividend policy has to take into account the increased uncertainty in the business environment.

Exploring the interconnectedness of climate change risks with the financial system is a priority. The unprecedented weather events that recently hit much of the country have resulted in the loss of human lives, as well as a significant impact on local economies and societies. To immediately address losses and relieve the affected population, at least in the short term, targeted measures with mainly a fiscal impact were announced and implemented, while the overall impact on the country's economic activity and financial system has yet to be fully assessed. In addition, the full integration of environmental and climate considerations in the financial system is still underway. To this end, the Network for Greening the Financial System (NGFS)[18] has recently published a conceptual note[19] on short-term climate scenarios in focus and a roadmap of its analytical work to address climate change challenges for the financial system. Short-term scenarios are a significant step forward for central banks and supervisors to better understand the near-term macroeconomic impact of transitioning to a net zero economy and the consequences of severe natural disasters.[20]

To conclude, the impact of exogenous factors is the main source of risk for the financial system. A higher-for-longer interest rate environment due to persistently high inflation above the target will have a decisive impact. The positive effect on banks' profitability is undeniable, but the resilience of households and firms is being tested, while the cost of refinancing government

[18] At the Paris "One Planet" Summit in December 2017, eight central banks and supervisory authorities set up the NGFS. Since then, NGFS members have increased in all five continents, reaching 127 members and 20 observers on 13 June 2023 (see https://www.ngfs.net/en/about-us/membership). The Network's purpose is to help strengthening the global response required to meet the goals of the Paris agreement and to enhance the role of the financial system to manage risks and to mobilise capital for green and low-carbon investments in the broader context of environmentally sustainable development. To this end, the Network defines and promotes best practices to be implemented within and outside of the Membership of the NGFS and conducts or commissions analytical work on green finance.

[19] NGFS publishes a conceptual note on short-term climate scenarios |

[20] By covering a three-to-five-year horizon, short-term scenarios overcome limitations in the analysis of macroeconomic and financial risk resulting solely from the analysis of climate-economy relationships over the medium to long term.

debt is rising. The upgrade of the Greek sovereign's credit rating to investment grade, the government's low financing needs over the next two years and the favourable repayment profile of Greece's sovereign debt largely mitigate risks. In addition, actions to bolster competition in the banking sector are positive and will benefit consumers. However, it is necessary to ensure the sustainability of banks' business model in order to create the necessary conditions for sustainable profitability and access to capital markets at favourable terms. An abrupt deterioration in international financial conditions could have adverse effects both on the international financial system and on the financial situation of firms and households, causing shocks. Therefore, there is no room for complacency, and it is of utmost importance to maintain a prudent fiscal policy, swiftly implement structural reforms and accelerate the absorption of NextGenerationEU funds so as to achieve sustainable growth and safeguard financial stability.

II. MACROECONOMIC ENVIRONMENT, MONEY AND CAPITAL MARKETS

1. ECONOMIC ACTIVITY: DEVELOPMENTS AND PROSPECTS

The Greek economy maintained much of its growth momentum through the first half of 2023. GDP at constant prices grew more moderately than during the previous year. Private consumption, also supported by a rise in household real disposable income, remained the main driver of growth, despite a slowdown. Investment and exports of goods and services made positive contributions, whereas the contribution of public consumption was marginally positive. By contrast, the contribution of imports of goods and services was negative.

Business expectations and consumer confidence improved, especially in the summer months, mainly due to a strong tourist season, but worsened in September and October 2023, possibly reflecting concerns among businesses and consumers about their financial condition following the natural disasters that hit the country. The Purchasing Managers' Index (PMI) recorded a rise in manufacturing activity, despite a deterioration of manufacturing in the euro area, even though September and October saw a substantial deceleration owing to difficulties in the supply and

Table II.1 GDP and its main components (2019–Q2 2023)

(year-on-year percentage changes; constant market prices of 2015)

	2019	2020	2021	2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023
Private consumption	1.8	-7.4	5.8	7.4	5.5	4.0	2.5	3.2
Public consumption	2.4	3.0	1.8	2.1	-2.8	-1.9	2.1	-1.4
Gross fixed capital formation	-2.2	2.0	19.3	11.7	8.3	14.8	8.2	7.9
Residential investment	12.6	19.0	27.3	33.7	9.9	116.1	48.0	47.0
Other construction	-20.4	-1.7	12.8	9.5	19.5	22.1	10.4	15.0
Equipment	2.5	-2.2	28.6	15.1	15.4	10.1	0.5	-1.4
Domestic demand	**1.2**	**-3.8**	**7.2**	**6.1**	**4.2**	**4.2**	**3.2**	**2.9**
Exports of goods and services	4.9	-21.5	24.2	6.2	-2.7	-2.0	7.1	0.1
Exports of goods	2.0	4.2	14.1	3.5	0.3	-2.8	10.7	-1.8
Exports of services	7.4	-42.6	37.5	9.3	-2.1	-3.4	6.2	1.3
Imports of goods and services	2.9	-7.3	17.9	7.2	5.2	6.8	5.2	0.6
Imports of goods	1.8	-3.8	17.0	8.5	8.4	4.3	2.9	-1.2
Imports of services	6.2	-17.2	20.6	3.3	-5.2	12.9	11.8	6.1
Real GDP (market prices)	**1.9**	**-9.3**	**8.4**	**5.6**	**4.1**	**4.8**	**2.0**	**2.7**

Sources: Hellenic Statistical Authority (ELSTAT) and Bank of Greece.

Annual data: non-seasonally adjusted. Quarterly data: seasonally adjusted.

transport of goods caused by the natural disasters. Employment rose at a lower rate in the first half of 2023 year-on-year, whereas inflation declined markedly in January-September 2023, compared to the historic highs seen in 2022.

In more detail, GDP grew by 2.4% year-on-year in the first half of 2023, as both final demand and net exports made positive contributions. Real private consumption grew by 2.8%, reflecting a rise in household real disposable income due to wage increases and a decline in inflation. At the same time, public consumption strengthened by 0.4%, following a decrease in the previous year.

Gross fixed capital formation rose by 8.1% in the first half of 2023, as a result of a significant increase in "residential investment" by 47.5% and in "other construction" by 12.7%. Conversely, investment in equipment declined, as investment in "machinery and weapon systems" and in "ICT equipment" decreased (by 8.1% and 12.4%, respectively), whereas investment in "transport equipment" rose by 28.9%.

In 2022, net exports had a marginally positive contribution to GDP growth, namely by 0.1 percentage point, as exports grew more strongly than imports. Exports rose by 3.5%, reflecting increased exports of both goods and services. Imports rose by 2.8% on the back of increased demand for consumer products and investment in transport equipment.

On the supply side, total gross value added rose by 2.3% in the first half of 2023, mainly driven by growth in the tertiary sector. At the sectoral level, strong growth rates were recorded in "construction" (22.5%), "professional, scientific and technical services, administrative and support services" (14.1%), "arts, entertainment and recreation services" (11.4%) and "wholesale and retail trade services, repair services of motor vehicles and motorcycles, transportation and storage, accommodation and food services" (1.3%), while a negative rate of change was recorded in "industry" (-2.0%).

In the January-August 2023 period, the current account deficit decreased due to an improvement in the balance of goods, the balance of services and the secondary income account, which was partly offset by a deterioration of the primary income account. Foreign direct investment in Greece stood at EUR 3.5 billion between January and August 2023, mainly targeting the real estate market and manufacturing.

The labour market improved further in the first half of 2023. More specifically, total employment increased by 1.5% and dependent employment by 1.3%, while the self-employed increased marginally by 0.7%. The unemployment rate fell to 11.5%, from 13.1% year-on-year. The unemployment rate improved significantly for both women (15.0%, against 17.2% in the first half of 2022) and youth aged 20-29 years (21.4%, against 23.5% in the first half of 2022). Meanwhile, the long-term unemployment rate declined to 6.6%, from 7.9% in the first half of 2022.

In the first half of 2023, dependent employment compensation in nominal terms rose by 6.9%, whereas compensation per employee in nominal terms rose by 5.7%. Due to a decline in inflation over the same period, actual wages per employee rose by 1.1%, boosting household real disposable income. Similarly, the Labour Cost Index recorded an increase of 5.4% in the first half of 2023.

In January-September 2023, inflation, as measured by the Harmonised Index of Consumer Prices (HICP), slowed markedly and stood at 4.4%, primarily due to a significant fall of 15.2% in energy goods prices. Core inflation (HICP excluding energy and unprocessed food prices) was higher (7.1%).

According to the forecasts of the Bank of Greece, GDP is expected to expand in 2023 and 2024, while further employment growth and a lower unemployment rate are anticipated for the labour market. Inflation is estimated to moderate significantly in 2023, mainly on account of a decline in energy prices and the impact of monetary policy measures.

2. FISCAL DEVELOPMENTS

During July-October 2023, additional fiscal interventions were implemented to support incomes and address the energy crisis, as well as to cushion the economic consequences of the recent natural disasters. Therefore, two supplementary budgets were adopted, totalling EUR 1.3 billion, on top of the revised projections of the Introductory Report on the Budget included in the 2023 Stability Programme.

New fiscal measures in support of incomes mostly relate to (a) extraordinary financial support granted to pensioners who were not entitled to a pension raise in 2023; (b) the introduction of a "youth pass" for all young people aged 18-19, i.e. a voucher for transport, as well as for cultural and tourist activities; and (c) the retroactive adjustment of wage regimes for academic staff.

In addition, measures in response to the energy crisis continued in various forms, such as (a) subsidies on electricity and gas consumption for households and farmers, albeit decreased compared to 2022 due to falling energy prices; (b) an increase in the heating allowance and an expansion of eligibility; (c) reinstatement of a temporary "market pass" to address high grocery costs; and (d) refund of the excise duty on oil used for agriculture. Financing of these measures was facilitated by the increased revenues of the Energy Transition Fund, due to the introduction of an extraordinary levy (windfall tax) on energy producers and refineries, as well as to higher income from auctions of emission allowances, and thus did not burden the state budget.

These developments were incorporated into the projections of the 2024 Draft Budget, published on 2 October 2023. According to the Draft Budget, the general government primary balance (based on ESA) is estimated to reach a surplus of 1.1% of GDP in 2023, against 0.1% of GDP in 2022, standing at the same level as projected in the 2023 Stability Programme, which marks an improvement against the 2023 Budget target to achieve a primary balance of 0.7% of GDP.

The rise in the primary surplus compared to 2022 results from higher revenue from taxes and social security contributions, thanks to an improvement in economic activity, an increased use of electronic transactions, as well as higher wages and pensions. The performance of tax revenue exceeded both the initial 2023 Budget target and its upward revision in the Stability Programme. This overperformance is mainly due to a more extensive use of electronic transactions, improved tax compliance and a marginally higher nominal GDP growth rate than projected in the Stability Programme. The ensuing fiscal space allowed the financing of the additional fiscal interventions that were adopted in the second half of the year, without causing a deviation of the primary balance from the Stability Programme forecast.

Meanwhile, general government debt is expected to decline substantially by 12.1 percentage points of GDP compared to 2022 and reach 159.3% of GDP. This development is primarily attributed to the dampening contribution of the implicit interest rate-growth differential ("snowball effect"), namely by 9.0 percentage points of GDP, and secondarily to the primary surplus.

For 2024, the Draft Budget projects a further rise in the general government primary surplus to 2.1% of GDP, which can be largely explained by an anticipated increase in revenues from taxes and social security contributions on the back of stronger economic growth. Moreover, the public debt-to-GDP ratio is projected to decline further by 7.1 percentage points of GDP, primarily due to the dampening contribution of the "snowball effect" (by 4.3 percentage points of GDP) and secondarily to the primary surplus.

The projection includes new measures which will enter into force in 2024 and mainly refer to (a) the reform of the public sector wage grid; (b) the increase of the tax-free threshold by EUR 1,000 for taxpayers with dependent children; (c) a 10% discount on the Unified Property Ownership Tax (ENFIA) for residential properties which are insured against natural disasters; and (d) a 13% VAT levy on short-term property leases for lessors who are legal entities or natural persons who own three or more leased properties. Moreover, from January 2024 (e) the freeze of wage increases every three years for salaried employees will be lifted; (f) the 30% pension cut for re-employed pensioners will be repealed and replaced by a 10% contribution on the additional remuneration received from their work; and (g) pensions will be increased once again by the average of GDP and inflation growth for 2023 (by 3.1%).

It should be noted that in 2024 the general escape clause provided for in the Stability and Growth Pact (SGP) will be de-activated. The 2024 budget balance projection (deficit of 1% of GDP) meets the SGP criterion for a deficit lower than 3% of GDP. Moreover, the projected debt reduction of 7.1 percentage points of GDP in 2024 overfulfils the relevant criterion set by the current SGP (5 percentage points of GDP).

The estimates of the Draft Budget for 2023, alongside the 2024 forecast, align with the fiscal projections of the Bank of Greece. In 2023 and 2024, fiscal policy is projected to be marginally expansionary, despite the phasing-out of emergency support measures, due to increased expenditure on investment financed from Recovery and Resilience Facility (RRF) resources. Therefore, fiscal policy remains largely compatible with the monetary policy effort to rein in inflation. Overall, the estimated fiscal stance during 2023-24 is in line with the European Commission's Fiscal Policy Guidance: on the one hand, it provides for a phasing-out of the emergency support measures and a gradual reduction of deficits, while, on the other hand, it safeguards the fiscal stimulus provided by public investment financed from the RRF in order to support the recovery of the economy as well as green and digital transitions.

In the second half of 2023, the ECB continued tightening its monetary policy, stepping up its effort to contain rising inflation. Against this background, the yields of Greek government bonds remained high. In spite of the deterioration of the international environment and heightened uncertainty, the resilience of the Greek economy was recognised by credit rating agencies, culminating with Greece's successive upgrades to investment grade in August by Scope, in September by DBRS and in October by S&P, while in September Moody's upgraded Greece by two notches, bringing it just one notch below investment grade.

The upgrade of Greece's sovereign credit rating to investment grade is a major milestone, attesting to the credibility of the economic policy pursued over the past few years. At the same time, it means that Greek government securities are accepted by the ECB as eligible collateral in its refinancing operations and the minimum credit quality waiver is no longer needed. Although interest rates remain high due to further monetary policy tightening, the spreads of Greek government bonds vis-à-vis their German counterparts have been following a downward path since the beginning of the year. Regaining investment grade from the remaining rating agencies will unlock a much broader investor base for Greek government bonds, attracting new high-quality investment funds. This in turn will help ease the upward effects on their yields from tighter global monetary and financial conditions. The credit rating upgrade of Greek government bonds also has a positive impact on Greek businesses and banks, leading to lower borrowing costs and attracting new capital. Moreover, the active management of public debt is facilitated, enhancing liquidity in the government bond market and reducing high volatility in bond prices in the secondary market. Increased access to markets provides the Public Debt Management Agency with flexibility in the management of liquidity needs and financing requirements. As a consequence, a deepening of the bond market would allow borrowing by issuing bonds of comparatively longer maturity, thus maintaining the weighted average maturity of public debt relatively high and annual financing needs low. However, efforts to enhance economic policy credibility and ensure fiscal responsibility should be sustained, as the credit rating of the country still falls short of its 2009 rating, before the outbreak of the debt crisis.

Amid rising inflation, lower growth rates, higher-for-longer interest rates and mounting uncertainty due to successive crises, and with the impacts of the climate crisis becoming increasingly evident, a credible economic policy with medium-term planning becomes crucial. Moreover, monetary and fiscal policies must be well coordinated in order to ensure both price stability and financial stability, as well as fiscal sustainability.

Against this backdrop, for as long as the ECB's monetary policy tightening is required in order to bring down inflation to the target of 2% over the medium term, the fiscal stance must be restrictive, with a view to averting excess demand, which could further add to the current inflationary pressures. It is imperative for national policies to assist in curbing inflation expectations, so as to prevent an upward price spiral which would lead to a more intense and longer tightening of monetary policy. Rapid adoption of the new EU fiscal framework will contribute to reducing uncertainty and increasing clarity and credibility as regards the future stance and coordination of fiscal policy in the euro area.

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

Therefore, in this new economic conjuncture, priority must also be given to combating tax evasion, which would create additional fiscal space, leading to a tax system overhaul and promoting tax fairness. Measures to this end include: (a) increase in electronic transactions by expanding the use of POS terminals in a growing number of economic activities/industries; (b) incentives for debit card or bank payments; (c) incentives in the form of tax exemptions for the disclosure of transactions in sectors with high tax evasion rates; (d) widening of the tax base by ameliorating tax compliance; (e) continuous upgrading of the electronic tools of the Independent Authority for Public Revenue, to expand the scope for managing and utilising information collected via electronic transactions; and (f) efforts to nurture tax compliance and instill a tax culture. In this manner, tax policy can be growth-oriented, softening the impact of the business cycle by acting countercyclically, while allocating the tax burden fairly and proportionally.

Moreover, potential output needs to pick up and be bolstered through higher investment, innovation and structural reforms, so as to improve both the economy's resilience and fiscal aggregates. To this end, the effective utilisation of the RRF resources is key to implementing the required reforms, as well as closing the investment gap and, in particular, supporting investment in human capital, green energy and digital technologies.

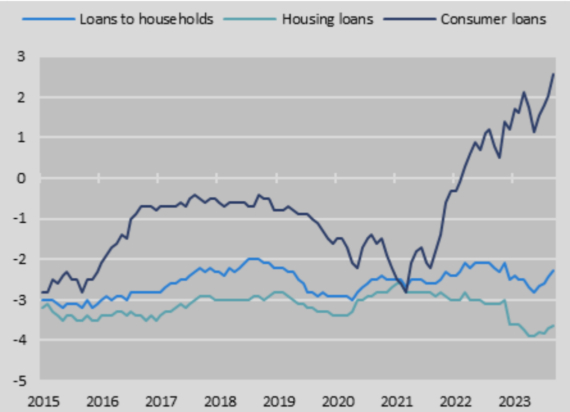
3. FINANCIAL CONDITION OF HOUSEHOLDS

3.1 DEVELOPMENTS IN HOUSEHOLDS' CREDIT AND INDEBTEDNESS

The annual rate of change in household lending[21] by domestic monetary financial institutions (MFIs) remained in negative territory in 2022 and throughout 2023 (September 2023: -2.3%, see Chart II.1). Specifically, the annual rate of change in housing loans has remained negative (September 2023: -3.7%), while the annual rate of change in consumer loans has become positive since March 2022 (September 2023: 2.6%). Household lending by domestic MFIs as a percentage of household disposable income stood at 27% in March 2023 (from 28.1% in December 2022).

According to the results of *Bank Lending Survey*,[22] in the second quarter of 2023 there was a temporary increase in housing loan demand,[23] whereas in the third quarter of 2023 demand declined. In the same vein, credit institutions reported a mostly unchanged demand for consumer and other household loans during 2023. On the loan supply side, it was observed that the overall terms and conditions for issuing new loans remained nearly unchanged throughout 2023. In addition, the rejection rate for consumer and other loans slightly decreased in the first quarter and stabilised in the second and third quarters of 2023, while the corresponding rate for housing loans did not exhibit significant changes.

Chart II.1 Financing of households and non-profit institutions serving households from domestic monetary financial institutions (2015 - September 2023)
(twelve-month rate of change)



Source: Bank of Greece.

Note: The growth rates reflect changes in the balances, which have been adjusted for loan write-offs, securities depreciation, foreign exchange differences and reclassifications.

3.2 HOUSEHOLDS' INTEREST RATE RISK

The increase in ECB base interest rates from July 2022 onwards impacted gradually domestic interest rates. The weighted average interest rate of all outstanding loans to households rose by 207 basis points (September 2023: 6.1%, July 2022: 4.0%), reflecting the change in the monetary

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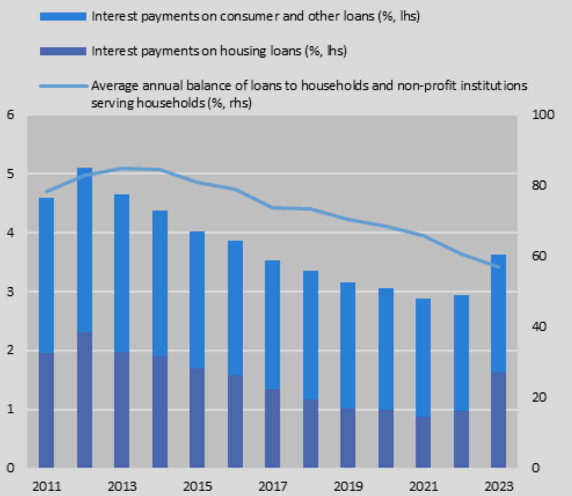
[21] Also includes financing of private non-profit institutions serving households (NPISH) from domestic financial institutions.
[22] Bank Lending Survey.
[23] The temporary increase in housing loan demand in the second quarter of 2023 may be attributed to the 'My Home' housing loan program.

policy stance in the euro area. This increase was more evident in housing loans of long-term maturity. In particular, the weighted average interest rate on the outstanding balances of housing loans with a maturity of over five years rose by 226 basis points (September 2023: 4.4%, July 2022: 2.2%), while the respective interest rate on housing loans with a maturity of over one and up to five years increased by only 127 basis points (September 2023: 5.2%, July 2022: 3.9%). Similarly, the increase in the weighted average interest rate on the outstanding balances of consumer and other loans to households was affected by loan maturity (69 basis points for loans with a maturity of up to one year, 118 basis points for loans with a maturity between one and five years and 170 basis points for loans with maturity of over five years).

Interest payments on housing loans as a percentage of gross disposable household income increased significantly in 2023, due to the increase in the interest rates on existing loans, while they remained relatively unchanged for consumer and other loans (see Chart II.2). Nonetheless, the average annual balance of loans to households and non-profit institutions serving households as a percentage of household gross disposable income has further declined due to a decrease in average loan balances and an increase in household average gross disposable income.

Chart II.2 Household debt and interest payments on housing, consumer and other loans as a percentage of gross disposable income (2011 – 2023)

(% of gross disposable income)



Sources: Bank of Greece calculations and Hellenic Statistical Authority.

Notes:

1. Interest payments are approximated by the product of the weighted average interest rate per category of outstanding performing loans and the average annual balance of household finance per each category.

2. Household finance includes housing, consumer and other loans that are on the balance sheets of domestic credit institutions and credit servicing firms (CSFs). The 2023 figure derives from loan balances from the third quarter of 2022 to the second quarter of 2023.

3. Household finance also includes the securitised loans which remain on the balance sheets of domestic credit institutions (such as synthetic securitisations).

4. The annualised gross disposable income is derived as the sum of four quarterly income observations. The annual average gross disposable income is calculated as the mean value of the annualised observations of the gross disposable income for the four preceding quarters. The 2023 figure takes into account the observations from the second quarter of 2022 to the first quarter of 2023.

3.3 HOUSEHOLDS' INCOME RISK

The evolution of households' disposable income is a key determinant of the relative ease of servicing their loan obligations. According to the most recent available quarterly data on the non-financial accounts of the institutional sectors from the Hellenic Statistical Authority (ELSTAT), household nominal disposable income increased by 11.3% in the first quarter of 2023 year-on-year, while real disposable income rose by 5.8% due to inflation. The increase in nominal disposable income over this period stems from a considerable rise in the disposable income of the self-employed, which in turn can be attributed to increased economic activity and possibly the pass-through of high inflation to the prices of the services provided by the self-employed. The contribution of salaried employees' income was also positive, mainly thanks to an increase in employment and, to a lesser extent, higher remuneration.

Concurrently, the labour market continued to improve, with the unemployment rate falling to 10.0% in September 2023. On a positive note, the unemployment rate for youth aged below 24 years declined to 19.4%.

3.4 HOUSE PRICE RISK

Residential real estate prices, according to the apartment prices indices compiled by the Bank of Greece, continue to increase in the first half of 2023. Specifically, apartment prices (in nominal terms) increased by 13.9% y-o-y in the second quarter of 2023, compared to an increase of 11.8% in 2022. Newly built apartments' (up to five years old) prices rose in the second quarter of 2023 by 13.8% y-o-y, whereas older ones' increased by 14.1%. The geographical breakdown shows that the strongest increases were recorded in the large urban centres, namely in Thessaloniki (16.4%) and in other major cities (14.6%), which exceeded the average rate of increase for the rest of the country.

The outlook of the Greek real estate market remains positive despite uncertainties for the domestic and world economy. It is estimated that investment interest, mainly from abroad, will remain strong in the short term, especially in certain prime locations in Attica and other tourist areas. In the medium term, initiatives to support low-income households (e.g. youth, vulnerable social groups) in obtaining housing (e.g. 'My Home' program – see Box II.1) are anticipated to boost demand, whereas initiatives focused on renovating older residences (e.g. 'Renovate' and 'Ex-oikonomo 2023' programs) are expected to enhance the quality of the building stock. Nonetheless, it should be noted that the residential real estate markets in many EU countries have already entered correction territory, in terms of prices, yields and transaction number.

Box II.1 'My Home' programme for granting low-interest or interest-free loans to young first-time buyers

The 'My Home' programme (hereinafter 'the Programme') was planned for the provision of low-interest or interest-free loans to young individuals or couples for acquiring first primary residence. The Programme was introduced in December 2022 under law 5006/2022 (Government Gazette A239/22-12-2022) and was co-financed by the Public Employment Organisation (DYPA). The Programme is part of a broader housing policy designed for young individuals, encompassing initiatives such as collaboration with the private sector for the introduction of public properties in the housing rental market through controlled leases and subsidisation of the repair expenses of vacant houses and apartments to reintroduce them into the housing market. The specifics of the Programme were outlined in Joint Ministerial Decision 189/2023 (Government Gazette B1180/01-03-2023), while under Article 59 of Law 5045/2023 (Government Gazette A136/29-07-2023) the Programme's budget was doubled, reaching €750 million.

Under the Programme,[1] 75% of the loan is financed by DYPA and does not accrue interest, whereas the entire loan is interest-free for families with three children or more. The loan is exempt from the levy referred to in Law 128/1975. The loan maturity cannot exceed thirty (30) years and it can cover up to 90% of the market value of the property, as outlined in the property purchase contract. Additionally, loan contracts entered into under the Programme are exempt from Law 4438/2016 (Government Gazette A220/28-11-2016).

The financed property should be used as a residence, have a value of up to €200,000, as stated in the property purchase contract, a surface area of up to 150 sq. metres, and be at least fifteen (15) years old at the time of purchase.

Regarding the application process, this includes an initial assessment by the credit institution to ensure the applicant meets the eligibility criteria, followed by the issuance of a financial pre-approval decision within sixty (60) days from the application date. This pre-approval decision is valid for sixty (60) days following the borrower's receipt of formal notification of the decision. Within this time-period, the borrower should inform the credit institution of the loan amount requested, the intended property for purchase, its price, and submit the required documentation for the credit institution to review and decide on the inclusion of the application in the Programme.

Subsequently, a legal and technical inspection of the property is initiated, which should be completed within sixty (60) days from the date when the application is included in the Programme. The time period between inclusion in the Programme and the signing of the loan contract and disbursement of the loan amount may not exceed six (6) months, with a possible two-month extension. If this deadline lapses, the application becomes null and void, and the allocated budget amount is released.

According to a Press Release issued by DYPA,[2] the Programme has seen high demand since its launch on 3 April 2023, receiving approximately 40,000 applications. Of these, 23,875 have received pre-approval, and 9,378 have progressed to the approval stage, committing €742 million of the total €750 million allocated by DYPA for the Programme. Two thirds of the approved loans concern young couples, while 88% concern beneficiaries with an annual income below €24,000. Most of the loans are in the Attica Region (39%) and the Central Macedonia Region (22%), followed by Eastern Macedonia-Thrace (7%), Thessaly (6%), and Western Greece (6%). Approved loans total €989.5 million, with an average loan amount of €105,510.

Due to its scale and short implementation timeframe, the Programme may influence the demand for residential properties fulfilling its eligibility criteria and may result in increased disbursements of housing loans within 2023.

[1] "My Home" Program - Public Employment Organisation (dypa.gov.gr)

[2] Press release DYPA - Public Employment Organisation (dypa.gov.gr)

In addition, it should be pointed out that real estate prices are still below the historical highs recorded before the Greek sovereign debt crisis. Based on the index of apartment prices compiled by the Bank of Greece for the whole country, the index peaked in 2008 (101.7) and then followed a steady downward trend, reaching a low in 2017 (59.0). Since then, the index of apartment prices has been steadily rising, reaching 90.6 in the second quarter of 2023, 11.1% below its previous peak (see Chart II.3).

Chart II.3 Index of apartment prices and annual percentage change

(2007 = 100)

Source: Bank of Greece.

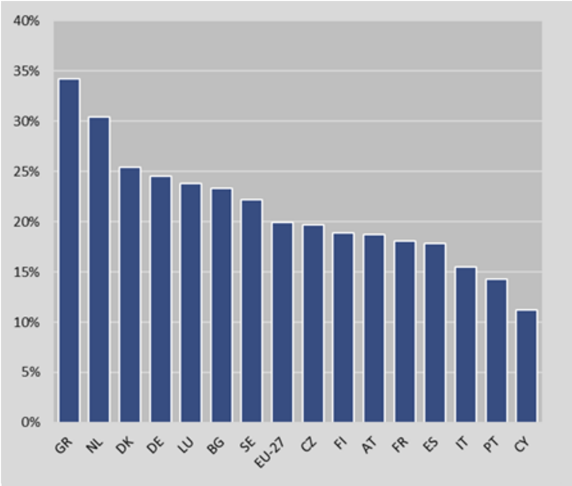
Developments in rental prices follow a similar pattern, with the corresponding index reaching 98.5 in the third quarter of 2023, compared with 94.8 in the fourth quarter of 2022.[24] In contrast to the housing price index, the rent index remains significantly lower than its historical peak (124.3 in the third quarter of 2011).

[24] Source data from the Organisation for Economic Cooperation and Development (OECD), 2015 = 100, https://data.oecd.org/price/housing-prices.htm

Despite the increase in households' disposable income, Greece ranks in the lowest position among European countries with respect to housing costs.[25] Specifically, housing costs as a percentage of households' disposable income in Greece was 34.2% in 2022, compared with a European Union average of 19.9% (see Chart II.4). Similarly, Greece scores the highest value in the housing cost overburden rate[26] among the euro area countries. In 2022, 27% of the country's population shouldered housing costs that accounted for over 40% of their disposable income, compared with 9.4% of the euro area population.[27] Greece's position is affected by its lower per capita income compared to other European Union countries.

Chart II.4 Share of housing costs in disposable household income (2022)

(percent, %)



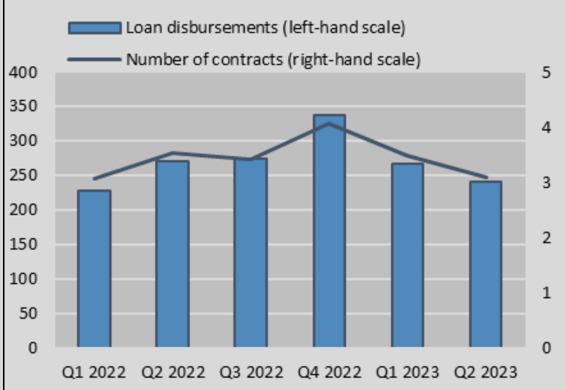
Source: EUROSTAT (data reference code ILC_MDED01).

Box II.2 Loans collateralised by residential real estate – Overview of disbursements

The Bank of Greece collects on a quarterly basis data on loan disbursements collateralised by residential real estate, in accordance with Bank of Greece Executive Committee Act 175/1/2020.[1] For the purposes of this Act, a residential real estate (RRE) loan refers to a loan to a natural person secured by residential real estate, regardless of the purpose of the loan. In this regard, the reporting perimeter includes mortgages, renovation and consumer loans secured by residential real estate, as well as loans to self-employed persons and sole proprietors secured by residential real estate.

Chart 1. RRE loan disbursements (left-hand scale) and number of contracts (right-hand scale)

(Q2 2022 – Q2 2023, million euro and thousand contracts)



Source: Bank of Greece, ECA 175/1/2020.

The main conclusions for the first half of 2023 are summarised as follows:

(a) Loan disbursements collateralised by residential real estate stood at €507.8 million, increased by 1.8% y-o-y (see Chart 1). However, they remain low both as an absolute figure and compared with the levels prior to the global financial crisis.[2]

(b) The increase in disbursements was not accompanied by a loosening of credit origination standards. The analysis of key indicators (i.e.

[25] Components included in housing costs comprise mandatory services, charges for regular maintenance and repairs, and the cost of utilities (water, electricity, gas and heating); for homeowners, these also encompass mortgage interest payments, structural insurance and property ownership taxes, while for tenants, they also include rent payments.

[26] Percentage of the population living in a household where total housing costs (net of housing allowances) represent more than 40% of the total disposable household income (net of housing allowances).

[27] Source: Eurostat, code TESPM140.

LTV-O, LTV-C, DSTI-O, LSTI-O, LTI-O, DTI-O)[3] shows that banks so far maintain prudent lending standards.

Analysis of key figures and indicators in Q2 2023

For the second quarter of 2023, the amount of RRE-backed loan disbursements across the banking sector reached €241.5 million, corresponding to 3,097 new contracts. This represents a decline of 9.3% compared to the previous quarter and a decrease of 10.7% compared to Q2 2022. The average disbursement amount for Q2 2023 was €78.0 thousand.

The market share of the four significant institutions as regards RRE-backed loan disbursements amounted to 91.5%, n Q2 2023. Less significant commercial banks and cooperative banks held a share of 7.6% and 0.9%, respectively. Finally, the share of foreign credit institutions' branches was negligible.

The weighted average loan-to-value ratio at origination (LTV-O) stood at 61.4% during Q2 2023 (see Table 1). Analysing the frequency distribution of the LTV-O, 27.5% of disbursements exhibited an LTV-O of less than or equal to 50%, while 93.0% of disbursements had an LTV-O of less than or equal to 80%. Regarding the stock of RRE loans, the weighted average of the current loan-to-value ratio (LTV-C) reached 69.0%, with 68.1% of these loans having an LTV-C of less than or equal to 80%.

Table 1. Key figures and indicators of RRE loan disbursements

	Loan Disbursements (in € million)	Number of contracts (in thousand)	LTV-O	LTV-C	LSTI-O	DSTI-O	LTI-O	DTI-O
			(%)					
Q1 2023	266.3	3,481	62.0	72.4	23.2	30.7	3.5	4.2
Q2 2023	241.5	3,097	61.4	69.0	23.2	31.5	3.5	4.2
H1 2023	**507.8**	**6,578**	**61.7**	**70.7**	**23.2**	**31.1**	**3.5**	**4.2**

The weighted average loan-to-income ratio at origination (LTI-O) was 3.5, signifying that total RRE-backed loans are three and a half times the total annual disposable income of borrowers. Notably, 44.1% of disbursements displayed an LTI-O of less than or equal to 3. In addition, the weighted average debt-to-income ratio at origination (DTI-O) reached 4.2, with 34.9% of new loans exhibiting a DTI-O less than or equal to 3. Equally importantly, the weighted average of the loan service-to-income ratio (LSTI-O) amounted to 23.2%, while the weighted average debt service-to-income ratio (DSTI-O) was considerably higher at 31.5%, the highest value observed in the last four quarters.

