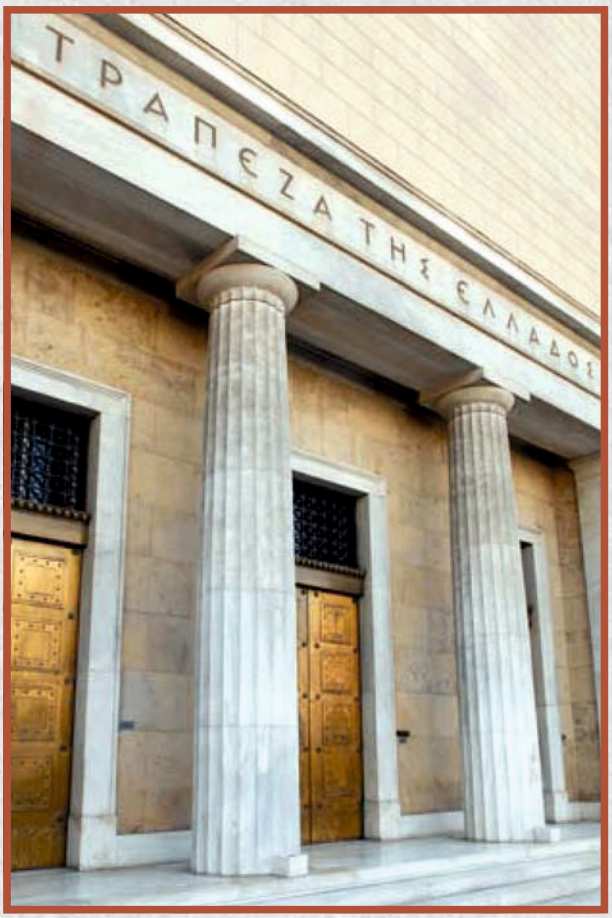
FINANCIAL STABILITY REPORT

JULY 2010



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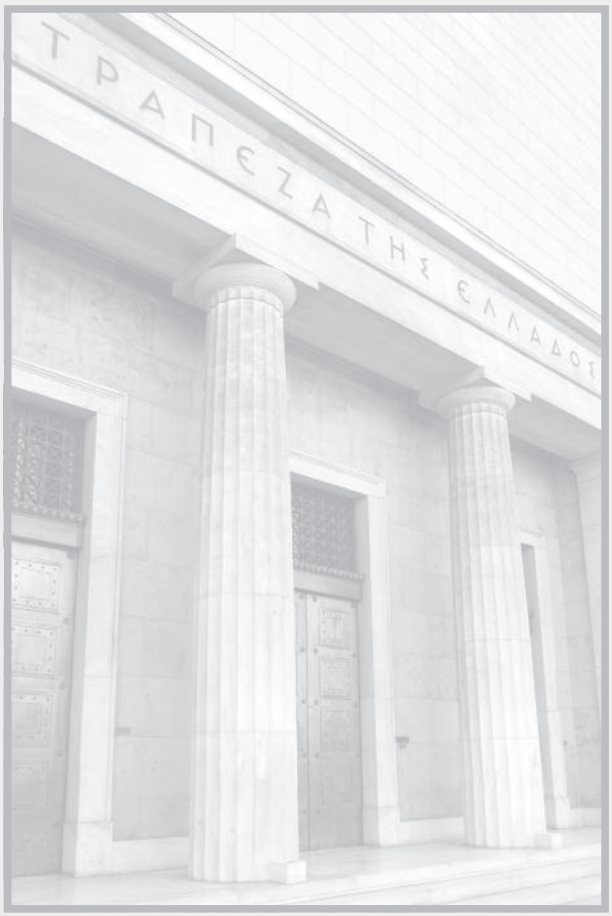

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Financial stability can be defined as a condition in which the financial system as a whole —comprising banks and other financial intermediaries, money, credit and capital markets and market infrastructures (payment and clearing and settlement systems)— is resilient and able to withstand any unexpected shocks or unwinding of imbalances, thus minimising the likelihood of disruptions which are severe enough to jeopardise the efficient allocation of savings and the smooth flow of money and credit into the socially most beneficial uses and activities.

FOREWORD

Financial stability contributes to economic and social welfare, as it promotes the efficient allocation of resources and the channelling of available savings into the socially most beneficial uses at the lowest possible cost.

The Bank of Greece has been entrusted with the statutory task of monitoring and assessing financial stability in Greece. According to its Statute, the Bank is mandated to "supervise credit institutions, as well as other enterprises and institutions of the financial sector" and "promote and oversee the smooth operation of payment systems, as well as of trading, settlement or clearing systems for over-the-counter (OTC) transactions in securities and other financial instruments" (Article 2, points d and e); the objective of prudential supervision is "to enhance the stability and effectiveness of the credit system and of the financial sector in general" and "ensuring transparency of the procedures and terms of transactions carried out by those subject to supervision" (Article 55A).

The present Report reviews developments in the financial sector in 2009 and the first months of 2010, focusing on those factors that could disturb the stability of the financial system, while it also discusses some more specific issues. During the period under review, facing a fiscal crisis that broke out in late 2009 and intensified in the first months of 2010, in May 2010 Greece resorted to the support mechanism established by the European Union and the International Monetary Fund. Fiscal developments affected the banking system, as the sovereign debt downgrades were followed by similar downgrades for Greek banks, hampering their access to funding. These problems were addressed through actions taken by the Greek government and the Eurosystem to support the liquidity of the banking system. Capital support to the Greek banking system will also be provided, where necessary, by the Hellenic Financial Stability Fund.

Meanwhile, in the wake of the global financial crisis, further supervisory and regulatory initiatives were taken at the international level in the first half of 2010, which are expected to shape, gradually over the next few years, a new international banking environment. Last but not least, the period under review saw the publication of the results of the EU-wide stress test exercise conducted by the Committee of European Banking Supervisors (CEBS) and the national supervisory authorities in cooperation with the ECB.

The Bank of Greece will continue to closely monitor developments in the banking system and will act to ensure financial stability in Greece.

George A. Provopoulos

Governor

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I EXECUTIVE SUMMARY

Since the publication of the Interim Financial Stability Report in December 2009, the factors determining the stability of the domestic financial system have come under severe pressure.[1] The positive effects from the first signs of recovery in the global economy have been more than offset by the negative impact from the deterioration in Greece's public finances and eroded competitiveness. These adverse developments triggered successive credit rating downgrades of the Greek State and, inevitably, later on, of Greek banks; as a result, international money and capital markets dried up for the latter, and the financial system and the economy of Greece experienced severe liquidity stress. The Greek banking system has shown remarkable resilience to these pressures. However, maintaining financial stability in the long term will crucially hinge upon the consolidation of confidence of households, non-financial corporations, markets and the international community to the economic prospects of the country. This calls for sustainable, ongoing and convincing fiscal adjustment, as well as structural reforms that will remove the obstacles to the competitive and efficient functioning of product and labour markets and put an end to the distortions that have persisted for decades.

Developments so far seem to confirm the earlier signs of a mild and gradual recovery in the world economy, identified in the Interim Financial Stability Report. However, the global recovery, albeit somewhat stronger than initially expected, remains vulnerable to possible unexpected financial shocks and is uneven across regions. The US economy seems to be driving the recovery, followed by Europe and Japan, while a brighter outlook is suggested by macroeconomic developments in emerging and developing economies. In the countries of South-Eastern Europe, where Greek banks have a significant presence, there have been tentative signs of stabilisation in the overall economic environment, along with indications of a gradual economic upturn. During the next few months, in any case, the pace of recovery of the South-East European economies is likely to be modest, as domestic demand remains relatively weak and the potential for a strengthening in exports and capital inflows is dampened by still subdued activity in the advanced economies of Europe.

The gradual improvement in global economic activity has contributed to mitigating the risks to global financial stability. On the other hand, there are mounting market concerns about the fiscal deficits and debts that are growing worldwide. In certain countries, the successive credit rating downgrades and other developments interpreted by the markets as an indicator of future sovereign risk have weighed heavily on short-term trends and developments in capital markets, as investors demand higher risk premia. As for banks in these countries, access to funding markets has been seriously limited, a development which, if not reversed, could jeopardise the prospect of a recovery in credit expansion to the private sector.

The unprecedented fiscal measures taken by governments over the last two years in response to the crisis have, as a side-effect, caused a surge in public debt in most of the advanced economies. The need to service this debt in the years ahead will exert upward pressure on interest rates and, through the saving-investment channel, will squeeze potential growth. To prevent this, it is necessary to press ahead with fiscal adjustment, but in a manner and at a pace that do not undercut the short-term prospects for recovery. Rather, in order to strengthen these prospects and give the long-term growth process solid footing, fiscal adjustment must be accompanied by structural reforms that will enhance the productive capacity of the economies and their ability to absorb economic and/or financial shocks.

1 Box I.1 provides an update on developments in the banking sector during the first months of 2010. The reference periods for the other chapters of this report are as follows: the first half of 2010 for Chapter II (international and domestic macroeconomic environment); the first half of 2010 for Chapter III (money and capital markets); the year 2009 for Chapters IV and V (the banking sector and other financial system sectors, respectively); and the year 2009 and the first half of 2010 for Chapter VI (financial market infrastructures).

Focusing on the Greek economy, its performance deteriorated further in the first months of 2010, putting strain on the determinants of the stability of the domestic financial system. The worsening of the macroeconomic environment is reflected in the considerable GDP contraction of the first quarter. The economic downturn is primarily due to the substantial drop in public consumption and fixed investment, while the small increase in private consumption in the first quarter of 2010 is not expected to continue into the following months, once the impact from the income policy measures makes itself felt. Although inflation rose in the first five months of 2010, subdued aggregate demand and the implementation of structural reforms that increase competition in the goods and services markets should contain price rises. Employment fell and the unemployment rate rose, while the outlook for the labour market seems difficult, at least until the end of this year.

A decisive step out of the impasse and towards reversing the dire trends was taken when the Greek government launched its economic policy programme, with the financial backing of the European Union and the International Monetary Fund.

* * *

Declining economic activity has put further pressure on the financial condition of non-financial corporations and households. With respect to the former, data from a sample of some 4,800 non-financial corporations, for which comparative data are available for the entire 2007-2009 period, point to a visible deterioration in profitability and liquidity ratios. In 2009, profitability fell considerably and about one third of the sample firms (almost as many as in 2008) reported losses; the internal liquidity ratios deteriorated further, but continue to provide an, albeit thinner, buffer. The worsening in firms' liquidity was partly due to a slowdown in corporate credit growth, as a result of both loan demand and supply factors. On the demand side, the declining trends in turnover and pessimistic forecasts about overall economic activity have reduced business firms' propensity to invest in fixed or current assets; on the supply side, banks have tightened their credit standards due to the increasing credit risk. On the other hand, the lower principal and interest payments for firms, as well as the lengthening of the weighted average maturity of their outstanding debt, are both positive developments.

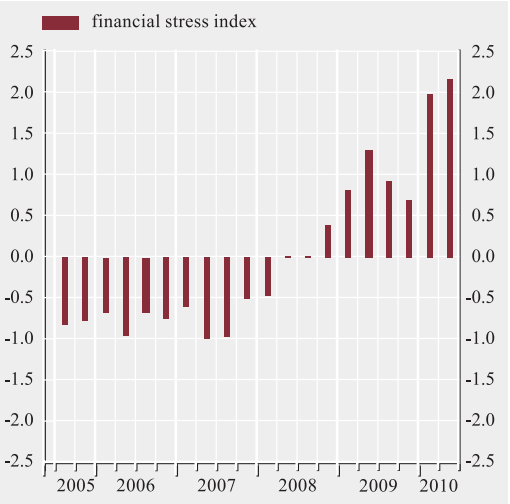
Turning to households, the slowdown in credit growth throughout 2009 continued into the first five months of 2010. On the demand side, the bleak outlook for income and employment is negatively affecting household confidence and propensity to consume and borrow; on the supply side, as with non-financial corporations, banks are more reluctant to lend, in the face of a rise in non-performing loans and doubts about certain households' debt serving capacity in the current adverse economic environment. Households' financial condition benefited in 2009 from the decline in interest rates to exceptionally low levels, which helped contain the household debt-to-income ratio. For 2010, income risk is seen as the major factor of uncertainty for households, as both disposable income and the employment rate for households as a whole are expected to fall. On a positive note, the average indebtedness of households as a whole remains below the EU average, although households in the lower income brackets are expected to experience financial stress. Finally, a continuation in 2010 of the correction in the real estate market should only have a small effect on the overall financial condition of households. The mild nature of this correction would imply a low risk of an abrupt and drastic change in households' nominal wealth.