Additional features

- The bulk of new loans (90.2%) are intended for the purchase of RRE property either to be used as a residence by its owner ("owner-occupied") or to be let to tenants ("buy-to-let"). Within this category, 96.8% are "owner-occupied", while only 3.2% are "buy-to-let".
- Almost all new loans (94.4%) are fully amortising.
- Loan disbursements with a fixed interest rate period of more than 10 years accounted for 59.3% of total new loans and loan disbursements with a fixed interest rate period between 5 and 10 years accounted for 18.6% of total new loans. Hence, the bulk of new disbursements

have a long fixed interest rate period protecting borrowers from further increases of key interest rates. The percentage of disbursements with a fixed interest rate period of less than or equal to one year amounted to only 7.4%.

- The average maturity upon origination of the loan disbursements is 24 years. 21.9% of new loan contracts have a maturity of up to 15 years, 37.5% have a maturity from 15 to 25 years, 34.6% have a maturity from 25 to 30 years, while the remaining 6.0% have a maturity above 30 years.

Joint distribution of indicators

As regards the joint distributions of selected indicators, 70.8% of loan disbursements exhibit an LTV-O of less than or equal to 80% and an LSTI-O of less than or equal to 30%, whereas 54.7% of loan disbursements show an LTV-O of less than or equal to 80% and a DTI-O of less than or equal to 4 (see Tables 2 and 3 below).

Table 2. Joint distribution of loan-to-value at origination (LTV-O) and loan service-to-income at origination (LSTI-O) of RRE loan disbursements (Q2 2023)

(%)

Loan-to-value at origination (LTV-O)	Loan service-to-income at origination (LSTI-O)			
	≤30%	(30%-50%]	>50%	**Total**
LTV-O <= 80%	70.8	21.3	2.2	**94.3**
LTV-O (80%-90%]	2.6	0.8	0.1	**3.5**
LTV-O (90%-110%]	0.6	0.3	0.0	**0.9**
LTV-O >110%	0.6	0.6	0.1	**1.3**
Total	**74.6**	**23.0**	**2.4**	**100.0**

According to the joint distribution of the LTV-O and the LSTI-O, we classify loan disbursements collateralised by residential property in three risk clusters, namely low, medium and high, reflecting their perceived risk, as depicted in Table 2. Specifically, the bulk of loan disbursements (i.e. 73.4%) are classified as low risk (highlighted in green), indicating borrowers with sufficient income and debt-servicing capacity. Additionally, 25.5% of loan disbursements fall within the medium risk category (highlighted in orange). The high-risk category (marked in red) accounts for only 1.1% of the total. These high-risk exposures are found within the cluster of LTV-O above 80% and LSTI-O above 50%, as well as the cluster of LTV-O above 90% and LSTI-O above 30%. Moreover, considering the joint distribution of LTV-O and DTI-O, 56.3% and 41.7% of loan disbursements collateralised by residential property are classified as low and medium-risk, respectively, with only 2.0% classified as high risk (as detailed in Table 3).

Table 3. Joint distribution of loan-to-value at origination (LTV-O) and debt-to-income at origination (DTI-O) of RRE loan disbursements (Q2 2023)

(%)

Loan-to-value at origination (LTV-O)	Debt-to-income at origination (DTI-O)			
	≤4	(4-6]	>6	**Total**
LTV-O <= 80%	54.7	26.3	13.3	**94.3**
LTV-O (80%-90%]	1.7	1.3	0.6	**3.5**
LTV-O (90%-110%]	0.5	0.2	0.2	**0.9**
LTV-O >110%	0.3	0.7	0.4	**1.3**
Total	**57.1**	**28.5**	**14.5**	**100.0**

In conclusion, the analysis of the indicators shows that for the time being credit institutions apply prudent credit origination standards on loans collateralised by residential property.

[1] The present analysis refers to the banking sector, since leasing companies have reported neither loan disbursements nor loan balances collateralised by residential real estate.
[2] In the period 2005-2007, annual mortgage flows stood on average at €12 billion (Bank of Greece data on credit to the private sector from domestic MFIs).
[3]The key indicators are the following: Loan-to-income ratio at origination (LTV-O); Current loan-to-value ratio (LTV-C); Debt-service-to-income ratio at origination (DSTI-O); Loan service-to-income ratio at origination (LSTI-O); Loan-to income ratio at origination (LTI-O); and Debt-to-income ratio at origination (DTI-O).

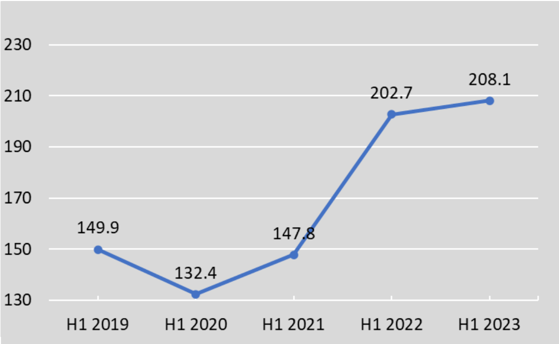
4. FINANCIAL CONDITION OF ENTERPRISES

4.1 FINANCIAL DATA

In the first half of 2023, Greek corporates continued to show improved revenues compared to the corresponding period of 2022. According to data of the Hellenic Statistical Authority (HSA),[28] the turnover for all enterprises and activities of the economy as a whole amounted to €208.1 billion, up by 2.7% compared to the first half of 2022 (€202.7 billion) (Chart II.5).

Chart II.5 Turnover evolution for all enterprises and the activities of the economy as a whole (H1 2019 – H1 2023)

(billion euro)



Source: Hellenic Statistical Authority.

The largest percentage increase was recorded in the "Education" sector, by 33.1% year-on-year, while the "Electricity, Gas, Steam and Air Conditioning Supply" sector showed the largest decrease in turnover, -22.4%, and stood at €16.3 billion, against €21.0 billion, mainly reflecting the de-escalation of energy prices. The sector "Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles", which accounts for more than 1/3 of the turnover for all businesses in the first half of 2023, recorded the smallest percentage increase (3.6%) and amounted to €80.9 billion, compared with €78.0 billion in the corresponding period of 2022. Finally, the smallest percentage decrease, by 4.0%, was recorded in the "Manufacturing" sector, with turnover reaching €45.5 billion, against €47.4 billion.

In the first half of 2023, the improvement in the profitability of Greek businesses and their key figures is largely due to an increase in the selling prices of goods and services, which more than offset the impact of the increase in the cost of borrowing for businesses. However, the slowdown in economic activity, combined with the current environment of high inflation and interest rates, as well as the economic impact of the recent disasters caused by extreme weather in the country and the widespread uncertainty brought about by intensifying geopolitical risks, may adversely affect business profitability. Consequently, any prediction regarding the profitability prospects of Greek corporates until the end of the year becomes precarious.

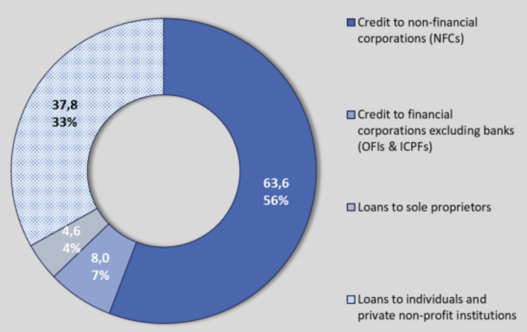
[28] Press Release – Evolution of turnover of enterprises for second quarter 2023

4.2 CREDIT TO NON-FINANCIAL CORPORATIONS AND INDEBTEDNESS

The financing of non-financial corporations (NFCs) by domestic Monetary and Financial Institutions (MFIs) accounts for 56% of total credit to the domestic private sector (see Chart II.6). The annual rate of change in MFI credit[29] to NFCs for the first nine months of 2023 remained positive (4.7%), albeit reduced compared to the end of 2022 (11.8%), with corporations absorbing almost 85% of the new loans of the first nine months of 2023 (see Chart II.7).

Chart II.6 Credit to the domestic private sector by domestic Monetary Financial Institutions (MFIs)

(billion euro, percentages %)



Source: Bank of Greece.

Note: Outstanding amounts at end of period, including securitised loans and corporate bonds.

Chart II.7 Annual rate of change in credit to non-financial corporations from domestic MFIs (December 2003-September 2023)

(percentages %, annual growth rates)

Source: Bank of Greece.

Note: Growth rates are derived from the changes in outstanding amounts corrected for loan write-offs, exchange rate valuations and reclassifications or sale of loans.

According to the results of the Bank Lending Survey[30] published by the Bank of Greece on a quarterly basis, the credit standards on loans to NFCs remained unchanged during the first nine months of 2023, while the overall conditions and terms for approving loans "eased somewhat"[31] in the second and third quarter of 2023.

Overall demand for loans to NFCs presented a mixed picture during the first nine months of 2023. In particular, in the first quarter of 2023, demand for loans to NFCs "decreased somewhat"[32] for the first time since the third quarter of 2019, while it "increased somewhat" during the second and third quarters. The decrease is mainly due to the increase in the key interest rates of the ECB in the context of the tightening of monetary policy. However, other factors had a slightly positive impact on the demand for loans to NFCs, such as the financing of fixed investment, as well as mergers/acquisitions combined with corporate restructuring. At the same time, banks' expectations for the second quarter of 2023, as reflected in the Bank Lending Survey, indicated a further

[29] MFI credit to the Greek economy

[30] The Bank Lending Survey is conducted on a quarterly basis by the national central banks of the euro area, in collaboration with the European Central Bank (ECB), on a sample of approximately 150 banks from all euro area countries, which includes the four significant credit institutions in our country.

[31] The average of banks' responses in the first quarter was 3.0 and 3.25 in the second and third quarters. It is noted that the average of banks' responses is on a scale of 1 to 5, where: 1=lending conditions "tightened considerably", 2="tightened somewhat", 3="remained basically unchanged", 4="eased somewhat" and 5="eased considerably".

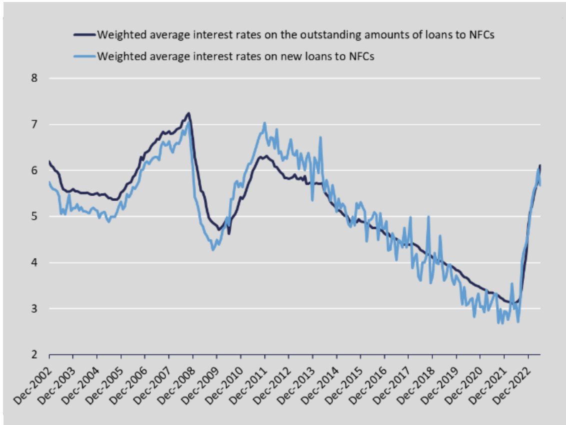
[32] The average of banks' responses in the first quarter was 2.50. It is noted that the average of banks' responses is on a scale of 1 to 5, where: 1=loan demand "decreased considerably", 2="decreased somewhat", 3="remained basically unchanged", 4="increased somewhat", 5="increased considerably".

decrease in demand.[33] However, these expectations did not come true and eventually total demand for loans to NFCs rose marginally,[34] due to higher financing for fixed investment. It should be pointed out that at the European level, the period in question saw the historically largest decrease in demand for loans from businesses since 2003,[35] mainly due to the increase in the general level of interest rates and the decrease in fixed investment.

Lending rates to NFCs were determined by interest rate hikes as part of the ECB's tightening of monetary policy to curb high inflation. The weighted average interest rate on new loans increased by 150 basis points to 6.13% in September 2023, from 4.63% in December 2022. Likewise, in the period in question the weighted average interest rate on existing loans rose by 165 basis points to 6.40%, from 4.75% (see Chart II.8). It is pointed out that the continued increase in lending rates has a decisive effect on the operating costs of businesses, which are already burdened due to inflationary pressures. This fact is reflected in the decrease in the demand for loans to NFCs, as recorded in the aforementioned Bank Lending Survey.

Chart II.8 Weighted average interest rates on new and outstanding loans to NFCs from MFIs (December 2004-September 2023)

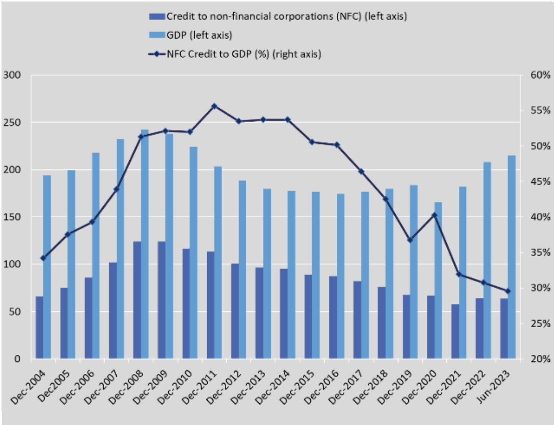
(percentages %)



Source: Bank of Greece.

Chart II.9 Ratio of NFC credit to Gross Domestic Product (December 2004-June 2023)

(percentages %)



Source: Bank of Greece, Hellenic Statistical Authority.

The NFC credit-to-GDP ratio (see Chart II.9) in the second quarter of 2023 fell marginally to 30% compared to the end of 2022 (31%). The decrease is due to the larger nominal increase in GDP compared to the marginal decline in credit during the first half of 2023.

[33] The average of banks' responses in the first quarter regarding expectations for the second quarter was 2.25, which changed to 3.25 in the next two quarters. It is noted that the average of banks' responses is on a scale of 1 to 5, where: 1= loan demand “will decrease considerably”, 2=“will decrease somewhat”, 3=“will remain basically unchanged”, 4=“will increase somewhat” and 5=“will increase considerably”.

[34] The average of banks' responses in the second and third quarters was 3.25 και 3.00 respectively. It is noted that the average of banks' responses is on a scale of 1 to 5, where: 1=loan demand “decreased considerably”, 2=“decreased somewhat”, 3=“remained basically unchanged”, 4=“increased somewhat”, 5=“increased considerably”.

[35] The euro area bank lending survey – Second quarter of 2023 (europa.eu).

5. DEVELOPMENTS IN DOMESTIC AND INTERNATIONAL MONEY AND CAPITAL MARKETS

During March-July 2023, upward trends prevailed for the majority of global financial indices, a development that also had positive effects on the Greek stock market. However, from August onwards, the upward trends were interrupted, and financial indices began to decline until the end of October. The key reasons for the markets' ascent included the gradual easing of inflationary pressures, as a result of the tightening of monetary policy, and the moderation of initial estimates for a significant slowdown in economic growth rates. The avoidance of a new global economic recession – despite initial estimates – and the eventual achievement of satisfactory growth rates across the globe led to an increase in financial indices, which, however, was dampened from late July onwards due to concerns about higher-for-longer central bank rates.[36,37]

At the domestic level, during this period, international rating agencies positively assessed developments in the Greek economy. In August 2023, Scope was the first rating agency to upgrade the country's credit rating to investment grade. Subsequently, on 8 September 2023, DBRS also upgraded its rating (from BBB low to BBB high, with stable outlook). Among the key factors leading to this upgrade highlighted in the relevant report are fiscal discipline, a significant reduction in public debt as a percentage of GDP (by 35%) over the last three years, and growth prospects through increased investments.[38] Additionally, on 15 September, Moody's upgraded the credit outlook for the Greek government, noting progress in the fiscal and banking sectors, as well as prospects for a medium-term GDP growth rate of 2.2% over the next five years.[39] It is noteworthy that S&P, which had improved Greece's outlook to positive on 21 April 2023, due to improved public finances and stability in the financial sector, upgraded the Greek debt to investment grade (BBB-) on October 20.[40] Similarly, Fitch, which upgraded Greece's credit rating to BB+ from BB with a stable outlook on 27 January 2023, is expected to announce its latest assessment on 1 December 2023.

Similarly, the strengthening of the financial position of non-financial corporations [41] within a favorable macroeconomic environment, during a period of political stability, along with encouraging employment statistics indicating a continued decrease in the unemployment rate, contributed significantly to fostering a positive climate in the Greek financial market. Consequently, during the period from March to September 2023, domestic financial indices were among the best performers worldwide. Specifically, the Athens Composite Share Price Index (ATHEX) reached an almost nine-year high in July 2023 (1,345.95 points). However, subsequently prices declined, and by the end of October the index was at a lower level (1,186.38 points), despite the upgrading of Greece's credit rating by the rating agencies DBRS and Moody's. In particular, the ATHEX showed steady growth during the January-July 2023 period, while the August-October 2023 quarter saw a decline amid high volatility. Specifically, it initially rose by up to 31.3% by the end of July compared to mid-March (or 44.8% from the end of 2022), before declining by 10.41% by the end of October. Similarly, during this period, the banking index strengthened by up to 45.3%

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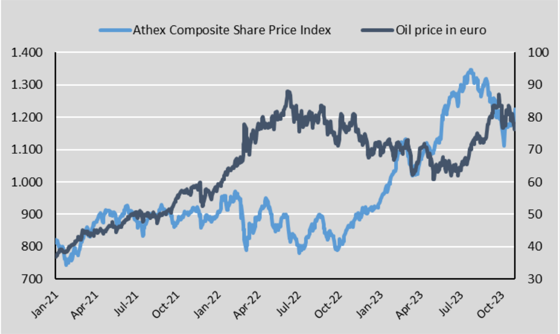
[36] See World Economic Outlook Report, International Monetary Fund, July 2023.
[37] See Christine Lagarde speech, September 2023.
[38] See DBRS Upgrade, 8 September 2023.
[39] See Moody's Announcement, 15 September 2023.
[40] See S&P Announcement, 20 October 2023.
[41] See section II.4.Financial condition of enterprises.

by the end of July compared to mid-March (or 73.3% from the end of 2022), before falling by 13.2% from its high by the end of October.

The decline of financial indices in Greece during the period from late July to late October 2023 coincided with the rise in oil prices, which was also influenced by the weakening of the euro against the dollar. More specifically, the increase in energy prices, particularly oil (by up to 34% during September), compared to mid-March (to €84.7 from €63.2, respectively, see Chart II.10), created conditions for a slowdown in the rate of easing inflationary pressures and raised concerns about an economic slowdown amid high interest rates from central banks.

Chart II.10 Athex Composite Share Price Index and oil price (in euro)

(1.1.2021-31.10.2023, daily prices)

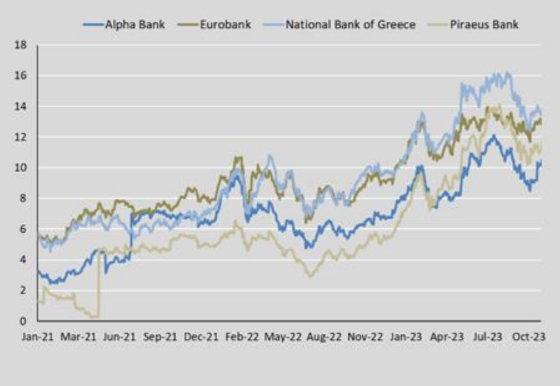


Source: Bloomberg.

Regarding the significant banks whose shares are listed on the Athens Stock Exchange, the Market Capitalisation to Weighted Assets index (Market Cap/RWAs, see Chart II.11) increased significantly until the end of July compared to mid-March 2023. The index was supported by the positive performance of banks' financial metrics and expectations of regaining investment grade, while it declined from the high levels of July over the next three months. The crucial factor behind this development was the impact of the interest rate hikes by the ECB, although in September 2023 Moody's upgraded by two notches to Baa3 (investment grade) the long-term counterparty risk rating of all four significant banks and the long-term deposit risk rating for two of them.[42] Additionally, Fitch upgraded the credit rating of two significant banks to a level two notches below investment grade.[43]

Chart II.11 Greek banks' capitalisation index as a percentage of weighted assets

(1.1.2021-31.10.2023, daily prices, %)



Source: Bloomberg and Bank of Greece.

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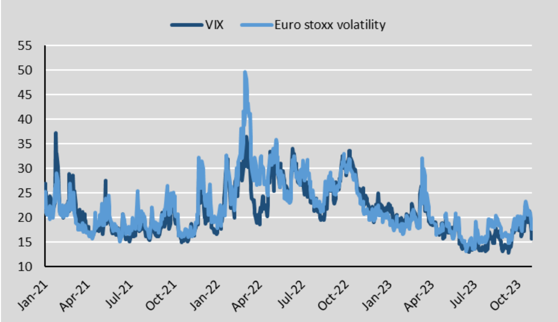
42 See Moody's Announcement, September 2023.

43 See Fitch Announcements, September 2023.

At the European level, the upward trend in stock markets during the period from March to July 2023 was interrupted amid increased volatility. The rise in borrowing costs and higher operational expenses due to inflation, accompanied by the higher cost of credit risk, are expected to negatively impact the efficiency and profitability of businesses in the medium term.[44] Consequently, optimistic expectations for positive corporate results and high bank profitability due to increased interest rate margins[45] were not enough to maintain valuations at the high levels of July. In August, the decline in stock prices was significant and continued into the September-October period. However, it is noted that overall volatility remained at lower levels compared to 2022 (see Chart II.12).

Chart II.12 European and US financial markets' volatility

(1.1.2021- 31.10.2023, daily prices)

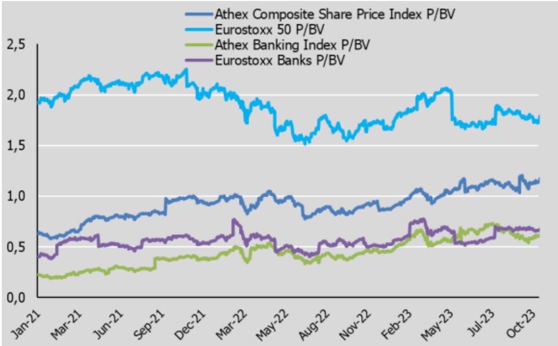


Source: Bloomberg.

The difference in valuations between European and Greek stocks decreased during the period from March to October 2023, as the Athens Composite Share Price Index (ATHEX) increased more than the Euro Stoxx 50 index[46] (16.4% versus 0.6%). Specifically, while the Price to Book Value (P/BV) of European stocks declined by approximately 7.4% from mid-March to end-October, the ATHEX Index in Greece recorded an increase of about 18.4% during the same period. However, it is emphasised that the European average P/BV ratio (1.74 in September 2023) continues to be significantly higher than the corresponding Greek figure (1.15 – see Chart II.13).

Chart II.13 Stock market indices

(1.1.2021-31.10.2023, daily prices)



Source: Bloomberg.

[44] See Financial Stability Review, May 2023.

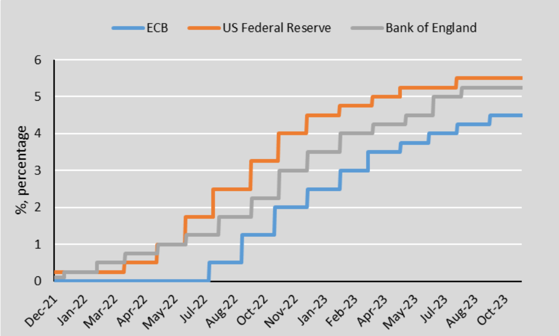
[45] It is noted that, according to available data from EBA, the tightening of monetary policy through interest rate hikes in the short term has a positive impact on the profitability of European banks as it bolsters net interest income. The increase in funding costs from the rise in interest rates on the liability side of banks' balance sheets has so far lagged behind the increase in income on the asset side (pass-through).

[46] The Euro Stoxx 50 is the stock market index of the euro area designed by Stoxx, an index provider owned by Deutsche Börse Group. The index consists of 50 stocks of companies considered leaders in their respective sectors and belonging to the high capitalisation category in 11 countries of the euro area.

In the bond market, the yields of the majority of government bonds increased compared to mid-March, as a result of monetary policy measures by central banks. Specifically, the US Federal Reserve (Fed), the Bank of England, and the European Central Bank (ECB)[47] continued to tighten monetary policy throughout the period from March to October 2023, implementing successive interest rate hikes (see Chart II.14).[48]

Chart II.14 Central banks' interest rates

(1.12.2021-31.10.2023, daily prices)

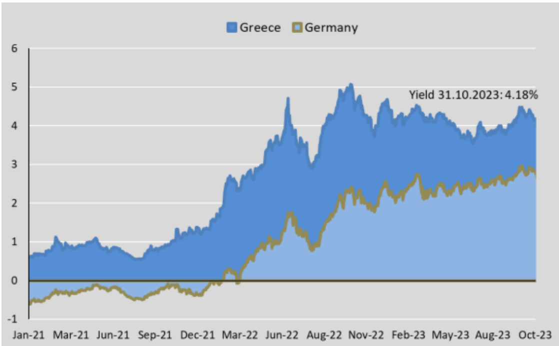


Source: Bloomberg.

The yields of Greek government bonds increased almost across the yield curve during the period from mid-March to end-October 2023, as the ECB continued to raise its key interest rates. It is noted that the interest rate hikes by the ECB negatively impacted the issuance of new bonds by non-financial corporations.[49]

Chart II.15 Greek and German 10-year bond yields

(1.1.2021-31.10.2023, daily prices, %)

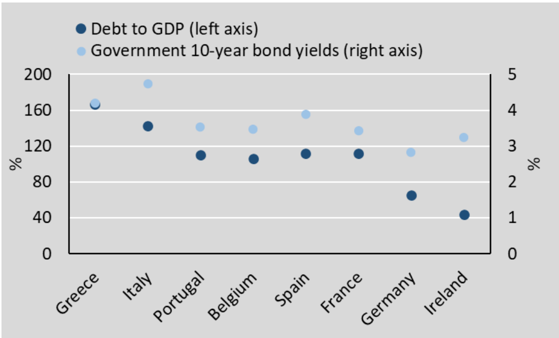


Source: Bloomberg.

Similarly, the yields of 10-year government bonds in euro area countries experienced an increase during the period from March to October 2023. Meanwhile, the spread between the yield of the 10-year Greek government bond and its German counterpart (Bund) decreased from 210 basis points in mid-March to 137 basis points at end-October (see Chart II.15).

Chart II.16 Debt to GDP and 10-year government bond yields

(31.10.2023, %)



Source: Bloomberg.

Additionally, the yields of 10-year government bonds of euro area countries generally moved in line with their debt-to-GDP ratios. The increased borrowing requirements of certain countries (Italy, Belgium, Spain, France, and Germany) for the next year have negatively impacted the trajectory of yields on 10-year government bonds (see Chart II.16). In the United States, the yield on the 10-year government bond increased to 4.93% at the end of October, up from 3.46% in mid-March. It is noteworthy that since the beginning of 2022, a total of eleven increases in the benchmark rate have

[47] It should be noted that the ECB's monetary policy framework is always, given the data and other parameters examined, geared towards achieving a medium-term inflation level of 2%, while the US Federal Reserve's monetary policy is in line with its dual mandate of achieving a satisfactory level of employment, stable prices and a low rate of inflation.

[48] Specifically, during the period from April to October 2023, a total of four increases in the key interest rates were implemented by the ECB, with the overall increase amounting to 100 basis points.

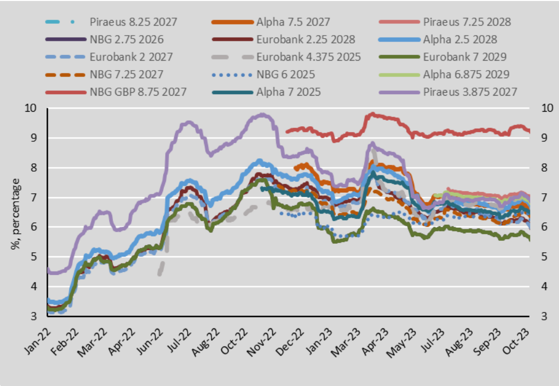
[49] So far only one bond issue has been floated by a Greek company in 2023.

been implemented by the US Federal Reserve, setting the federal funds target range at 5.25% to 5.5% (the latest increase occurred in July 2023).

The yields of Greek bank bonds declined during the period from March to October 2023, amid the upgrade of Greece's and Greek banks' credit rating (see Charts II.17 and II.18). It is clarified that a further reduction in bond yields will make the issuance of bonds by Greek banks more attractive, a development that will have a positive medium-term impact on their cost of funding as they seek to meet the regulatory Minimum Requirement for own funds and Eligible Liabilities (MREL).

Chart II.17 Evolution of yields of senior preferred bonds issued by Greek banks

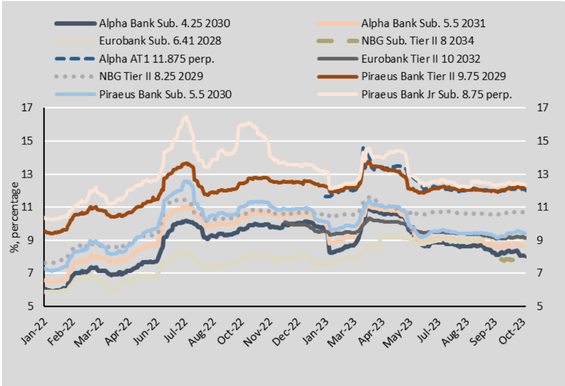
(1.1.2022-31.10.2023, percentage %)



Source: Bloomberg.

Chart II.18 Evolution of yields of subordinated and perpetual bonds issued by Greek banks

(1.1.2022-31.10.2023, percentage %)



Source: Bloomberg.

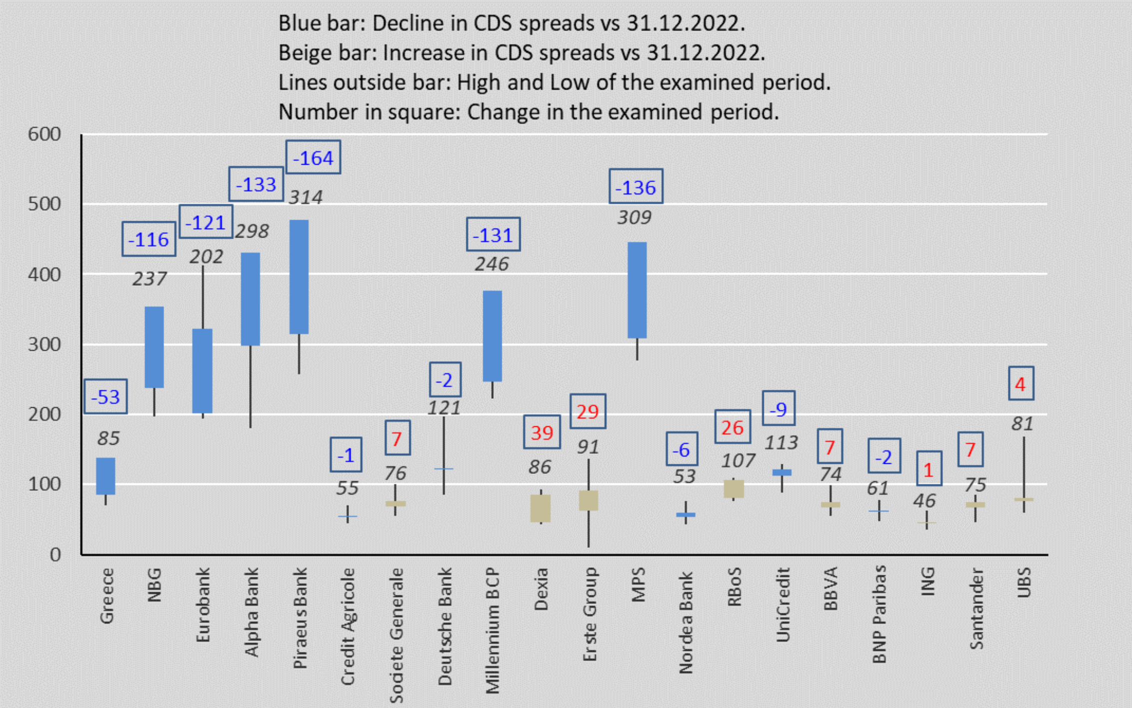
The yields of bank bonds in the near future will continue to be influenced by any further interest rate hikes by the ECB, as well as potential negative developments in the event of bond market repricing globally. Conversely, the continuation of positive credit assessments of banks by rating agencies is expected to act supportively in reducing yields. Prospects for an upgrade of Greece's credit rating within the fourth quarter of 2023 by other rating agencies continue to stand. Gaining an investment-grade rating from a second rating agency is expected to further contribute to driving yields lower, thereby reducing Greece's – and, by implication, Greek banks' – cost of funding. At the same time, it is expected to bring additional momentum by attracting new investment capital, which, under the current circumstances, faces difficulties in being placed in the country due to statutory and institutional constraints.[50]

Finally, due to the improvement in the economic climate, Greece's 5-year Credit Default Swap spreads (CDS) experienced a significant decrease during the period from March to October 2023, settling at 85 basis points on 31 October 2023, down from 121 basis points in mid-March 2023. This reduction exceeds the decline in risk levels observed globally (see Chart II.19).

[50] According to the best practices of investment funds (e.g. mutual funds, other institutional investors, etc.), as a prerequisite for investing in a financial instrument, the issuer of the instrument must have been assigned investment grade rating by at least two internationally recognised rating agencies.

Chart II.19 5-year CDS spreads of the Greek sovereign, Greek and European banks

(31.12.2022-31.10.2023, basis points)



Sources: Bloomberg, Markit.

Similar downward trends were followed by the 5-year Credit Default Swap spreads (CDS) for the entire set of significant Greek banks until October 2023. However, it is noteworthy that in October 2023, the CDS spreads of Greek banks were at considerably higher levels than those of the Greek sovereign.

III. THE BANKING SECTOR

1. KEY BALANCE SHEET FIGURES

In June 2023, Greek banking groups' assets stood at €317.1 billion, down by 2.5% (or €8.0 billion) compared to December 2022 (see Table III.1).

Table III.1 Structure of assets and liabilities of Greek commercial banking groups

(in million euro)

Assets	2022	%	June 2023	%	Change
Cash & balances with Central Bank	53,416	16.4	39,222	12.4	-14,193
Due from banks	6,484	2.0	7,052	2.2	568
Loans & advances to customers (net)	160,120	49.2	157,060	49.5	-3,060
Derivative financial instruments	7,127	2.2	7,294	2.3	167
Securities	55,065	16.9	61,528	19.4	6,463
Investment in subsidiaries & associates, tangible and intangible assets	10,272	3.2	11,013	3.5	741
Non-current assets held for sale	2,505	0.8	3,960	1.2	1,455
Other assets	30,133	9.3	29,994	9.5	-139
Total	**325,122**	**100**	**317,123**	**100**	**-7,999**
Liabilities	**2022**	**%**	**June 2023**		**Change**
Deposits from customers	230,675	71.0	231,536	73.0	861
Due to banks	42,679	13.1	28,218	8.9	-14,462
Debt securities in issue & other borrowed funds	10,175	3.1	10,775	3.4	600
Liabilities related to assets held for sale	39	0.0	1,976	0.6	1,937
Other liabilities	14,707	4.5	14,883	4.7	176
Total equity	26,847	8.3	29,735	9.4	2,888
Total	**325,122**	**100**	**317,123**	**100**	**-7,999**

Source: Bank of Greece.