In the first five months of 2010, the stability of the domestic financial system came under considerable pressure from developments in the money and capital markets, in particular the market for Greek government bonds. This pressure is also reflected in the Financial Stress Index, monitored by the Bank of Greece (see

Chart I.1).[2] The worsening of Greece's fiscal prospects —prior to the agreement on the three-year adjustment programme— and the ensuing credit rating downgrades led to a sharp rise in the yields of Greek government bonds and, from April 2010 onwards, to a sharp drop in their tradability on international bond markets, and brought transactions on the Electronic Secondary Market for Securities (HDAT) to a virtual standstill. Naturally, these developments spilled over to other markets that are a source of funding for Greek banks. The Greek stock market was also adversely affected, while market concerns about possible contagion to other euro area countries also facing fiscal challenges played a significant part in the depreciation of the euro.

As was to be expected, these developments compressed the profitability and liquidity ratios of the banking sector in 2009, and are expected to continue to do so this year, as suggested by figures for the first quarter of 2010 (see Box I.1). Greek banks' pre-tax profitability fell substantially in 2009 (by 93.7% and 59.4% for banks and banking groups, respectively, over the previous year),[3] reaching an eight-year low. Banks recorded after-tax losses, while banking groups saw their profits nearly halved relative to the previous year. Against an adverse macroeconomic background, banks' main sources of income tightened, resulting in a narrowing in the net interest margin to below 2% for the first time since Greece's euro area entry. Moreover, because of the higher credit risk, provisions for that type of risk accounted for more than one third of operating income, which had a direct impact on profitability. The decline in profitability was mitigated by trading gains, which however are a very volatile source of income, and by foreign operations, which contributed 25% of the total profits of banking groups with a significant international presence. Profitability is expected to shrink further in the current year.

Chart I.1 Financial stress index (June 2005-March 2010)



Source: Bank of Greece.

2 The Financial Stress Index (FSI), calculated on a quarterly basis, is a composite measure of the relative stress in the domestic banking system. The higher the FSI value, the higher the tensions prevailing at a given moment. The FSI is compiled using a number of variables, such as share prices, CDS spreads, interest rates, bank profitability and capital adequacy, etc.

3 It should, however, be noted that the pre-tax pre-provision profits of banks and banking groups increased by 15.7% and 5.7%, respectively.

Box I.1

DEVELOPMENTS IN THE GREEK BANKING SECTOR IN THE FIRST MONTHS OF 2010

The Greek banking system faced serious challenges in the first months of 2010, on account of mounting concerns among international investors about the medium-term fiscal and overall economic prospects of Greece, which triggered successive credit rating downgrades of the Greek government and, consequently, of Greek banks and their securities issues. As a result of these developments:

Table A Key vulnerability and shock-absorption capacity indicators of Greek commercial banks and banking groups

(percentages)

	Banks		Banking groups	
	December 2009	March 2010	December 2009	March 2010
Asset quality[1]				
Non-performing loans (NPLs) - total	7.7	8.2		
– Housing loans	7.4	8.2		
– Consumer loans	13.4	14.7		
– Business loans	6.7	7.0		
Coverage ratio (accumulated provisions over NPLs)	41.5	42.8		
Liquidity				
Loan-to-deposit ratio	106.6	111.5	113.7	118.4
Liquid assets ratio	24.2	20.5	21.4	18.7
Asset-liability maturity mismatch ratio	-4.2	-12.4	-4.9	-9.4
Capital adequacy				
Capital adequacy ratio (CAR)	13.2	13.0	11.8	11.7
Tier 1 ratio	12.0	11.7	10.6	10.6
	Q1 2009	Q1 2010	Q1 2009	Q1 2010
Profitability[2]				
Net interest margin	1.7	2.0	2.5	2.7
Cost-to-income ratio	59.5	65.8	54.2	58.0
Return on assets – ROA (after tax)	0.0	-0.6	0.4	-0.2
Return on equity – ROE (after tax)	1.1	-11.0	7.5	-3.4

Sources: Bank of Greece and financial statements of banks and banking groups.
1 NPL data on international activities are not comparable and therefore the NPL ratio on a consolidated basis is not reported.
2 Profitability data refer only to Athex-listed Greek commercial banks and their groups.

- international money and capital markets virtually closed for Greek banks;
- customer deposits declined; and
- the recourse of Greek banks to the Eurosystem for liquidity increased further.[1]

The pressure on the liquidity of Greek banks and banking groups was also reflected in the slight deterioration of regulatory liquidity ratios and the loan-to-deposit ratio (see Table A).

1 At end-June 2010, financing from the Eurosystem amounted to €93.8 billion, up from €49.4 billion in December 2009. It should be pointed out that in the third quarter of 2009, following recommendations of the Bank of Greece, Greek banks reduced their recourse to Eurosystem funding by resorting to alternative sources of financing, such as senior debt issues, covered bonds, etc.

Table B Financial results of Athex-listed Greek commercial banks and banking groups (Q1 2009-Q1 2010)

(amounts in million euro)

	Banks			Banking groups		
	Q1 2009	Q1 2010	Change (%)	Q1 2009	Q1 2010	Change (%)
Operating income	**2,218**	**2,082**	**-6.1**	**3,643**	**3,527**	**-3.2**
Net interest income	1,720	2,076	20.7	2,648	3,060	15.6
– Interest income	4,785	4,072	-14.9	6,686	5,878	-12.1
– Interest expenses	3,065	1,996	-34.9	4,038	2,818	-30.2
Net non-interest income	498	6	-98.7	995	467	-53.1
– Net fee income	286	282	-1.1	519	518	-0.1
– Income from financial operations	172	-278	-	366	-148	-
– Other income	40	2	-95.3	111	96	-13.1
Operating costs	**1,320**	**1,370**	**3.8**	**1,992**	**2,056**	**3.2**
Staff costs	802	834	3.9	1,147	1,190	3.8
Administrative costs	421	445	5.8	666	681	2.2
Depreciation	91	87	-3.4	173	181	4.7
Other costs	6	4	-41.2	6	3	-48.7
Net income (operating income less costs)	**898**	**712**	**-20.7**	**1,651**	**1,472**	**-10.9**
Provisions for credit risk (impairment charges)	792	1,203	52.0	1,064	1,491	40.1
Pre-tax profits	**106**	**-491**	**-**	**587**	**-15**	**-**
Taxes	57	129	126.9	155	251	61.9
After-tax profits	**49**	**-620**	**-**	**432**	**-266**	**-**

Source: Financial statements of Greek commercial banks with shares listed on the Athens Exchange.

In order to enhance the ability of Greek banks to use the refinancing facilities of the Eurosystem,[2] the Greek government, upon approval from the European Commission, extended, initially until 30 June 2010 and subsequently until 31 December 2010, the deadline for the use of non-allocated funds under the liquidity support measures of Law 3723/2008. Furthermore, Law 3845/2010 expanded the bank bond guarantee scheme by €15 billion (in addition to the €15 billion which were initially provided for by Law 3723/2008). In this context, in the first half of 2010, Greek banks issued bonds guaranteed by the Greek government totalling €26.8 billion and received Greek government securities amounting to €3.1 billion.

Greek banks' access to liquidity was further facilitated by several measures taken by the ECB. As part of its responsibility to contribute to the stability of the euro area financial system, the ECB

2 The widening of the credit spread between Greek and German government bonds reduced the market value of the Greek government bond portfolios of Greek banks, thereby limiting their ability to raise liquidity via the Eurosystem using these assets as collateral. Furthermore, the downgrade of the Greek government bond credit rating below A- entails a haircut add-on of 5% in Eurosystem credit operations.

decided on 3 May 2010 to accept as collateral in the Eurosystem's refinancing operations all Greek government bonds, as well as bonds guaranteed by the Greek government, irrespective of their credit rating.[3] Moreover, on 10 May 2010, it announced a set of measures to address the liquidity pressures which had been observed across the euro area. In more detail, it decided to start conducting interventions in the euro area public and private debt securities markets (Securities Markets Programme) to ensure liquidity in those market segments and restore an appropriate monetary policy transmission mechanism.[4] It also decided to conduct a supplementary six-month longer-term refinancing operation (LTRO) on 13 May, adopted a tender procedure with full allotment in the regular three-month LTROs on 26 May and 30 June 2010[5] and reactivated US dollar liquidity-providing operations.

The widening of Greek government bond credit spreads increased the market risk of Greek banks. However, this development had a limited impact on their key aggregates (i.e. profitability and capital adequacy) due to the small share of Greek government bonds in the trading portfolios of Greek banks.

With regard to credit risk, the deterioration of the financial situation of non-financial corporations and households led to a further increase in the non-performing loans to total loans ratio for Greek commercial banks (see Table A). A rise in the NPL ratio was observed across all loan categories. Nevertheless, the increased impairment charges contributed to a marginal improvement of the coverage ratio (i.e. accumulated provisions over NPLs).

As a result of these developments, the banking system (both at bank and banking group level) recorded losses in the first quarter of 2010. Specifically, losses from financial operations, coupled with a significant increase (on an annual basis) in provisions for credit risk, more than offset the positive effect from increased net interest income and moderate operating cost growth (see Table B). The capital adequacy of banks and their groups remained nonetheless satisfactory, recording a marginal decline (see Table A).

3 In October 2008, on account of the financial crisis, the ECB lowered the credit threshold for government bonds eligible as collateral in its credit operations to BBB- until the end of 2010. In April 2010 this measure was extended beyond 2010.
4 In the context of this programme, the ECB had purchased bonds worth €59 billion by 2 July 2010.
5 On 10 June 2010, the ECB announced that full allotment would also apply to the regular three-month LTROs to be allotted on 28 July, 25 August and 29 September 2010.

The deterioration in the quality of Greek banks' loan portfolio, starting in 2008, became more pronounced in 2009, with the non-performing loans to total loans ratio (NPL ratio) rising to 7.7%, from 5.0% in 2008.[4] While an increase in NPL ratios was seen across all categories of loans, it was particularly strong in the case of consumer loans. In order to address credit risk, Greek banks have tightened their credit standards and, additionally, in 2009 restructured loans amounting to €3.4 billion (2008: €0.9 billion) in an effort to facilitate borrowers (households and non-financial corporations) facing temporary debt-servicing difficulties. In 2010, credit risk is expected to remain high. With respect to households, the increased tax burden and higher unemployment are expected to erode their disposable income and debt-servicing capacity. Regarding non-financial corporations, the economic downturn and household income constraints should dampen sales and trigger a further increase in doubtful loans. Encouraging, however, is the fact that the concentration of loan exposures vis-à-vis specific sectors remains relatively low.

4 Excluding the subsidiaries of foreign banks in Greece, the NPL ratio came to 6.9% in 2009 from 4.4% in 2008.

Banks' liquidity suffered badly in 2009, a situation that worsened further in the first months of 2010. The successive downgrades of the credit rating of the Greek government triggered downgrades of Greek banks. This made the access of Greek banks to the wholesale funding markets virtually impossible and prompted increased recourse to the refinancing facilities offered by the Eurosystem. Another factor that added to banks' liquidity constraints, in particular in the first months of 2010, were the occasional outflows of deposits. The liquidity of banks benefited, however, from the extension of the credit support measures under Law 3723/2008 initially until 30 June 2010 and then to 31 December 2010 and the increase of the state guarantee scheme envisaged in the same law by an additional €15 billion.

A positive development in the banking sector in the course of 2009 was the improvement in the capital base of most Greek banks, in both quantity and quality terms. For the sector as a whole, both the Capital Adequacy Ratio (banks: 13.2%, banking groups: 11.8%) and the Tier 1 ratio (banks: 12.0%, banking groups: 10.6%) stood higher compared with a sample of medium-sized banking groups in the EU-27 (CAR: 10.9%, Tier 1 ratio: 8.5%).[5] Moreover, the leverage ratio of Greek banking groups, i.e. the ratio of assets to equity, dropped to 13.9 at end-2009, from 17.6 at end-2008, as a result of a considerable increase in equity and a moderate rise in total assets. Despite the satisfactory level of capital adequacy, however, the current dire macroeconomic conditions require, for reasons of prudence, capital adequacy ratios well above the supervisory minimums. Medium-term financial stability will benefit from the operation of the Hellenic Financial Stability Fund, the purpose of which is to inject equity into banks as needed, when alternative options have been exhausted.