More specifically, changes in assets' volumes and composition are mainly attributed to:

(i) A decrease of €14.2 billion in cash, mainly cash balances with the Bank of Greece, in the context of the repayment of TLTRO III funding from the Eurosystem. As a result, the share of cash in total assets decreased (June 2023: 12.4%, December 2022: 16.4%).

(ii) An increase of €6.5 billion in debt securities, mainly due to a rise in foreign government bonds and corporate bonds, resulting in a rise in the share of debt securities in total assets (June 2023: 19.4%, December 2022: 16.9%)

(iii) A decrease of €3.1 billion in net loans, as loan repayments (both timely and premature) of mainly business loans and sales exceeded the increase of balances due to loan disbursements.[51] Nevertheless, the share of net loans in total assets increased (June 2023: 49.5%, December 2022: 49.2%).

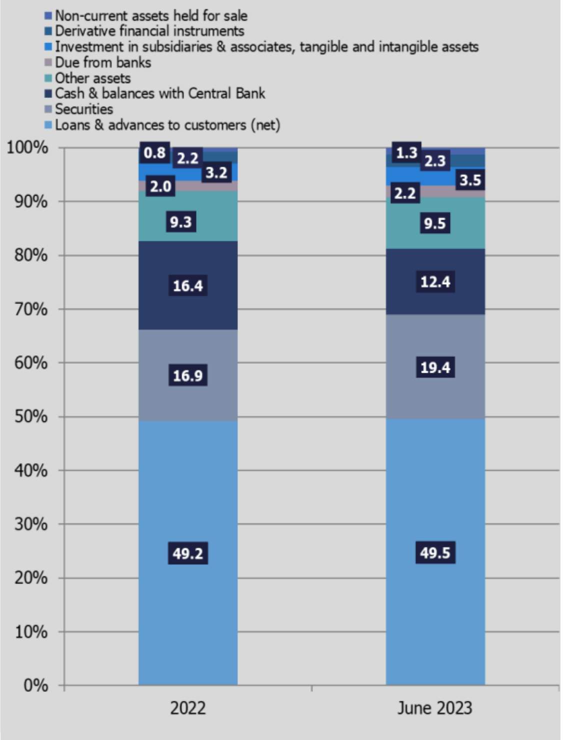
(iv) An increase of €1.5 billion in assets available for sale, mainly due to the classification as held for sale of a subsidiary in South-eastern Europe by a significant institution, resulting in an increase

[51] It should be pointed out that the stock of loans includes the senior notes that banks have retained from their loan securitisations, which carry a state guarantee under the Hellenic Asset Protection Scheme ("Hercules").

of their share in total assets (June 2023: 1.2% December 2022: 0.8%, see Chart III.1 and Table III.1).

Chart III.1 Structure of assets of Greek banking groups

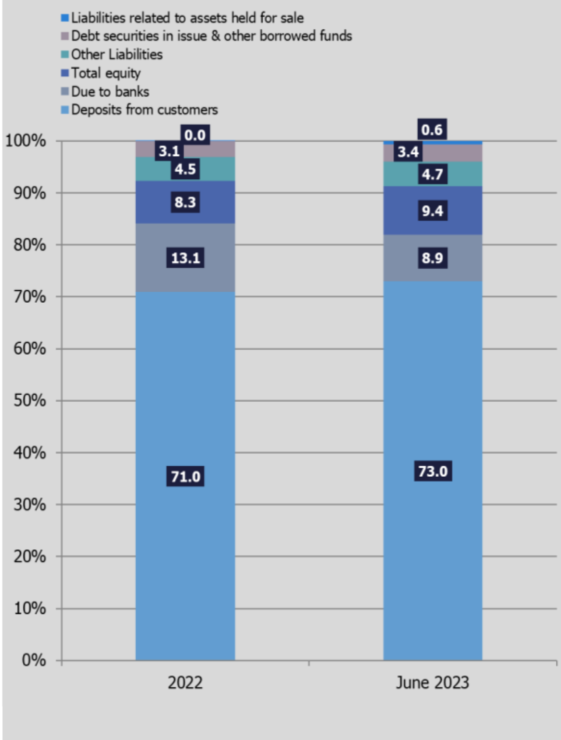
(%)



Source: Bank of Greece.

Chart III.2 Structure of liabilities of Greek banking groups

(%)



Source: Bank of Greece.

On the liabilities side, the most significant developments were as follows:

(i) A decrease in amounts due to banks by €14.5 billion, as a result of the repayment of TLTRO III funding. As a consequence, the share of amounts due to banks in total liabilities decreased (June 2023: 8.9%, December 2022: 13.1%).

(ii) An increase of €2.9 billion in equity, mainly due to a rise in reserves and retained earnings. As a result, the share of equity in total liabilities increased (June 2023: 9.4%, December 2022: 8.3%).

(iii) An increase of €1.9 billion in liabilities available for sale, mainly due to the classification as held for sale of a subsidiary in South-eastern Europe by a significant institution. As a result, their share in total liabilities stands at 0.6% (see Chart III.2).

2. RISKS

2.1 CREDIT RISK

Evolution of key figures

In the first half of 2023, the asset quality of credit institutions' loan portfolios improved further. Non-performing loans (NPLs) continued their downward trend; as a result, at the end of June 2023 the total stock of NPLs stood at €12.7 billion, down by 3.8% or €501 million compared to the end of 2022 (€13.2 billion), according to on-balance-sheet data on a solo basis[52] (see Table III.2).

Table III.2 Key figures – Total portfolio

(in million euro, on-balance-sheet items)	Dec-22	June-23
Breakdown of NPLs		
Total loans	**151,709**	**148,099**
Performing loans	**138,472**	**135,364**
NPLs	**13,236**	**12,736**
Unlikely-to-pay	4,058	4,225
Past due > 90 days	4,390	4,185
91-180 days	479	506
181-360 days	531	407
>1 year	3,380	3,272
Denounced loans	4,788	4,325
Breakdown of forborne loans		
Forborne loans	**11,420**	**10,213**
Performing forborne loans	6,632	5,567
Non-performing forborne loans	4,788	4,646
Breakdown of impairment losses and write-offs		
Accumulated impairment on NPLs	**6,196**	**5,847**
Total collateral	**98,000**	**94,700**
Collateral on performing loans	**90,067**	**86,881**
Collateral on NPLs	**7,933**	**7,819**
Unlikely-to-pay	2,779	3,023
Past due > 90 days	2,352	2,115
Denounced loans	2,802	2,681
Collateral on non-performing forborne loans	**3,311**	**3,255**
Flows breakdown of non-performing loans and write-offs	**2022**	**First half 2023**
Flows of non-performing loans	**125**	**777**
Flows to performing loans	-2,434	-782
Flows from performing loans	2,559	1,559
Write-offs	**961**	**539**
of which write-offs of denounced loans	618	416

Source: Bank of Greece.

It should be noted that the total decrease of NPLs from their March 2016 peak reached 88.1% or €94.5 billion.

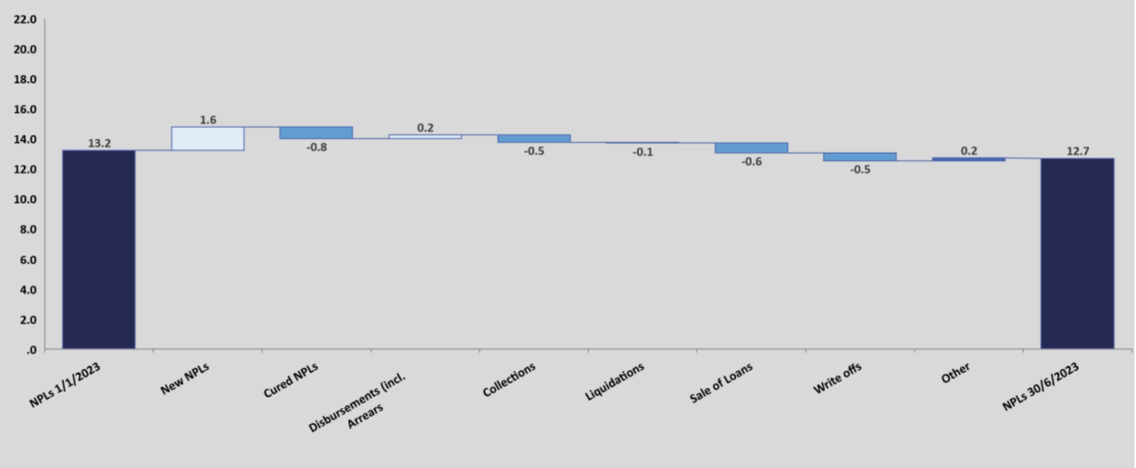
The decline of NPLs in the first half of 2023 is mainly due to outright sales of loans on the secondary market, while to a lesser extent it is due to write-offs (see Chart III.3). Nevertheless, the

[52] On a consolidated basis, the NPL stock stood at €13.2 billion, down by 5% or €0.7 billion from €13.9 billion at the end of 2022.

acceleration in the flow of new NPLs should be noted, partly attributed to the reclassification of a large common borrower in the business portfolio. At the same time, NPL reduction through collateral liquidation remains negligible. It is also noted that for some of the securitisation transactions, the provision of Greek government guarantees (under the "Hercules" plan) on the senior tranche notes[53] is pending.[54] The aforementioned loan balances have already been classified as held for sale.

Chart III.3 Flows of non-performing loans for the half year 2023

(in billion euro)



Notes: The categories "Liquidations" and "Sale of Loans" include any partial write-off amounts related to these categories. The "Write-offs" category includes pure loan write-offs.
NPL sale transactions, whether outright or through securitisations, are included in the categories "Sale of Loans" and "Other".

Source: Bank of Greece.

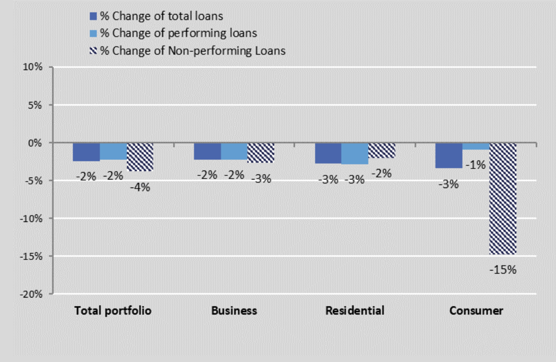
However, it should be noted that the transfer of NPLs out of the banking sector does not automatically mean the removal of debt from the economy. The debt remains and is now managed by credit servicing firms (CSFs). The smooth functioning of the NPL secondary market is therefore key for resolving the legacy stock of debt and to this end the effective use of all available tools is required. Rehabilitation of borrowers with viable and bankable investment plans should be considered as an option that can help towards both the resolution of the private debt overhang and the growth of the real economy.

[53] See Box V.1 "Securitisations as a tool to effectively manage banks' non-performing loans (NPLs)" (Financial Stability Review – May 2022).
[54] It should be noted that as at 30 June 2023, the total stock of NPLs included in the "Hercules" plan amounts to €42.8 billion (from €43.8 billion as at 31 December 2022), while the amount of guarantees granted by the Greek State stands at €16.9 billion.

The total stock of outstanding (performing and non-performing) loans on a solo basis amounted to €148.1 billion, recording a slight decrease of 2.4%, coming mainly from the business loan portfolio (-2.2%). Similarly, the total stock of performing loans decreased by 2.3%, also due to the business loan portfolio, as loan repayments exceeded new disbursements (see Chart III.4).

Chart III.4 Percentage change of Greek banks' total (performing and non-performing) loans per portfolio in the first half of 2023

(%)



Source: Bank of Greece.

The ratio of NPLs to total loans at the end of June 2023 stood at 8.6%, compared to 8.7% at the end of 2022. It is worth noting that all four significant institutions have achieved their operational target of a single-digit NPL ratio, with one of them also breaching the 5% limit. However, in the less significant institutions (LSIs), the ratio of NPLs to total loans is particularly high and stands at 44% in June 2023, down by 1% compared to December 2022, a reduction mostly related to the credit expansion noticed in some LSIs. The high NPL percentage in LSIs is also related to the incompatibility of the government guarantee scheme (HAPS, "Hercules") for the vast majority of smaller banks.

Additionally, the system-wide NPL ratio remains higher than the European average (June 2023: 1.8%[55]), implying that banks must continue and step up their efforts to reduce their existing NPL stock, especially in the light of emerging challenges.

The tightening of ECB monetary policy, resulting in a higher interest rate environment, clearly indicates that both the cost of financing and the debt repayment capacity of households and corporations will be adversely affected. This environment, combined with the slowdown in economic growth in 2023, may once again affect the quality of banks' loan portfolios negatively through the creation of new NPLs.

Structure and evolution of non-performing loans (NPLs)

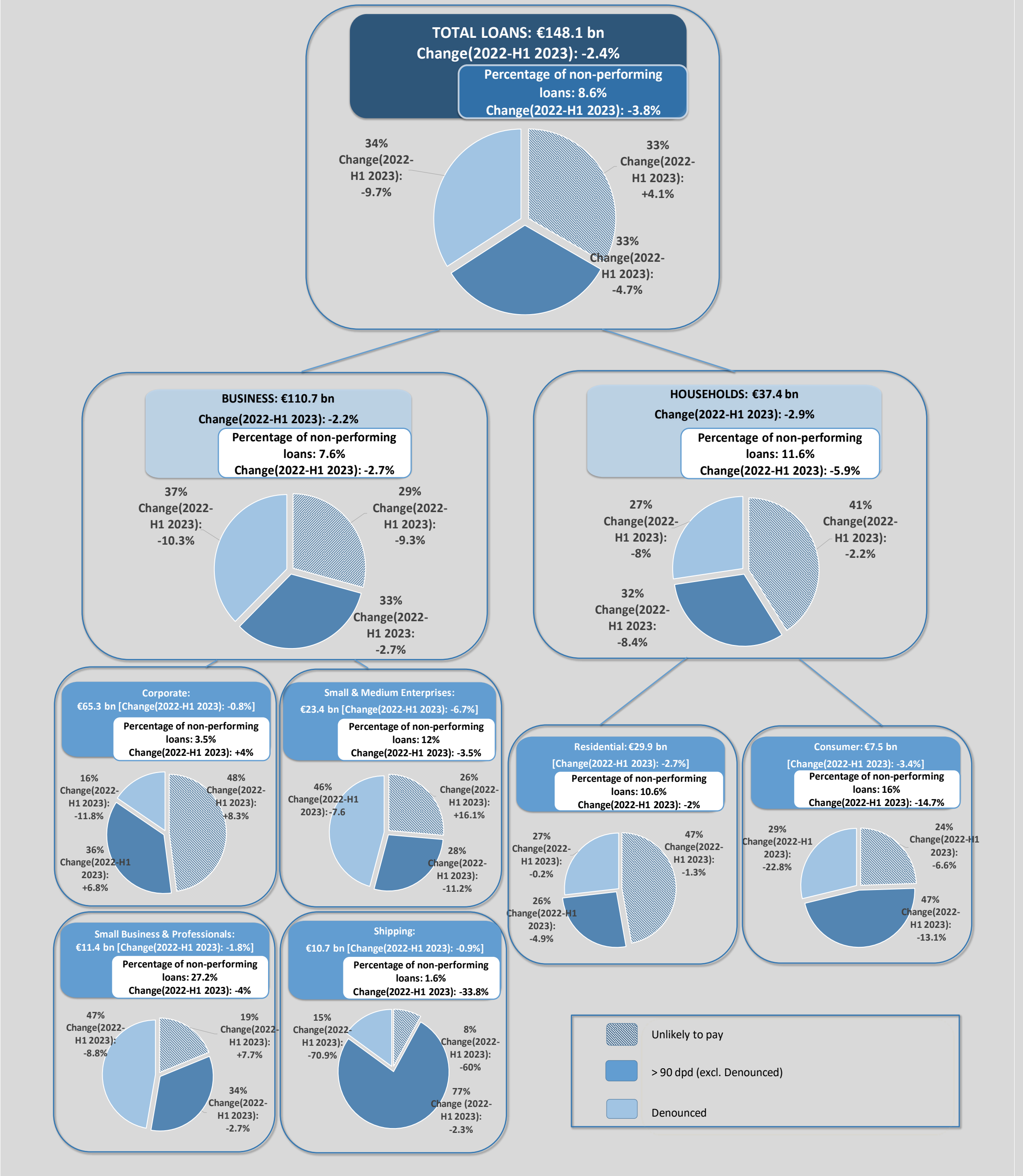
A significant decline in the stock of NPLs was recorded for all loan portfolios during the first half of 2023, with the decrease of NPLs for business loans being particularly strong (see Chart III.5).

Unlikely-to-pay loans amounted to €4.2 billion (33.2% of NPLs) at the end of June 2023, up by 4.4% (€0.2 billion) compared to end-2022.

[55] Source: European Banking Authority, Risk Dashboard, Q2 2023 EBA Dashboard - Q2 2023.pdf (europa.eu)

Chart III.5 Structure and evolution of Greek commercial banks' total loans and NPLs by loan portfolio category in the first half of 2023

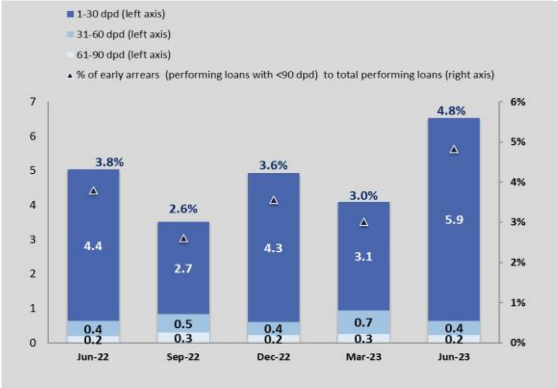
(in billion euro, %)



Source: Bank of Greece.

Chart III.6 Structure of early arrears per arears bucket and the ratio of early arrears to total performing loans

(in billion euro, %)



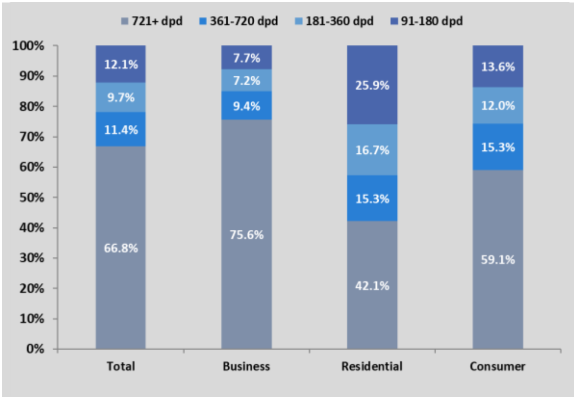
Source: Bank of Greece.

Loans that are 1 to 90 days past due (early arrears) increased by 32.6% to €6.5 billion at the end of June 2023, from €4.9 billion at the end of 2022. This rise comes mainly from business loans in arrears from 1 to 30 days. In addition, it should be noted that the ratio of loans that area 1 to 90 days past due to total performing loans increased to 4.8% in the first half of 2023, compared with 3.6% at the end of 2022 (see Chart III.6).

Loans over 90 days past due (excluding denounced loans) declined further during the first half of 2023 and amounted to €4.2 billion (32.9% of NPLs), down by 4.7% compared to end-2022 (€4.4 billion). However, it should be pointed out that 78.2% of the NPLs under this category are more than one year past due, increased compared to the end of 2022 (77%). The corresponding delinquency rate reaches 85% for business loans, 57.4% for residential loans and 74.4% for consumer loans.

Chart III.7 NPLs' balance structure in the arrears bucket of more than 90 days past due (excluding de-nounced loans) per portfolio

(%)



Source: Bank of Greece.

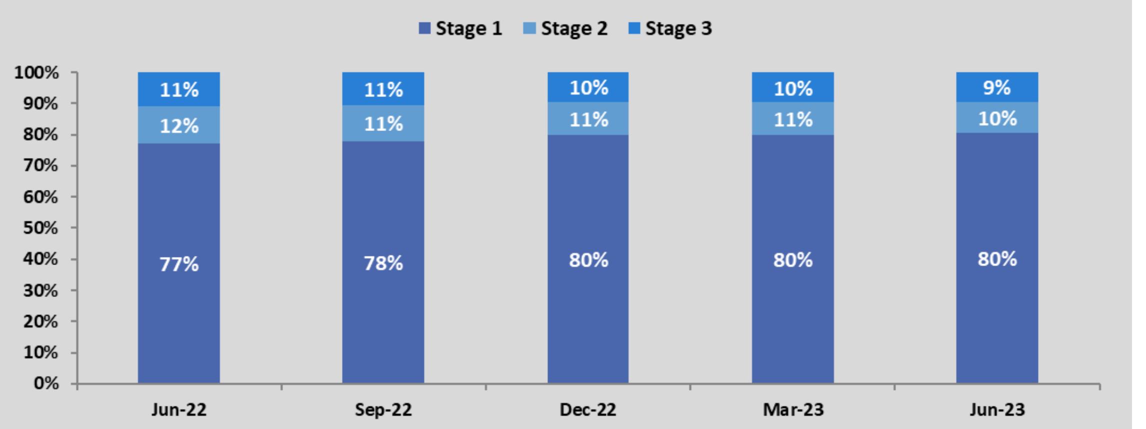
The structure of NPL balances over 90 days past due per portfolio as of June 2023 is presented in Chart III.7.

At the same time, 34% of NPLs relate to denounced loans, which at the end of June 2023 amounted to €4.3 billion, down by 9.7% (-€0.5 billion) compared to end-2022, mainly due to sale transactions.

Finally, the improvement in portfolio quality is also reflected in the allocation of the total loan stock per stage, in accordance with International Financial Reporting Standard 9 (IFRS 9), in the first half of 2023 compared to 2023, which is mainly due to a decrease of the total NPL stock included in stage 3 (see Chart III.8).

Chart III.8 Allocation of the total loan stock per stage according to IFRS 9

(%)



Source: Bank of Greece.

Indicators for monitoring and evaluation of NPLs

Regarding the indicators for monitoring and evaluation of the management of NPLs for half-year 2023, the following are observed (see Table III.3):

Table III.3 Total portfolio – Key indicators

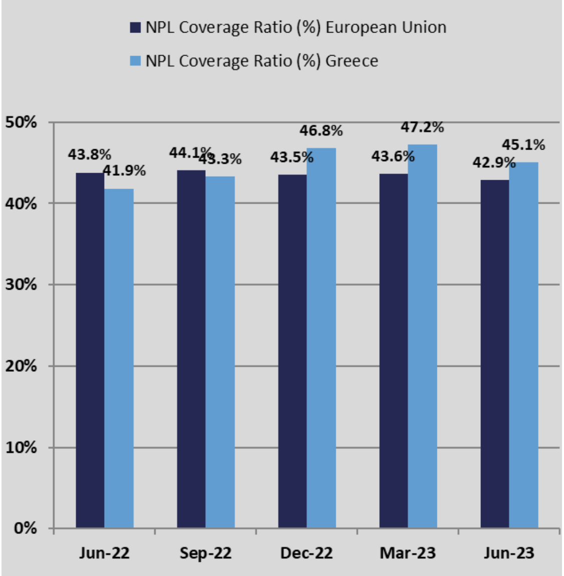
(%, on-balance-sheet items)	Dec-22	Jun-23
Credit quality indicators		
NPL ratio	**8.7**	**8.6**
> 90 days past due	6.1	5.7
NPL structure		
Unlikely-to-pay	**30.7**	**33.2**
Past due > 90 days	**33.2**	**32.9**
91-180 days	3.6	4.0
181-360 days	4.0	3.2
>1 year	25.5	25.7
Denounced loans	**36.2**	**34.0**
Forborne to total loans		
Forborne loans	**7.5**	**6.9**
Forborne performing loans	4.4	3.8
Forborne non-performing loans	3.2	3.1
Coverage ratios and write-offs		
Coverage ratio of NPLs	**46.8**	**45.9**
Total write-offs to total loans	**0.6**	**0.4**
Total write-offs to NPLs	**7.3**	**4.2**
NPL collateral coverage ratio	**59.9**	**61.4**
Collateral coverage on forborne non-performing loans	**69.2**	**70.1**
Total NPL coverage (provisions + collaterals)	**106.7**	**107.3**
Quarterly default and cure rates		
Default rate	0.4	0.7
Cure rate	4.0	2.9
Cost of Credit risk		
Loan-loss impairment to net loans	1.1	1.0
Loan-loss impairment to total assets	0.5	0.5

Source: Bank of Greece.

- The NPL coverage ratio (accumulated provisions) stood at 45.9% in June 2023, compared with 46.8% at the end of 2022. In particular, the cumulative provisions for the coverage of NPLs established by banks in June 2023 amounted to €5.8 billion, compared with €6.2 billion at the end of 2022. This decrease is mainly due to the sale transactions that took place during the first half of the year. It should be pointed out that since the 4th quarter of 2022 the level of the NPL coverage ratio in Greece exceeds the European average (see Chart III.9), which is due to the greater reduction of the denominator (NPLs) compared to that of the numerator (cumulative provisions).

Chart III.9 NPL coverage ratio

(%)



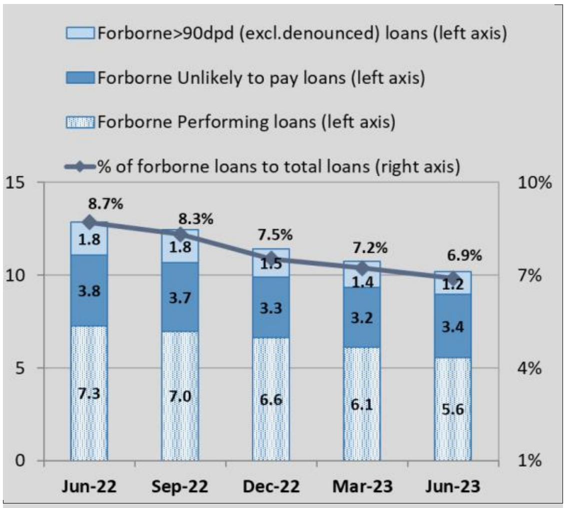
Sources: Bank of Greece, European Banking Authority.

- The collateral coverage ratio for NPLs in June 2023 was 61.4%, higher than at end-2022 (59.9%), while the collateral coverage ratio on forborne non-performing loans amounted to 70.1%, compared with 69.2% at the end of 2022.
- Total forborne loans56 in June 2023 fell to €10.2 billion, from €11,4 billion at the end of 2022, representing 6.9% of total loans (7.5% in 2022) (see Chart III.10). The decrease in forborne loans since December 2022 is mainly due to sales of NPLs in the first half of 2023.

  It should be noted that 12.2% of forborne loans are in arrears by more than 90 days, a percentage slightly reduced compared to the end of 2022 (13.3%).

Chart III.10 Evolution of forborne loans per category and evolution of the ratio of forborne loans to total loans

(in billion euro, %)



Source: Bank of Greece.

- 70.3% of NPLs over 90 days past due have not been modified (forborne), compared with 65.5% at the end of 2022, while the corresponding rates for residential, consumer and business loans stand at 64.5%, 76.7% and 70.7%, respectively.

  Loan write-offs in June 2023 amounted to €539 million, of which €416 million relate to denounced loans, in particular business loans (€0.36 billion).
- During the first half of 2023, the flows from performing to non-performing loans were €1.6 billion, while the flows from non-performing to performing loans were €0.8 billion, leaving

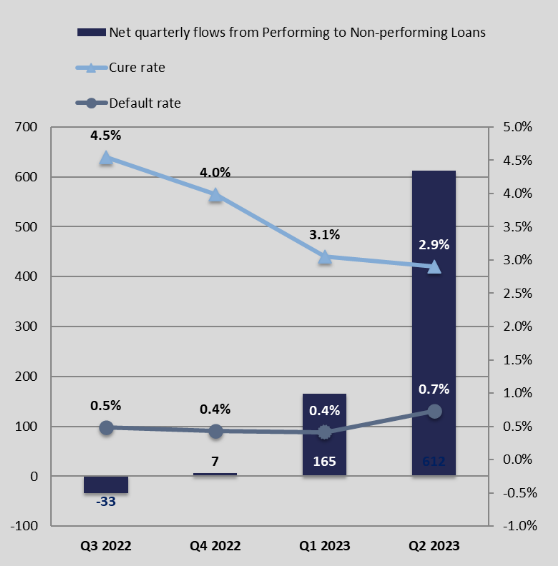
[56] Bank of Greece Executive Committee Act 175/29.7.2020 provides an indicative typology of forbearance and resolution and closure solutions for performing and non-performing loans.

positive net flows to non-performing loans of €777 million. It is noted that in the first two quarters net flows to NPLs were observed with an increasing trend (€165 million in Q1 and €612 million in Q2 2023 – see Chart III.11).

- It should be noted that €341 million, i.e. 2.7% of NPLs, relate to loans that are under legal protection status and for which the issuance of a final court decision is pending; €141 million of these relate to loans that have already been denounced. Loans in this category concern either natural persons (e.g. Law 3869/2010[57]) or legal entities (e.g. Law 4307/2014, Bankruptcy Code). Regarding the sub-categories, approximately 3.8% of non-performing residential loans are subject to legal protection, while the corresponding percentage for consumer loans is 3.8%
- The cure rate stood at 2.9% in June 2023 and the default rate at 0.7% (see Chart III.11). Looking into individual loan portfolio categories, the highest cure rate (6.3%) is recorded in residential loans and the lowest (1.4%) in business loans.
- The largest part of forborne loans relates to long-term modifications, representing 72.1% of total forborne loans, followed by short-term modifications with 25.2% and resolution and closure actions with 2.7% (see Chart III.12). It is worth mentioning that the percentage of forborne non-performing loans in June 2023 remains high (45.9%) and is worsening compared to 2022 (42.4%).

Chart III.11 Evolution of net quarterly flows from performing to non-performing loans, default rate and cure rate

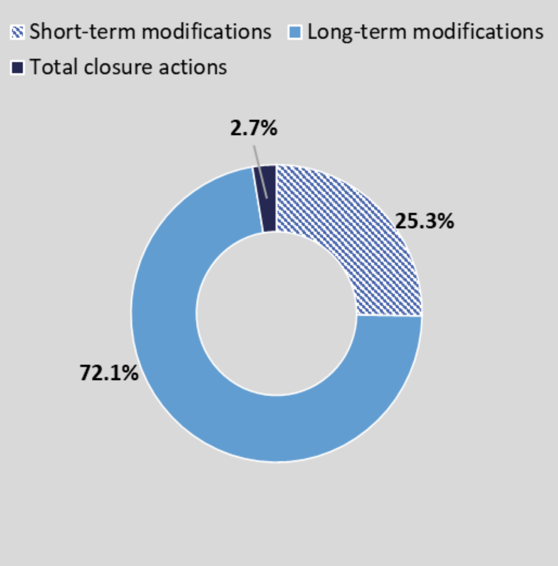
(in million euro, %)



Source: Bank of Greece.

Chart III.12 Allocation of forborne loans balance per modification type

(%)



Source: Bank of Greece.

Credit risk per sector for business loans

In June 2023, financing to business, according to on-balance-sheet data, amounted to €110.7 billion, accounting for about 75% of the total financing of Greek credit institutions to the economy. The NPL ratio in the business portfolio (7.6%) continues to be mainly influenced by the high ratio

[57] The law, last amended in September 2018, provides that banking secrecy will be lifted with respect to borrowers benefiting from its provisions, who will cease to qualify for protection if they raise any objection. At the same time, borrowers will declare that they authorise any credit institution to disclose to their creditors the data of any bank accounts and products, permitting them to process and exchange the data they hold or receive from credit institutions.

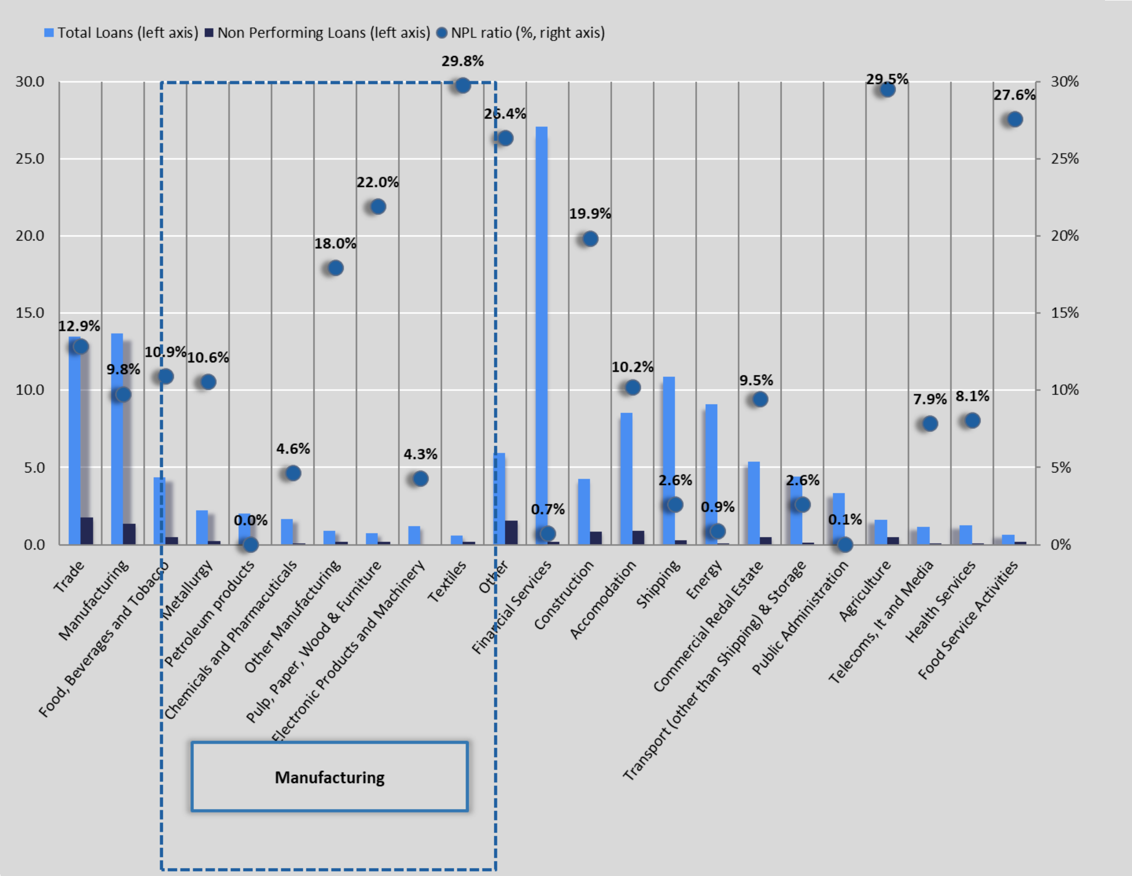
in the category of small and medium-sized enterprises (SMEs) (12%) and Small Business Professionals (SBPs) (27.2%).

As regards the sectoral breakdown of financing to the Greek economy, the largest share concerns financial corporations (24% of total corporate financing). The NPL ratio for this sector (0.7% in June 2023) is much lower than the corresponding average ratio for business loans.

The highest NPL ratios are recorded in the sectors of Agriculture (29.5%, from 10.3% in 2022), Food Service Activities (27.6%), Construction (19.9%), Trade (12.9%), Accommodation (10.2%) and Manufacturing (9.8%). High NPL ratios are also recorded in sub-sectors of Manufacturing, such as Textiles (29.8%), Pulp, Paper, Wood & Furniture (22%) and Other Manufacturing (18%), which, however, concern lower lending balances and therefore have a lower effect on the overall NPL ratio of the Manufacturing sector. The lowest ratios are indicatively observed in Energy (0.9%) and Financial Services (0.7%) (see Chart III.13).

Chart III.13 Sectoral breakdown of business loans and NPLs for June 2023

(in billion euro, %)



Source: Bank of Greece.

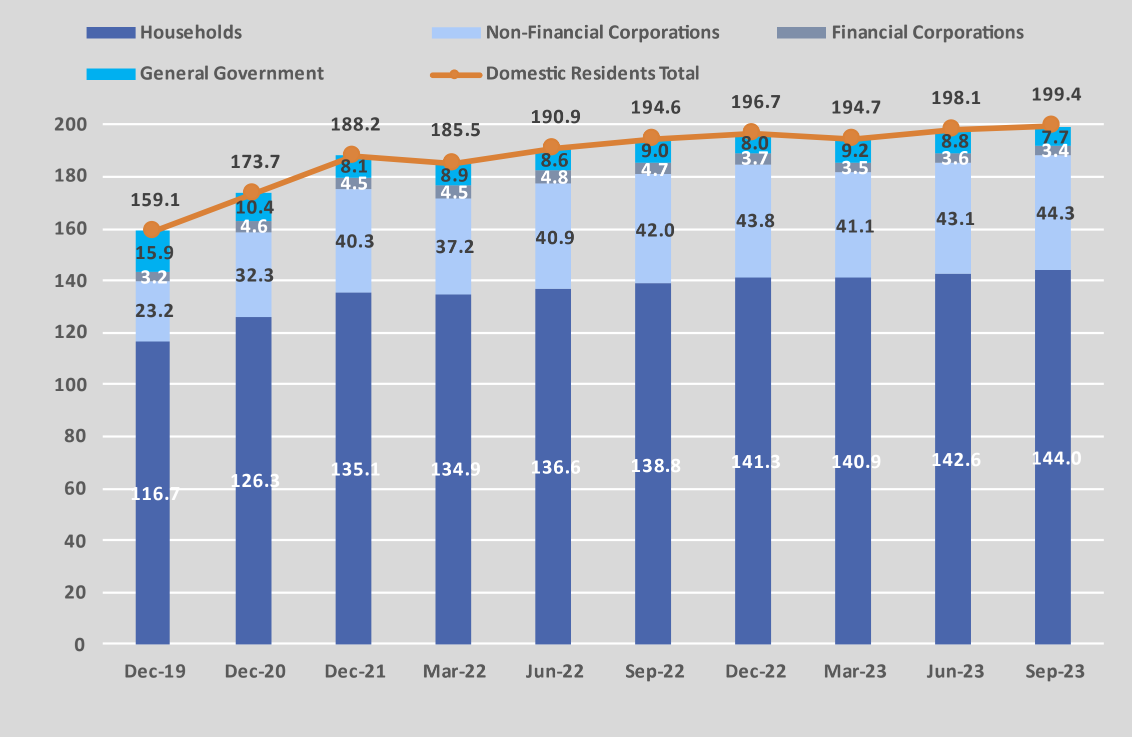
2.2 LIQUIDITY RISK

The liquidity and funding conditions of the Greek banking sector in the first half of 2023 were similar to those of 2022. The shift in the monetary policy stance to counter inflationary pressures led to an increase in the cost of funding for Greek banks. In an environment of generally rising policy rates and Greek bond yields, banks' access to capital markets and Eurosystem refinancing operations became more expensive. Deposits over the same period continued their upward trend reflecting strong economic growth, despite the negative impact of high inflation. The increase in deposits contributed significantly to keeping the liquid assets of Greek banks at a high level, despite the repayment of the amounts raised through the TLTRO III operations.

The balance of deposits in Greece by domestic residents in September 2023 amounted to €199.4 billion, posting a new ten-year high. In Q1 2023, it fell marginally by 1% to €194.7 billion, to recover afterwards (see Chart III.14).

Chart III.14 Deposits and repos of domestic non-MFIs in MFIs in Greece (excluding the Bank of Greece)

(in million euro)



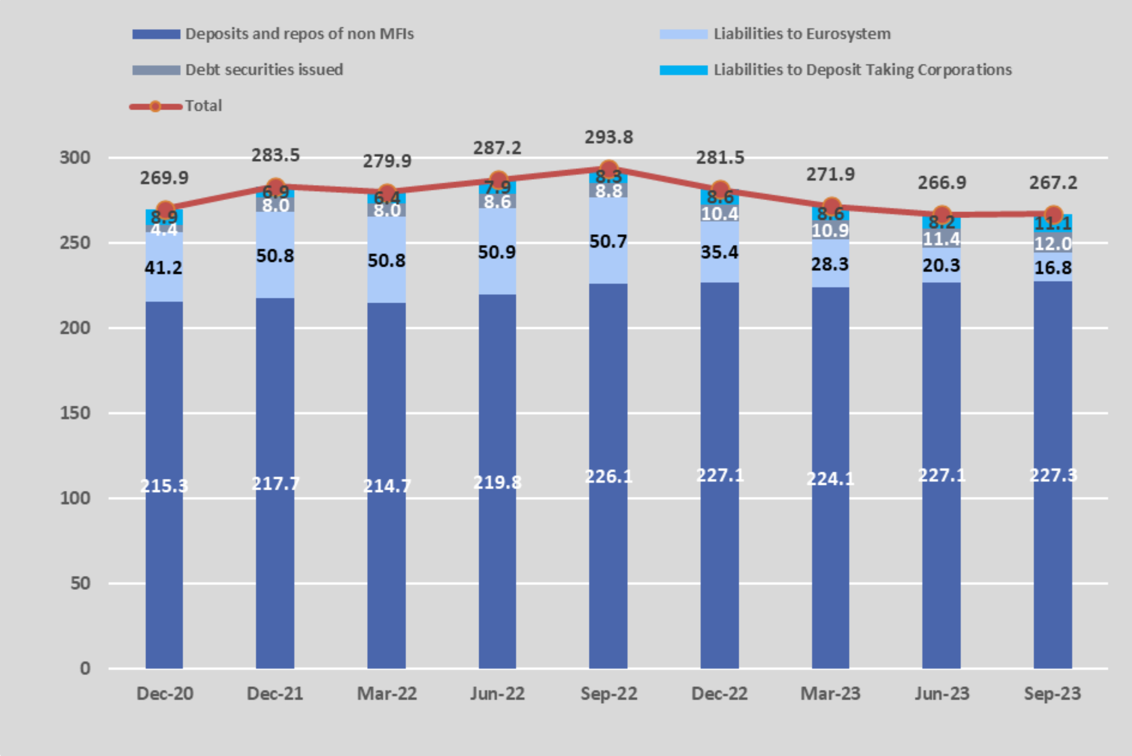
Source: Bank of Greece.

This increase was mainly accounted for by households' deposits, which rose to €144 billion, up by €2.7 billion (1.9%) compared to December 2022. The overall deposits increase of €2.64 billion (1.3%) during the first nine months can be attributed to the economy's growth rate and depositors' confidence. However, the slowdown in deposit growth in 2022 and the first nine months of 2023 is due, inter alia, to the strong inflationary pressures, which reduced households' disposable income and pushed up the operating costs of businesses. The €2 billion decrease in deposits observed in Q1 2023 was mainly due to non-financial corporations (down by €2.7 billion or 6.1%).

General government deposits decreased slightly in the first nine months of the year (September 2023: €7.7 billion, December 2022: €8 billion), while in the first half of 2023 they increased to €8.8 billion. Deposits of financial corporations also showed a slight decrease of 6.6% (September 2023: €3.4 billion, December 2022: €3.7 billion).

Chart III.15 Sources of funding of Greek credit institutions

(in billion euro)



Source: Bank of Greece.

From July 2022 to September 2023, the ECB's key policy rates were raised by 450 basis points, while in October 2022 the Governing Council decided to amend the terms of the TLTRO III operations and to adjust the interest rate on minimum reserves.[58] In particular, from 23 November 2022 until the maturity date or early repayment date of each respective outstanding TLTRO III operation, the interest rate on TLTRO III operations will be indexed to the average applicable key ECB interest rates over this period, while from 21 December 2022 the remuneration of minimum reserves was set at the Eurosystem's deposit facility rate, instead of the main refinancing operations rate. Due to the higher cost of Eurosystem funding, many Greek banks, especially in the second quarter of 2022, proceeded to an early voluntary repayment of part of their lending through the TLTRO III operations. More specifically, in 2022 and in the first nine months of 2023, Greek banks’ Eurosystem funding dropped significantly (September 2023: €16.8 billion, June 2023: €20.3 billion, March 2023: €28.3 billion, December 2022: €35.4 billion, December 2021: €50.8 billion) (see Chart III.15), following the shift in the monetary policy stance and the worsening of the terms of TLTRO III operations.

Thus, in the first nine months of 2023, Greek banks continued to repay Eurosystem borrowing (€18.6 billion) using cash reserves. In addition, as in 2022, liabilities to deposit-taking corporations increased (by €2.4 billion) (September 2023: €11.1 billion, December 2022: €8.6 billion). Deposits and repurchase agreements with non-financial corporations (including households) increased slightly (September 2023: €227.3 billion, December 2022: €227.1 billion), while debt

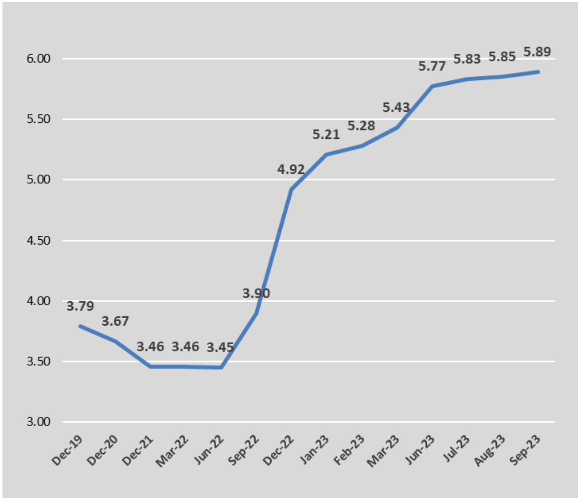
[58] ECB, press release of 27.10.2022, Monetary policy decisions

securities issued increased by around €1.6 billion (September 2023: €12 billion, December 2022: €10.4 billion).

In 2022 and the first months of 2023, there was only a small increase in deposit rates, which became relatively higher in the last months of the nine-month period, despite the significant increase in the Eurosystem's key interest rates and the correspondingly larger increase (relative to deposits) in lending rates (see Chart III.16). Thus, the weighted average interest rate on deposits/repurchase agreements was 0.46% in September 2023 (June 2023: 0.37%, December 2022: 0.09%). The average interest rate offered to households and non-financial corporations was 0.38% and 0.74% in September 2023 (June 2023: 0.32% and 0.54%, December 2022: 0.06% and 0.17%). It is worth noting that the increase in the weighted average interest rate on deposits/repurchase agreements relates almost exclusively to time deposits.

Chart III.16 Loan-Deposit Interest Rate Spread

(%)



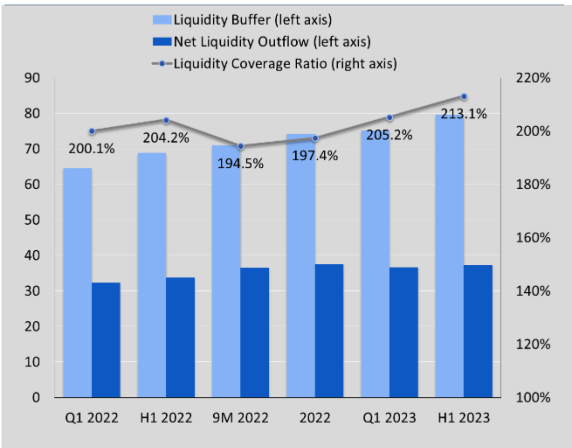
Source: Bank of Greece.

Bank liquidity indicators

In H1 2023, Greek banks' liquidity remained at a high level. The Liquidity Coverage Ratio (LCR) moved upwards and closed at 213.1% (see Chart III.17), more than double the supervisory requirement of 100%. The LCR remained at a high level despite the significant repayments of TLTRO III funding, due to the increase in deposits, which boosted banks' liquidity, and the release of encumbered assets mobilised as collateral to the Eurosystem's refinancing operations, which are now eligible for banks' liquid buffers. The Liquidity Coverage Ratio for Greek banks remained at a significantly higher level than the corresponding European average for banks in the Single Supervisory Mechanism (161.27% for significant institutions – SIs – and 200.21% for less significant institutions – LSIs – in Q1 2023).[59] The further repayment of TLTRO III operations may affect the course of the LCR where the encumbered assets being released are not eligible for banks' liquid buffers.

Chart III.17 Liquidity Coverage Ratio (LCR)

(% and in billion euro)



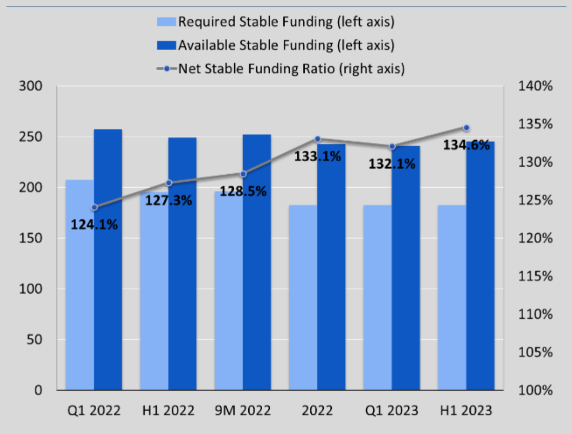
Source: Bank of Greece.

[59] Single Supervisory Mechanism (SSM) - Supervisory Banking Statistics

In addition, the Net Stable Funding Ratio (NSFR), after a significant increase in 2022, stood at 134.6% in June 2023, up from 127.3% in June 2022, reflecting the adequate coverage of banks' long-term liabilities without requiring the excessive use of short-term funding (see Chart III.18). The rise in the ratio was due to the increase in retail time deposits, which partially offset the decrease in Eurosystem funding, as well as to the reduction of required funding following the release of encumbered assets that qualify as high-quality liquid assets. The Net Stable Funding Ratio for Greek banks has remained slightly higher than the corresponding average for banks in the Single Supervisory Mechanism (125.9% for SIs and 131.8% for LSIs in Q1 2023).[60] The supervisory requirement for the NSFR is set at 100%.

Chart III.18 Net Stable Funding Ratio (NSFR)

(% and in billion euro)

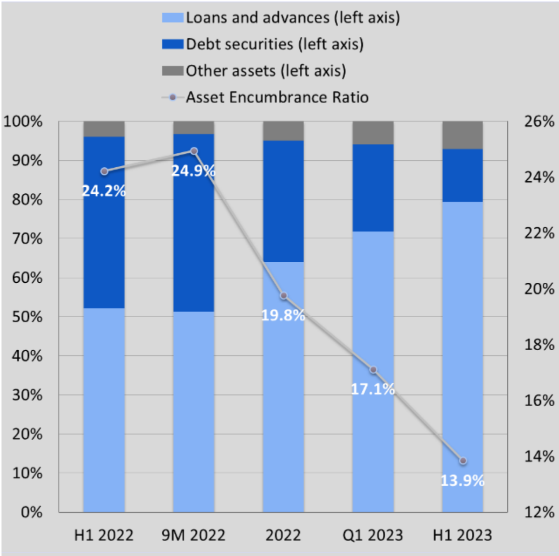


Source: Bank of Greece.

The Asset Encumbrance Ratio (AER) improved as it decreased significantly to 13.9% in June 2023, from 19.8% at the end of 2022, remaining at a lower level than the corresponding average of European Banking Authority banks (March 2023: 26.5%) (see Chart III.19). The decrease took place mainly in Q2 2022 following the release of encumbered assets in the context of the partial repayment of TLTRO III funding. Regarding the structure of encumbered assets, the largest decrease was recorded in debt securities, by €18 billion.

Chart III.19 Asset Encumbrance Ratio (AER)

(%)



Source: Bank of Greece.

The balance of the loan portfolio (net of provisions) of Greek banks in H1 2023 decreased slightly (€3.1 billion). The loan-to-deposit ratio for households and non-financial corporations moved slightly downwards and reached the lowest level in the euro area (June 2023: 59.6%[61]), almost 45 percentage points lower than the average for banks in the Single Supervisory Mechanism (June 2023: 105.1%,[62] see Chart III.20).

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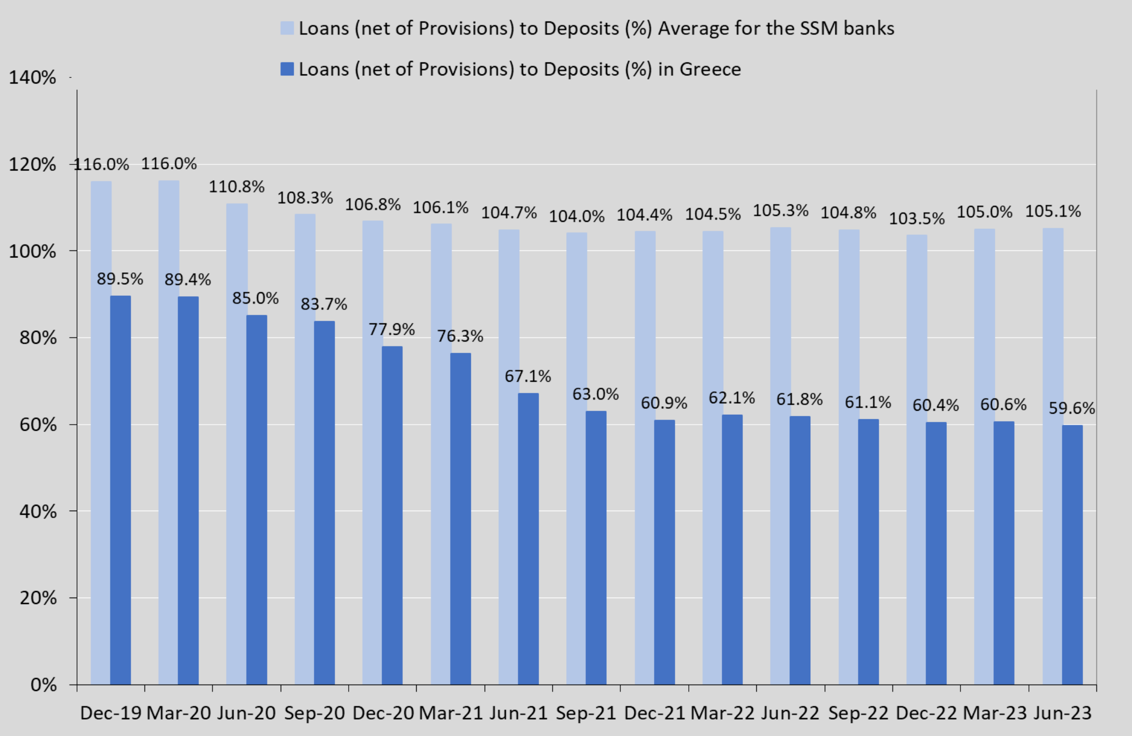
[60] Single Supervisory Mechanism (SSM) - Supervisory Banking Statistics
[61] ECB Banking Supervision, Supervisory Banking Statistics, Second quarter 2023, October 2023.
[62] ECB Banking Supervision, Supervisory Banking Statistics, Second quarter 2023, October 2023.

Chart III.20 Loans (net of provisions) to Households' and Non-Financial Corporations' Deposits

(%)



Source: Supervisory Banking Statistics.

Minimum requirements for own funds and eligible liabilities

Banks have already taken initiatives to meet the Minimum Requirements for Own Funds and Eligible Liabilities (MREL) by the end of 2025. As a result, they have issued in recent years Additional Tier 1 (AT1), Tier 2 and senior unsecured bonds (see Table III.4), which also constitute an additional source of funding. In this context, in the first half of 2023, continuing the trend of the previous two years and despite the significant increase in yields, the significant Greek banks issued senior preferred bonds of a nominal value of €1,500 million, as well as subordinated bonds of a nominal value of €400 million. In line with the MREL framework and with a view to reducing reliance on ECB funding, subordinated debt issuances are expected to continue in the coming years.

Table III.4 Issuances of Greek banks' bonds

	Issue Amount (€ million)	Coupon (%)	Issue Date	Maturity Date
Senior Preferred Bonds				
Alpha Bank	€500	2.5	23/9/2021	23/3/2028
Alpha Bank	€400	7	1/11/2022	1/11/2025
Alpha Bank	€450	7.5	16/12/2022	16/06/2027
Alpha Bank	€500	6.88	27/6/2023	27/6/2029
Eurobank	€500	2.25	14/9/2021	14/3/2028
Eurobank	€500	2	5/5/2021	5/5/2027
Eurobank	€500	4.375	9/6/2022	9/3/2025
Eurobank	€500	7	26/1/2023	26/1/2029
NBG	€500	2.75	8/10/2020	8/10/2026
NBG	€500	7.25	22/11/2022	22/11/2027
NBG	£200	8.75	2/12/2022	2/6/2027
Piraeus Bank	€500	7.25	13/07/2023	13/07/2028
Piraeus Bank	€350	8.25	28/11/2022	28/11/2026
Piraeus Bank	€500	3.88	3/11/2021	3/11/2027
Subordinated Bonds				
Alpha Bank	€500	5.5	11/3/2021	11/6/2031
Alpha Bank	€500	4.25	13/2/2020	13/2/2030
Alpha Bank	€400	11.875	8/2/2023	Perpetual
Eurobank	€950	6.41	17/1/2018	17/1/2028
Eurobank	€300	10	6/12/2022	6/12/2032
NBG	€400	8.25	18/7/2019	18/7/2029
Piraeus Bank	€400	9.75	26/6/2019	26/6/2029
Piraeus Bank	€500	5.5	19/2/2020	19/2/2030
Piraeus Bank	€600	8.75	16/6/2021	Perpetual

Source: Bank of Greece.

2.3 MARKET RISK

In the first half of 2023, developments in international capital markets and the significant increase in the level of reference interest rates affected the bond portfolios of Greek banks. More specifically, Greek government bonds were negatively affected by the increase in interest rates, resulting in a drop in their prices. However, the largest share (about 83%) of the Greek government bond portfolio held by credit institutions regards securities that are held to maturity and are valued at amortised cost, not at fair value. Thus, daily price changes do not affect their book values, while at the same time it should be noted that banks also apply interest rate risk hedging strategies.

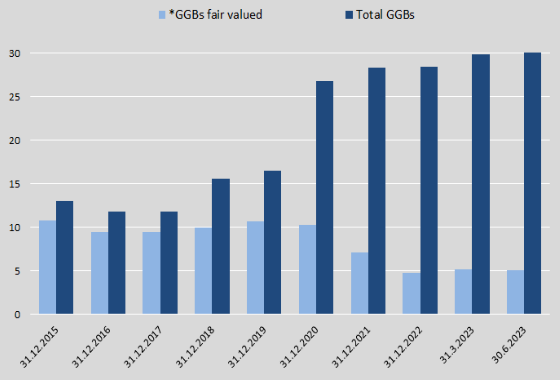
Exposure to Greek government bonds

The total amount of Greek government bonds (including Treasury bills) held by Greek banks in their portfolios in June 2023 amounted to €30.3 billion[63] (10.5% of their assets), up by approximately €1.9 billion (+6.6%) compared to December 2022.

The value of the portfolio of Greek government securities held by the banking sector in fair-valued[64] portfolios increased to €5.1 billion in June 2023, compared with €4.8 billion in December 2022 (see Table III.5 and Chart III.21), up by 7.1%. The value of this portfolio as a percentage of banks' total assets rose to 1.8% from 1.6% in December 2022.

Chart III.21 Greek government bond portfolio

(billion euros)



* GGBs fair valued: refers to Greek government bonds that are fair valued for accounting purposes (classified as: available-for-sale, fair value through P&L, held for trading purposes). From 1.1.2018 with the implementation of IFRS 9, it relates to GGBs fair valued through other comprehensive income, through P&L, and held for trading purposes.

Source: Bank of Greece.

It should be pointed out that in analysing the interest rate risk of the total Greek government bond portfolio, on the basis of its composition in June 2023, a potential increase in the general level of interest rates (risk-free rates) by 1 basis point (b.p.) (PV01) would result in a loss of €21.5 million for all Greek banks, compared with a loss of €21.1 million in December 2022. In the same vein, a potential increase in credit spreads by 1 b.p. (CS01) would lead to a loss of €24.9 million in June 2023, compared with a loss of €21.5 million in December 2022. However, it should be noted that the actual impact on banks' profits/capital would be limited to a loss of €1.5 million and €1.6 million, respectively, for the above-mentioned interest rate changes (PV01, CS01), given that the majority of Greek government bonds are held to maturity at amortised cost by Greek banks.

Table III.5 Banking sector investments

(amounts in million euro)	31.12.2020	31.12.2021	31.12.2022	30.6.2023	% Difference 30.06.2023-31.12.2022
Total					
Greek government bonds	26,755.0	28,302.7	28,446.5	30,332.5	6.6%
of which Treasury Bills	*3,260.1*	*1,458.5*	*2,592.4*	*3,145.0*	*21.3%*
Corporate bonds	1,888.0	2,679.5	3,419.7	3,574.1	4.5%
Equities	492.4	679.0	470.6	493.6	4.9%
Mutual fund units/shares	115.5	138.5	280.7	406.0	44.7%
Participations	719.6	1,108.1	1,592.2	1,964.5	23.4%

[63] The cut-off date for data in the "Market Risk" section is 30.06.2023. They consist in supervisory data submitted by credit institutions.
[64] Based on IFRS 9, the assets classified in the following portfolios are fair-valued: Held For Trading – HFT, Fair Valued Through Profit and Loss – FVTPL, Mandatorily Through Fair Value – MTFV and Fair Valued Through Other Comprehensive Income – FVTOCI.

Portfolios held at fair value					
Greek government bonds	10,306.6	7,098.6	4,786.5	5,127.4	7.1%
of which Treasury Bills	*2,906.6*	*1,458.5*	*2,433.2*	*2,960.9*	*21.7%*
Corporate bonds	1,796.8	2,449.6	1,312.6	1,069.4	-18.5%
Equities	492.4	679.0	470.6	493.6	4.9%
Mutual fund units/shares	115.5	138.5	280.7	406.0	44.7%

Source: Bank of Greece.

Exposure to corporate bonds

During the first half of 2023, the value of corporate bonds held by banks increased from €3.4 billion to €3.6 billion. However, the carrying amount of fair-valued corporate bonds fell by 19% to €1.1 billion, from €1.3 billion in December 2022, inter alia due to a decline in bond prices. Therefore, fair-valued corporate bonds as a percentage of the banking sector's total assets fell to 0.37% in June 2023, from 0.44% in December 2022.

Exposure to equities, mutual funds and participating interests

The value of equity securities, mutual funds and participating interests held by the banking sector during the first half of 2023 increased as a percentage of total bank assets. Specifically, in June 2023, banks held equity securities, participating interests and mutual fund shares/units with a total value of €2.9 billion, i.e. 1% of the banking sector's total assets, compared with €2.3 billion at the end of December 2022, i.e. 0.8% of total assets (see Table III.5). Underlying this development was mainly an increase in the Greek banking sector's participating interests during the second half of the year, in particular an increase in a significant bank's stake in a non-financial corporation.

Exposure to foreign exchange risk

Banks' open foreign exchange position[65] amounted to €1 billion in June 2023, increased by €54 million compared to December 2022. Greek banks mainly have open foreign exchange positions in US dollars (USD) €219 million, in pounds sterling (GBP) €91 million and in Swiss francs (CHF) €62 million. In addition, Greek banks are exposed to the local currencies of countries where their foreign subsidiaries are located, the foreign exchange risk of which is managed and hedged through positions in derivative products at the parent bank level. Compared to December 2022, the exposure in US dollars increased by €28 million, in Swiss francs by €27 million and in pounds sterling by €80 million.

Interest rate sensitivity of debt securities and derivatives

From the analysis of the interest rate risk of the securities and derivatives portfolio of the banking sector, it follows that an increase in interest rates by 1 b.p. (PV01) for fair-valued portfolios, whose fair value amounts to €11.5 billion as of June 2023, would cause a loss of €12.2 million for all Greek banks. For all portfolios of securities and derivatives, i.e. assets valued both at fair value and at amortised cost, an increase in interest rates by 1 b.p. implies losses amounting to

[65] For the calculation at system level, opposite positions in the same currency in different credit institutions are not netted. In addition, for the calculation of the open foreign exchange position, the larger of the buy (long) and sell (short) positions per currency is considered.

€22.4 million, as of June 2023. Likewise, an increase in credit spreads by 1 b.p. (CS01) would result in a loss of €3.3 million for fair-valued portfolios, while for all portfolios the potential loss would amount to €37.7 million. Banks hold a portfolio of interest rate derivatives for hedging purposes, mostly simple in structure, that are typically cleared through central counterparties or involve bilateral transactions governed by standardised counterparty credit risk collateral exchange agreements, which mitigate the interest rate risk assumed.

Capital requirements for market risk

Total capital requirements for market risk increased to €271.4 million in June 2023 (2.5% of total capital requirements), from €230.4 million at the end of December 2022 (2.1% of total capital requirements). This rise is mainly attributable to increased capital requirements for foreign exchange risk. Capital requirements are broken down as follows: 52% for positions in trading debt instruments, 8% for positions in equity securities, 25% for positions in foreign exchange and 15% for positions in commodities. Capital requirements to cover credit valuation adjustment (CVA) risk for the entire banking sector amounted to €45.2 million in June 2023, compared with €40.2 million in December 2022.

2.4 INTERNATIONAL ACTIVITY

In 2023, significant activities were observed in terms of the international presence of Greek banking groups. On the one hand, Eurobank further strengthened its international presence by focusing on markets that are considered to be of strategic importance. In this vein, it completed the acquisition of BNP Paribas Personal Finance Bulgaria in May 2023 and announced in August the signing of agreements for a significant increase of its participation in Hellenic Bank in Cyprus to 55.3%.[66] On the other hand, within the framework of a broader strategic cooperation with the Italian UniCredit Group, Alpha Bank announced in October 2023 its intention to merge their Romanian subsidiaries for a cash consideration of €300 million and retain 9.9% of the combined entity share capital.[67]

Greek banks' assets abroad stood at €35.2 billion in June 2023, up by 1.2% from December 2022, while international activities increased to 11.1% of the banking sector’s total assets on a consolidated basis in June 2023, from 10.6% in December 2022.[68]

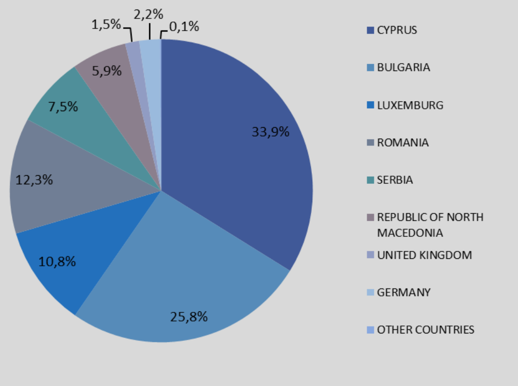
[66] According to Eurobank's announcements on August 23 and 25, the increase of Eurobank's participation from 29.2% to 55.3% in Hellenic Bank will take place after the completion of (a) the acquisition of a 7.2% stake from the transaction with Wargaming Group Limited and pension funds and (b) the acquisition of a 17.3% stake from Poppy S.à r.l and a 1.6% stake from Senvest Management LLC.

[67] Earlier in 2023, Alpha Bank had announced the signing of an agreement for the acquisition of the activities of Orange Money Romania, which included a business transfer to Alpha Bank of the total consumer portfolio of Orange Money Romania, including the digital products of the credit card portfolio and its employees.

[68] According to supervisory data submitted for the activity of credit institutions abroad through branches and subsidiaries in the context of Bank of Greece Governor's Act 2651/20.01.2012. The analysis in this section concerns only the banking subsidiaries and branches abroad.

Broken down by region, South-East Europe (SE Europe)[69] accounts for 85.4% of the total assets of international activities, mostly located in Cyprus and Bulgaria (see Chart III.22). Financial centres, namely Luxembourg, the United Kingdom and Germany, represent 14.5% thereof, led by Luxembourg. The share of SE Europe (where the highest number of business units and staff are concentrated) in Greek banks' deposits and loans abroad is even larger (89.3% and 85.9% respectively, see Table III.6).

Chart III.22 Distribution of Greek banking groups' assets abroad (June 2023, percentage %)



Source: Bank of Greece.

Profitability of bank subsidiaries and branches abroad increased significantly to €330 million and accounts for 13.7% of banking groups' pre-tax profits on a consolidated basis. Subsidiaries in Cyprus and Bulgaria made a large contribution to profitability, with a smaller contribution from the activities in Romania, Republic of North Macedonia, Luxembourg and Egypt.

Table III.6 Key figures of Greek banking groups abroad (June 2023)

(amounts in million euro)

Country	Assets	Gross Loans	Loans in arrears	% of loans in arrears	Deposits	Number of business units	Number of employees
SE Europe	**30,083**	**16,573**	**568**	**3.4%**	**23,743**	**531**	**9,012**
Bulgaria	9,089	6,316	206	3.3%	7,339	223	3,714
Republic of North Macedonia	2,073	1,526	89	5.8%	1,572	61	940
Cyprus	11,930	3,949	123	3.1%	9,974	23	992
Romania	4,352	3,083	61	2.0%	3,164	132	1,918
Serbia	2,639	1,699	90	5.3%	1,695	92	1,448
Financial centres	**5,108**	**2,713**	**11**	**0.4%**	**2,830**	**4**	**196**
Germany	773	674	1	0.1%	91	1	14
United Kingdom	528	375	0	0.0%	420	1	66
Luxemburg	3,807	1,665	10	0.6%	2,319	2	116
Other countries[1]	**52**	**1**	**1**	**81.6%**	**2**	**1**	**70**
TOTAL	**35,243**	**19,287**	**580**	**3.0%**	**26,575**	**536**	**9,278**

Source: Bank of Greece

[1] Other countries include Egypt.

Loans in arrears[70] rose to €580 million in June 2023, from €570 million in December 2022 (up by 2% on a comparable basis), representing 3% of the loan book. More specifically, as a percentage of total loans, the ratio of loans in arrears was 2.2% for corporate loans, 5.2% for consumer loans

[69] The activity of Greek banks in SE Europe concerns the following countries: Bulgaria, Republic of North Macedonia, Cyprus, Romania and Serbia.