Regarding non-banking financial institutions, given their comparatively low share in the overall domestic financial system, their impact on financial stability remains small. In 2009, insurance companies saw a rise in their business activity and profits, while mutual funds recorded a further contraction in assets. The key figures for firms in other subsectors of the financial system did not show any significant changes.

Finally, the excellent operation of market infrastructures, i.e. payment and securities clearing and settlement systems, has contributed to the safe, speedy and effective processing of transactions and, thereby, to financial stability.

To sum up, the risk factors that will continue to affect the stability of the Greek financial system in 2010 are primarily associated with the correction of fiscal imbalances and the strict adherence to the targets set in the Memorandum of Economic and Financial Policies, agreed upon with the European Commission (EC), the ECB and the IMF. The attainment of the fiscal targets will improve the credit rating of the Greek government and, consequently, of banks, thus enhancing their access to market-based funding and enabling them to meet the demand for bank credit. The next challenge will be to promptly and fully implement the planned institutional changes and bold reforms in the fields of public administration and market competition. This is a prerequisite for the recovery of the Greek economy and for improving the situation of the labour market by gradually increasing employment and addressing the factors leading to long-term unemployment. The resulting improvement in the economic environment would contribute to reducing credit risk.

At the same time, Greek banking groups should consider initiatives in the direction of strategic alliances and/or mergers. Restructuring in the banking system would help Greek banking groups reach the critical mass that would enable them to better manage the

5 The sample consists of 20 medium-sized EU-27 banking groups with assets of €30 to €150 billion, whose primary source of income is core banking activity.

inevitable deleveraging process, which will need to be orderly so as to minimise the impact on the real economy, and to regain their access as soon as possible to international money and capital markets by diversifying their sources of funding. Greek banks will also need to proactively adapt to the new situation and seek to:

- maintain significant capital buffers, above the regulatory minima;
- strengthen their provisioning buffer;
- rationalise operating costs; and
- ensure a flexible and sound management of available funding sources.

Pressure on financial stability is expected to ease in the coming months. It is very positive that Greece is drawing on the tripartite support mechanism and is strictly adhering to the fiscal consolidation and reform targets set by the government under the Memorandum of Economic and Financial Policies, as reported by the staff teams from the EC, the ECB and the IMF in their interim review mission to Greece in June.[6] As for the financial sector, the Hellenic Financial Stability Fund was recently established under Law 3864/2010, and the liquidity requirements of the banking sector are being met in full through the measures taken by the ECB and the Greek government. Finally, positive were the results of both categories of stress tests, i.e. those conducted on a regular basis by the Bank of Greece, as well as those conducted across Europe by the Committee of European Banking Supervisors (CEBS), using common assumptions and methodology (see Box I.2)

6 Statement by the EC, the ECB and the IMF on the Interim Review Mission to Greece (Press release No. 10/246, 17 June 2010).

Box I.2

STRESS TESTING OF THE GREEK BANKING SYSTEM

1. Stress tests conducted by the Bank of Greece

The Bank of Greece, in the context of its supervisory competences, regularly assesses the resilience of the Greek banking system by conducting stress tests. These tests start by assuming certain extreme, but plausible, scenarios regarding the future evolution of macroeconomic and financial conditions and then examine the impact on banks' financial results and capital adequacy, should these scenarios materialise.

The stress tests' results do not reflect banks' current condition or potential immediate capital requirements. By construction, a stress test does not aim to forecast expected outcomes, since the scenarios are designed as "what-if" situations reflecting plausible but extreme assumptions, which are therefore not very likely to materialise. A stress test examines what could happen if all the assumed extreme events were to occur simultaneously. Such an exercise is proactive: it aims to support the supervisory assessment of banks' capital adequacy and, more specifically, to determine whether banks are well-positioned to cope with extremely adverse events, even though they are unlikely to occur.

The Bank of Greece has developed econometric models to estimate the evolution of the net interest margin[1] and the NPL ratio as a function of macroeconomic variables. These models allow for

1 Ratio of net interest income to average assets.

an estimate[2] of the impact from hypothetical changes in macroeconomic variables, such as GDP growth, the unemployment rate, inflation and the cost of money, on the above-mentioned key banking aggregates. In the next step, the resulting estimates of the net interest margin and the NPL ratio are used, in conjunction with certain additional assumptions,[3] to estimate the evolution of banks' key balance sheet aggregates and operating results and, therefore, the impact on their capital adequacy.

In 2010, before the EU-wide exercise, the Bank of Greece conducted stress tests (utilising, inter alia, the ECB and IMF macroeconomic projections) both on a solo and on a consolidated basis using end-2009 figures. The tests have been conducted over a four-year horizon (2010-2013) and showed that, for the banking system as a whole, the existing capital buffers[4] are adequate. The Bank of Greece will continue to update these stress tests regularly. The results of these tests will be very useful for the supervisory assessment of credit institutions and the assessment of their ability to meet even unexpected capital needs in the future.

2. EU-wide stress test exercise

In July 2010, following a mandate assigned by the ECOFIN Council, the Committee of European Banking Supervisors (CEBS) conducted an EU-wide stress test exercise in cooperation with the European Central Bank (ECB), the European Commission and the EU national supervisory authorities. The objective of the exercise was to assess the overall resilience of the EU banking system and the capacity of EU banks to absorb any further shocks on credit, market and sovereign risks.

The stress test exercise was conducted on a sample of 91 banking groups of EU Member States that account for at least 50% of the banking sector of each country on a consolidated basis. These groups included the six largest Greek banking groups (National Bank, EFG Eurobank, Alpha Bank, Piraeus Bank, ATEbank and Hellenic Postbank), which account for over 90% of the Greek banking system's assets (excluding subsidiaries and branches of foreign banks operating in Greece). High coverage of the banking sector ensures increased transparency, enhancing the information content and credibility of the results of the exercise.

The stress tests have been conducted over a two-year horizon (2010-2011) and comprised two scenarios: the **benchmark** scenario, in line with current forecasts on macroeconomic developments, and the **adverse** scenario, which assumes significant further worsening of macroeconomic and financial conditions. Within the adverse scenario, the exercise also envisaged a large increase in government bond yields, implying a large haircut on sovereign debt. For the purposes of the test, the probability of default (PD) and loss given default (LGD) for each loan and asset category were estimated by country, bank and scenario.[5]

According to the results, under the **benchmark** scenario, the Tier 1 ratio of all six Greek banking groups exceeded the 6% threshold agreed as benchmark solely for the purposes of this exercise. Under the **adverse** scenario, five of the six Greek banking groups passed the test (Hellenic

2 The model was estimated for a panel data sample of nine Greek commercial banks and covered the period 2003-2009 with a quarterly frequency.
3 For instance, assumptions on the rate of change in banks' income and expenses, loans and assets.
4 Capital buffer is defined as regulatory own funds less the amount required to meet the minimum capital adequacy ratio (8%).
5 The scenarios, methodology and results (overall and by bank) are available on the CEBS website (http://www.c-ebs.org). See also websites of the stress-tested credit institutions.

Postbank: 10.1%, Alpha Bank: 8.22%, Eurobank EFG: 8.17%, National Bank of Greece: 7.4%, Piraeus Bank: 6%), while ATEbank failed the test, since its Tier 1 ratio stood at 4.4%, corresponding to a €243 million shortfall of Tier 1 own funds.[6] For all six banking groups, the results of the stress test under the adverse scenario show a net capital buffer of €3.3 billion over the amount corresponding to the agreed 6% threshold of the Tier 1 ratio. This threshold should by no means be interpreted as a regulatory minimum, which is 4% (Pillar 1 of Directive 2006/48/EC), nor as a capital target reflecting each institution's risk profile (Pillar 2 of Directive 2006/48/EC).

Owing to the significant increase in their own funds during 2009, Greek banking groups started off with a high Tier 1 ratio, which explains their good performance in the 2010 EU-wide exercise. It should also be noted that the hypothetical stress assumptions for Greek banking groups, defined by CEBS in association with the ECB, were the severest among all EU countries.

As already mentioned, a stress test is not a forecast and its results do not reflect the current financial condition of a bank or its potential immediate capital needs. However, the Bank of Greece will continue to follow developments closely so as to ensure that the necessary steps to increase banks' capital adequacy where needed will be taken. Furthermore, the establishment of the Hellenic Financial Stability Fund (HFSF) under Law 3864/2010,[7] with a €10 billion capital, provides an additional safety net, since its objective is to inject equity to Greek banks if all alternative solutions have been exhausted. In addition to the HFSF, €1.2 billion is available under Law 3723/2008, which provides for, inter alia, capital support to banks through the issuance of preference shares to be purchased by the government.

6 ATEbank, after discussions with the Bank of Greece, intends to:
– increase its capital in order to overcompensate for future capital requirements;
– gradually dispose of its holdings in subsidiaries in order to boost its capital adequacy; and
– take action to cut operating costs and increase income.
In addition, according to a Ministry of Finance announcement, "the Greek government is committed to ensuring financial stability and strengthening the solvency of ATEbank in order to absorb potential losses, in the event that private sources of financing are not sufficient, according to the European Commission rules on state support".

7 See Box IV.1.

II THE MACROECONOMIC ENVIRONMENT

1 INTRODUCTION

The external environment has had a positive influence on the determinants of the Greek banking system's stability, whereas the impact from the sharp downturn in economic activity in Greece has been particularly negative. In particular, the global economy has been showing continued signs of recovery, although this positive development remains clouded by uncertainty, largely because of the widening of fiscal deficits and debts worldwide. Mild signs of recovery have also been observed in the economies of South-Eastern Europe, where a large number of Greek firms are present; however, the continuation of this trend will depend on the course of activity in the advanced European economies.

The performance of the Greek economy has deteriorated significantly. Economic activity has contracted markedly, while inflation and unemployment have risen. The reversal of these negative trends will ultimately depend on the successful and swift implementation of the institutional changes and structural reforms already under way.

The adverse domestic macroeconomic environment has negatively affected the financial position of both non-financial corporations and households. Corporate profits and liquidity shrank considerably, and the propensity to invest was limited. These negative trends were partially offset by the lower financial costs of non-financial corporations. The evolution of domestic demand will largely determine the aggregates of firms in the medium term.

Turning to households, the income squeeze and the unfavourable employment outlook have weighed on their financial condition. Positive, however, was the impact of continued low interest rates, which contained households' financial stress. Income risk remains the main factor of uncertainty.

2.1 INTERNATIONAL DEVELOPMENTS

After facing the deepest recession in post-war history in 2008-2009, the global economy has begun to recover since mid-2009. GDP growth, however, varies considerably across regions, and the forecasts for the global and the European economies, though favourable overall, are surrounded by high uncertainty. The morphing, worldwide, of the financial crisis into a sovereign debt crisis is dampening the prospects of a sustainable recovery, mainly in the advanced economies, as the rise in debt spurs increases in risk premia and debt servicing costs, while the fiscal adjustment efforts concurrently under way in many countries tend, in a first stage, to slow down the recovery. The difficult dilemmas in macroeconomic policy call for a variety of solutions, depending on the particular circumstances and priorities prevailing in each country. At the European level, the Greek fiscal crisis, the resulting deterioration in borrowing terms and the risk of contagion to other Member States have prompted the EU to decide to provide conditional economic support to Greece jointly with the IMF and to take other initiatives and measures to ensure stability in the euro area (see Box II.1). These developments also had an impact on the exchange rate of the euro, which, from its historical highs of 2009, depreciated considerably against the major international currencies in the first five months of the year, thereby moving back closer to its long-term average. Despite the expansionary macroeconomic policies, inflation in the advanced economies is expected to remain low in 2010.

The global crisis, which started out as a credit crisis in August 2007 before morphing into a financial crisis from September 2008 onwards, was addressed through unprecedented expansionary fiscal and monetary policies, which resulted in a serious deterioration in the fiscal position of almost all advanced economies over 2008-2009. The fiscal deficit in the major advanced economies taken together rose to 10% of global GDP in 2009, from 2.1% in 2007, while the gross public debt-to-GDP ratio increased sharply in 2009, to 83.2% in the United States (from 62.1% in 2007), 78.3% in the euro area (from 65.7% in 2007) and 217.6% in Japan (from 187.7% in 2007). The high fis-

Box II.1

ACTION TO SAFEGUARD STABILITY IN THE EU AND THE EURO AREA

In the first half of 2010, the Council of the European Union, the European Commission and the ECB took a number of initiatives and concrete measures to help Greece address its fiscal crisis and, on a broader scale, to safeguard stability in the euro area. The most important of these actions are summarised below.