[70] Defined as loans more than 90 days past due.

and 3.3% for mortgage loans. Corporate loans in arrears declined by 7%, while consumer loans in arrears increased by 12% and mortgage loans in arrears by 7% on a comparable basis. The provisioning coverage ratio of loans in arrears rose further to 87% (December 2022: 82%).

In terms of liquidity, the "loan-to-deposit" ratio increased marginally (June 2023: 72.6%, December 2022: 71.1%). More specifically, deposits grew by 4%, while lending increased by 6% compared to December 2022 on a comparable basis.

The outlook for international activities in the present conjuncture is surrounded by uncertainty, considering the increased geopolitical risks, the slowdown of economic activity in many European countries and the contractionary monetary and fiscal policy. Credit risks are lurking, especially in activities sensitive to interest rate hikes, such as real estate management, consumer and mortgage loans. It should be mentioned, however, that the international activities of Greek banking groups contribute to the diversification of their sources of income and to the reduction of concentration risk.

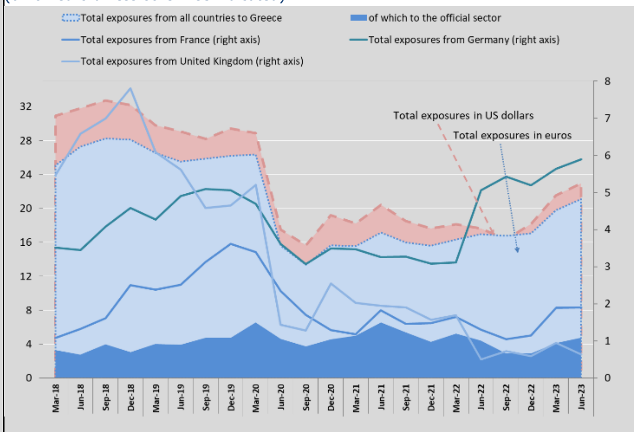
Box III.1 Exposures of foreign banks to Greece and of Greek banks abroad

The consolidated total exposures from all countries to Greece amounted to €21.1 billion in June 2023. Compared to the five-year high that was reported in the third quarter of 2018 (September 2018: €28.2 billion), they have decreased by 25%, due to differences in asset valuations,[1] as well as seasonal factors.[2]

However, total exposures from all countries to the official sector in Greece[3] increased at a much higher rate compared to total exposures in the first half of 2023, regardless of the effect of the €/$ exchange rate, and amounted to €4.7 billion in June 2023, from €2.9 billion in September and December 2022 (see Chart 1). During this period, the Greek State issued a significant amount of bonds and T-bills, which allowed it to fully cover its financial needs. It is pointed out that the prospects for further financing of the Greek State through new issuances are favorable as the DBRS rating agency on 8 September 2023 upgraded the country’s credit rating to investment grade (BBB(low)), with stable prospects, increasing expectations for further upgrades from other rating agencies as well. Indeed, on 21 October 2023, the rating agency S&P Global also upgraded Greece's credit rating to investment grade BBB- with a stable outlook, citing the improvement in the country's fiscal position. Further upgrades by other rating agencies would be very important, as they would contribute to a very large expansion of the investment base for Greek government securities, with the result of containing the upward effects exerted on their yields by the tightening of international monetary and financial conditions.

Chart 1 Total exposures of banks from all countries to Greece on an ultimate risk basis (March 2018 – June 2023)

(billion euro unless otherwise indicated)

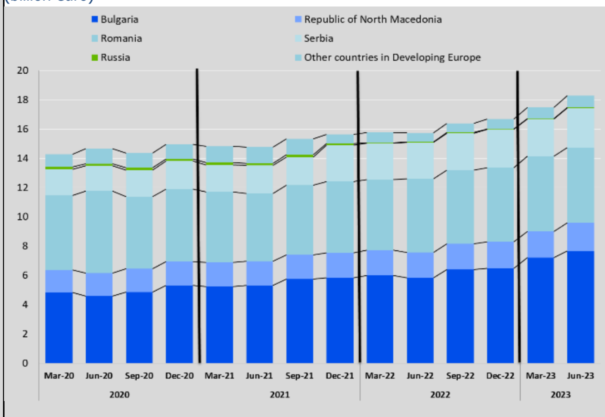


Source: BIS database, Consolidated Banking Statistics.

Regarding the exposures of Greek banks abroad, there was an increase in the exposures of Greek banks to Emerging Europe,[4] which reached €18.3 billion in June 2023, from €16.7 billion in December 2022. In particular, the first half of 2023 saw a significant increase in exposures to Bulgaria,[5] which reached €7.7 billion in June 2023, from €6.5 billion in December 2022, while a smaller increase was observed in exposures to North Macedonia (to €1.9 billion from €1.8 billion) and to Serbia (to €2.7 billion from €2.6 billion), while exposures to Romania remained at high levels and amounted to €5.1 billion in June 2023. The exposures of Greek banks to Russia continued to remain negligible and amounted to €32.3 million in June 2023 (see Chart 2).

Chart 2 Evolution of exposures of Greek banks to Emerging Europe (March 2020 – June 2023)

(billion euro)

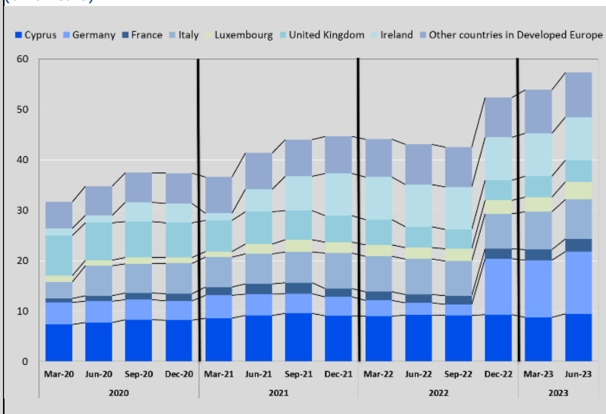


Source: BIS database, Consolidated Banking Statistics.

The exposures of Greek banks to Developed Europe[6] increased to €57.3 billion in June 2023, from €52.3 billion at the end of 2022, mostly as a result of an increase of exposures to Germany[7] to €12.3 billion in June 2023, from €11.1 billion in December 2022,[8] to Italy to €7.8 billion from €6.9 billion and to Luxembourg to €3.5 billion from €2.6 billion. On the other hand, a small decrease was observed in exposures to Ireland to €8.5 billion in June 2023 from €8.6 billion in December 2022. Exposures to Cyprus remained at high levels and reached €9.5 billion in June 2023, from €9.3 billion in December 2022, while exposures to France increased to €2.5 billion in June 2023, from €2.0 billion in December 2022 (see Chart 3).

Chart 3 Evolution of exposures of Greek banks to Developed Europe (March 2020 – June 2023)

(billion euro)



Source: BIS database, Consolidated Banking Statistics.

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[1] The fourth quarter of 2022 and the first half of 2023 saw a significant appreciation of the euro against the dollar, as a result of which exposures in USD increased at a faster rate compared to the corresponding exposures in euros.
[2] Statistical release: BIS international banking statistics and global liquidity indicators at end-June 2023; BIS, Statistical release - banking and GLI 2023Q1 (bis.org); Statistical release: BIS international banking statistics and global liquidity indicators at end-December 2022.
[3] https://www.bis.org/statistics/glossary.htm?&selection=272&scope=Statistics&c=a&base=term Official Sector: Bank for International Settlements (BIS) classification that is used in Consolidated Banking Statistics (CBS) and refers collectively to general government, central banks and international organisations.
[4] Albania, Belarus, Bulgaria, Croatia, Czech Republic, Hungary, Latvia, Lithuania, Republic of North Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Turkey, and Ukraine.
[5] It should be noted that Eurobank completed the acquisition of BNP Paribas Personal Finance Bulgaria in May 2023.
[6] Austria, Belgium, Cyprus, Denmark, Finland, France, Germany (including the ECB), Ireland, Italy, Luxembourg, Malta, the Netherlands, Spain, Sweden, Switzerland (including the Bank for International Settlements) and the United Kingdom.
[7] The increase of exposures to Germany (which includes the ECB) is due to a transfer of a large part of the exposures of a significant Greek bank from Greece to Germany in 2022, as this bank deposited its excess liquidity in the ECB's deposit facility. It should be noted that the interest rate on this facility was raised from 0.75% on 14.9.2022 to 2% on 21.12.2022, to 3% on 22.3.2023 and to 4% in 20.09.2023.
[8] Exposures to Germany include the ECB.

3. RESILIENCE

3.1 PROFITABILITY

In the first half of 2023, Greek banks recorded profits after taxes and discontinued operations amounting to €1.9 billion, compared with profits of €2.3 billion in the corresponding period of 2022 (see Table III.7). The increase in net interest income, stemming from the increase in key interest rates, had a positive contribution to profitability, in contrast to the negative impact from the significant decrease in income from financial operations.

Table III.7 Financial results of the Greek banking sector

(in million euro)

	First half 2022	First half 2023	Change (%)
Operating income	**5,741**	**5,327**	**-7.2**
Net interest income	2,546	4,071	59.9
- Interest income	3,404	6,449	89.5
- Interest expenses	-858	-2,377	>100
Net non-interest income	3,195	1,255	-60.7
- Net fee income	822	869	5.7
- Income from financial operations	1,736	176	-89.8
- Other income	637	210	-67.0
Operating costs	**-1,886**	**-1,948**	**3.3**
Staff costs	-878	-948	8.0
Administrative costs	-715	-694	-2.8
Depreciation	-293	-306	4.3
Net income (operating income less costs)	**3,855**	**3,378**	**-12.4**
Impairment charges	-998	-761	-23.8
Other impairment losses	-137	-187	36.5
Non-recurring profits/losses	-116	-14	-88.3
Pre-tax profits (+)/losses (-)	**2,604**	**2,417**	**-7.2**
Taxes	-516	-532	3.2
Profits(+)/Losses(-) from discontinued operations	239	-27	-
After tax profits (+)/losses (-)	**2,327**	**1,857**	**-20.2**

Source: Financial statements for the four significant institutions (SIs) and supervisory data for the less significant institutions (LSIs).

More specifically, during the first half of 2023, the operating income of Greek banks decreased by 7.2% compared to the first half of 2022. Net interest income rose significantly by 59.9%. Interest income was supported by the increase in key interest rates, as the biggest part of the loan portfolio carries variable interest rates. At the same time, the increase in interest expenses is due to an increase in the cost of deposits, mainly related to term deposits; higher interest expenses for derivative products; and a rise in the cost of funding through the issuance of bonds. Consequently, the net interest margin stood at 2.6%, substantially up compared to the corresponding period of 2022, remaining higher than the average of banking groups in the Banking Union directly supervised by the ECB.

Net fee and commission income increased by 5.7%, supported by fees from portfolio management and financial guarantees given, which counterbalanced the decrease stemming from the carve-out and sale of the payment acquiring business and the reduction in fees from new loan disbursements. As a result, core operating income (i.e. net interest income and net fee and commission income) grew substantially, by 46.7%. The significant reduction in income from financial operations during the first half of 2023 is due to the fact that the corresponding income recorded in the first half of 2022 included non-recurring items, such as profits from transactions in Greek Government bonds, derivative and hedging products and the gains from the carve-out and sale of the payment acquiring business by all four significant banks.

Operating costs increased by 3.3%, mainly due to the increase in staff costs as a result of the implementation of voluntary retirement schemes. As a consequence, Greek banks' cost-to-income ratio deteriorated in the first half of 2023 (June 2023: 36.6%, June 2022: 32.8%), still remaining at satisfactory levels and significantly lower than the European average (57.3%, see Table III.8).

Table III.8 Profitability indicators

(%)

	Greece		Banking Union[1]
	First half 2022	First half 2023	First half 2023
Net interest margin	1.5	2.6	1.5
Operating costs/Total assets	1.1	1.2	1.3
Cost-to-income ratio	32.8	36.6	57.3
Cost of credit risk	1.3	1.0	0.5
Return on Assets (RoA)[2,3]	1.4	1.2	0.7
Return on Equity (RoE)[2, 3]	18.3	12.5	10.0

Sources: Financial statements for the four significant institutions (SIs) and supervisory data for the less significant institutions (LSIs), ECB Statistical Data Warehouse (SDW) – Supervisory Banking Statistics.

[1] Banking groups in the Banking Union directly supervised by the ECB.

[2] Indicators are calculated using total assets at the end of the corresponding period.

[3] RoA and RoE indicators are calculated using profits/losses after tax and discontinued operations.

The cost of credit risk[71] declined further in June 2023. In particular, impairment charges stood at €761 million, compared with €998 million in the first half of 2022. As a result, Greek banking groups recorded profit after taxes and discontinued operations and the RoA and RoE ratios amounted to 1.2% and 12.5% respectively.

As regards the profitability outlook, operating income is expected to increase further in 2023, but there are still challenges over the medium-to-long term. More specifically, in the short term banks' net interest income is expected to rise further[72] as a consequence of the increase in ECB key interest rates, combined with new loan disbursements, mainly to businesses in the context of the utilisation of the Recovery and Resilience Facility (RRF) resources. However, in the medium term, banks' funding costs are expected to grow, due to the gradual increase in deposit rates and the already increased cost of bond issuances needed to meet supervisory requirements (e.g. MREL), which is expected to slightly de-escalate after the expected achievement of investment grade by significant credit institutions. At the same time, the slowdown in economic activity, the impact on households' disposable income from persistently high inflation, compounded by the

[71] Cost of credit risk is the ratio of credit risk provisions over loans after accumulated provisions.

[72] The positive impact on banks' net interest income is already largely reflected in Q2 2023 results, which are significantly higher than previous quarters, thus creating a higher base for 2023 results.

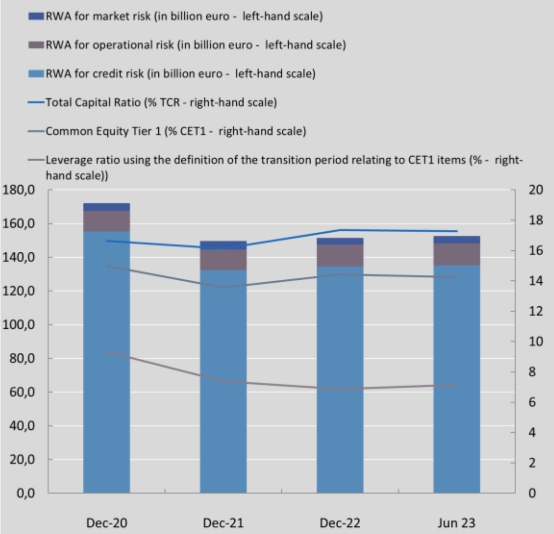
increased servicing cost of already disbursed loans, will put pressure on households' and businesses' financial condition and may increase banks' cost of credit risk. Finally, sustainable profitability also hinges on banks achieving their credit expansion targets.

3.2 CAPITAL ADEQUACY

The capital adequacy of Greek banking groups declined slightly in the first half of 2023 compared to December 2022, mainly as a result of an increase in risk-weighted assets.

In particular, in June 2023, the Common Equity Tier 1 ratio (CET1 ratio) on a consolidated basis dropped to 14.2%, from 14.5% in December 2022 (see Chart III.23) and the Total Capital Ratio (TCR) fell to 17.3%, from 17.5% respectively. It is noted that these indicators are below the European Union average (June 2023[73]: CET1 16% and TCR 20.0%).

Chart III.23 Capital adequacy and leverage indicators, and breakdown of RWAs of Greek banking groups (December 2020 – June 2023)



Source: Bank of Greece.

In more detail, Greek banks' prudential own Funds remained almost unchanged in June 2023 (decreased by 0.3% compared to December 2022) at €26.3 billion as profits after tax and discontinued operations, combined with capital enhancement through bond issues accounted as equity, more than offset the negative impact from the phasing-in of IFRS 9 and the amortisation of Deferred Tax Credits (DTCs). Nonetheless, the quality of Greek banks' prudential own funds remains low: in June 2023, DTCs amounted to €13.4 billion, representing 51% of total prudential own funds (down from 52% in December 2022). Moreover, deferred tax assets (DTAs) of €2.4 billion are included in Greek banking groups' prudential own funds (with a fully phased-in impact of IFRS 9), accounting for around 9% of their total prudential own funds.[74] It is worth mentioning that in February 2023, Alpha Bank issued Additional Tier 1 instruments of €400 million in order to strengthen its regulatory capital and two months later, in April 2023, Attica Bank completed a €473 million share capital increase.

Risk-weighted assets increased marginally by 0.8% in June 2023 compared to December 2022. In more detail, risk-weighted assets for credit risk increased by 0.6% due to Eurobank's transition from the Internal Ratings Based capital requirements calculation approach (IRB) to the Standardised Approach, the increase in securities positions and credit growth. On the contrary, the completion by Alpha Bank of a synthetic securitisation transaction of business loans had a reducing effect. Risk-weighted assets for credit risk account for 89% of total risk-weighted assets, which is largely explained by Greek banks' business model, focusing on traditional banking and mainly lending activities. At the same time, risk-weighted assets for operational risk remained unchanged as they are calculated only once a year according to the Standardised approach, remaining the

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[73] Source: European Banking Authority, Risk Dashboard, Q2 2023 EBA Dashboard - Q2 2023.pdf (europa.eu)

[74] Although DTAs of €4.2 billion are not included in banks' prudential own funds, sufficient future profitability is needed in order for them not to pose risks to banks' capital base in the medium-to-long term.

second largest part of total risk-weighted assets and corresponding to 8.6% of the total. Finally, risk-weighted assets for market risk increased by 9.7% in June 2023 compared to December 2022, but still account for the smallest part of total risk-weighted assets (2.7%).

Furthermore, the leverage ratio[75] increased to 7.1% in June 2023 from 6.9% in December 2022, mainly due to a marginal increase of Tier I Capital (€73 million) and secondarily due to a remarkable decrease in the Total Leverage exposure measure (due to loan sales, write-offs etc.).

As regards the outlook for Greek banks' capital adequacy, some of the parameters affecting it are the following: (a) possible constraints on internal capital generation capacity amid growing macroeconomic challenges; (b) the implementation of capital enhancement actions (e.g. synthetic securitisations, share capital increases for the less significant banks[76]) and the cost of issuing capital instruments (Additional Tier 1, Tier 2) to meet regulatory capital requirements,[77] including the cost of issuing MREL-eligible bonds; (c) portfolio quality and its impact on risk-weighted assets; and (d) the evolution of new loan disbursements to households and non-financial corporations.

[75] Defined as Tier 1 capital (using the transitional definition of Tier 1 capital) to its Leverage Exposure measure as calculated according to CRR Regulations 575/2013 and 2019/876.

[76] In September 2023, Optima Bank carried out a share capital increase of €150.9 million with a parallel listing of its shares on the Athens Stock Exchange

[77] National Bank of Greece issued in September 2023 a Tier 2 bond of €500 million with a maturity of 10.25 years and an interest rate of 8%

IV. MACROPRUDENTIAL POLICY

The Bank of Greece, as part of its supervisory tasks, monitors developments in the financial system and identifies potential systemic risks. The Bank subsequently designs and implements measures to prevent the build-up of systemic risks and strengthen the resilience of the financial system. Macroprudential policy is the set of such measures, whose ultimate objective is to safeguard financial stability. Macroprudential measures pertain to the financial system as a whole or significant parts thereof, whereas microprudential supervision concerns individual financial institutions. In the current macroeconomic and financial environment, the importance of an appropriate macroprudential policy to avoid the build-up of systemic risks is gradually becoming apparent. Implementing appropriate macroprudential policy measures, mainly in the form of capital buffers over the medium term, will help create sufficient macroprudential space that will positively affect financial stability.

1. SETTING THE COUNTERCYCLICAL CAPITAL BUFFER RATE

The countercyclical capital buffer (CCyB) aims to address the procyclicality of credit growth and leverage, i.e. to ensure an appropriate level of credit growth and leverage in both the upward and the downward phase of the business cycle. The CCyB rate ranges from 0% to 2.5%, calibrated in steps of 0.25 percentage points or multiples of 0.25 percentage points.[78] The CCyB consists of Common Equity Tier 1 (CET1) capital and is expressed as a percentage of the total risk exposure amount of credit institutions and investment firms that are exposed to credit risk in Greece.[79]

In an economic upswing, setting the CCyB rate at a level above 0% contributes to building up a capital buffer in excess of the minimum requirements applicable in the context of microprudential supervision, thus achieving the prevention and mitigation of excessive credit growth and leverage. Conversely, in an economic downturn, reducing the CCyB rate can encourage credit provision to the real economy, thereby softening the impact of the downturn.

The Bank of Greece assesses, on a quarterly basis, the intensity of cyclical systemic risk and the appropriateness of the CCyB rate for Greece, in accordance with Bank of Greece Executive Committee Act 202/1/11.3.2022, setting or adjusting the CCyB rate, if necessary. This rate was set for the first time in the first quarter of 2016 and maintained at 0% ever since.

The appropriateness of the CCyB rate is assessed taking into consideration the "standardised credit-to-GDP gap", as defined in Recommendation ESRB/2014/1, which reflects the deviation of the ratio of credit to GDP from its long-term trend. In more detail, initially the credit-to-GDP ratio is calculated as the sum of short-term and long-term debt securities and loans (i.e. credit), as reported in the financial liabilities of the private non-financial sector, to the sum of the figures of the last four quarterly observations of GDP (calculated in nominal values, non-seasonally adjusted). Subsequently, the long-term trend of the credit-to-GDP ratio is calculated by applying the Hodrick-Prescott filter. The "standardised credit-to-GDP gap" is the difference between the credit-to-GDP ratio and its long-term trend. A high positive value of the "standardised credit-to-GDP gap" indicates excessive credit growth relative to GDP growth, which poses increased risks to the financial system, thus requiring the setting of the CCyB rate at a level above 0%.

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[78] For the purposes of para. 2 of Article 130 of Law 4261/2014, the designated authority may set the CCyB rate in excess of 2.5%, where justified on the basis of the considerations set out in para. 3 of Article 127 of Law 4261/2014.

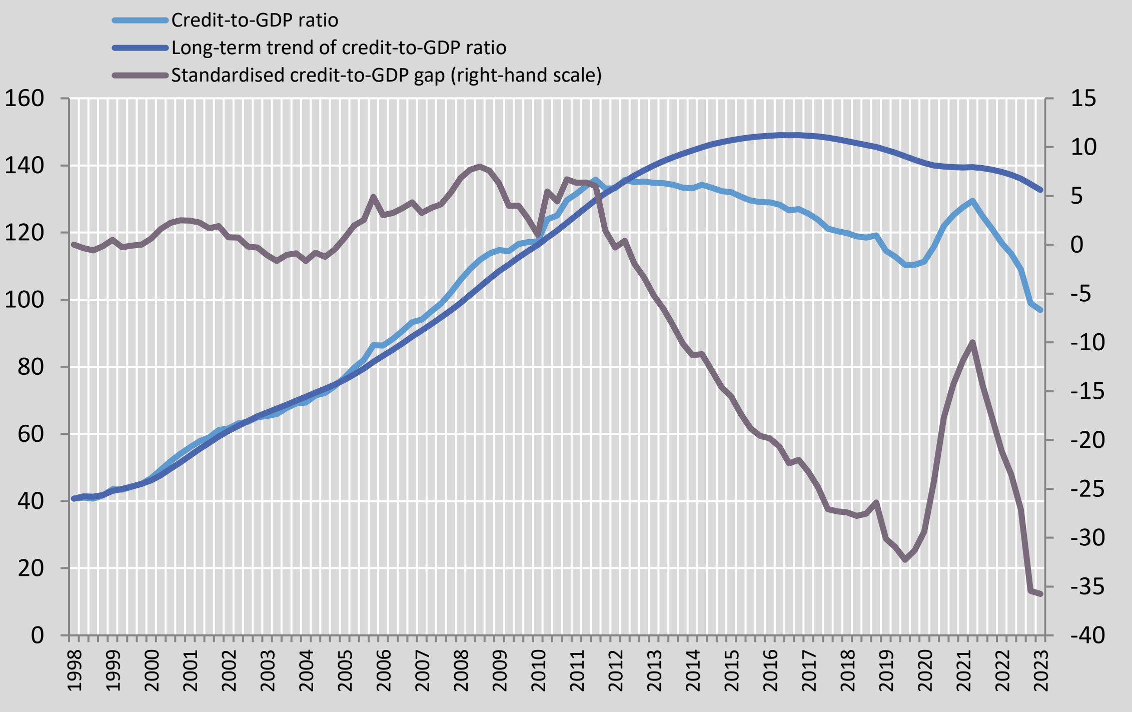
[79] The total risk exposure amount is calculated in accordance with Article 92(3) of Regulation (EU) No 575/2013.

In addition to the "standardised credit-to-GDP gap", the Bank of Greece also examines a number of additional indicators to monitor the build-up of cyclical systemic risk.[80] These indicators are grouped into six regions:

- Credit developments, where the credit to the domestic private sector to GDP ratio at current prices, the growth of loans to households and the growth of credit to non-financial corporations are monitored.
- Private sector indebtedness, where the growth of credit to the domestic private sector and the credit to non-financial corporations to GDP ratio, individuals' and private non-profit institutions' debt-to-income ratio and debt-service-to-income ratio at origination (DSTI-O) for loans collateralised by residential real estate are monitored.
- Potential overvaluation of property prices, where the rise in the price index of residential and commercial real estate (offices and stores) is monitored.
- The strength of bank balance sheets, where the net interest margin (NIM), the growth of risk-weighted assets, the leverage ratio and the loan-to-deposit ratio are monitored.
- External imbalances, as reflected in the evolution of the current account balance to GDP ratio.
- Potential mispricing of risk, where the ATHEX Composite Share Price Index and the FTSE/ATHEX bank index are monitored.

Chart IV.1 Standardised credit-to-GDP gap, credit-to-GDP ratio (non-seasonally adjusted) and long-term trend of credit-to-GDP ratio (Hodrick Prescott one-sided filter)

(quarterly data, Q1 1998 – Q1 2023)



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

In Greece, the "standardised credit-to-GDP gap" remains in negative territory since 2012. In the first quarter of 2023, it stood at -35.8 percentage points, compared with -35.5 in the previous

[80] For definitions, see Bank of Greece Executive Committee Act 202/2/11.3.2022.

quarter (see Chart IV.1), as a result of a rise in nominal GDP. It should be noted that the first quarter of 2023 is the last available quarter for the financial liabilities of the private non-financial sector before setting the CCyB rate for the fourth quarter of 2023. For this value of the "standardised credit-to-GDP gap", the benchmark buffer rate (buffer guide), as defined in para. 3(a) of recommendation B of Recommendation ESRB/2014/1, is zero.

The analysis of the additional indicators examined by the Bank of Greece points to emerging cyclical systemic risks in certain areas, such as credit to non-financial corporations, residential real estate prices and the current account. Overall, however, it confirms that there is no excessive credit growth in Greece and is consistent with maintaining the countercyclical capital buffer rate at 0% in the second quarter of 2023.

Consequently, the Bank of Greece maintained the CCyB rate at "zero percent" (0%) in the first and the second quarter of 2023. The CCyB rate was set at the lowest possible level and therefore does not affect the capital requirements for credit institutions.

2. IDENTIFICATION OF THE OTHER SYSTEMICALLY IMPORTANT INSTITUTIONS IN GREECE (O-SIIs) AND SETTING OF THE O-SII BUFFER RATE

Under Law 4261/2014 (Article 124), the Bank of Greece is responsible for identifying other systemically important institutions (O-SIIs)[81] among institutions authorised in Greece. O-SIIs are identified on an annual basis so as to consider the application of an O-SII buffer and the calibration thereof.

An O-SII buffer aims to reduce moral hazard and strengthen the resilience of other systemically important institutions. In this context, moral hazard arises when an institution expects not to be let to fail given its systemic importance ("too big to fail"). Imposing additional capital requirements in the form of an O-SII buffer limits excessive risk-taking by a systemically important institution through higher capital requirements, thus reducing moral hazard by strengthening the systemically important institution's capital buffer to absorb potential losses and thus reduces contagion risk.

The O-SII buffer consists of Common Equity Tier 1 (CET1) capital and its rate is set at a level of up to 3% of the total risk exposure amount.[82] The O-SII buffer is set on a solo, sub-consolidated or consolidated basis, as applicable, and its rate is reviewed at least once a year.

The Bank of Greece has adopted the European Banking Authority (EBA) guidelines in relation to the assessment of O-SIIs (EBA/GL/2014/10),[83] as they were adopted by Bank of Greece Executive Committee Act 56/18.12.2015. According to the EBA guidelines, the competent authorities should, for each bank falling under their jurisdiction, calculate relative scores indicating the systemic importance of each bank based on specific criteria. These criteria relate to size, importance for the economy, complexity/cross-border activity and interconnectedness of the institution with the financial system. These four criteria each consist of one or more mandatory indicators which will be used as a minimum by the competent authorities in calculating the score of each institution. The score of each institution is expressed in basis points (bps). Each competent authority sets a

[81] In contrast with Global Systemically Important Institutions – G-SIIs.
[82] It should be noted that an O-SII buffer rate higher than 3% is subject to European Commission authorisation.
[83] Guidelines on the criteria to determine the conditions of application of Article 131(3) of Directive 2013/36/EU (CRD) in relation to the assessment of other systemically important institutions (OSIIs), EBA, 16 December 2014.

threshold in bps; institutions with a score equal to or higher than that should be identified as O-SIIs. This threshold can be set from 275 bps up to 425 bps to take into account the specificities of the Member State's banking sector and to ensure the homogeneity of the group of O-SIIs designated in this way based on the O-SIIs' systemic importance. The 350 bps is proposed as an indicative threshold. The competent authorities may designate further relevant entities as O-SIIs based on additional qualitative and/or quantitative indicators of systemic importance.

In calculating the systemic importance scores of Greek banks, the Bank of Greece used only the mandatory indicators (see Table IV.1) and selected a threshold of 350 bps.

Table IV.1 Mandatory indicators for the scoring of O-SIIs in Greece

Criterion	Indicators	Weight
Size	Total assets	25%
Importance	Value of domestic payment transactions	8.33%
	Private sector deposits from depositors in the EU	8.33%
	Private sector loans to recipients in the EU	8.33%
Complexity/Cross-border activity	Value of OTC derivatives (notional)	8.33%
	Cross-jurisdictional liabilities	8.33%
	Cross-jurisdictional claims	8.33%
Interconnectedness	Intra-financial system liabilities	8.33%
	Intra-financial system assets	8.33%
	Debt securities outstanding	8.33%

As a result, the following institutions were identified as O-SIIs for 2023 at consolidated level:

- Alpha Services and Holdings S.A.
- Eurobank Ergasias Services and Holdings S.A.
- National Bank of Greece S.A.
- Piraeus Financial Holdings S.A.

and respectively the following institutions at solo level:

- Alpha Bank S.A.
- Eurobank S.A.
- National Bank of Greece S.A.
- Piraeus Bank S.A.

The above four credit institutions identified as O-SIIs represent approximately 95% of the total assets of the domestic banking sector.

Pursuant to Bank of Greece Executive Committee Act 221/2/17.10.2023, the Bank of Greece decided to set the O-SII buffer rate for 2024 as follows:

- at 1.25% for Eurobank Ergasias Services and Holdings S.A. at consolidated level, and
- at 1.00% for the following O-SIIs:
  - Alpha Bank S.A. at solo level,
  - Alpha Services and Holdings S.A. at consolidated level,
  - Eurobank S.A. at solo level,

- National Bank of Greece S.A. at solo and consolidated level,
- Piraeus Bank S.A. at solo level, and
- Piraeus Financial Holdings S.A. at consolidated level.

V. OTHER SECTORS OF THE FINANCIAL SYSTEM

1. STRUCTURE OF THE DOMESTIC FINANCIAL SYSTEM

In the first half of 2023, the structure of the domestic financial system showed no significant changes compared to end-2022, with banks remaining the main pillar (see Table V.1). In particular, the assets of credit institutions amounted to 87.2% of the total assets of the financial system, with Greek commercial banks representing 85.3%, while cooperative banks and branches of foreign banks account for only 0.5% and 1.3%, respectively. The total banking assets decreased by 4.1% in H1 2023, mainly due to the reduction of the cash reserves that the credit institutions held at the Bank of Greece, as a result of the repayment of their financing from the Eurosystem.[84] In addition, the decrease in loans net of provisions contributed to the decrease in total assets. The four significant banks continue to hold the largest share of the industry, accounting for approximately 94.3% of total banking assets.

Table V.1 Structure of the domestic financial system

(amounts in million euro)

	2019		2020		2021		2022		1H2023	
Assets		**%**		**%**		**%**		**%**		**%**
Credit institutions	**247,267**	**87.3%**	**277,335**	**87.9%**	**302,678**	**88.0%**	**306,119**	**88.5%**	**293,157**	**87.2%**
Greek commercial banks	*240,691*	*85.0%*	*271,791*	*86.2%*	*296,403*	*86.2%*	*299,284*	*86.5%*	286,913	85.3%
Cooperative banks	*3,160*	*1.1%*	*1,727*	*0.5%*	*1,786*	*0.5%*	*1,750*	*0.5%*	1,770	0.5%
Foreign banks' branches	3,417	1.2%	3,818	1.2%	4,490	1.3%	5,085	1.5%	4,474	1.3%
Institutional investors	**27,750**	**9.8%**	**29,251**	**9.3%**	**32,516**	**9.5%**	**31,364**	**9.1%**	**34,767**	**10.3%**
Insurance companies	18,882	6.7%	19,976	6.3%	20,468	6.0%	18,698	5.4%	19,474	5.8%
Pension funds	1,612	0.6%	1,698	0.5%	1,887	0.5%	1,800	0.5%	1,937	0.6%
Collective investment undertakings	7,256	2.6%	7,577	2.4%	10,160	3.0%	10,866	3.1%	13,356	4.0%
Mutual funds	*4,297*	*1.5%*	*4,438*	*1.4%*	*6,247*	*1.8%*	*6,303*	*1.8%*	*8,642*	*2.6%*
Portfolio investment and real estate investment companies	*2,959*	*1.0%*	*3,139*	*1.0%*	*3,913*	*1.1%*	*4,563*	*1.3%*	*4,714*	*1.4%*
Other non-bank institutions	**7,770**	**2.7%**	**7,528**	**2.4%**	**7,184**	**2.1%**	**6,899**	**2.0%**	**7,130**	**2.1%**
Brokerage firms	739	0.3%	753	0.2%	807	0.2%	607	0.2%	966	0.3%
Leasing and factoring companies	6,746	2.4%	6,522	2.1%	6,186	1.8%	6,292	1.8%	6,164	1.8%
Consumer credit and venture capital companies	285	0.1%	253	0.1%	191	0.1%	0	0.0%	0	0.0%
Credit servicing firms	**484**	**0.2%**	**1,223**	**0.4%**	**1,535**	**0.4%**	**1,445**	**0.4%**	**1,189**	**0.4%**
Total	**283,272**	**100%**	**315,338**	**100%**	**343,913**	**100%**	**345,827**	**100%**	**336,243**	**100%**

Source: Bank of Greece

Institutional investors continue to be the second largest sector of the domestic financial system. Insurance undertakings, pension funds and collective investment undertakings are included in this category. In the first half of 2023, institutional investors' assets displayed a marginal increase compared to December 2022 and represented 10.3% of the financial system, with the largest share held by insurance undertakings, with assets of €19.5 billion (5.8% of the system), as well as collective investment undertakings, with assets of €13.4 billion (4% of the system).

Other non-banking institutions (namely, brokerage companies, leasing companies, factoring companies and venture capital companies) continue to hold a small share of the market, standing at 2.1% of the entire financial system.

[84] Through Targeted Longer-term Refinancing Operations (TLTROs III).

Finally, the share of credit servicing firms in the total assets of the financial system remains small, representing just 0.3% of the entire financial system.

2. INSURANCE UNDERTAKINGS

2.1 KEY FIGURES[85]

During the first half of 2023, no significant changes were observed in the structure of the Greek private insurance market. As of 30.6.2023, 35 insurance undertakings[86] were active in the Greek private insurance market, down by one company compared to 31.12.2022. Insurance undertakings can be classified according to the type of license as follows:

- 2 life insurance undertakings;
- 19 non-life insurance undertakings; and
- 14[87] insurance undertakings (composites) writing both life and non-life business (including life insurance undertakings underwriting only non-life business of "Accident" and "Sickness" classes).

Out of the above 35 insurance undertakings, 33 are supervised in accordance with the European Directive "Solvency II", which applies to all Member States since 1.1.2016, while 2 insurance undertakings are excluded, due to their size, from a lot of requirements related to all three pillars of Solvency II.[88]

Out of 33 insurance undertakings subject to the provisions of Solvency II, 12 belong to insurance groups with their parent undertaking in other Member States and 5 to insurance groups subject to the supervision of the Bank of Greece. In addition, 5 insurance undertakings with their head offices in Greece operate in other EU Member States via the freedom to provide services.

Furthermore, according to the most recent data available by the European Insurance and Occupational Pensions Authority (EIOPA), on 31.12.2022, 229 insurance undertakings with head offices in other EU Member States[89] operated in Greece, either under the freedom of establishment (branches) or the freedom to provide services, the financial supervision of which is under the responsibility of the supervisory authorities of their home Member State.

For the year 2022, annual gross written premiums of these undertakings amounted to €288 million for the activity under the freedom of establishment and €1,084 million for the activity under the freedom to provide services, which corresponds to 5% and 18% of the total Greek insurance market. In particular regarding the motor third party liability insurance market, the market share (in vehicle count) of insurance undertakings from other Member States which are writing insurance business in Greece, either under the freedom of establishment (branch) or the freedom to provide services, has increased to 21% in the first half of 2023 (from 20% as at 31.12.2022) (Table V.1).

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[85] The cut-off date for information and data in this chapter is 1.9.2023.

[86] Excluding the mutual insurance undertakings referred to in the first sentence of para. 1 of Article 7 of Law 4364/2016.

[87] As of 1.6.2023, the number stands at 14, due to merger of Allianz Hellas and European Reliance General Insurance Company.

[88] The Bank of Greece, based on the principle of proportionality, has allowed 2 insurance undertakings that meet the required size and operating criteria to be exempted from certain Solvency II provisions regarding the solvency requirements, the system of governance and public disclosure.

[89] Source: European Insurance and Occupational Pensions Authority (EIOPA).

Table V.2 Number of Insurance Undertakings performing activities in Greece	2019	2020	2021	2022	Q1 2023
Life Insurance Undertakings	2	2	2	2	2
Non-Life Insurance Undertakings	19	18	18	19	19
Insurance Undertakings writing both Life and Non-life business	17	17	16	15	14
Total	**38**	**37**	**36**	**36**	**35**
of which *Insurance Undertakings falling within the scope of Directive 2009/138/EC*	*36*	*35*	*34*	*34*	*33*
Branches of insurance undertakings with their head offices in other Member States	23	23	21	20	21
Insurance Undertakings established in other Member States pursuing business under the freedom to provide services or the freedom of establishment	244	253	215	229	N/A

Source: Bank of Greece.

The financial figures presented below concern only 33 undertakings operating in the domestic insurance market which are subject to the supervision of the Bank of Greece according to Solvency II requirements.

The domestic insurance market is characterised by significant concentration, especially with regard to the undertakings that carry out life insurance business and to the undertakings that carry out both life and non-life insurance business. The 5 largest insurance undertakings hold 86% of the relevant market, in terms of technical provisions, while the 5 largest insurance undertakings operating in non-life insurance business, in terms of gross written premiums, hold a share of 55% of the relevant market.

Gross written premiums of the life insurance business[90] in the first half of 2023 amounted to €1.3 billion, up by 12% compared to the previous year. Of this amount, €0.5 billion is related to insurance products linked to investments (42% of total gross written premiums of life business, compared with 41% in the first half of 2022, significantly up by 13%). In parallel, there was a decrease of 7% in gross written premiums of insurance products with profit participation features, as well as an increase of 45% in other life insurance business (Chart V.1).

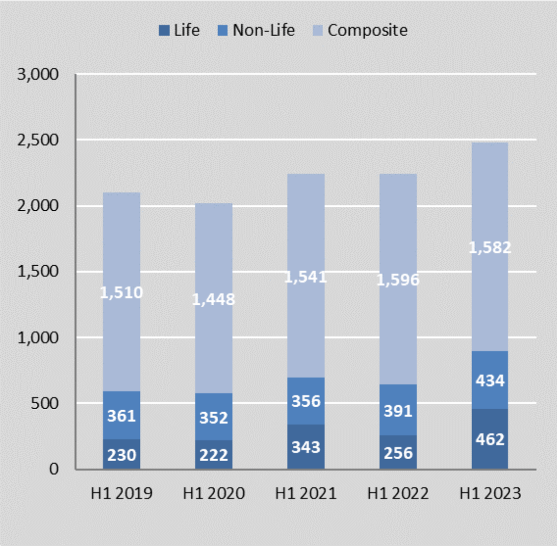
During the same period, non-life insurance premiums[91] amounted to €1.2 billion, up by 9% compared to the first half of 2022. The lines of business with the most significant market shares are third-party motor liability (31%), fire insurance (20%) and hospital expenses insurance (17%), which have changed, compared to the previous year, by +2%, +13% and +11%. In the first half of 2023, claims incurred amounted to €0.9 billion for life insurance and €0.5 billion for non-life insurance, down by 2% and up by 15%, respectively (Chart V.2).

For non-life insurance, as at 30.6.2023, the market loss ratio amounted to 50% (compared with 48% as at 31.12.2022) and the expense ratio (administration expenses and commissions) amounted to 47% (compared with 48% as at 31.12.2022).

[90] Including premiums of Life, Non-Life and Composite insurance undertakings.
[91] See previous footnote.

Chart V.1 Gross Written Premiums per type of Insurance Undertaking

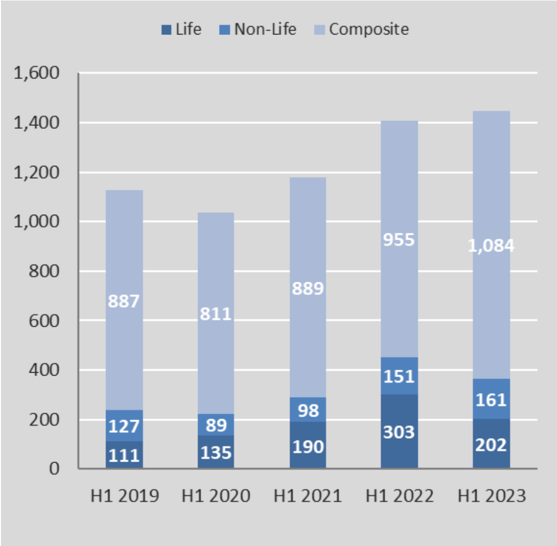
(million euro)



Source: Bank of Greece.

Chart V.2 Claims Incurred per type of Insurance Undertaking

(million euro)



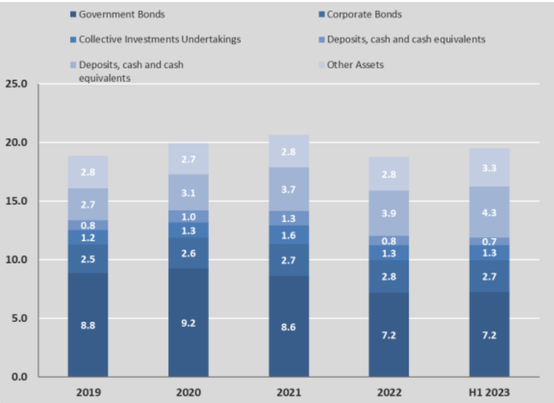
Source: Bank of Greece.

The total assets of insurance undertakings supervised by Bank of Greece amounted to €19.5 billion as at 30.06.2023, increased by 4% compared to 31.12.2022. Of the total assets, €7.2 billion (37%) were held in government bonds and €2.7 billion (14%) in corporate bonds. As concerns the credit rating of these assets, 95% of the government bonds and 87% of the corporate bonds were BB- and above. In addition, an amount of €4.3 billion (22%) related to unit- and index-linked insurance products (Chart V.3).

As at 30.06.2023, the total liabilities of insurance undertakings amounted to €15.6 billion (up from €15.1 billion as at 31.12.2022), while total technical provisions amounted to €14.2 billion (against €13.7 billion as at 31.12.2022), of which €11.1 billion related to life insurance business and €3.0 billion to non-life business. As concerns life technical provisions, 36% refers to unit- and index-linked insurance products (against 33% as at 31.12.2022) (Chart V.4).

Chart V.3 Insurance Undertakings' Assets Breakdown

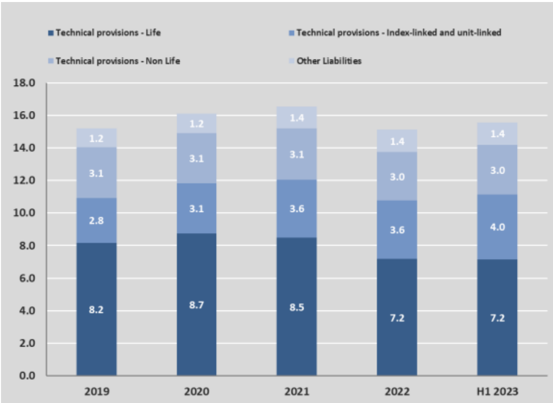
(billion euro)



Source: Bank of Greece.

Chart V.4 Insurance Undertakings' Liabilities Breakdown

(billion euro)



Source: Bank of Greece.

The total own funds of the insurance market amounted to €3.9 billion, increased by 8% compared to the previous year. The total Capital Solvency Requirement (SCR)[92] amounted to €2.0 billion and the respective total eligible own funds were €3.9 billion. Concerning the quality of the eligible own funds of the insurance market, 92% of these own funds are classified in the highest quality category (Tier 1). In parallel, the SCR coverage ratio for all insurance undertakings is significantly higher than 100% (Table V.3 and Chart V.5).

The Minimum Capital Requirement (MCR)[93] for the entire insurance market amounted to €0.7 billion and the respective total eligible own funds amounted to €3.6 billion (Table V.3 and Chart V.6).

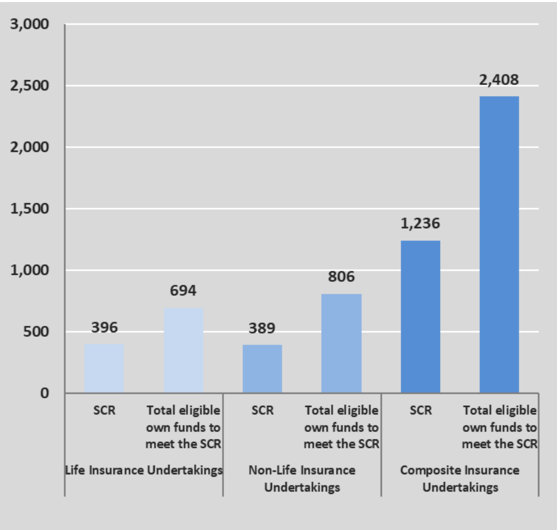
Table V.3
SCR, total eligible own funds to meet the SCR and SCR Ratio
MCE, total eligible own funds to meet the MCR and MCR Ratio

amounts in million euro	2019	2020	2021	2022	Q1 2023
Solvency Capital Requirement (SCR)	1,899	1,940	2,094	1,954	2,020
Total eligible own funds to meet the SCR	3,403	3,602	3,984	3,606	3,909
SCR Ratio	179.2%	185.7%	190.3%	184.6%	193.5%
Minimum Capital Requirement (MCR)	691	703	714	676	709
Total Eligible own funds to meet the MCR	3,257	3,441	3,718	3,290	3,603
MCR Ratio	471.1%	4895%	521.0%	486.9%	508.0%

Source: Bank of Greece

Chart V.5 SCR and Total Eligible Own Funds to meet the SCR per type of insurance undertaking

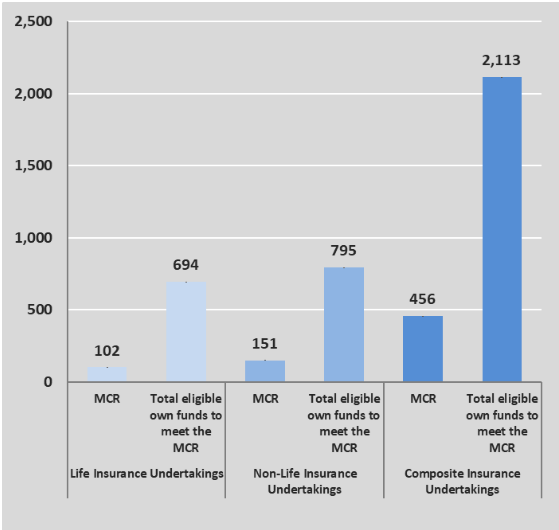
(June 2023, million euro)



Source: Bank of Greece.

Chart V.6 MCR and Total Eligible Own Funds to meet the MCR per type of insurance undertaking

(June 2023, million euro)



Source: Bank of Greece.

[92] The calculation of the Solvency Capital Requirement reflects the adequacy of the own funds so that the insurance undertaking has the ability to absorb losses at a confidence level of 99.5% with a time horizon of one year.

[93] The Minimum Solvency Requirement reflects the adequacy of the own funds so that the insurance undertaking has the ability to absorb losses at a confidence level of 85%, with a time horizon of one year, and represents a level of capital below which the interests of policyholders would be seriously jeopardised if the undertaking were allowed to continue operating.

Changes in the SCR coverage ratio of insurance undertakings were observed during the first half of 2023, however all undertakings remain solvent.

Undertakings depicted above the red line show an improvement in the SCR coverage ratio in the first half of 2023 compared to the relevant SCR coverage ratio of the previous year (76% of all insurance undertakings), while undertakings below the red line show a deterioration in their SCR coverage ratio.

Chart V.7 SCR coverage ratio June 2023/December 2022

Source: Bank of Greece.

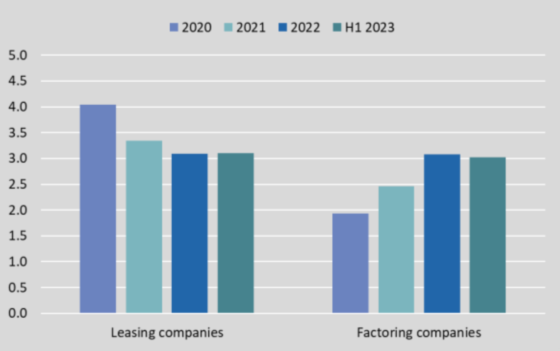
3. OTHER FINANCIAL INSTITUTIONS

3.1 LEASING COMPANIES – FACTORING COMPANIES – MICROFINANCE COMPANIES

In the first half of 2023, the assets of leasing companies showed a marginal increase after the completion of the asset restructuring actions through the sale of non-performing loans (NPLs) and stood at €3.1 billion, up by 0.4% compared to the end of 2022 (see Chart V.8). On the contrary, the assets of factoring companies decreased marginally and amounted in the first half of 2023 to €3.0 billion, down by 1.5% compared to December 2022 (€3.1 billion). As regards microfinance institutions, their assets increased to €2.2 million in the first half of 2023, from €2 million at the end of 2022, due to the authorisation of two more microfinance institutions,[94] bringing the number of active institutions to three.

Chart V.8 Evolution of assets of other financial institutions

(billion euro)



Source: Bank of Greece.

Turning to the interconnection of other financial institutions with credit institutions, it is worth noting that their liabilities to credit institutions mainly concern borrowing from the parent groups, which increased marginally in the first half of 2023 and amounted to 19.7% of their liabilities, compared with 19.4% in December 2022. At the same time, the receivables of other financial institutions from credit institutions increased significantly to €183.9 million in the first half of 2023, from €97.1 million in 2022, accounting for 3.0% of their assets in 2023, against 1.6% in 2022, due to an increase in the deposits they hold in the parent groups.

[94] Authorisation (bankofgreece.gr).

In terms of income statements, in the first half of 2023, leasing companies posted pre-tax profits of €9.0 million, compared with losses of €52.1 million in the first half of 2022, which were due to increased provisions in the context of completed transactions of NPL sales. Likewise, factoring companies recorded increased pre-tax profits, which amounted to €30.3 million in the first half of 2023, up from €23.8 million in the first half of 2022 (see Chart V.9), mainly due to an increase in net interest income.

Chart V.9 Evolution of pre-tax profits of other financial institutions

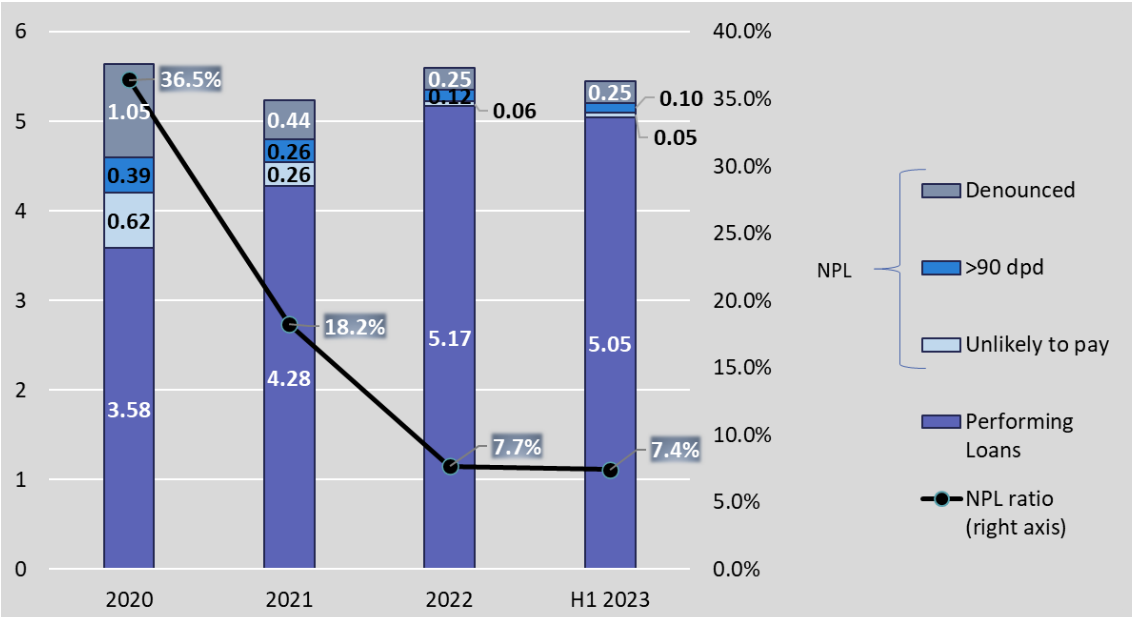
(million euro)

Source: Bank of Greece.

Finally, NPLs (on-balance-sheet data), cumulatively for the three sectors (leasing, factoring and microfinance institutions), decreased by 5.8% to €404 million in the first half of 2023 (€429 million in December of 2022), resulting in a marginal reduction in the ratio of NPLs to total loans (7.4% in the first half of 2023, against 7.7% in December 2022) (see Chart V.10).

Chart V.10 Other financial institutions – Performing and non-performing loans

(billion euro – left axis, % – right axis)



Source: Bank of Greece.

3.2 CREDIT SERVICING FIRMS (CSFs)

The Bank of Greece has authorised a total of 26 credit servicers to provide servicing management of loan and credit receivables, of which 23 are still active.[95] Up until today, none of the CSFs has applied for authorisation to refinance receivables. The activity of CSFs varies considerably, with 3 firms having a market share of 83% based on the total value of exposures under management, while 15 firms having minimum to zero activity (less than 1% of market share).

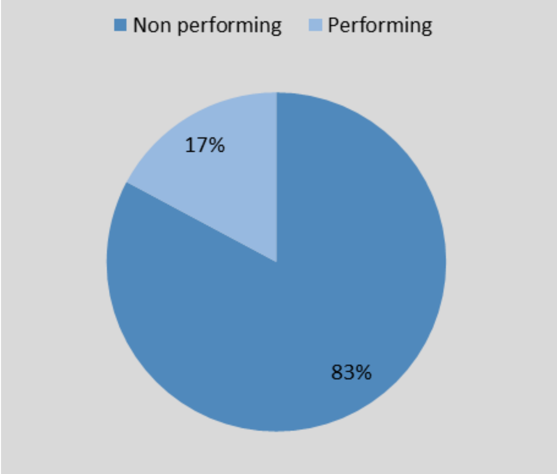
Cumulative data for CSFs

According to H1 2023 data, the total assets of CSFs amounted to €1.19 billion,[96] while total equity and liabilities, including provisions, stood at €716 million and €474 million, respectively. CSFs' profits amounted to €78 million, while total staff and senior management costs corresponded to 45% of their total revenues.

According to H1 2023 data, total exposures under management[97] amounted to €89.4 billion, of which 77% were exposures serviced on behalf of credit acquiring firms[98] and the other 23% were exposures managed by CSFs on behalf of credit institutions.

The majority of exposures managed by CSFs on behalf of credit acquiring firms were transferred to them during the last three years in the context of credit institutions' NPL reduction strategy. The portfolio of exposures under management during the first half of 2023 consisted mainly of non-performing exposures (83%) and, to a lesser extent, performing exposures (17%) (Chart V.11).

Chart V.11 Portfolio structure (H2023)



Source: Bank of Greece.

Management of exposures serviced on behalf of credit acquiring firms

The total amount of exposures managed by CSFs on behalf of credit acquiring firms stood at €68.7 billion according to H1 2023 data. The portfolio includes mainly business loans (45.5%), followed by residential loans (31.9%) and consumer loans (22.6%) (Chart V.12).

The exposures under management on behalf of credit acquiring firms are of poor credit quality, with 91% being non-performing exposures. Of the non-performing exposures that are under management, the bulk are denounced exposures (73.9%), while 18.7% are exposures that are past due by 90 days or more and 7.3% are unlikely to pay exposures (Chart V.13).

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[95] Under Law 4354/2015 and Bank of Greece Executive Committee Act 118/19.5.2017, as currently in force.

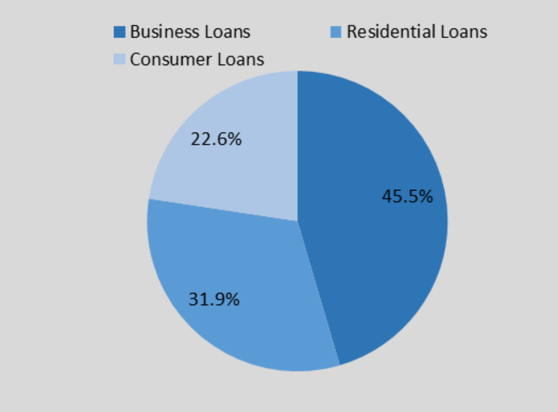
[96] All data as at 30.06.2023 are provisional and have not been audited by a statutory auditor.

[97] Exposures include all debt instruments (loans and advances and debt securities), excluding off-balance-sheet exposures and write-offs. It should be noted that Bank of Greece Executive Committee Act 206/1/03.06.2022 has modified the data to be submitted by, *inter alia*, credit servicing firms to the Bank of Greece.

[98] Any discrepancies between the supervisory data analysed in this section of the Financial Stability Report and the data regularly published by the Bank of Greece on its website are mainly due to the different perimeter of each data release.

Chart V.12 Exposures under management by portfolio (H1 2023)

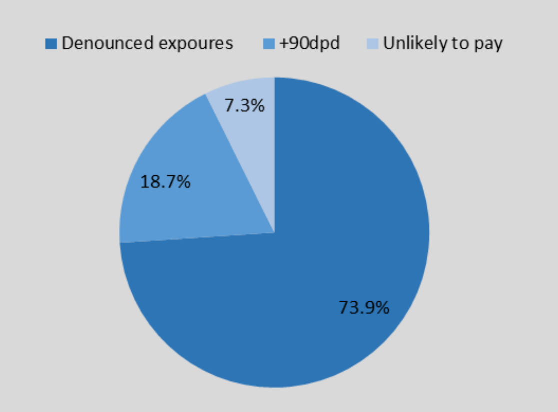
(%)



Source: Bank of Greece.

Chart V.13 Non-performing exposures under CSF management (per category) – H1 2023

(%)

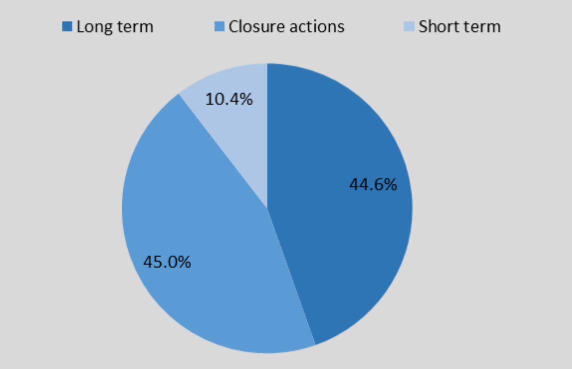


Source: Bank of Greece.

Repayments, liquidation of collateral and write-offs of exposures managed by CSFs on behalf of credit acquiring firms stood at €1.46 billion in H1 2023. In particular, repayments of exposures amounted to €0.82 billion, liquidation of collateral to €0.39 billion and write-offs to €0.25 billion. It is worth noting that there was no significant decrease in exposures under management, as the net outflows were very small.

Finally, modifications made until June of 2023 represent 27.6% of the total portfolio managed on behalf of credit acquiring firms. Closure actions accounted for the bulk of modified exposures (45%), followed by long-term (44.6%) and short-term modifications (10.4%) (Chart V.14). It should be noted that, at June 2023, resolution and closure actions amounted to €8.55 billion, short-term modifications to €1.97 billion and long-term modifications to €8.46 billion.

Chart V.14 Breakdown of exposures under management that were modified (June 2023)



Source: Bank of Greece.

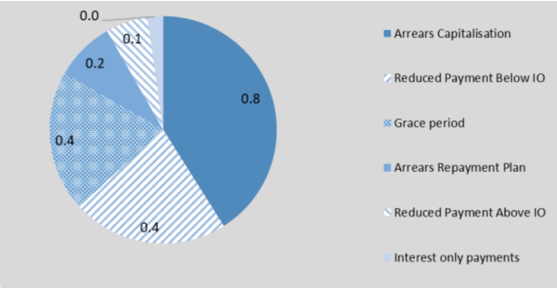
Capitalisation of arrears was the most common short-term modification[99] (accounting for 41% of short-term modifications – Chart V.15a), while the most common types of long-term modifications[100] were partial debt write-down, split balance and extension of the loan term, accounting for 41%, 25% and 22%, respectively (Chart V.15b).

[99] Short-term modifications are those with a duration of less than two years, applicable to cases where the repayment difficulties are reasonably judged to be temporary.

[100] Long-term modifications are those with a duration of more than two years, based on conservative assumptions regarding the borrower's future repayment capacity throughout the repayment schedule.

Chart V.15a Short-term modifications (June 2023)

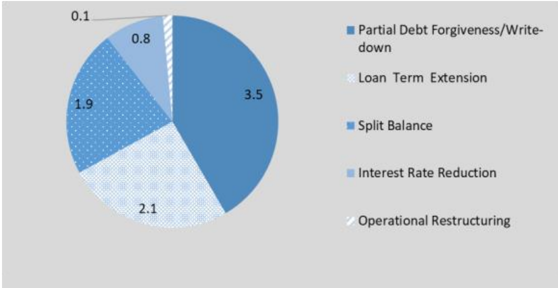
(biillion euro)



Source: Bank of Greece.

Chart V.15b Long-term modifications (June 2023)

(billion euro)

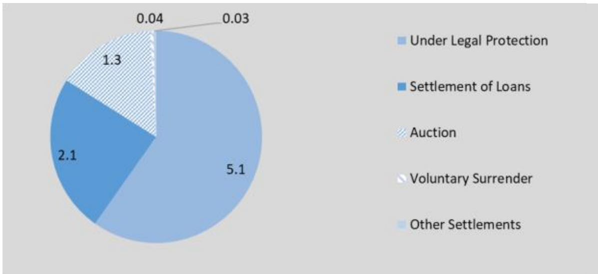


Source: Bank of Greece.

At the same time, the most common types of resolution and closure actions[101] were settlement of loans under legal protection (60%) and settlements of loans (24%) (Chart V.15c).

Chart V.15c Resolution and closure actions (June 2023)

(billion euro)



Source: Bank of Greece.

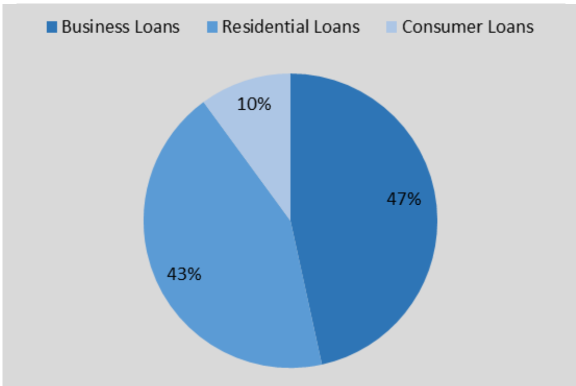
Management of exposures serviced on behalf of credit institutions

The total amount of exposures managed by CSFs on behalf of credit institutions stands at €20.6 billion in the first half of 2023, with 55% of these exposures being non-performing exposures.

The portfolio of exposures managed on behalf of credit institutions consists mainly of business loans (47%), followed by residential loans (43%) and consumer loans (10%) (see Chart V.16).

Chart V.16 Breakdown of exposures under management on behalf of credit institutions (H1 2023)

(%)



Source: Bank of Greece.

As at H1 2023, repayments and liquidation of collateral managed by CSFs on behalf of credit institutions amounted to €0.93 billion, of which €0.85 billion were repayments and €0.08 billion were collateral liquidation.

Secondary market activity

During the last four years, CSFs undertook a number of initiatives to coordinate secondary market sales. By June 2023, the transactions carried out on the secondary market concerned 84 loan portfolios, almost exclusively for business loans, with a total value of claims of €3.3 billion (value at the transfer date).[102] Overall, the secondary market is expected to

[101] Resolution and closure actions include any change in the type of loan contract or termination of the contract.

[102] In detail, the transactions per year were as follows: a) in 2019, 7 transactions with a cumulative value of €106 million; b) in 2020, 13 transactions with a cumulative value of €93 million; c) in 2021, 31 transactions with a cumulative value of €538 million; d) in 2022, 21 transactions with a cumulative value of €1.5304 million; and e) in the first half of 2023, 12 transactions with a cumulative value of €989 million

continue to grow further in the near future with the participation of more market participants and more transactions being carried out.

3.3 PAYMENT INSTITUTIONS, E-MONEY INSTITUTIONS, PAYMENT INITIATION SERVICE PROVIDERS AND ACCOUNT INFORMATION SERVICE PROVIDERS

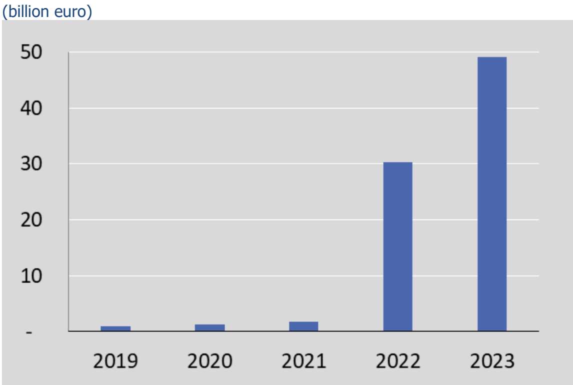
Key figures

(a) Payment Institutions (PIs)

Under Law 4537/2018[103] and Bank of Greece Executive Committee Act (ECA) 164/2/13.12.2019,[104] the Bank of Greece has authorised 15 payment institutions (PIs) and one account information service provider (AISP).

Chart V.17 Annual value of payment transactions by PIs

(billion euro)



Source: Bank of Greece.

The total value of payment transactions carried out by PIs in the reference period for 2023[105] amounted to €49.2 billion, up by 62% compared with the previous reference period for 2022[106] (€30.3 billion) and about 27 times higher than for 2021 (€1.8 billion; see Chart V.17). This substantial increase in the annual value of payment transactions compared to the previous years is associated with four PIs providing merchant acquiring services, which account for 94% of the total value of payment transactions.[107]

In addition, a considerable rise was also recorded in the value of payment transactions carried out by the other PIs (2023: €2.9 billion; 2022: €2.3 billion), while one PI also engages in credit provision as an ancillary service to merchant acquiring, in accordance with the provisions of Law 4537/2018 (outstanding credit in June 2023: €774,000; December 2022: €761,000).

These developments had a positive effect on PI equity and profitability. In particular, in June 2023 the total equity of PIs came to €48.5 million, roughly at the same level as in December 2022 (€49.1 million) and substantially higher than in December 2021 (€3.7 million). Furthermore, the PI sector remained profitable: total profits for the first half of 2023 came to €6.9 million, against €7.5 million in the first half of 2022 and €2 million for 2021 (see Chart V.18).

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[103] Law 4537/2018 transposed into Greek law Directive (EU) 2015/2366 (Payment Service Directive II – PSD II) establishing the regulatory framework for payment services in the internal market.

[104] As amended by ECA 178/5/02.10.2020 and currently in force.