1 THE SUPPORT MECHANISM FOR THE GREEK ECONOMY AND THE EUROPEAN FINANCIAL STABILISATION MECHANISM

a) The support mechanism for the Greek economy from the euro area Member States and the IMF

The Greek fiscal crisis, which took the form of a serious deterioration in borrowing terms for the Greek government, and the risk of contagion of the debt crisis to other EU Member States prompted the EU institutions to establish a support mechanism for the Greek economy and to extend a loan to Greece, jointly with the IMF. Greece committed to implement a fiscal adjustment and structural reform programme. The support mechanism also involves policies for the financial sector.

In their meeting of 25 March 2010, the Heads of State and Government of the euro area reaffirmed the willingness of the euro area Member States to take determined and coordinated action to safeguard financial stability in the euro area as a whole, and stated that they were ready to contribute to coordinated bilateral loans, as part of a package involving substantial International Monetary Fund (IMF) financing and a majority of European financing.

Following the request by the Greek government on 23 April 2010 and the agreement reached by the Eurogroup on 2 May, it was decided that, under a joint programme with the IMF, a financial package would make €110 billion available to help Greece meet its financing needs, with the euro area Member States ready to contribute for their part €80 billion.

According to the statement of the Heads of State and Government of the euro area on 7 May 2010, "the programme adopted by the Greek government is ambitious and realistic. It addresses the grave fiscal imbalances, will make the economy more competitive and will create the basis for stronger and more sustainable growth and job creation."

With regard to the financial sector, the Memorandum of Economic and Financial Policies notes that "despite a strong solvency position, at present, the Greek banking system is facing challenges. (...) The government and the Bank of Greece are putting in place a new safety net to preserve the sound level of bank equity and thus improve conditions to support the real economy. (...) the government will establish (...) through specific legislation (...) a fully independent Financial Stability Fund", the primary purpose of which will be "to preserve the financial sector's soundness and thus its capacity to support the Greek economy, by providing equity support to banks, as needed". The Memorandum also mentions that "the Bank of Greece will implement intensified supervision and increase the resources dedicated to banking supervision" and that "close coordination will be maintained with home and host country supervisors within the EU framework for cross-border bank supervision".

b) Measures to ensure financial stability in Europe

The conclusions adopted by the extraordinary meeting of the ECOFIN Council on 9/10 May 2010 mention that "in the wake of the crisis in Greece, the situation in financial markets remains fragile and that there is a risk of contagion that needs to be addressed".

In view of these developments, the Council and the Member States decided on a comprehensive package of measures to preserve financial stability in Europe with a total volume of up to €500 billion, including a European financial stabilisation mechanism[1] with a volume of up to €60 billion, as well as guaranteed loans from euro area countries up to a volume of €440 billion. The IMF will participate in financing arrangements and is expected to provide at least half as much as the EU contribution, i.e. some €250 billion, bringing the total amount of support through this mechanism to €750 billion.

In the area of economic policies, reaffirming its strong commitment to ensure fiscal sustainability and enhanced economic growth in all Member States, the Council agreed that plans for fiscal consolidation and structural reforms should be accelerated, where warranted. The Council also underlined the importance of establishing a permanent crisis resolution framework and the need to make rapid progress on financial market regulation and supervision.

2 ACTION BY THE EUROPEAN CENTRAL BANK

a) Suspension of minimum credit rating threshold for Greek government debt instruments

On 3 May 2010, the Governing Council of the ECB announced its decision to suspend until further notice the application of the minimum credit rating threshold in the collateral eligibility requirements for the purposes of the Eurosystem's credit operations in the case of marketable debt instruments issued or guaranteed by the Greek government.

The Governing Council based its decision on its own positive assessment of the Greek economic and financial adjustment programme, which had been negotiated with the European Commission, the ECB and the IMF, and the strong commitment of the Greek government to fully implement the programme.

This decision enhances the stability of the Greek financial system by securing sources of funding for Greek banks and by supporting the liquidity of the Greek banking system.

(b) ECB interventions in securities markets

On 10 May 2010, the Governing Council of the ECB announced several measures to address the severe tensions in certain market segments which were hampering the monetary policy transmission mechanism and thereby the effective conduct of monetary policy oriented towards price stability in the medium term. These measures will not affect the stance of monetary policy.

In view of the current exceptional circumstances prevailing in the markets, the Governing Council decided to conduct interventions in the euro area public and private debt securities markets (Securities Markets Programme) to ensure depth and liquidity in those market segments which are dysfunctional. The objective of the programme is to address the malfunctioning of securities markets and restore an appropriate monetary policy transmission mechanism. The scope of the interventions will be determined by the Governing Council. In making this decision note has been taken of the statement of the euro area governments that they "will take all measures needed to meet their fiscal targets this year and the years ahead in line with excessive deficit procedures" and of the precise additional commitments taken by some euro area governments to accelerate fiscal consolidation and ensure the sustainability of their public finances.

1 The legal basis of this mechanism is Article 122(2) of the Treaty, which foresees financial support for Member States in difficulties caused by exceptional circumstances beyond Member States' control.

In order to sterilise the impact of the above interventions, specific operations will be conducted to re-absorb the liquidity injected through the Securities Markets Programme. This will ensure that the monetary policy stance will not be affected.

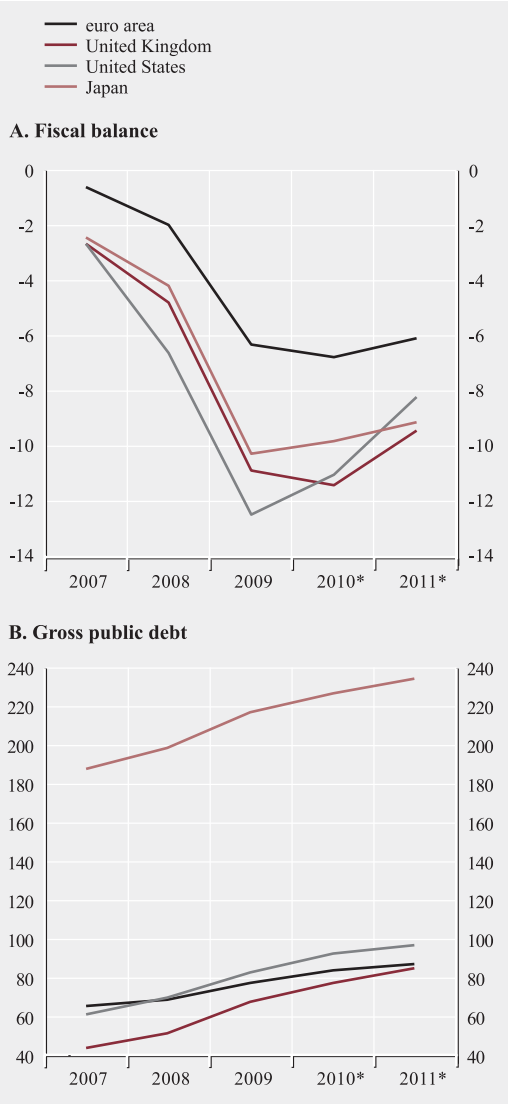
Among the other measures to restore the smooth operation of certain financial market segments, it is worth noting the decision to reactivate the temporary liquidity swap lines with the Federal Reserve, aimed to ensure sufficient US dollar liquidity for European banks.

cal deficits and the steep increase in public debt in many economies, combined with the widespread repricing of risk in international markets since 2007, led to a gradual rise in risk premia on government bonds (as reflected e.g. in CDS spreads), mostly in the relatively more vulnerable economies of the euro area. Cutting public expenditure, as a means of reversing the fiscal trends, may dampen or inhibit the economic recovery, but is now imperative for many economies to stabilise the public debt dynamics. However, in 2010, the fiscal deficit in the major advanced economies as a whole is not expected to decrease considerably (9.5% of GDP), while the public debt will continue to rise (see Chart II.1).

According to the latest IMF forecasts, global GDP growth is expected to come to 4.6% in 2010 —a turnaround from the rate of -0.6% recorded in 2009—, with the Chinese economy projected to continue posting the highest growth rate of all the major economies. Although the recovery in the advanced economies has been stronger than expected, it still remains vulnerable to external shocks and is uneven across regions. The GDP growth rate in the euro area has fallen short of the corresponding rates of other advanced economies. Despite a marked improvement in money and capital markets, the financing of economies has not yet been fully restored, while the financial condition of households, non-financial corporations and the government sector, though gradually improving after deteriorating seriously during the crisis, is still dampening domestic demand. In 2010, GDP growth is forecast to be 3.3% in the United States (2009: -2.4%) and 2.4% in Japan (2009: -5.2%).

Chart II.1 Fiscal position of advanced economies (2007-2011)

(percentage of GDP)



Source: IMF, *World Economic Outlook*, April 2010.
* Projections.

Table II.1 Key macroeconomic aggregates of the world economy

	Output (annual percentage changes in real GDP)				Inflation (annual percentage changes)				Current account balance (% of GDP)			
	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
World total	5.2	3.0	-0.6	4.6	-	-	-	-	-	-	-	-
1. Advanced economies	2.8	0.5	-3.2	2.6	2.2	3.4	0.1	1.4	-0.9	-1.3	-0.4	-0.4
United States	2.1	0.4	-2.4	3.3	2.9	3.8	-0.3	1.9	-5.2	-4.9	-2.9	-3.8
Japan	2.4	-1.2	-5.2	2.4	0.1	1.4	-1.4	-0.7	4.9	3.3	2.8	3.3
United Kingdom	2.6	0.5	-4.9	1.2	2.3	3.6	2.2	3.0	-2.7	-1.5	-1.3	-1.6
Euro area-16	2.7	0.5	-4.1	1.0	2.1	3.3	0.3	1.4	0.4	-0.8	-0.3	0.3
2. Emerging and developing economies	8.3	6.1	2.5	6.5	6.5	9.2	5.2	6.3	4.2	3.7	1.8	2.1
China	14.2	9.6	9.1	10.5	4.8	5.9	-0.7	2.5	10.6	9.4	6.1	2.8

Sources: For totals IMF, *World Economic Outlook* and *World Economic Outlook Update*, April and July 2010, and for the euro area and euro area countries (inflation and current account balance), OECD, *Economic Outlook No 87 - Preliminary edition*, May 2010.
Notes: Estimates for 2009 and projections for 2010. According to IMF classification: Advanced economies: euro area-16, the four newly industrialised Asian economies (Korea, Singapore, Taiwan Province of China and Hong Kong SAR), United States, Japan, United Kingdom, Canada, Australia, Denmark, Switzerland, Iceland, Israel, Norway, New Zealand, Sweden and the Czech Republic. Emerging and developing economies: Africa (44), Central and Eastern Europe (14), Commonwealth of Independent States (13 incl. Mongolia), Developing Asia (26), Middle East (20) and Western Hemisphere (32).

The euro area economy entered a phase of mild recovery in the second half of 2009, mostly thanks to improved external demand and a cyclical upswing in inventories, while financial conditions also improved significantly. Recovery remains fragile, however, as it is supported by expansionary macroeconomic policies, which are gradually being reversed in several economies since the spring of 2010. Projections for 2010 place euro area growth at 1% (up from -4.1% in 2009). Underlying this development should be external demand, which in turn is expected to continue recovering due to strong demand from emerging Asia and the lagged effects of the depreciation of the euro. Within the euro area, there is a considerable difference in outlook across the individual economies, with some Member States, such as Greece and, to a lesser extent, Ireland, Spain and Cyprus, expected to continue experiencing a recession this year, while the other economies will register positive, albeit generally moderate, growth. This entails differences in economic policy challenges and priorities for the individual countries, while also adversely affecting the overall performance of the euro area, as compared with other advanced economies, including the United States and Japan.