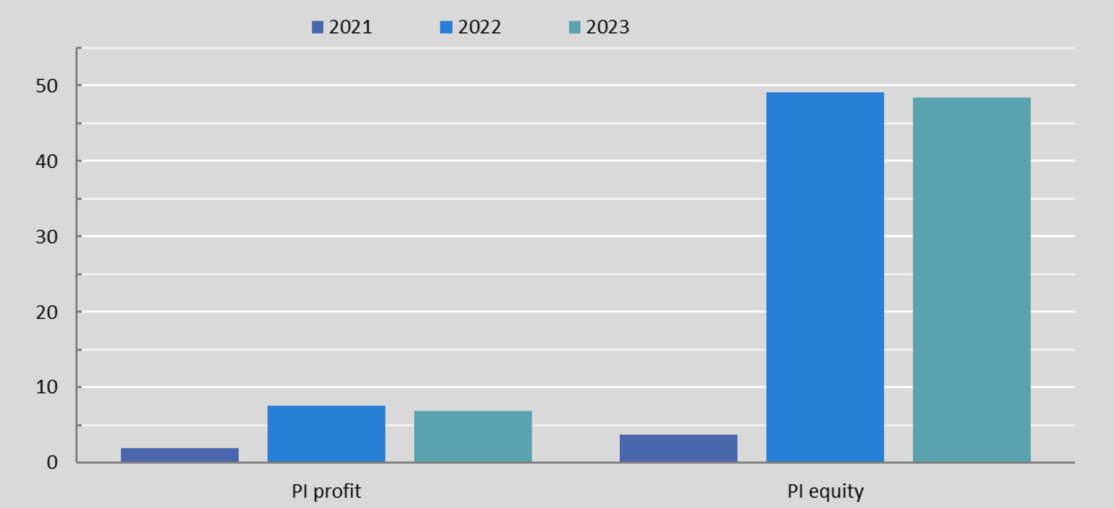
[105] Under the current regulatory framework, the total value of payment transactions refers to a 12-month period. In particular, the reference period for 2023 extends from 1.7.2022 to 30.6.2023.

[106] Under the current regulatory framework, the total value of payment transactions refers to a 12-month period. In particular, the reference period for 2022 extends from 1.1.2022 to 31.12.2022.

[107] It should be noted that in 2022 four of the 15 licensed PIs took over the divested merchant acquiring business of the four significant banks; as a result, a new landscape has emerged for electronic payments, which are now provided to a considerable extent by PIs authorised by the Bank of Greece.

Chart V.18 PI profit and equity

(million euro)



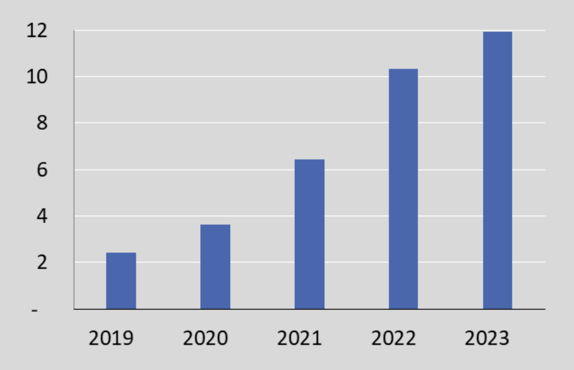
Source: Bank of Greece.

(b) Electronic Money Institutions (EMIs)

Furthermore, under Law 4021/2011[108] and Bank of Greece Executive Committee Act 164/2/13.12.2019, the Bank of Greece has authorised three electronic money institutions (EMIs). The total annual value of payment transactions carried out by EMIs in the reference period for 2023 amounted to €11.9 billion, up by 15.3% compared with the previous reference period for 2022 (€10.3 billion; see Chart V.19). This increase in the volume of payments is mostly due to the expansion of the activities of one EMI abroad under the European passporting regime.[109] This EMI accounts for 79.1% of the total annual value of EMI payments.

Chart V.19 Annual value of payment transactions by EMIs

(billion euro)



Source: Bank of Greece.

Moreover, the other two EMIs also saw their business grow in the course of 2023, on the one hand by providing merchant acquiring services and executing remittances and on the other hand by a second EMI implementing and making available e-wallet services.[110]

[108] Law 4021/2011 transposed into Greek law the provisions of Directive 2009/110/EC on the taking up, pursuit and prudential supervision of the business of electronic money institutions.

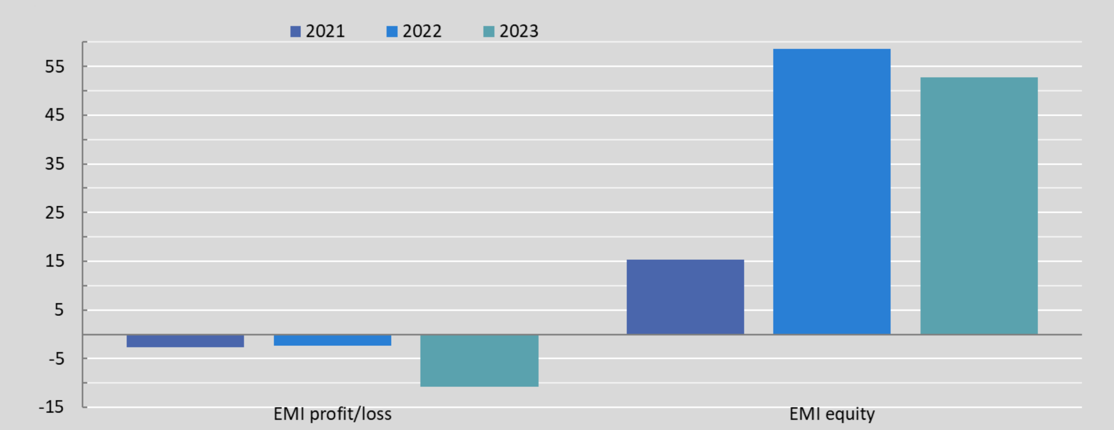
[109] Passporting enables PIs and EMIs established in a Member State of the European Economic Area (EEA) to provide payment and electronic money services in another EEA Member State under the freedom of establishment or the freedom to provide services, as long as the services in question are covered by their authorisation granted by the home Member State and subject to the notification of the required information to the Bank of Greece by the competent authorities of the home Member State.

[110] Under Article 10 of Law 4021/2011, electronic money means electronically stored monetary value ("e-wallet") as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions and which is accepted by a natural or legal person other than the electronic money issuer.

In June 2023, the total equity of EMIs came to €52.7 million, down by €5.8 million relative to December 2022 (€58.5 million; see Chart V.20). In addition, most EMIs posted losses, which in the first half of 2023 stood at €10.8 million, compared with losses of €2.3 million in the first half of 2022. The losses posted in this sector are mainly due to investment spending on IT and technology sectors, but also to ongoing expansion into other European markets.

Chart V.20 EMI profits/losses and equity

(million euro)



Source: Bank of Greece.

It should also be noted that 272 PIs and 203 EMIs established in another Member State of the European Economic Area have notified the Bank of Greece of their intention to provide payment services in Greece under the European passporting regime. The majority of these institutions exercise the freedom to provide services without establishment. As regards the type of payment services provided, most of the above institutions are active in the issuance of payment instruments and/or merchant acquisition, the transfer of funds and the execution of remittances.

VI. FINANCIAL MARKET INFRASTRUCTURES

1. ELECTRONIC PAYMENT INSTRUMENTS

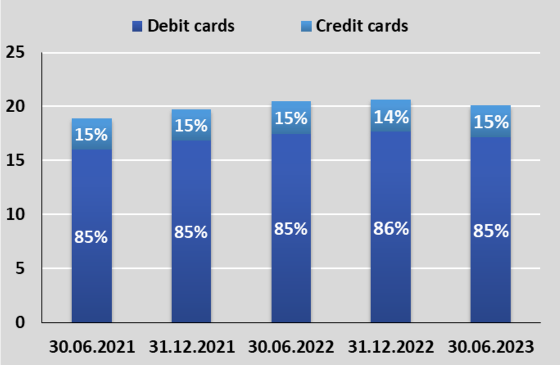
1.1 PAYMENT CARDS

Number of payment cards

On 30 June 2023, the total number of active payment cards[111] in circulation reached 20.1 million, down by 2% compared to 31 December 2022 (see Chart VI.1).

Chart VI.1 Number of cards per card type

(million)



Source: Bank of Greece.

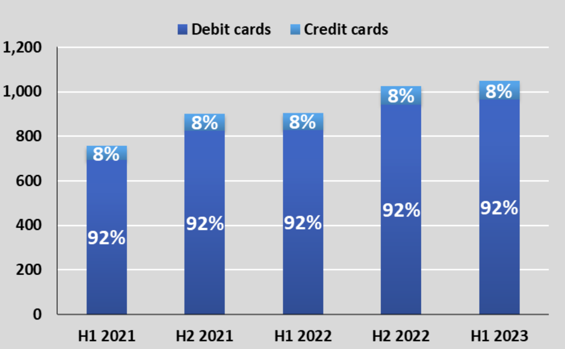
As regards developments in the various card types, a decline in the number of debit cards by 3% was recorded for the first time, while the number of credit cards rose by 1%. The share of debit and credit cards in the total number of payment cards marginally changed to 85% and 15%, respectively.

Transactions with payment cards

The total number and value of payment card transactions during the first half of 2023 slightly differed in comparison to the second half of 2022. In particular, the number of transactions increased by 2%, reaching 1,048 million (see Chart VI.2), while their corresponding value dropped by 3%, amounting to €49 billion (see Chart VI.3).

Chart VI.2 Number of card transactions

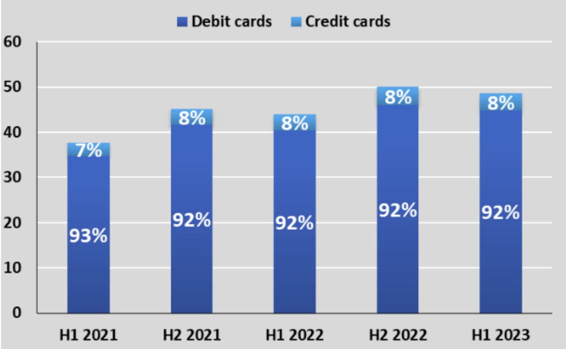
(million)



Source: Bank of Greece.

Chart VI.3 Value of card transactions

(billion euro)



Source: Bank of Greece.

The average number of transactions per card rose to 52, from 50 transactions in the previous semester.

Debit cards remained the leading substitute for cash and continued to be widely used for low value transactions. The average number of transactions per debit card rose to 56, from 53 transactions in the second half of 2022. The average number of transactions per credit card remained stable at 27 transactions (see Chart VI.4).

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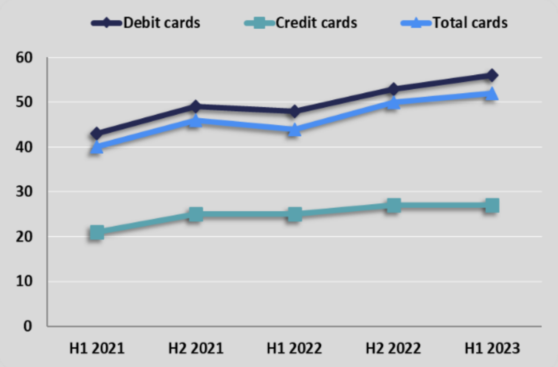
[111] For the purposes of this Review, debit cards comprise prepaid cards and cards that can be used for cash withdrawals but not for purchases. Credit cards comprise virtual cards and delayed debit cards.

Chart VI.4 Average number of transactions per card type

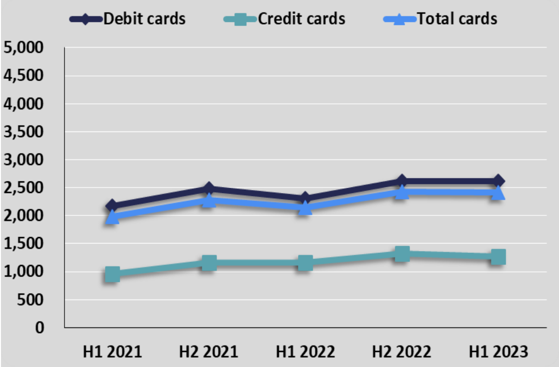
(transactions)



Source: Bank of Greece.

Chart VI.5 Average value of transactions per card type

(euro)



Source: Bank of Greece.

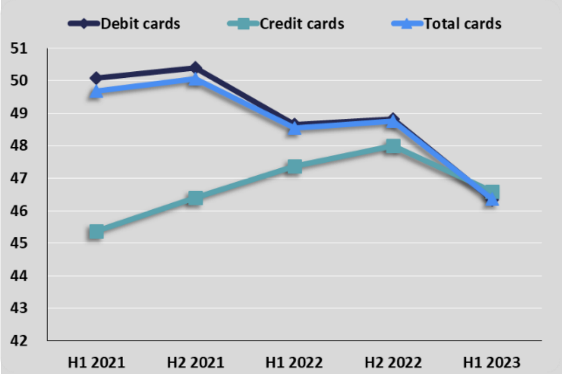
The average value of transactions per card remained stable since the second half of 2022. In more detail, the average value of transactions per card reached €2,414, marginally decreased by 0.48% compared to the previous half (see Chart VI.5). This fall is attributed to a negligible increase in the average value of transactions per debit card by 0.05% to €2,611, from €2,610. The average value of transactions per credit card dropped by 3.5% to €1,273, from €1,320.

The average value per transaction for all cards fell by 5% to €46, from €48 in the second semester of 2022 (see Chart VI.6).

Regarding the individual types of cards, the average value per transaction using debit cards fell by 5% to €46 from €48, while the average value per transaction using credit cards dropped by 3% to €47 from €48.

Chart VI.6 Average value per card transaction

(euro)



Source: Bank of Greece.

Payment card transactions fraud

The fraud to transaction ratio relates to the proportion of the number and value of fraudulent transactions to the number and value of total transactions. In terms of volume, the fraud to transaction ratio in the first half of 2023 increased by 31% to 0.02% and accounted for one fraudulent transaction per 5.2 thousand transactions (see Table VI.1).

Table VI.1 Fraud to transaction ratio - Volume

Period	Number of transactions	Number of fraudulent transactions	Fraud to transaction ratio
H1 2023	1,048,193,208	202,000	0.02%
H2 2022	1,025,430,306	151,203	0.01%
H1 2022	904,213,583	136,153	0.02%
H2 2021	930,811,199	183,009	0.02%
H1 2021	756,938,020	209,381	0.03%

Source: Bank of Greece.

In terms of value, the fraud to transaction ratio increased by 29% to 0.03%, corresponding to €1 fraud value per €4 thousand transactions value (see Table VI.2).

A breakdown of fraud per card transaction type, i.e. (a) ATM transactions, (b) POS payments and (c) card not present transactions (CNP), shows that fraud cases are most prevalent in CNP transactions via the internet or mail/telephone order (see Charts VI.7 and VI.8).

Table VI.2 Fraud to transaction ratio - Value

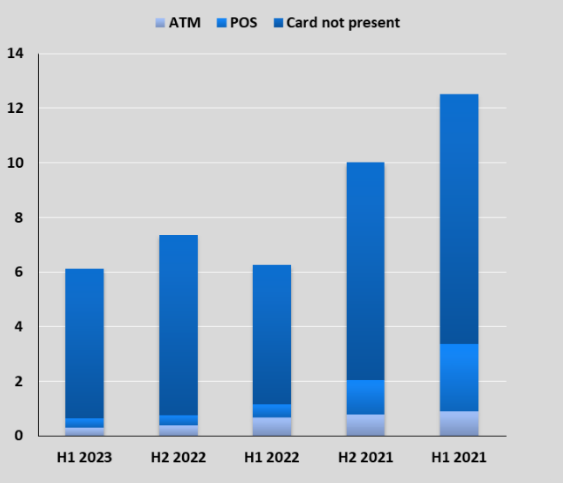
(euro)

Period	Value of transactions	Value of fraudulent transactions	Fraud to transaction ratio
H1 2023	48,597,138,971	12,492,176	0.03%
H2 2022	49,991,684,614	9,995,707	0.02%
H1 2022	43,899,493,109	6,241,816	0.01%
H2 2021	49,673,218,509	7,338,362	0.01%
H1 2021	37,614,253,430	6,103,487	0.02%

Source: Bank of Greece.

Chart VI.7 Number of fraudulent transactions per transaction type

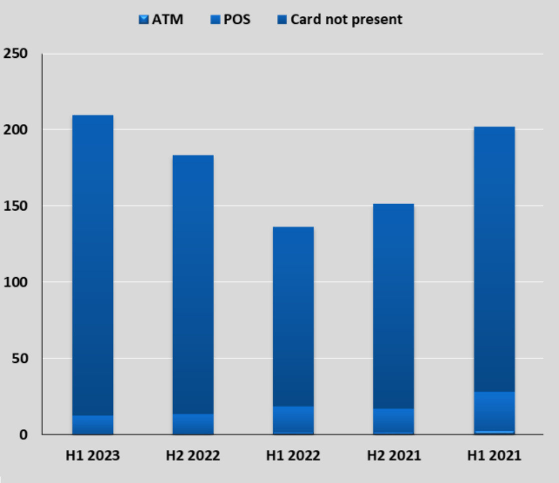
(thousand)



Source: Bank of Greece.

Chart VI.8 Value of fraudulent transactions per transaction type

(thousand euro)

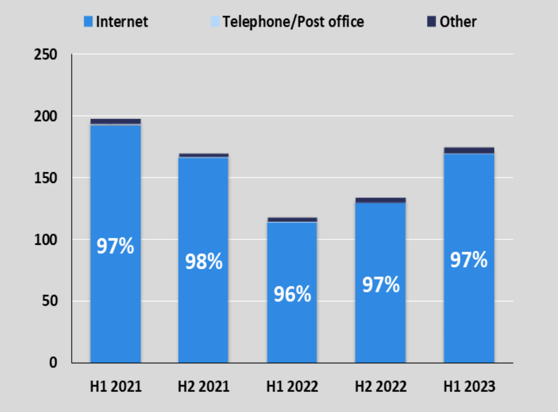


Source: Bank of Greece.

During the first half of 2023, the number of fraudulent transactions recorded per transaction type reached 2,705 in ATM, 26 thousand in POS and 174 thousand in CNP transactions. The corresponding value of fraudulent transactions was €900 thousand in ATM, €2.5 million in POS and €9 million in CNP transactions. A further breakdown of fraud cases in CNP transactions shows that the majority of cases concerned remote transactions via the internet (see Charts VI.9 and VI.10).

Chart VI.9 Number of fraudulent transactions in CNP transactions

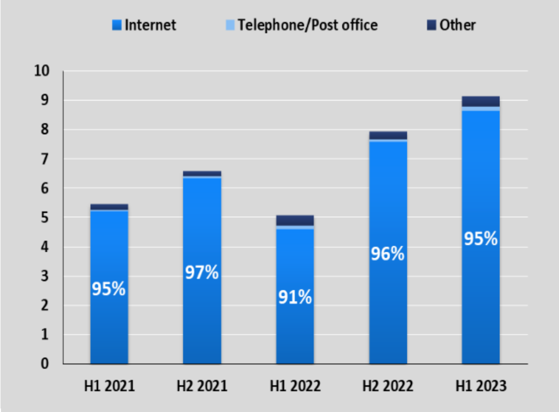
(thousand transactions)



Source: Bank of Greece.

Chart VI.10 Value of fraudulent transactions in CNP transactions

(million euro)



Source: Bank of Greece.

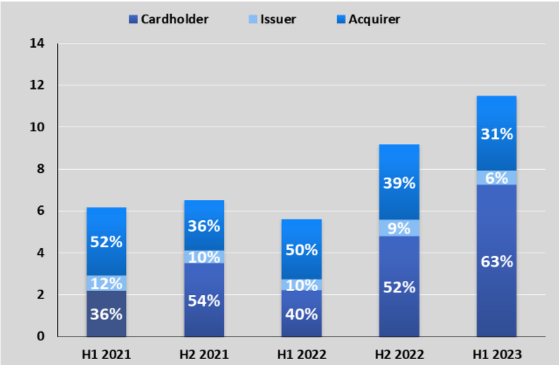
It is noted that the vast majority of internet fraud transactions are related to cross-border online purchase transactions. These high levels of fraudulent cross-border transactions via the internet are mainly due to the extensive use of the international technical standard for secure transactions "3DSecure" by the payment service providers incorporated in Greece compared to the payment service providers operating abroad.

The financial losses arising from fraudulent transactions using payment cards reached €11.4 million in the first semester of 2023, up by 25% and 105% compared to the first and second half of 2022 respectively.

Turning to the distribution of losses, it is observed that cardholders bear the bulk of the loss (63%), card acquiring payment service providers incur 31% and card issuing payment service providers bear 6% of total losses (see Chart VI.11).

Chart VI.11 Loss distribution from fraudulent transactions

(million euro)



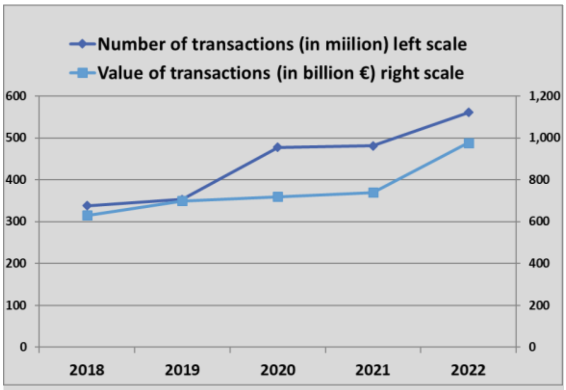
Source: Bank of Greece.

1.2 CREDIT TRANSFERS

Credit transfer transactions

During 2022, a total of 561 million customer transactions using credit transfers were effected, amounting to €977 billion. Compared to 2021, the number of credit transfer transactions rose significantly by 17% and their corresponding value by 32% (see Chart VI.12). In the same vein, the average value per transaction increased by 13% to €1,742, from €1,537 in the previous year (see Chart VI.13).

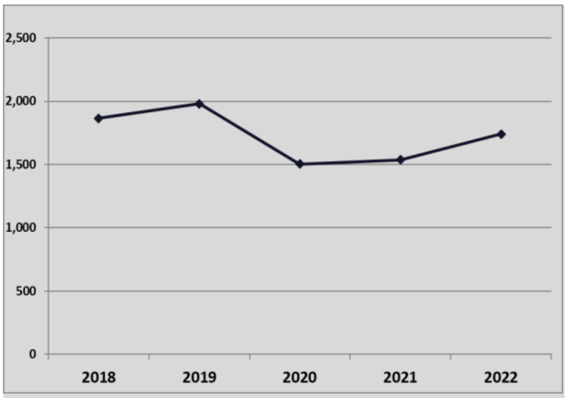
Chart VI.12 Credit transfers - Evolution of number and value of transactions



Source: Bank of Greece.

Chart VI.13 Credit transfers - Evolution of average value per transaction

(euro)



Source: Bank of Greece.

Credit Transfer Transactions Fraud

Following the methodology of Regulation ECB/2020/59 on the collection of statistical data on payment transactions and fraud, in 2022 credit transfer fraud rose by 95% in volume terms and by 204% in value terms compared to 2021. More specifically, a total of 16,339 fraud incidents amounting to €79.5 million were recorded, compared with a total of 8,365 incidents amounting to €26.3 million in 2021.

The fraud to transaction ratio using credit transfers remained at the very low levels of 0.00292% in volume terms and of 0.00814% in value terms, accounting for one fraudulent transaction per 34 thousand credit transfers effected and €1 of fraud per €12 thousand transferred.

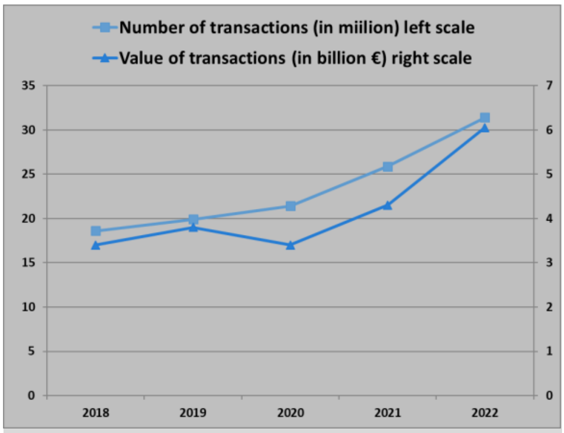
An analysis of the fraud data shows that the vast majority of fraud incidents relates to (a) the issuance of a payment order by the fraudster in 91% of the reported cases and (b) the manipulation of the payer by the fraudster to issue a payment order in 9% of the reported cases. According to the former fraud method, the fraudster issues an unauthorised payment order after having illegally acquired the payer's or the payee's sensitive payment data. In the latter fraud method, the payer is manipulated by the fraudster to issue a payment order, or to give the instruction to do so to the payment service provider, in good faith, to a payment account he believes it belongs to a legitimate payee.

1.3 DIRECT DEBITS

Direct debit transactions

In line with the aforementioned European Central Bank methodology, customer transactions using direct debits significantly rose by 21% to 31.4 million in 2022. Their corresponding value increased by 41% to €6 billion (see Chart VI.14). As a result, the average value per direct debit transaction rose by 16% to €193, from €166 in 2021 (see Chart VI.15).

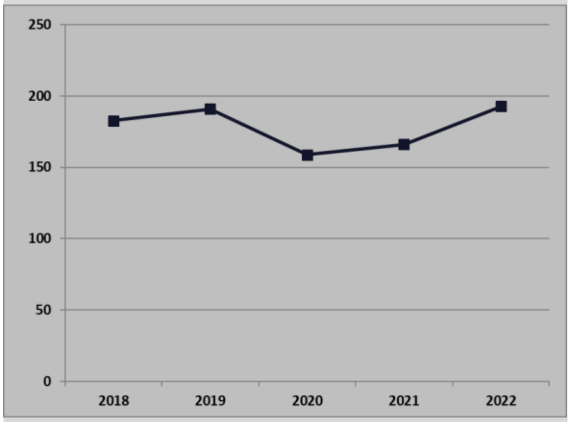
Chart VI.14 Direct debits - Evolution of number and value of transactions



Πηγή: Bank of Greece.

Chart VI.15 Direct debits - Evolution of average value per transaction

(euro)



Πηγή: Bank of Greece.

Direct debit transactions fraud

Direct debits continued to be regarded as the safest payment instrument given that there were no fraud incidents reported by payment service providers also in 2022.

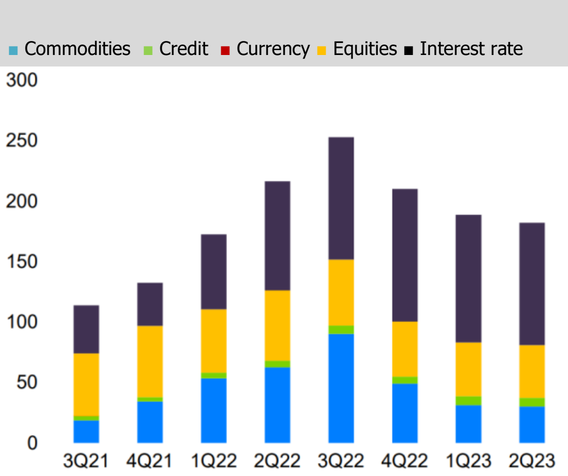
2. CENTRAL COUNTERPARTIES

2.1 EUROPEAN DEVELOPMENTS

The most important stock markets indices in Europe and internationally recorded an upward trend during the period March - July 2023. This rise was the result of the gradual decline of inflationary pressures and the achievement of satisfactory rates of economic growth, contrary to investors' expectations of a global recession. Against this backdrop of normalising market conditions and reduced volatility during the first half of 2023, the initial margins collected by European Union (EU) central counterparties (CCPs) decreased significantly for the commodity derivatives class – also in line with the decline in energy derivatives prices – after the peak they recorded in the third quarter of 2022 (Chart VI.16).

Chart VI.16 Initial margins collected by EU CCPs by asset class

(billion euro)



Note: Outstanding amounts of initial margin required and excess collateral received by EU27 CCPs for derivatives.

Source: ESMA.

Since the Market Correction Mechanism (MCM) came into effect in February 2023, natural gas prices have remained well below its trigger threshold, mainly due to increased natural gas supply and lower-than-expected gas demand because of a relatively mild winter. In this context, during the period under review, neither prices and trading liquidity nor risk management and margin requirements by CCPs were significantly affected by the introduction of the MCM mechanism.

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The European Securities and Markets Authority (ESMA), which is the EU's financial markets regulator and supervisor, on 31 May 2023 launched the fifth stress test exercise for CCPs under EMIR regulation.[112] Fourteen CCPs authorised in the EU and two UK CCPs (LCH Ltd and ICE Clear Europe Ltd) classified as Tier 2, i.e. systemically important for the financial stability of the EU or its Member States, are going to participate in this exercise. The resilience of CCPs is tested against scenarios that reflect extreme but plausible market conditions.

ESMA, in collaboration with the National Competent Authorities and the European Systemic Risk Board (ESRB), developed the stress test framework covering the following components:

- Credit risk: assesses the adequacy of CCPs' resources to absorb losses resulting from a combination of market price shocks and clearing members' default scenarios.

- Concentration risk: assesses the impact of liquidation costs arising from concentrated positions, i.e. the possibility of financial loss due to overexposure to a single counterparty, sector or geographical area.

[112] Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories.

- Liquidity risk: assesses the sufficiency of CCPs' liquid resources under a combination of market price shocks, members and/or liquidity providers default scenarios as well as additional liquidity stress assumptions.

- Climate risk: assesses the extent to which the CCP's business model is affected by the transition to a carbon-neutral economy and the consequences of this transition on the collateral posted by clearing members, and explores the impact of physical risks on CCPs.

- Reverse risk: increases the severity of the contemplated scenarios and identifies breaking points for credit, concentration and liquidity risks at which CCPs' resources are depleted.

Finally, the stress test framework is complemented by an adverse scenario provided by the ESRB, in collaboration with the ECB and ESMA, which includes an assessment of the adverse evolution of macroeconomic parameters and adverse market shocks.

The results of the fifth stress test exercise are scheduled to be published in the second half of 2024.

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On 13 June 2023, the European Parliament published a draft report with proposed amendments to the European Commission's proposal to revise EMIR regulation (EMIR 3.0). Among other things, and despite industry objections, the Parliament retained the Commission's proposal for an Active Account Requirement, which if finally implemented, will have a significant impact on affected market participants, who will have to monitor their clearing activity within and outside the EU and, if necessary, relocate transactions from the UK to the EU to maintain the intended proportion of clearing within the Union.

In addition, the Parliament considers that the best way to increase clearing through EU CCPs is to improve the environment and conditions that will enable this transition. To this end, it proposes:

- streamlining the approval process for EU CCPs so that they can expand their service offering;

- introducing a new category of “business as usual” changes to the services offered by a CCP, which will not need regulatory approval, building on the new non-objection approval process for EU CCPs seeking to expand their services; and

- introducing greater transparency for market participants on EU CCPs' margin models and related cost considerations.

Finally, the Parliament recommends a centralised CCP supervision through ESMA that will help monitor CCP risk concentration and reduce differences in the interpretation of EMIR across the EU with a view to the harmonised application of the supervisory framework.

2.2 ATHENS EXCHANGE CLEARING HOUSE (ATHEXCLEAR)

The Athens Exchange Clearing House (ATHEXClear) provides clearing services and acts as a central counterparty for the clearing of transactions on the Athens Exchange (securities and derivatives markets, as well as securities lending facility), as well as transactions in derivatives on the Energy Exchange.

During the first half of 2023, derivatives and securities lending transactions cleared by ATHEXClear increased significantly compared to the previous year in terms of their average daily volume and value.

In more detail, the average daily volume of transactions overall in the derivatives market and the securities lending facility amounted to 50,164 transactions during the period under review, up by 26% compared to the corresponding period of the previous year (January – June 2022: 39,828 transactions) and by 43.2% compared to the previous year (2022: 35,029 transactions) – as shown in Table VI.3 and Chart VI.17 –, a change mainly due to the increase observed in Stock Futures.

Chart VI.17 Daily Average Traded Volume in the Derivatives Market by type of contract and in the Securities Lending Facility

(in thousand transactions)

Source: Monthly Statisical Bulletin Derivatives – lending, Hellenic Exchanges – Athens Exchange S.A.

Table VI.3 Daily Average Traded Volume in the Derivatives Market by type of contract and in the Securities Lending Facility

	Index Futures	Index Options	Stock Futures	Stock Options	Lending (Multilateral/Bilateral)	Total
2018	2,573	326	53,063	47	670	56,679
2019	2,461	255	39,093	85	872	42,767
2020	1,698	147	38,154	62	1,121	41,182
2021	1,205	152	46,238	71	567	48,233
2022	1,162	87	33,064	39	678	35,029
June 2023	1,844	132	48,128	60	530	50,164

Source: Monthly Statistical Bulletin Derivatives – lending, Hellenic Exchanges – Athens Exchange S.A.

Similarly, the average daily value of transactions in the first half of 2023 reached €24.6 million, up by 64% compared to the corresponding period of the previous year (January – June 2022: €14.9 million) and 82% compared to the previous year (2022: €13.5 million), a change also due to the increase in the average daily value of both Index and Stock Futures (see Table VI.4 and Chart VI.18).

Table VI.4 Daily Average Traded Value in the Derivatives Market by type of contract

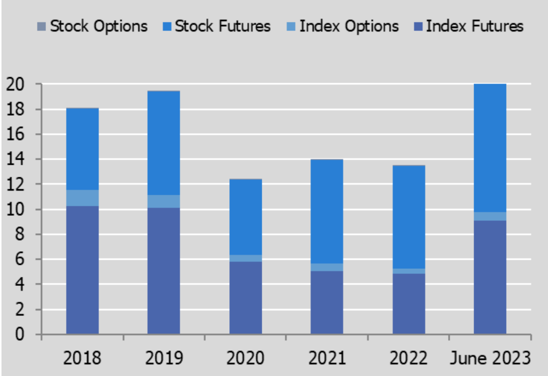
(in million euro)

	Index Futures	Index Options	Stock Futures	Stock Options	Total
2018	10.23	1.30	6.48	0.01	18.03
2019	10.11	1.04	8.24	0.03	19.42
2020	5.81	0.51	6.02	0.03	12.37
2021	5.02	0.64	8.32	0.06	14.03
2022	4.88	0.37	8.24	0.03	13.51
June 2023	9.07	0.70	14.75	0.04	24.57

Source: Monthly Statistical Bulletin Derivatives – lending, Hellenic Exchanges – Athens Exchange S.A.

Chart VI.18 Daily Average Traded Value in the Derivatives Market by type of contract

(in million euro)



Source: Monthly Statistical Bulletin Derivatives – lending, Hellenic Exchanges – Athens Exchange S.A.

3. CENTRAL SECURITIES DEPOSITORIES

3.1 DEVELOPMENTS IN THE REGULATORY FRAMEWORK

In June 2023, the European Council and the European Parliament reached a provisional agreement on the revision of the Regulation on Central Securities Depositories (CSDs) – CSDR. [113,114] The new Regulation aims to improve the efficiency of securities settlement by reducing compliance costs and regulatory burdens for depositories. It also aims to facilitate the provision of cross-border services by CSDs and at the same time to improve cooperation among supervisory authorities.