Inflation in the euro area in 2010 is expected to rise to 1.4%-1.6%, from 0.3% one year earlier. With regard to the fiscal outlook, the general government deficit in the euro area is expected to amount to 6.8% of GDP (up from 6.3% in 2009 and 2.0% in 2008). It should be noted that, despite the sovereign debt crisis in some Member States, both the public deficit and the public debt ratios in the euro area as a whole are expected to remain lower in 2010 (at 6.8% and 84.1%, respectively) than in the United States (11.0% and 92.6%, respectively) and Japan (9.8% and 227.3%).[1]

1 It should be noted, however, that Japan's net public debt is considerably lower than its gross public debt and is projected to reach 121.7% of GDP for 2010.

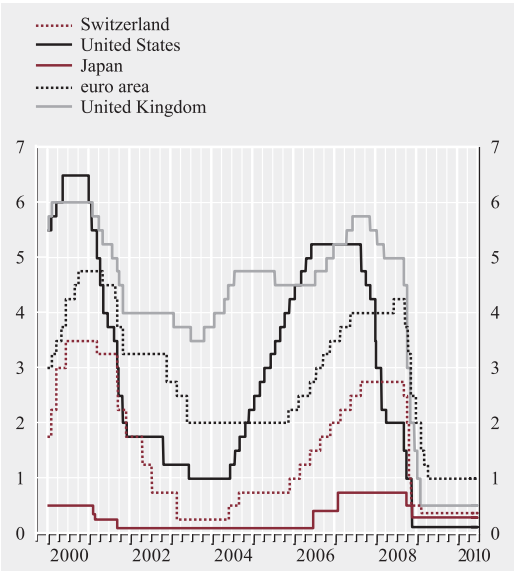
In the advanced economies, the improved recovery prospects are accompanied by major economic policy challenges. The need to address the public debt crisis and, at the same time, to accelerate fiscal adjustment complicates further the gradual exit from the extraordinary fiscal and monetary policy measures. Obviously, different policies will need to be implemented, depending on the situation of each economy. Economies with high external and internal deficits will inevitably have to give top priority to reducing deficits within a credible medium-term adjustment framework. Economies with persistently large foreign trade surpluses will, on the other hand, have to implement appropriate structural reforms and policies to boost domestic demand, thereby contributing to the correction of global macroeconomic imbalances and to the stability of the global financial system, which is also crucial for themselves.

In the emerging and developing economies, particularly in Asia, the recovery has been more robust, mostly as a result of strong domestic demand and relatively lower exposure to global financial shocks. Overheating, high inflation, as well as real estate price increases in some economies are the main risks in this region. GDP growth in the emerging and developing countries as a whole should rise to 6.8% in 2010, from 2.5% in 2009. In China, growth has already returned to its pre-crisis levels, supported mainly by the ongoing implementation of policies to boost domestic demand and, despite signs of a faltering recovery in May-June, in 2010 as a whole is expected to exceed its 2008 level and reach 10.5% (see Table II.1).

Inflation, having fallen to 0.1% in advanced economies and 5.2% in emerging and developing economies in 2009 on account of the recession and a sharp drop in commodity prices, is expected to rebound in 2010, to 1.4% and 6.3%, respectively. The impact of excess capacity and of the continued relatively high output gap —estimated at 3.8% of potential output in the OECD countries for 2010, compared with 5.1% in 2009— is being offset in 2010 by a recovery in commodity prices. The unprecedented expansionary monetary policies conducted by the major central banks during the period 2008-2009 in response to the global crisis, both through interest rates (see Chart II.2) and non-standard measures (quantitative easing, etc.), have not triggered higher inflation so far, with inflation expectations anchored at a low level.

Chart II.2 Central bank policy rates (January 2000-June 2010)

(percentages per annum; daily data)



Sources: Euro area: European Central Bank (ECB), interest rate on main refinancing operations; USA: Federal Reserve, federal funds target rate; Japan: Bank of Japan, official discount rate; United Kingdom: Bank of England, repo rate; Switzerland: Swiss National Bank, operational target range for the three-month Libor.

Commodity prices kept rising in 2009, spurred mainly by the recovery of demand from emerging Asia, but also by adverse weather conditions in North America and Europe. By end-2009, crude oil prices had nearly doubled and metal prices more than doubled since December 2008, when they had declined markedly. However, in annual average terms, commodity prices in 2009 fell significantly from the historical highs of 2008. The international price of crude oil fell by 36.3%, to USD 62 per barrel in 2009, but is forecast to

rebound (by 21.8% in annual average terms), to USD 75 in 2010, driven by the strong recovery mainly of Asian economies. In euro terms, the price of Brent crude oil is projected to rise by 37%, to €61.2 per barrel (Eurosystem staff assumptions).

Global trade, badly hit in 2009, was the main channel of contagion of the recession across regions. Despite a rebound in the second half of 2009, the volume of global trade in goods and services declined by 11.3% in 2009, but, according to forecasts for 2010, is expected to recover and grow by 9%.[2]

The nominal effective exchange rate (EER) of the euro rose in 2009 for the eighth consecutive year. The nominal EER index recorded an increase throughout most of the year and, in annual average terms, stood 37.3% higher than in 2000, while the corresponding real EER index (based on the CPI) stood 25.7% higher. Since November 2009, however, both the nominal and the real euro EER indices have been on the decline, as market expectations about the single currency have been negatively affected by the euro area's relative lag in recovery compared with other regions and the questionable fiscal and macroeconomic prospects of some euro area countries. Between May 2009 and June 2010, the nominal EER euro index fell by 11.5%, while the bilateral exchange rate of the euro against the US dollar and the Japanese yen fell by 16.4% and 15.4%, respectively. Despite its fall, the nominal EER of the euro in May 2010 was some 8% above its long-term average (1993-2009).

2.2 DEVELOPMENTS IN THE COUNTRIES OF SOUTH-EASTERN EUROPE[3]

The global economic crisis caused a severe downturn in the economies of South-Eastern (SE) Europe in 2009. Their economic aggregates, however, appear to be gradually stabilising and/or recovering, albeit at a different pace in each country. The economic outlook for Turkey in particular and, to a lesser extent, for Serbia and the Former Yugoslav Republic of Macedonia (FYROM) is positive, while the recovery in Bulgaria, Bosnia and Herzegovina, Croatia and Romania is expected, at best, to be sluggish (see Table II.2.A).[4]

The slow pace of recovery observed across most of SE Europe is attributed to two main factors: i) these economies are highly dependent upon the economic situation of advanced Europe, which however faces considerable uncertainty and therefore weak prospects for a fast recovery; and ii) domestic demand remains subdued, as the income squeeze, as well as the ongoing deleveraging of the banking system are adversely affecting aggregate consumption expenditure.

The sharp decline in domestic demand and the emergence of a slack in the labour market, combined with lower energy and commodity prices, led to a substantial drop in inflation in 2009 (see Table II.2.A). Of course, a rekindling of inflation cannot yet be entirely ruled out, as it hinges upon the possible re-emergence of upward trends in energy and commodity prices, the course of administered prices, but also the increase in indirect taxes in the context of the fiscal adjustment effort.

The high current account deficits of SE European countries decreased significantly in 2009, owing mainly to the sharp decline in imports. The current account balance of Bulgaria, Romania and Turkey showed the greatest improvement, while adjustment was sizeable in the other countries as well (see Table II.2.B). Currencies with variable exchange rates (the new Romanian leu, the Serbian dinar and the Turkish lira) depreciated substantially, but eventually stabilised. It should also be noted that inflows of migrant remittances, despite decreasing in certain countries – most notably

2 Based on more recent data, OECD forecasts an even stronger growth of 10.6% for 2010.
3 The discussion of South-Eastern European economies here covers: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, the Former Yugoslav Republic of Macedonia (FYROM), Romania, Serbia and Turkey.
4 The only exception is Albania, which posted positive growth rates in 2009 and is expected to continue to do so in 2010.

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

A. GDP and inflation
(annual percentage changes)

	GDP				Inflation			
Country	2007	2008	2009 (estimates)	2010 (forecasts)	2007	2008	2009 (estimates)	2010 (forecasts)
Albania	6.0	7.8	2.8	2.3	2.9	3.4	3.5	3.5
Bosnia-Herzegovina	6.5	5.4	-3.4	0.5	1.5	7.4	-0.4	1.6
Bulgaria	6.2	6.0	-5.0	0.2	7.6	12.0	2.5	2.2
Croatia	5.5	2.4	-3.5	0.3	2.9	6.1	2.5	2.8
FYROM	5.9	4.8	-0.7	2.0	2.3	8.3	-0.8	1.9
Montenegro	10.7	6.9	-6.6	-1.8	4.2	8.5	3.4	-0.6
Romania	6.3	7.1	-7.0	1.3	4.8	7.8	5.6	4.0
Serbia	6.9	5.5	-2.9	2.0	6.5	12.4	8.1	4.8
Turkey	4.7	0.7	-4.9	6.8	8.8	10.4	6.3	9.5

B. Current account balance and fiscal balance
(% of GDP)

	Current account balance				Fiscal balance			
Country	2007	2008	2009 (estimates)	2010 (forecasts)	2007	2008	2009 (estimates)	2010 (forecasts)
Albania	-9.2	-15.2	-14.0	-12.6	-3.5	-5.9	-7.1	-7.0
Bosnia-Herzegovina	-12.6	-14.9	-9.7	-7.5	-0.1	-4.0	-4.7	-4.0
Bulgaria	-26.8	-24.0	-9.4	-6.2	3.5	3.0	-0.9	-2.5
Croatia	-7.6	-9.4	-6.5	-4.1	-2.3	-1.1	-2.4	-2.6
FYROM	-7.2	-13.1	-7.3	-6.0	0.6	-1.0	-7.4	-7.4
Montenegro	-39.5	-51.8	-27.2	-17.0	6.5	-0.3	-3.2	-7.0
Romania	-13.5	-12.4	-4.5	-5.8	-3.1	-4.9	-6.7	-5.3
Serbia	-15.5	-17.1	-5.7	-8.5	-1.9	-2.6	-4.2	-4.1
Turkey	-5.9	-5.5	-2.3	-4.5	-2.2	-5.8	-6.9	-5.2

Source: IMF, *Country Reports* and *World Economic Outlook*, April 2010.
* Estimates for 2009 and forecasts for 2010 are expected to be revised.

Romania and Croatia – remained remarkably stable in the rest of the region and even increased significantly in Serbia. Of course, as the economies of this region head towards recovery, the improvement in their external sectors may prove to be short-lived. Any return to the high and unsustainable external deficit levels of the past is, however, out of the question. Net inflows of foreign direct investment (FDI), though declining, remained in positive territory and, together with the financial support provided by international organisations, contributed to a recovery in foreign reserves and, in general, helped meet these countries' external borrowing requirements.

Fiscal deficits widened in almost all of the SE European countries, mainly as the result of a collapse in government revenue. On the other hand, failure to obtain sufficient financing forced several countries to slash expenditure, although this was not enough to halt the sharp deterioration in their budgetary positions. Despite efforts to restore fiscal balance, deficit reduction is expected to be slow-paced (see Table II.2.B). Unemployment also rose significantly and once again remains on an upward course in 2010. Finally, it should be noted that, despite the unfavourable economic environment, the countries of SE Europe did not deviate from their reform paths.

The countries of SE Europe still have serious challenges ahead, despite signs that the worst of the crisis may be over. On the real economy front, these challenges mainly involve the apparent weakness of the economic recovery, the need for a new model of economic growth and the difficulties in achieving the necessary fiscal adjustment.

3.1 THE MACROECONOMIC ENVIRONMENT IN GREECE

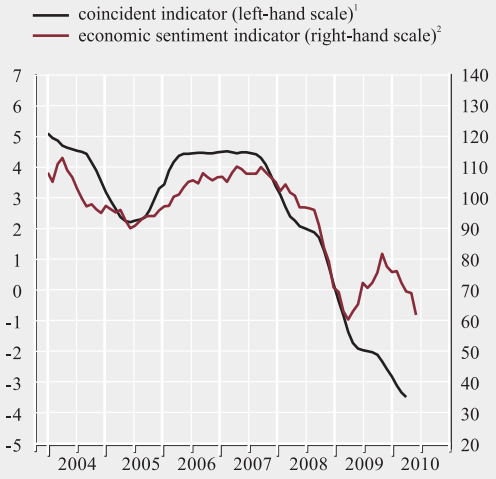
In the first quarter of 2010, Greek GDP declined mainly as a result of lower investment and public consumption, while private consumption rose moderately. However, because of the additional fiscal consolidation measures —expenditure cuts and increase in indirect taxes— taken in early March and in early May, the annual growth rate of private consumption —the largest component of GDP— is expected to turn negative as of the second quarter. In the short run, macroeconomic developments will depend on the relative contributions of domestic demand and the external sector, as well as on the effect of the fiscal consolidation measures on investor and market confidence. In the medium run, macroeconomic developments will depend on the degree to which institutional changes and structural reforms will stimulate business activity.

According to provisional data from the Hellenic Statistical Authority (EL.STAT.), in the first quarter of 2010 seasonally adjusted GDP (at constant prices) declined by 1.0% quarter-on-quarter and by 2.5% year-on-year, thereby slipping by a substantial 4.2% from its recent-year peak reached in the third quarter of 2008. The deterioration of the macroeconomic environment is also reflected in the coincident indicator of economic activity, compiled by the Bank of Greece. The economic sentiment indicator for Greece, compiled by the European Commission on the basis of IOBE business and consumer surveys, also decreased by 6.3 points (December 2009: 75.9, March 2010: 69.6) and then dropped further to 61.9 in May, before rising to 63.8 in June (see Chart II.3).

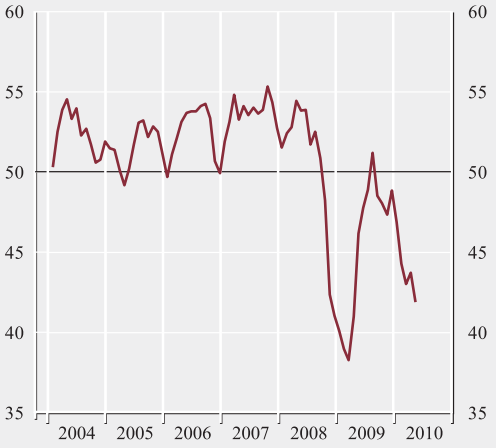
The contraction in GDP in the first quarter of 2010 was mainly driven by lower public con-

Chart II.3 Economic activity indicators (January 2004-May 2010)

A. The coincident indicator of economic activity compiled by the Bank of Greece and the European Commission's economic sentiment indicator for Greece



B. Purchasing Managers' Index (PMI) in manufacturing
(seasonally adjusted index; values above 50 indicate expansion of manufacturing activity)



Sources: Bank of Greece (coincident indicator), European Commission (economic sentiment indicator), Markit Economics and Hellenic Purchasing Institute (Purchasing Managers' Index in manufacturing, PMI).
1 Annualised monthly percentage changes.
2 Monthly data.

sumption (annual percentage change: -9.0%) and fixed capital formation (-14.6%) and, to a lesser extent, by a decline in the volume of goods exports (-3.9%). After the first quarter, and especially after May, economic activity is expected, due to fiscal restraint, to decline further. It should be recalled that, according to the projections produced jointly by the Greek Government, the European Commission, the European Central Bank and the International Monetary Fund and included in the economic policy programme released in May, GDP is expected to drop by 4.0% in 2010 and by 2.6% in 2011, before eventually returning to positive territory (2012: 1.1%, 2013: 2.1%, 2014: 2.1%, 2015: 2.7%). Recent projections by the OECD (26 May 2010) are similar; these suggest that GDP is expected to decline by 3.7% this year and by 2.5% in 2011.

The significant drop in public consumption is confirmed by budget execution data. The Ordinary budget primary expenditure declined by 6.2% year-on-year in the first quarter, while, on the basis of provisional data released in July, the decline was even larger over the first half of 2010 (-12.7%).

The decline in investment is also evidenced by data on private investment activity as well as from the execution of the Public Investment Programme.[5] The Bank Lending Survey, conducted by the Bank of Greece on a quarterly basis as part of a broader Eurosystem-wide survey, points to lower credit flows in the first quarter of 2010 relative to the last quarter of 2009, partly due to weaker investment demand. According to the latest biannual investment survey conducted by IOBE (March-April 2010), industrial firms expect investment to rebound by only 7% at current prices (5% at constant prices) in 2010, following a 44.4% decline at current prices in 2009. The main factors accounting for the expected subdued recovery in investment are associated with the outlook for demand and the higher corporate tax rates, as well as with constraints in the availability of funding and its cost.

Private consumption increased at an annual rate of 1.5% in the first quarter of 2010, partly reflecting a year-on-year increase of 5.8% in the volume of retail sales (against -9.4% in the first quarter of 2009) and a 17.2% rise in new passenger car registrations over the same period.[6] The above data for retail sales and the number of new passenger car registrations do not reflect the full impact of the estimated annual changes in income, notably wages and pensions, as the income cuts had not been fully implemented during the first quarter. The Bank of Greece estimates that average nominal gross earnings in the whole economy will drop by about 3.5% this year, as opposed to a 4.6% increase in 2009.[7] Furthermore, the recorded increase in some private consumption indicators in the first quarter does not reflect the 1.3% year-on-year drop in employment over the same period and is probably the result of base effects. Data on consumer credit in May 2010 point to a decline of 2.4% in the stock of consumer loans against December 2009 and a negative annual growth rate of credit (May 2010: -0.1%, December 2009: 2.0%, May 2009: 8.4%).

According to EL.STAT., imports of goods and services (at constant prices) dropped by 6.6% year-on-year in the first quarter (imports of goods: -11.1%, imports of services: +10.7%), while exports of goods and services (at constant prices) decreased by 0.5% (exports of goods: -3.9%, exports of services: +1.9%).

On the supply side, the manufacturing production index fell by 4.8% year-on-year in the first five months of 2010, i.e. by less than the average for 2009 (-11.2%). The Purchasing Managers Index (PMI) has also been decelerating just about every month since August

5 Total disbursement under the Public Investment Programme fell by half year-on-year in the first quarter of 2010. In the first half of 2010, the decrease amounted to 39.8%.

6 In the second quarter, however, the number of new passenger car registrations declined by 41.1% year-on-year, bringing the year-on-year decrease in the first half of 2010 to 15.7%.

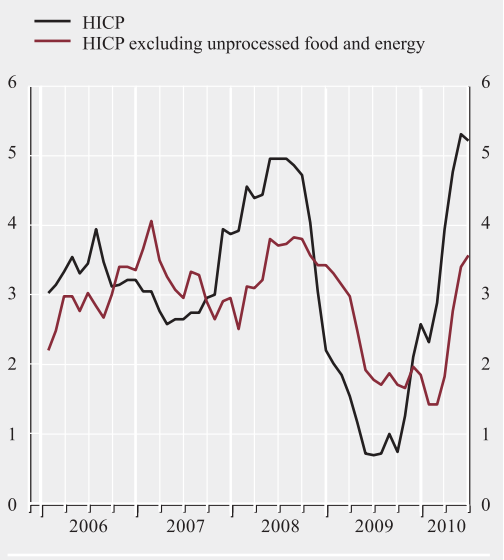
7 More specifically, it is estimated that civil servants' average earnings will decrease by 12.8%, while it is assumed that there will be no new increases in contractual wages in the business sector.

2009, coming to 41.8 in May 2010, i.e. its lowest level since April 2009 (see Chart II.3), before picking up marginally to 42.2 in June. Because of the continued decline in industrial production, the capacity utilisation rate fell to 67.6% in May —its lowest level since 1990— before nudging marginally upward to 69.8% in June. Furthermore, industrial, retail, services (excluding banks and retail trade) and construction firms reported in every monthly IOBE survey during the first half of 2010 that their activity was down compared with the previous three months.

As mentioned above, employment dropped by 1.3% in the first quarter of 2010 and the rate of unemployment stood at 11.7% (first quarter of 2009: 9.3%). It is expected that for 2010 as a whole, total employment will decline by about 2.5%, dependent employment will drop by 3% and the average rate of unemployment will come close to 12%.

Chart II.4 Greece: Harmonised Index of Consumer Prices and core HICP (January 2006-June 2010)

(annual percentage changes)



Source: Calculations based on EL.STAT. data.

During the first half of the year, the annual rate of change in the Harmonised Index of Consumer Prices (HICP) accelerated considerably, from 2.3% in January to 5.2% in June (see Chart II.4), reflecting VAT and special consumption tax hikes, higher oil prices and —to a much lesser extent— a rebound in prices of imported goods partly on the back of a weaker euro). Core HICP inflation also rose from 1.4% in January to 3.6% in June 2010. The new increase in VAT rates as from 1 July 2010 will also push inflation upwards. However, subdued demand, structural reforms and the ensuing strengthening of competition in the goods and services markets, as well as the much lower, compared with previous years, increase in unit labour costs in the business sector are expected to exert downward pressure on inflation. Inflation developments will also depend on world crude oil prices and the euro/US dollar exchange rate in the months ahead. In June, i.e. following the announcement of the further increase in VAT and special consumption tax rates, industrial, retail, services and construction firms reported, in the IOBE business surveys, that they expected prices to drop over the next quarter due to subdued demand. On the basis of current trends, average HICP could quite possibly come close to 4.5% in 2010 (up from 1.3% in 2009), while core inflation could average 3% (against 2.2% in 2009).

Turning to expected changes in private consumption from the third quarter onwards, based on the IOBE surveys up to June 2010, households report having become increasingly reluctant to make major purchases, while industrial, retail trade, services (excluding banks and retail trade) and construction firms expect activity to contract in the months ahead. Tourism firms in particular anticipate a strong decline in demand. Finally, all sectors expect employment to decrease over the next period.

Currently, there is ample room for institutional interventions that would open up markets and stimulate business activity. Impending reforms include: revocation of cabotage restrictions that will allow non-EU flagged vessels to perform cruises departing/arriving at Greek ports,

restrictions on cruise ships, the deregulation of the licensing of public-use trucks and of regional airport handling services, and streamlining the overall procedures for setting up and operating a business (the relevant law on facilitating start-up of companies has already been enacted). These are areas that call for bold reforms that are expected to boost economic activity in the medium run.

3.2 BALANCE SHEET CONDITION OF NON-FINANCIAL CORPORATIONS

Since the publication of the Interim Financial Stability Report (December 2009), the balance sheets of non-financial corporations have deteriorated, due to adverse developments in both the key aggregates and the prospects of the Greek economy. In particular, the economic contraction, the rise in unemployment, the slump in private investment and the decline in private consumption and exports, among other factors, contributed to the worsening of certain key financial indicators, such as profitability and liquidity.[8] At the same time, the access of non-financial corporations to external financing (mainly bank credit) was limited.

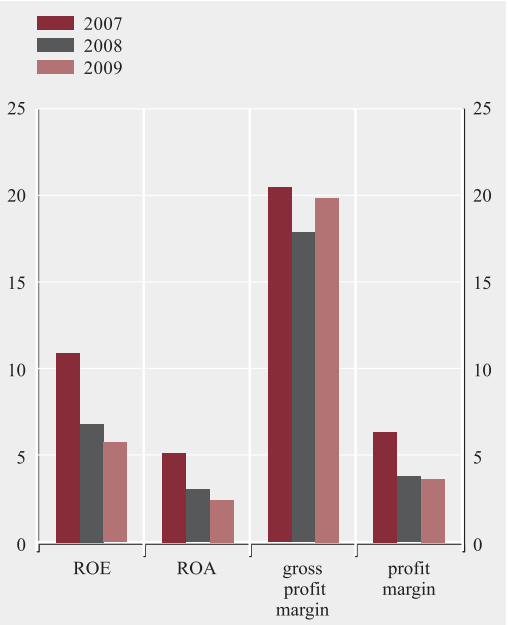
In the near term, the fiscal consolidation measures adopted in the context of the support for Greece[9] are expected to exert downward pressure on domestic disposable income and, consequently, domestic demand. These adverse effects will probably only partially be offset by higher external demand, as the global environment is subject to considerable uncertainty, despite emerging signs of recovery.

3.2.1 Profitability

Year-on-year, the pre-tax profits of all corporations in the sample shrank by 16.7% in 2009 (2008: -34.0%), with one third of these corporations recording losses.[10] A breakdown of profitability shows that the decrease in profits for the corporations in the sample was mainly due to a 12.7% drop in turnover and to a significant fall in operating and non-operating income (by 16.8% and 35.6% respectively), but was nonetheless contained by a sharp fall of 31.0% in their financial expenses.[11] These developments in profitability are reflected in the deterioration of the return on equity (ROE) and return on assets (ROA) ratios,[12]

Chart II.5 Profitability ratios of non-financial corporations (2007-2009)

(percentages)



Sources: Bank of Greece and ICAP.
Notes:
1 Calculations are based on aggregated annual financial statement data for a sample of some 4,800 non-financial corporations from the ICAP database.
2 The gross profit margin is defined as the ratio of gross profit to sales. The profit margin is defined as the ratio of net pre-tax profits to sales.
3 Return on equity (ROE) and return on assets (ROA) are defined as the ratios of pre-tax profits to total equity or assets respectively.