In particular with regard to settlement efficiency (i.e. the rate at which transactions are settled on the intended settlement date) and compliance with the settlement process, the current CSDR Regulation includes measures to prevent and address cases where concluded transactions cannot be settled due to lack of securities or cash (settlement fails[115]). Although settlement efficiency has slightly improved since the implementation of those measures, it is still lower in the EU than in other developed markets. Therefore, the new Regulation proposes the amendment of certain provisions currently in force, including the preconditions for applying the "buy-in" process.[116] Under the revised Regulation, this procedure will only be applied as a measure of last resort, when the settlement fails rate in the EU is not improving and represents a threat to financial stability.

3.2 THE BANK OF GREECE SECURITIES SETTLEMENT SYSTEM (BOGS)

The operation of the Securities Settlement System of the Bank of Greece ("System for Monitoring Transactions in Book-Entry Securities", hereinafter "BOGS") in the first half of 2023 was continuous and uninterrupted, while the security and efficiency of services offered remained at a high level.

The average daily value of transactions settled in BOGS in the first half of 2023 (buy/sell transactions, repos in securities, internal transfer of securities, etc.) amounted to €15.09 billion, showing a significantly increased activity of 47% compared to the first half of 2022 (€10.28 billion). The observed increase in activity is mainly due to the transactions on the special purpose Greek government Treasury bill (Law 4254/14, Article 1, subparagraph C4), which is used extensively in repo transactions.

From the above set of transactions, the average daily value of buy/sell transactions settled in BOGS in the first half of 2023 amounted to €504 million, compared with €604 million in the corresponding period of 2022, down by 17%.

The average daily volume of transactions in the first half of 2023 showed an increase of 22% compared to the corresponding period of the previous year and reached 282 transactions (first half of 2022: 232 average daily transactions), of which 118 were buy/sell transactions (first half of 2022: 107 average daily transactions) (see Table VI.5 and Chart VI.19).

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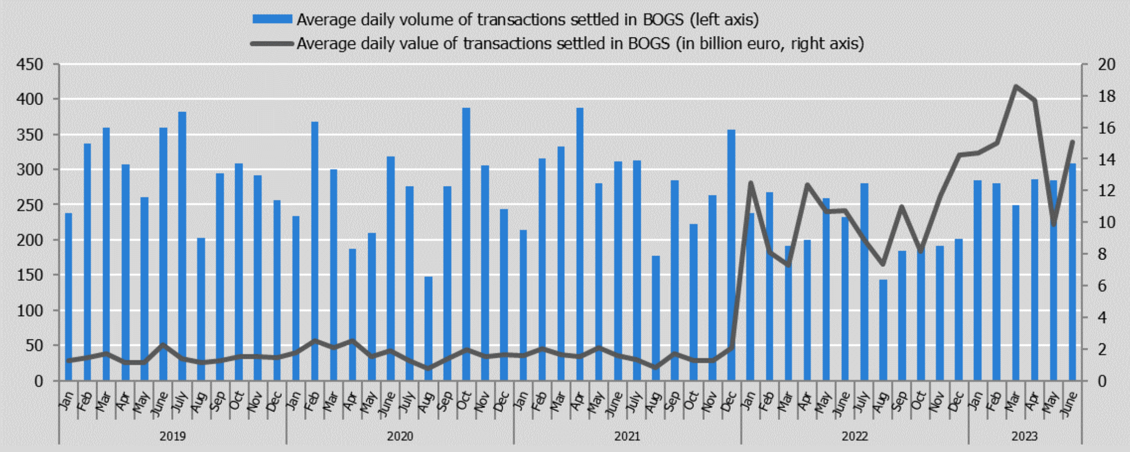
[113] Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) no. 236/2012.

[114] Press release of 27 June 2023.

[115] "Settlement fail" means the non-occurrence of settlement or partial settlement of a securities transaction settlement on the intended settlement date, due to lack of securities or cash and regardless of the underlying cause.

[116] The buy-in process provides that when a settlement fail occurs due to lack of securities, those securities shall be available for settlement and delivered to the receiving participant within an appropriate time-frame.

Chart VI.19 Average daily volume and value of transactions settled in BOGS (2019- June 2023)



Source: Bank of Greece.

Table VI.5 Average daily value and volume of transactions settled in BOGS

	Average daily value (in million euro)					Average daily transaction volume				
	2019	**2020**	**2021**	**2022***	**2023***	**2019**	**2020**	**2021**	**2022***	**2023***
January	1,260.33	1,733.54	1,544.38	12,516.03	14,371.10	237.45	233.41	214.00	238.00	285.00
February	1,438.64	2,519.11	2,009.14	8,091.21	15,029.70	336.65	367.75	315.00	268.00	280.00
March	1,703.39	2,069.01	1,663.07	7,294.69	18,597.92	360.10	300.73	333.00	191.00	249.00
April	1,146.08	2,506.32	1,518.04	12,348.19	17,674.95	307.60	186.85	388.00	200.00	286.00
May	1,139.99	1,529.67	2,061.32	10,653.34	9,828.65	260.17	209.24	280.00	259.00	285.00
June	2,236.98	1,881.47	1,575.82	10,755.71	15,065.65	359.00	318.55	311.00	233.00	308.00
July	1,375.03	1,252.75	1,322.85	8,912.50		382.39	276.00	313.00	280.00	
August	1,143.18	726.86	799.06	7,365.34		203.36	147.00	177.00	144.00	
September	1,279.68	1,394.42	1,719.40	10,975.04		293.90	276.00	284.00	185.00	
October	1,503.12	1,957.54	1,255.66	8,176.61		308.83	388.00	222.00	193.00	
November	1,525.55	1,483.11	1,252.64	11,691.87		292.00	306.00	264.00	191.00	
December	1,429.29	1,606.98	2,080.48	14,253.90		256.60	243.00	357.00	201.00	
Monthly average values	**1,431.77**	**1,721.73**	**1,566.82**	**10,252.87**	**15,094.66**	**300.00**	**271.00**	**288.00**	**215.25**	**282.17**

Source: Bank of Greece.

* As of January 2022, transactions in the special purpose Greek government Treasury bill (Law 4254/14, Article 1, subpara. C.4) are included in transactions data.

Since February 2022, in compliance with the CSDR and the provisions on preventing and addressing settlement fails, BOGS monitors settlement fails and publishes annual reports on the number and details of these cases. Based on the 2022 annual report, transactions that could not be settled due to either lack of securities or lack of cash amounted to 1.73% of the total value of transactions and 18.22% of the total volume of transactions.

3.3 THE DEMATERIALISED SECURITIES SYSTEM OF THE COMPANY "HELLENIC CENTRAL SECURITIES DEPOSITORY"

The settlement activity in the Dematerialised Securities System managed by Hellenic Central Securities Depository (ATHEXCSD) showed an increase in the first half of 2023 both in terms of the value of settled stock transactions and in terms of the daily number of settled transactions compared to the corresponding period of 2022.

More specifically, the average daily number of settled stock transactions in the first half of 2023 reached 37,291, increased by 5% compared to the first half of 2022 (35,609 transactions). On the contrary, the average daily number of settled stock transactions in 2022 (30,126 transactions) showed a small decline compared to 2021 (30,386 transactions) (see Table VI.6 and Chart VI.20).

At the same time, the average daily value of settled stock transactions in the first half of 2023 was 21% higher than in the corresponding period of 2022 and amounted to €110.63 million, compared with €91.35 million in the first half of 2022 (see Table VI.6 and Chart VI.20).

Table VI.6 Average daily number and value of settled transactions in the Hellenic Central Securities Depository

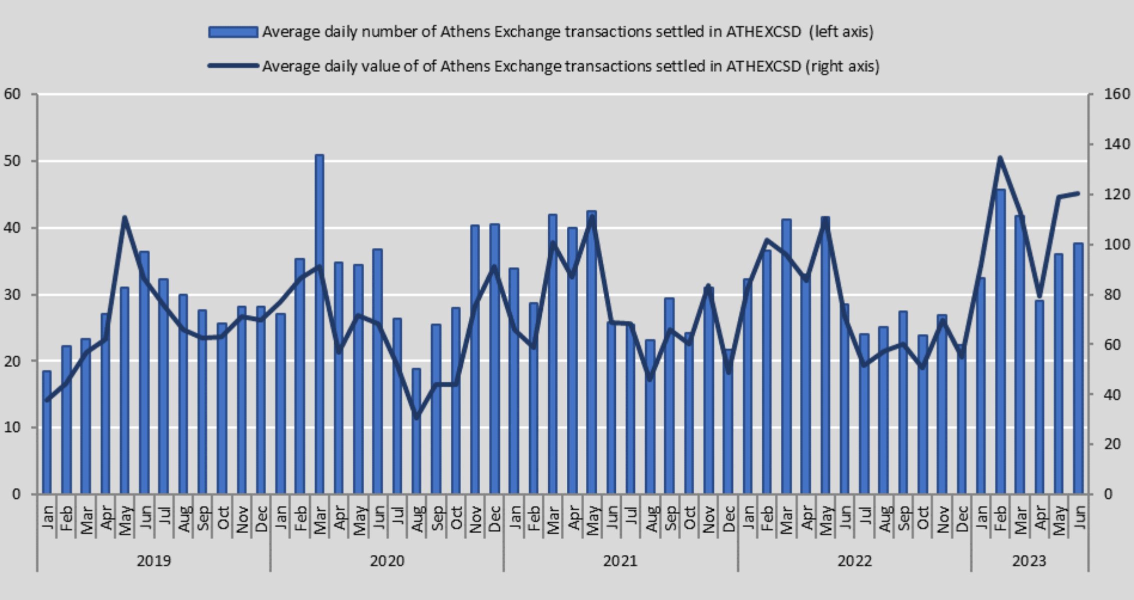
	Equities	Pref. Rights	Corporate bonds	ETFs	Government Debt	Alternative market (Stocks)	Total
Average daily number of transactions settled in ATHEXCSD							
2018	20,324	7	41	2	0	11	20,385
2019	27,383	40	64	3	0.49	32	27,523
2020	32,700	7	64	3	0.21	206	32,982
2021	29,939	56	75	2	2	312	30,386
2022	29,404	12	131	2	0	576	30,126
Jan-June 2023	36,210	42	166	3	0	869	37,291
Average daily cash value of transactions settled in ATHEXCSD (in thousand euro)							
2018	54,962.4	0.7	657.4	47.5	0.0	6.9	55,674.9
2019	66,273.4	23.3	959.4	44.1	39.8	20.8	67,360.8
2020	64,474.5	2.4	760.8	40.0	10.2	119.7	65,407.7
2021	70,247.6	23.5	985.6	17.0	84.7	296.8	71,655.0
2022	72,481.4	12.3	977.1	16.4	0.0	409.0	73,896.2
Jan-June 2023	109,044.7	24.1	843.0	57.5	5.2	652.7	110,627.1

Source: AxiaNumbers Monthly Statistical Bulletin, Hellenic Exchanges – Athens Stock Exchange.

[1] Stock market transactions are the transactions of the Athens Stock Exchange that were settled in the Dematerialised Securities System, calculated by the single count method (purchases only).

Chart VI.20 Average daily number and value of settled transactions in the Hellenic Central Securities Depository (2019- June 2023)

(number of transactions in thousands and value in million euro)



Source: AxiaNumbers Monthly Statistical Bulletin, Hellenic Exchanges – Athens Stock Exchange.

In particular, during the first half of 2023, an increase in corporate bonds transactions was observed. The average daily number of these transactions amounted to 166, compared with 122 in the same period of 2022 (up by 36%). In contrast, the average daily value of corporate bonds transactions decreased significantly (H1 2023: €0.84 million, H1 2022: €1.14 million).

In compliance with the CSDR and the provisions on measures to prevent and address settlement fails, ATHEXCSD, since February 2022, monitors the settlement fails and publishes annual reports on the number and details of these cases. Based on the 2022 annual report, trades that could not be settled either due to lack of securities or lack of cash were scarce and accounted for 0.12% of the total value and 0.05% of the total volume of transactions.

SPECIAL FEATURE I
CRYPTO-ASSETS: CRITICAL ECOSYSTEM EVENTS, RISKS TO FINANCIAL STABILITY, AND REGULATORY DEVELOPMENTS

Alexandros Kaliontzoglou

Haralambos Melegos

Georgios Tsiatouras

Introduction – basic concepts

The crypto ecosystem has been fast evolving in recent years, benefiting from the diffusion and maturation of a wide range of enabling technical solutions, centred on distributed ledger technology (DLT), as well as on users' interest in engaging in financial activities outside the traditional financial system. The emergence of the first cryptocurrency (Bitcoin) in 2009 led to the development of a global crypto-asset industry and a special market for intermediary-free financial products and services with strong decentralised characteristics. In response, a variety of techniques and methods have been developed for issuing crypto-assets within the framework of innovative business models, the majority of which lie outside the existing regulatory framework, with several implications for risk management.

Crypto-assets are a new type of digital representation of value or rights, based on cryptographic and distributed ledger technologies, especially blockchain. While the primary reason for developing crypto-assets is to enable financial transactions between two parties without the need for a trusted third party, crypto-assets with more centralised characteristics have also emerged over time and, in some cases, have even found their way into the portfolios and/or business models of traditional financial sector entities. Crypto-assets can be used as means of payment, as investment products, to access goods or services, or for a combination of these features.

The crypto ecosystem features, inter alia, several types of players interacting within or outside DLT systems. The most representative types of players are: (i) Users – entities that buy, hold and exchange crypto-assets for personal or investment purposes using various types of electronic wallets; (ii) Miners/validators – entities responsible for confirming transactions and creating new units of crypto-assets via complex – and in some cases energy-intensive – processes; and (iii) Node operators – these are the operators of the nodes of the decentralised system where copies of the distributed ledger transactions are kept. The ecosystem also features operators of crypto trading platforms linked to, or built on, one or more DLT systems for the purpose of enabling the buying, selling and trading of crypto-assets, as well as providers of other services, including DLT interoperability solutions and price feeds for smart contracts.

Finally, another component of the ecosystem with booming growth in recent years are a series of specialised applications in the market for DeFi (decentralised finance) services. DeFi applications are similar to traditional financial services such as lending, trading infrastructures, (e.g. decentralised exchanges), payment and investment services, etc., with the notable difference that transactions operate without the need for intermediaries (e.g. banks), based on smart contract technology within the distributed ledger.

Crypto-assets can be classified into different groups according to their characteristics and use. However, a key taxonomy is based on whether or not they are designed with a stabilisation mechanism to minimise major fluctuations in value. In the market jargon, crypto-assets with a stabilisation mechanism are referred to as "stablecoins" and those without are referred to as "unbacked crypto-assets".[117] Through the stabilisation mechanism, a crypto-asset attempts to link its market value to an underlying good or asset, or a group of goods or assets. A fairly common case are crypto-assets (such as Tether – USDT) that peg their value to a traditional fiat currency (e.g. US dollar, euro), aiming at an 1:1 exchange rate. The stabilisation mechanism is often backed by a pool of reserve assets that can be managed to ensure that crypto-assets are redeemable at all times. It should be noted that minimising fluctuations in the crypto-asset's market value relative to the peg value is central in DeFi applications.

The second group comprises "unbacked crypto-assets"[118], i.e. crypto-assets whose market value is not linked to an underlying good or asset, but rather determined on the basis of valuation assessments by potential holders or the market's supply and demand dynamics, and may thus fluctuate significantly even over short time periods. Unbacked crypto-assets follow proof-of-work or proof-of-stake protocols for transaction validation and are typically used as a medium of exchange or as a store of value. Prominent examples include Bitcoin and Ether.

Critical events in the crypto ecosystem

The price of Bitcoin between August 2015 and its most recent peak in November 2021 soared from USD 250 to USD 69,000, attracting attention from an increasing number of investors. The rise in the value of popular crypto-assets has in turn brought even more users into the crypto ecosystem. Indicatively, in late 2017, and again in early 2021, i.e. the two periods when the value of Bitcoin rose at historically fast rates, around 100 million and 500 million new users, respectively, onboarded to the cryptocurrency. However, in 2022 the value of several crypto-assets, including Bitcoin and Ether, reversed course, plunging by about 75%. This turnaround largely reflected two shock episodes.

First, in May 2022 algorithmic stablecoin TerraUSD (UST), which was supposed to keep a one-for-one peg to the US dollar, collapsed. UST ran on the Terra network, whose native asset was Luna. A stabilisation mechanism absorbed fluctuations in UST's dollar peg by creating or destroying Luna (mint-and-burn mechanism). In early May 2022, UST started to fall below parity with the US dollar, reaching USD 0.91. The crisis was likely the result of two factors. The first was a run on Terra a few days before the collapse. The second was a rise in broader concerns resulting in value declines for known crypto-assets. As the crisis unfolded, UST holders massively converted their UST holdings into Luna, leading to a further decoupling between UST and USD, and, ultimately, to the definitive collapse of Luna.

The second episode was the bankruptcy of FTX, one of the most popular crypto exchanges, in November 2022. FTX's bankruptcy was the latest in a series of events prompted by concerns about the platform's liquidity and solvency. Similar to developments in UST/Luna, the value of

[117] IMF (2022),"Regulating the Crypto Ecosystem: The Case of Unbacked Crypto Assets".
[118] There may be cases where the use of the term "unbacked crypto-assets" to mean non-stablecoins is inappropriate, given that the term refers to crypto-assets without reserve backing, whereas there exist e.g. algorithmic stablecoins that also lack such backing and which are unlinked to an underlying asset via a stabilisation mechanism.

FTT (a native crypto-asset of FTX) crashed as soon as the news broke that a crypto-asset trading platform ran by FTX's sister company Alameda Research used huge amounts of FTT as assets. Subsequent talks about the acquisition of FTX by other companies in the same line of business failed following revelations about FTX's mishandling of customer funds and use of unethical practices, while later it was also revealed that Alameda's FTT holdings had come from a loan granted by FTX from funds misappropriated from FTX user accounts.

To some extent, the crisis unleashed by the bankruptcy of FTX spilled over to the US regulated banking system, leading to the collapse of crypto-friendly Silvergate Capital bank on 8 March 2023, a development associated with the fact that FTX had withdrawn about USD 1 billion of its deposits from Silverate Capital during its own collapse. Also, a body of literature converges that the bankruptcy of FTX also played a role in the collapse of Silicon Valley Bank and, a few days later, of Signature Bank, adding to the problems already facing these banks both in relation to their business and governance models, supervisory framework, risk management implementation and recovery capabilities and in relation to the overall macroeconomic conditions.

A number of key takeaways of relevance to the above two episodes can be found in a study by the Bank for International Settlements (BIS)[119] examining the impact of these shocks on the international financial system and investors' behaviour in response to the shocks.

The first takeaway is a need for greater protection of smaller retail investors from larger crypto players, given that just before the UST/Luna steep price decline and the FTX collapse, crypto trading activity had increased markedly, with large and sophisticated investors selling and smaller retail investors buying. The study's data reveal that, in each of these episodes, owners of large wallets managed to reduce their exposure to popular crypto-assets in the short period separating the actual collapse from the events triggering it. Thus, it appears that larger investors were able to profit at the expense of smaller holders.

A second takeaway is that while the losses caused by the two crypto-asset shocks were overwhelming, the repercussions for the wider financial system were limited. However, this conclusion is subject to one important caveat: Silvergate Capital collapsed in the month following the publication of the BIS study.

A further shock – this time in Europe – came from the bankruptcy of the Nuri crypto exchange. Nuri was a successful German fintech company, which engaged in the provision of both fiat and crypto banking products based on Solaris bank's Banking-as-a-Service (BaaS)[120] service solutions – Solaris bank acted as a licensed BaaS service provider for Nuri. Nuri also collaborated with crypto lender Celsius Network, which however went bankrupt in August 2022. As a result, Nuri also went bankrupt, and it was then the turn of Solaris Bank to find itself in liquidity distress. This has raised concerns that BaaS business models may involve partnerships and risks that are not always easy to identify.

[119] *BIS Bulletin* No. 69, 20.2.2023, "Crypto shocks and retail losses".

[120] Banking-as-a-Service (BaaS) is a white-label business model that enables regulated and unregulated businesses to partner with a licenced BaaS service provider (a bank, an e-money institution, a payment institution) to provide embedded end-user financial solutions under their own branding based on the BaaS service provider's licence.

Risks to financial stability

At the current development stage of the crypto ecosystem, the risks it poses to financial stability are mainly a function of its interconnectedness with the traditional financial system. These links can take several forms: first, supervised institutions (e.g. banks) may have holdings or investments in crypto-assets; second, licensed financial institutions may be involved in the provision of services to and from crypto or DeFi service providers (e.g. crypto lending, DLT financial infrastructures); finally, crypto-assets may be used as financial instruments or as a means of payment accepted by merchants and non-financial entities.[121]

Given these increased interconnections and interdependencies, a major shock affecting payers in the crypto-asset market, such as the episodes analysed in the previous section, may lead to turmoil in the traditional financial system. Risks, such as liquidity risk, market risk, credit risk, operational risk (including cyber risk) and counterparty risk, as well as those associated with illicit financial flows, are of great interest from a supervisory perspective, especially if they emanate from global players with significant organic growth or providing cross-border services to multiple users and businesses. Apart from these risks, financial stability could also be threatened in a scenario where there is a large shift from bank deposits to crypto-assets (deposit disintermediation).

It is important to note that shocks can be transmitted extremely quickly nowadays, as the relevant news and rumours can instantly circulate across the globe via the internet or social media, and also because of the possibility for online instant capital transfers. This means that supervisors need to be vigilant and ready to act swiftly.

From a supervisory point of view, the key current challenges for understanding and monitoring the functioning of the crypto ecosystem have largely to do with the fact that until recently Europe lacked a harmonised and holistic regulatory framework for the crypto market, as well as with the limited availability of official data sources.

In Europe, crypto-assets have so far been assessed by supervisors to pose a low risk to financial stability, given that the traditional financial system has hardly any exposure from holdings of crypto-assets or the provision of services related to crypto-assets. That may change by bringing a subset of crypto-assets under a regulatory regime, based on whether they qualify as financial or investment instruments, as a medium of exchange or a means of payment, or as a combination thereof. A thus created stable regulatory framework for markets in crypto-assets would ensure legal certainty and could attract global interest in the establishment of, thus far unregulated, crypto players in the EU. The next section provides a review of recent developments in the regulatory framework for markets in crypto-assets, focusing on the EU and Greece.

Regulatory developments

Directive (EU) 2018/843 (also known as AML5 or fifth EU anti-money laundering directive), which was transposed into Greek law by Law 4557/2018, as amended by Law 4734/2020, has been until recently the only harmonised regulatory framework in the EU governing matters of virtual currencies. However, this framework only applies to two categories of crypto-asset service providers whom it subjects to registration requirements rather than proper supervision. In Greece,

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[121] For a discussion of certain activities, at a global level, which expose banks to crypto-assets, see the distribution across activities of bank-specific exposures in the BIS report entitled "Banks' exposures to cryptoassets – a novel dataset".

the task of maintaining the register of crypto-asset service providers is the responsibility of the Hellenic Capital Market Commission.

Acknowledging the challenges and risks associated with the presence of unregulated and uncontrolled crypto-asset activity in Europe, the European Commission led the way globally by adopting in 2020 a legislative package aiming at addressing, in a comprehensive and coordinated manner, a series of issues relating to legal certainty, consumer and investor protection, market integrity, monetary sovereignty and financial stability, while at the same time fostering financial service innovation.

The approach initially followed recognised that there was a subset of crypto-assets which qualified as financial instruments and could therefore be covered by existing Union legislation, including Directive (EU) 2014/65 on Markets in Financial Instruments (MiFID II). In response, Regulation (EU) 2022/858 on a pilot regime for market infrastructures based on distributed ledger technology[122] was developed to secure an appropriate supervisory framework for financial market infrastructures which use distributed ledger technology to provide trading and settlement services for crypto-assets that qualify as financial instruments. As a major innovation, the new Regulation, having regard to the specificities brought about by distributed ledger technology in market infrastructures, provided that supervisory authorities could apply discretionary and conditional exemptions to the requirements of Union financial services legislation.

For crypto-assets that are not regulated under EU financial services legislation, including those that qualify as e-money, Regulation (EU) 2023/1114 on markets in crypto-assets[123] (also known as MiCAR) was developed. It is important to note that entities that will be subject to authorisation and supervision under MiCAR are also covered by Regulation (EU) 2022/2554 on digital operational resilience for the financial sector (also known as Digital Operational Resilience Act – DORA).

Specifically, MiCAR lays down a series of rules covering the authorisation and supervision of issuers of certain categories of crypto-assets and crypto-asset service providers; transparency and disclosure requirements for offering to the public and admitting of crypto-assets to a trading platform; the operation and governance of the issuers and crypto-asset service providers, as well as measures to prevent market abuse. It defines, among other things, the set of crypto-assets that fall within its scope, singling out three main types: *e-money tokens (EMT), asset-referenced tokens (ART)* and *crypto-assets other than asset-referenced tokens and e-money tokens*.

MiCAR will apply from December 2024. However, the provisions on issuers of asset-referenced tokens and e-money tokens (Title IV) will apply earlier, from June 2024. In 2024, the European Supervisory Authorities will complete the adoption of secondary legislation (technical standards and guidelines) resulting from the introduction of the new Regulations in order to clarify and specify individual provisions of the Regulations. Meanwhile, in July 2023 the European Banking Authority (EBA) published a statement[124] encouraging entities interested in engaging in activities within the scope of MiCAR to take timely actions to prepare for the forthcoming requirements under MiCAR, including by following a set of informal guiding principles until the application

[122] EUR-Lex - 32022R0858 - EN - EUR-Lex (europa.eu)
[123] EUR-Lex - 32023R1114 - EN - EUR-Lex (europa.eu)
[124] EBA encourages timely preparatory steps towards the application of MiCAR to asset-referenced and electronic money tokens

date of the new Regulation. Clarifications with regard to the EBA statement will be provided by the Bank of Greece Fintech Innovation Hub upon request.[125]

Another related framework is the Basel Committee on Banking Supervision (BCBS) standard on the prudential treatment of banks' exposures to crypto-assets, endorsed in December 2022.[126] The new standard will enable prudential treatment of supervised banks' crypto-asset exposures. This will be based on a classification system, under which crypto-assets are classified into different groups based on a set of specific classification criteria, and each group is assigned a specific risk weight, according to its effect on capital requirements. The standard is expected to be integrated into EU legislation in the coming years.

In concluding this section, it would be remiss not to make special mention of Greek Law 4961/2022 (on "Emerging information and communication technologies, strengthening digital governance and other provisions"), which regulates the use of DLT in all sectors and attempts to bring this technology under the framework of civil law.

Conclusions

The adoption of a harmonised regulatory framework that deals with an extensive group of crypto-assets and related services at the EU level is expected to have a significant and positive effect on the mitigation and management of associated risks, thereby ensuring holder and investor protection, and safeguarding the integrity and stability of the financial system.

Even so, a few regulatory gaps will remain to be addressed at a later stage, especially in relation to DeFi services, which, by design, are crypto-asset-based. Special mention should be made of crypto lending services, mainly in the context of DeFi, as these will continue as an unregulated activity with inherent risks. Crypto lending services relate to the broader issue of non-bank lending, for which no EU-wide harmonised framework of applicable common requirements currently exists.

All in all, the dynamic and complex nature of crypto-asset products and related services will pose significant challenges as regards the implementation of the new frameworks, the conduct of prudential supervision and the achievement of EU supervisory convergence. Addressing these challenges will require increased vigilance, co-operation and prudential resources.

[125] Fintech Innovation Hub (bankofgreece.gr)
[126] BCBS (2022), Prudential treatment of crypto asset exposures

SPECIAL FEATURE II
2023 EUROPEAN BANKING AUTHORITY EU-WIDE STRESS TEST

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The primary objective of regulatory stress tests is to assess the financial resilience, stability and robustness of financial institutions under adverse economic conditions. Through the implementation of hypothetical, yet plausible, stress scenarios by supervised financial institutions or by supervisory authorities, supervisors and banks can identify vulnerabilities, gauge capital adequacy, and take proactive measures to mitigate risks, ultimately safeguarding the integrity of the financial system and protecting depositors and investors.

According to the Article 100 of the EU Capital Requirements Directive (CRD), all EU competent authorities are obliged to carry out on an annual basis supervisory stress tests on institutions they supervise. The supervisory stress test results act as an input in the Supervisory Review and Evaluation Process (SREP) and, among other things, feed the estimations of the Pillar 2 guidance (P2G). P2G is a bank-specific recommendation that outlines the level of capital that supervisors anticipate banks to maintain beyond their mandatory capital requirements to ensure that banks can absorb potential losses resulting from adverse scenarios.

The European Banking Authority (EBA), in cooperation with the European Systemic Risk Board (ESRB), every alternate year, initiates and coordinate the EU-wide stress test. The EU-wide stress test is a forward-looking exercise and assesses the performance of banks under two different scenarios, the baseline and the adverse, over a 3-year stress test horizon. For 2023, the EBA conducted the EU-wide stress test exercise on a sample of 70 EU banks covering roughly 75% of total banking sector assets in the EU and Norway. The Singly Supervisory Mechanism (SSM) conducted the stress test exercise for 98 significant institutions, including those that were already covered by the EBA sample. With respect to the Greek banking sector, all Greek significant institutions were included in the EBA sample.

The 2023 EU-wide stress test exercise was conducted at the highest level of banking group consolidation as defined by the CRR/CRD, with reference date as of 31/12/2022. The regulatory regime that was applicable as of end-2022 was considered. All balance sheet and P&L components were projected based on the applicable accounting regime valid on 31 December 2022 and the impact of the EU-wide stress test on capital and leverage ratios was estimated. It is worth noting that no pass or fail capital thresholds are considered for the purpose of the exercise.

It should be noted that the EU-wide stress test focuses on the assessment of the impact of risk drivers on the solvency of banks. Specifically, banks were required to stress credit risk, market risk and operational risk. In tandem with the aforementioned risks, banks estimated the impact of macroeconomic scenarios on the P&L and capital items arising from all other risks (e.g. Net Interest Income impact). The EU-wide stress test exercise is a static balance sheet exercise. Assets or liabilities that mature in the stress test horizon (i.e. 2023-2025) must be substituted for with similar instruments concerning their type, currency, credit quality at the maturity date and their original maturity as of the beginning of the exercise. Another assumption of the exercise that is worth mentioning is that workouts or cures of stage 3 exposures are not permitted. Thus, if an exposure is migrated to stage 3, from the reference date to the end of the stress test horizon, it is assumed that the exposure will continue to be classified as a stage 3 exposure throughout the entire 3-year stress test horizon.

Adverse scenario

The risk assessment is conducted under two macroeconomic scenarios, a baseline and an adverse. The narrative of the adverse scenario for the 2023-EU wide stress test drew upon a subset of the main financial stability risks to which the EU banking sector was exposed. The Russian invasion of Ukraine led to a severe geopolitical polarisation that affected commodity prices. In addition, the inflation pressures elevated inflation expectations, depressed households' real income, curtailed private consumption, increased unemployment and triggered monetary policy reactions, leading to, among other things, significantly higher market interest rates. The mix of prevailing financial conditions resulted also in a severe contraction of real GDP, while the weaker economic outlook and tighter financial conditions have also exerted downward pressure on real estate prices.

Specifically for the Greek (GR) economy dynamics, the 2023 macroeconomic scenario is more benign compared to the Euro Area (EA) average. In the table below some of the key macroeconomic variables are provided for the 2023 adverse scenario.

Table 1 EU-wide Stress Test 2023 – Key macroeconomic variables (adverse scenario)

Cumulative growth (%)	Greece	Eurozone
GDP	**-5.5**	-5.9
Unemployment (in percentage points)	**4.8**	5.7
Inflation	**16.9**	19.2
Residential Real Estate prices	**-6.3**	-20.4
Commercial Real Estate prices	**-16.6**	-28.9

Source: ECB.

Main methodological changes relative to the 2021 EU-wide Stress Test exercise

The methodology of the 2023 EU-wide stress test was similar to the 2021 EU-wide stress test exercise, with the exception of the following important methodological changes:

• In calculating net interest income (NII), a lower pass-through rate of reference rates to household deposits and corporate deposits was allowed (i.e. from 100% in the ST 2021 to 50% and 75% respectively in the ST 2023). That is, the impact of reference rates on banks' deposit rates is smaller, meaning that interest paid by banks on deposits increased less compared to the macroeconomic scenario, so benefiting their NII through lower interest expenses.

• The projections for Net Fee and Commissions Income (NFCI) were estimated via the EBA top-down model and delivered to banks to be used directly in their submissions, thereby decreasing the leeway of bank-specific modelling approaches and facilitating the shift to a hybrid approach (i.e. a mix of the bottom-up and top-down models).

Results of the 2023 EU-wide Stress Testing exercise

The average CET1 ratio depletion over the horizon of the exercise was -4.8% for all SSM banks, against -2.2% for Greek banks. The outperformance of Greek banks relative to their European peers as well as in comparison with their previous stress test exercises performance can be attributed to the following factors:

• More benign macroeconomic scenario for Greek banks.

• Significant improvement in their NPE ratios since ST 2021, which substantially altered their balance-sheet structure.

• Increased Pre-Provisioning Profits (PPP) that serve as a first line of defense against additional losses.

• Lower administrative expenses that signal a higher cost efficiency/profitability ratio and render Greek banks more capable of managing additional losses incurred under the stress test.

Nevertheless, Greek banks incurred higher loan losses under the adverse scenario relative to their European peers (Greek banks: -5.6%, All: -4.4%).

The impact on the fully loaded CET1 ratio for Greek banks broken down by P&L component is presented below.

Table 2 Impact breakdown, under the adverse scenario, on the Common Equity Tier 1 fully loaded ratio for Greek banks (CET1R fully loaded)

	CET1R end-2022 (%)	Risk-Weighted Assets-2022 (bill. euro)	Credit Risk	Market Risk	Net Interest Income	Operational Risk	Net Fee and Commission Income	Other Profit and Loss items	Other Capital items	Risk-Weighted Assets	CET1R FL end-2025 (%)	Change CET1R (2022 - 2025) (%)
							(%)					
Euro area	**15.1**	**8,495.9**	**-4.5**	**-1.4**	**9.0**	**-0.6**	**4.5**	**-10.4**	**-0.2**	**-1.4**	**10.4**	**-4.8**
Greece	**13.6**	**145.2**	**-5.6**	**-1.0**	**10.8**	**-0.3**	**2.4**	**-8.3**	**-0.1**	**-0.2**	**11.3**	**-2.2**
National Bank of Greece	15.8	36.2	-4.7	-1.1	11.3	-0.3	2.0	-8.7	0.3	-0.1	14.5	-1.4
Alpha Bank	11.9	33.9	-6.3	-0.8	11.2	-0.4	2.7	-9.0	-0.1	-0.4	8.9	-3.1
Piraeus Bank	11.5	30.7	-6.2	-0.6	11.7	-0.3	2.9	-9.0	-0.5	-0.4	9.1	-2.4
Eurobank	14.4	44.3	-5.3	-1.2	9.5	-0.2	2.1	-7.0	0.0	0.0	12.2	-2.2

Source: ECB.

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