8 The relevant indicators discussed here were compiled using data from the financial statements of a sample of some 4,800 non-financial corporations, for which data were available on the ICAP database on 31 May 2010 for the 2007-2009 period. Excluded from the sample are three large-sized corporations (OTE, DEH and OPAP) to avoid size-related distortion to aggregate figures.

9 For details on the support mechanism for Greece, see Box II.1.

10 It should be noted that the study of a newer sample of some 13,000 corporations from ICAP's database points to a decrease in pre-tax profits by 24.3% in 2009 (2008: -27.7%), while similar qualitative results were obtained for the other components.

11 The decline in financial expenses is attributed to the cuts (until the end of 2009) in bank lending rates and to the fact that the outstanding debt of non-financial corporations remained almost unchanged.

12 The ROE and ROA ratios measure the rate of return on investment in a company and are defined as the ratios of pre-tax profits to total equity or assets, respectively.

while the profit margin remained almost unchanged[13] (see Chart II.5).

3.2.2 Financing

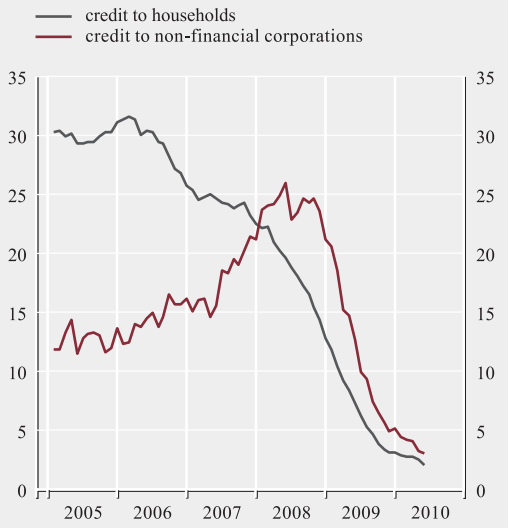
The external financing of Greek non-financial corporations, as mentioned in previous Bank of Greece reports, comes mostly from the domestic banking system. The annual growth rate of credit to non-financial corporations by domestic MFIs[14] recorded a sharp slowdown in 2009, which continued into the first five months of 2010 (May 2010: 2.9%, fourth quarter of 2009: 5.4%, fourth quarter of 2008: 23.6% – see Chart II.6). The net flow of credit to non-financial corporations, after increasing slightly in the second and third quarters of 2009, declined in the fourth quarter of the year and stood at a marginally positive level in the first quarter of 2010, before turning negative in the April-May period.

The slowdown in the growth of MFI credit to non-financial corporations was driven by both demand- and supply-side factors. On the demand side, lower fixed investment, the decrease in sales and output, and the adverse economic outlook made firms less willing to assume additional debt liabilities. This slowdown was more pronounced for loans of shorter maturities, implying that corporations partly substituted their short-term loans with longer-term ones, in order to push back their repayment deadlines. Such an interpretation seems also to be confirmed by the results of the Bank Lending Survey, which showed the restructuring of existing debt liabilities and refinancing to be the main drivers of demand for corporate loans, especially in the second half of 2009.[15]

On the supply side, the slowdown in credit expansion to non-financial corporations observed during this period is linked to the tightening of credit standards by MFIs. According to the Bank Lending Survey, this tightening came as a result of banks' expectations of a further downturn and uncertainty about collateral values. To a lesser extent, it was also associated with banks' funding con-

Chart II.6 Credit[1] to non-financial corporations and households by domestic MFIs in Greece (January 2005-May 2010)

(annual percentage changes; monthly data)



Source: Bank of Greece.
1 Comprising the outstanding amounts of MFI loans to non-financial corporations and households, MFI holdings of corporate bonds and the outstanding amounts of securitised loans and securitised corporate bonds. The rates of change are adjusted for exchange rate variations and write-offs carried out by banks during the reference period. For a more detailed definition of credit, see footnote 14 in the main text of this chapter.

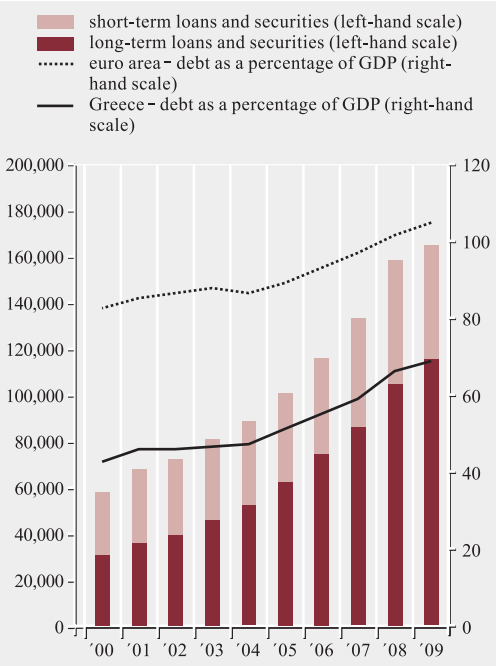
13 The profit margin is defined as the ratio of pre-tax profits to sales. The gross profit margin is the ratio of gross profit to sales.

14 Credit (stock at a given point in time) to non-financial corporations by domestic MFIs is defined as the sum of outstanding MFI loans, MFI holdings of corporate bonds and the outstanding amounts of securitised loans and securitised corporate bonds. The net flow of credit (during a given period) is defined as the difference in the outstanding stock of credit between the beginning and the end of the reference period. Loan write-offs during the reference period are added and the sum is adjusted for valuation differences on loans denominated in foreign currency. Specifically, exchange rate differences due to the appreciation of the euro vis-à-vis foreign currencies are added, whereas exchange rate differences due to the depreciation of the euro vis-à-vis foreign currencies are deducted. Changes in the outstanding amounts of credit for individual loan categories are calculated in a similar manner. Finally, it should be noted that the net flows and rates of change in credit since the beginning of 2009 also include loans and corporate bonds transferred by domestic credit institutions to their subsidiaries abroad. The analysis of credit is based on data from MFI financial statements.

15 According to the results of the Bank Lending Surveys (October 2009, January and April 2010), corporate loan demand seems to have been stable in the second half of 2009 and slightly lower in the first quarter of 2010. Also, the stronger demand for the refinancing of existing loans partly compensated for the lower financing needs ensuing from the overall sluggishness of operational and investment activity of corporations. The Bank Lending Survey is conducted by the Bank of Greece on a quarterly basis, as part of a broader Eurosystem-wide survey.

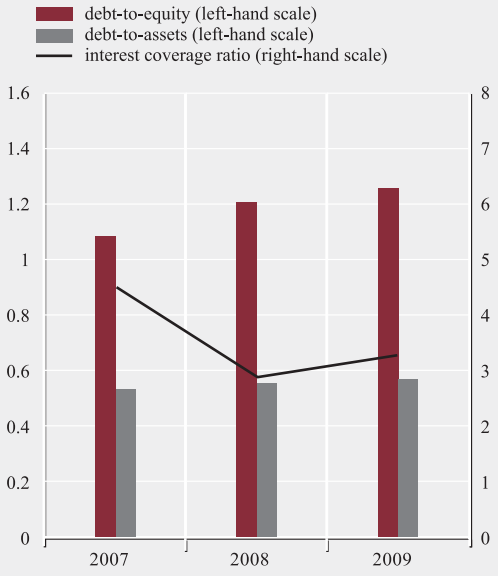
Chart II.7 Debt[1] of non-financial corporations in Greece and the euro area

(outstanding amounts in million euro)



Sources: Bank of Greece and ECB (debt); Eurostat and EL.STAT. (GDP). Provisional data for 2009 GDP.
1 Debt comprises loans, debt securities issued and pension fund reserves. The figures refer to outstanding debt, as recorded on the liabilities side of the financial accounts of non-financial corporations, rather than to net outstanding debt, i.e. the difference between liabilities and corresponding assets in the sector's financial accounts.

Chart II.8 Leverage ratios of non-financial corporations (2007-2009)



Sources: Bank of Greece and ICAP.
Notes:
1 Calculations are based on aggregated annual financial statement data for a sample of some 4,800 non-financial corporations from the ICAP database.
2 Debt ratios are defined as debt (total liability) divided by total equity or by total assets.
3 The interest coverage ratio is defined as earnings before interest and taxes divided by interest expences.

straints.[16] Lending to small and medium-sized enterprises seems to have moderated more sharply.[17] It should be pointed out, however, that the restraint in lending is consistent with the banks' need to safeguard the quality of their loan portfolios in the face of increased credit risk.[18]

Credit expansion is expected to remain subdued in the months ahead, owing mainly to the contraction in economic activity and to the limited availability of funding sources for MFIs.[19]

3.2.3 Leverage

According to financial accounts data, the debt of non-financial corporations[20] increased by 4.1% in 2009 relative to the previous year. Combined with the decline in GDP, their debt-to-GDP ratio was higher in December 2009 than one year earlier (December 2009: 69.6%, December 2008: 66.4% – see Chart II.7).

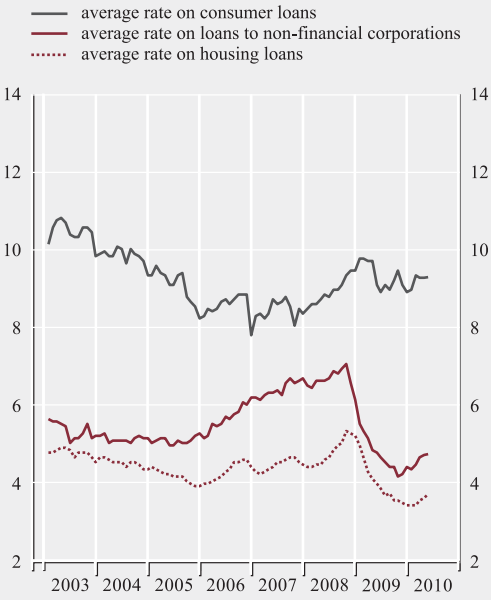
16 For developments regarding the liquidity position of Greek banks, see Chapter IV.4.2.
17 Indicatively, the results of a relevant European Commission survey of euro area countries report a low response of banks to the demand for loans from small and medium-sized firms in Greece in the first half of 2009. In particular, 38% of the Greek SMEs in the sample indicated having applied for a new loan in the first half of 2009 (EU-27 average: 22%), of which only 27% reported having actually received the whole amount of the loan requested (EU-27 average: 55%). Also, 39% of all the Greek enterprises in the sample reported that access to finance was their most pressing problem (EU-27 average: <25%). See European Commission, "Access to finance", *Flash Eurobarometer*, No. 271, September 2009.
18 Regarding the credit risk on corporate loans, see Chapter IV.4.1.2, Banking risks.
19 For a detailed presentation of the factors expected to influence credit expansion, see Bank of Greece, *Annual Report 2009*, April 2010.
20 The debt of non-financial corporations comprises loans, debt securities issued, as well as pension fund reserves. Debt data are derived from the financial accounts of the non-financial corporate sector, which record the sector's total financial assets and liabilities.

Detailed data on indebtedness confirm that, during 2009, there was a limited substitution of short-term liabilities with long-term ones. Finally, the debt of non-financial corporations as a percentage of GDP remained considerably lower than in the euro area as a whole (December 2009: 105.5%).[21]

The debt-to-assets and debt-to-equity ratios of all corporations in the sample rose slightly in December 2009, compared with one year earlier, to 0.57 and 1.30 respectively (see Chart II.8). However, the ability of these corporations to cover their interest expenses with their earnings, as reflected by the evolution of their interest coverage ratio,[22] improved slightly, as their interest expenses decreased faster than their earnings. The decrease in corporations' interest expenses can be attributed to a moderation in corporate borrowing and to the drop in lending rates over the first nine months of 2009 (see Chart II.9). It should be noted that, while nominal lending rates have picked up since the fourth quarter of 2009, real (deflated) interest rates have been trending downwards.[23]

Chart II.9 Interest rates on new bank loans in Greece (January 2003-May 2010)

(percentages per annum)



Source: Bank of Greece.

3.2.4 Liquidity

According to available data, the liquidity of the corporations in the sample worsened slightly, as both their current and quick ratios[24] stood lower at the end of 2009 (i.e. at 1.21 and 0.93 respectively) than in the previous year (see Chart II.10).

3.3 BALANCE SHEET CONDITION OF HOUSEHOLDS

The impact of the economic environment on the financial condition of households has become even more adverse, given the deterioration of key economic indicators since the beginning of this year, the deeper recession officially forecast for 2010 and the recent income and tax policy measures. The uncertainty surrounding income and employment prospects gave rise to negative expectations among households, putting downward pressure on loan demand, real estate prices and the volume of real estate transactions. At the same time, banks adjusted their household lending policies by tightening the credit terms and conditions applicable to new loans, but also eased the financial burden on households through the renegotiation and restructuring of their debt.

The decrease in household disposable income and the considerable rise in unemployment are the main factors of uncertainty for 2010. However, the risk of reduced loan repayment ability due to a potential rise in interest rates is relatively low. As before, households' level of

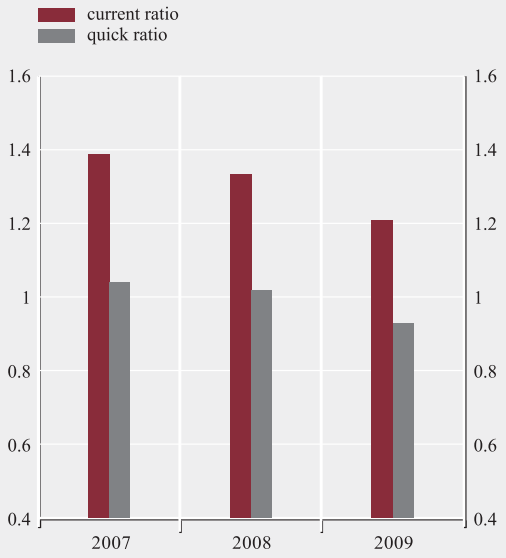
21 It should be pointed out that the indicators refer to outstanding debt as recorded on the liabilities side of the financial accounts of non-financial corporations, rather than to net outstanding debt, i.e. the difference between liabilities and corresponding assets in the sector's financial accounts.

22 The interest coverage ratio is defined as earnings before interest and taxes, divided by interest expenses.

23 In fact, since April 2010, the average real interest rate on loans to non-financial corporations has been negative.

24 The current ratio is defined as the ratio of short-term (current) assets to short-term liabilities; the quick ratio is computed in a similar way, except that current assets are taken net of inventories. As mentioned in previous reports, these ratios reflect a corporation's ability to service its short-term liabilities by selling readily realisable assets.

Chart II.10 Liquidity ratios of non-financial corporations (2007-2009)



Sources: Bank of Greece and ICAP.
Notes:
1 Calculations are based on aggregated annual financial statement data for a sample of some 4,800 non-financial corporations from the ICAP database.
2 The current ratio is defined as the ratio of short-term (current) assets to short-term liabilities; the quick ratio is computed in a similar way, except that current assets are taken net of inventories.

indebtedness does not raise concerns about their debt servicing ability, although low-income households are expected to be under pressure. Finally, as regards the real estate market, the mild price correction that continued into 2010 limits the risk of a sharp change in prices, but on the other hand implies a depreciation in households' real estate assets and collateral.

3.3.1 Developments in household credit and indebtedness

The annual growth rate of domestic MFI credit to households, continuing its marked decline observed in the course of 2009, fell further in the first five months of 2010 to 2.0% in May (December 2009: 3.1% – see Chart II.6). The deceleration was significant in the case of consumer loans, the growth rate of which turned negative (-0.1%) for the first time in May 2010 (December 2009: 2.0%), while housing loan growth slowed down to 3.0%, from 3.7% in December 2009. Moreover, negative monthly net flows were recorded in consumer loans during the period January-May 2010 and in housing loans in April-May 2010.

The weaker credit expansion to households is attributed to the impact of the economic downturn on both loan supply and demand. On the supply side, banks remained cautious in extending credit (especially consumer loans) because of the increase in NPL ratios. On the demand side, the adverse prospects for economic activity and household income are reflected in the continued erosion of consumer confidence and, as a result, in households' reduced spending and reluctance to take on new debt.

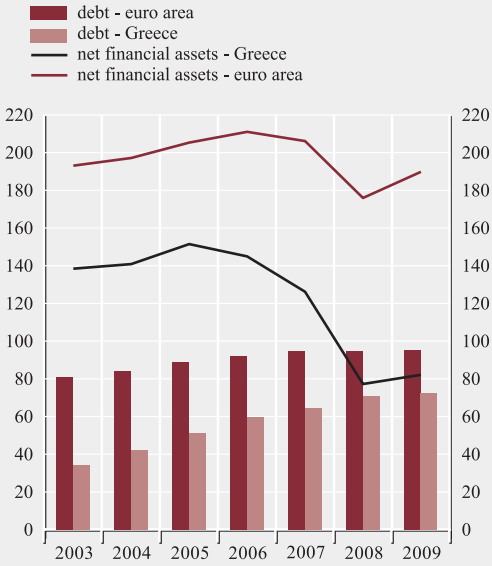
The results of the latest Bank Lending Survey (April 2010) show a weakening in both the supply and demand for housing loans. In the first quarter of 2010, banks tightened their terms and conditions on housing loans, raising the interest rate spreads loans and reducing the loan-to-value (LTV) ratio. It is worth noting that demand for housing loans declined for the first time since the first quarter of 2009. This development can be attributed to a wait-and-see stance on the part of some households in anticipation of further declines in real estate prices and in real GDP. As regards consumer credit, following the tightening observed in 2009, in particular in the fourth quarter of that year, no major changes were seen in banks' lending terms and conditions in the first quarter of 2010. Demand for consumer credit remained roughly unchanged, despite the adverse effect of declining consumer confidence since November 2009 (based on IOBE data). According to the Bank Lending Survey, this can be partly explained by the fact that households lack alternative sources of financing for their basic needs.

The indebtedness of households rose in 2009, as their debt increased by 2.1% annually and

their nominal gross disposable income decreased marginally. The ratio of household debt to their (estimated) gross disposable income rose to 72.8% in December 2009 (December 2008: 70.9%), but remained considerably lower than in the euro area as a whole (December 2009: 95.4%, December 2008: 94.3% – see Chart II.11). In March 2010, the household debt-to-GDP ratio remained virtually unchanged at 50.3%, compared with 50.4% in December 2009. It should be noted that the level of indebtedness varies across household income levels, with the lower-income household groups recording the highest debt ratios.[25] Finally, the total financial assets of households remain considerably higher than their total financial liabilities. According to financial accounts data, the net asset position of the household sector as a percentage of disposable income fell in 2008 relative to 2007, but increased slightly in 2009, as in the euro area as a whole (see Chart II.11).

Chart II.11 Household debt[1] and net financial assets in Greece and the euro area (2003-2009)

(as a percentage of gross disposable household income)



Sources: Bank of Greece and ECB (outstanding household debt); Eurostat and EL.STAT. (gross disposable household income). For 2009, Bank of Greece estimate of Greek households' income.
1 Household debt includes the outstanding amount of loans and securitised loans to households. Debt and net financial assets data are derived from the financial accounts of the household sector, which record the sector's total financial assets and liabilities. Net financial assets are defined as the difference between total assets and total liabilities.

3.3.2 Interest rate risk of households

The significant decrease in interest rates on household loans in 2009 contributed to reducing households' average interest payments and keeping the interest rate risk low. The average interest rate on the outstanding balance of housing loans and, to a much lesser extent, of consumer loans declined in 2009 relative to 2008. On a twelve-month basis, this decline continued through May 2010.[26]

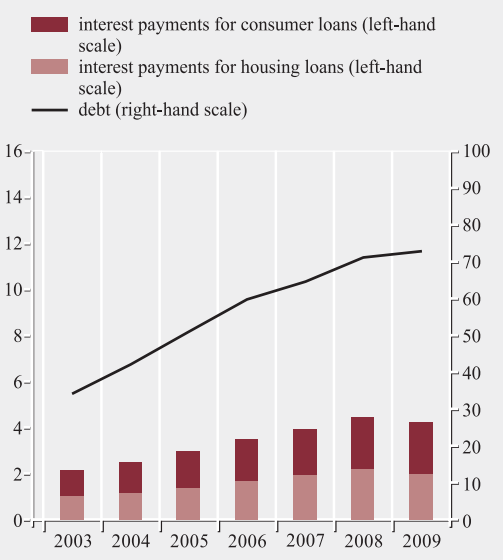
As the average annual outstanding amount of housing and consumer credit increased only moderately in 2009, average annual interest payments fell by 10.5% for housing loans, but remained almost unchanged for consumer loans. Therefore, the ratio of interest payments to household disposable income (see Chart II.12) decreased by a total 0.2 percentage point to 4.2% in 2009; this decrease stemmed exclusively from the housing loan category, as the ratio remained unchanged in the consumer loan category. The 2009 level of this ratio is deemed satisfactory with regard to loan repayment ability. Meanwhile, the downward trend in interest rates in 2009 prompted households to turn to new loans with a floating rate or an initial rate fixation up to one year; thus, the share of this category in total new fixed-term loans climbed from 37.3% in December 2008 to 63.0% in December 2009.

The slightly upward trend in interest rates on household loans in the first five months of 2010 can be explained by the rise in bank funding costs (currently mitigated by the low cost of financing from the Eurosystem), but also by the increase in credit risk premia on household

25 See Section 3.3.3 later in this Chapter and Bank of Greece, *Monetary Policy - Interim Report 2008*, October 2008, Box VII.1.
26 In particular, the average interest rate on new housing loans fell from 5.21% in December 2008 to 3.41% in December 2009, before rising again by 22 basis points by May 2010. The average interest rate on new fixed-term consumer loans decreased by 52 basis points in 2009 to 8.94% at the end of the year, but rose by 36 basis points over the period January-May 2010 to 9.30%.

Chart II.12 Household debt[1] and interest payments[2] (2003-2009)

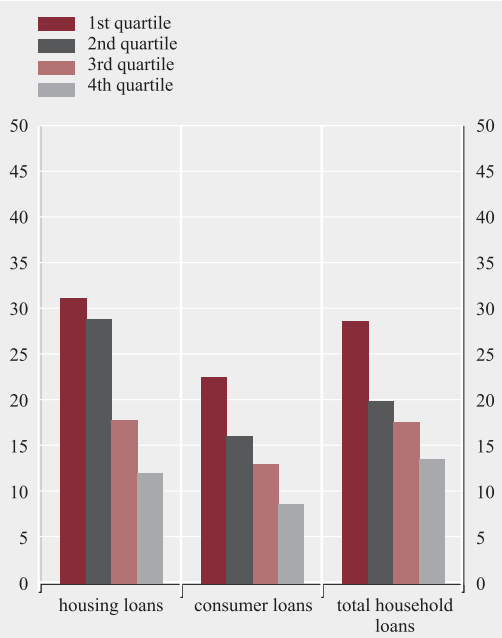
(as a percentage of gross disposable household income)



Sources: Bank of Greece and EL.STAT.
1 Household debt comprises the outstanding amounts of loans and securitised loans to households. Debt data are derived from the financial accounts of the household sector, which record the sector's total financial assets and liabilities. For 2009, Bank of Greece estimate of Greek households' income.
2 Interest payments are approximated by multiplying the average annual interest rate by the average annual outstanding amount of credit to households per category of loan.

Chart II.13 Loan servicing costs[1] of households per income bracket[2]

(percentage of gross disposable income of households median value)



Source: Bank of Greece, Household Indebtedness Survey (2007).
1 Loan servicing costs and annual disposable income are based on households' responses to the survey.
2 Income quartiles are defined as follows: The 1st quartile is the income value on the left of which stands 25% of sample observations. (The corresponding cut-off paints for the 2nd and 3rd quartiles are 50% and 75% respectively, while the 4th quartile represents the maximum income value).

loans. It should be noted that in the event of a rise in the interest rates on loans with a floating rate low-income households would face considerable pressure (see Chart II.13, as well as section 3.3.3 below). However, for the remainder of 2010, the risk of a further increase in interest rates —which would affect households' debt repayment ability— is estimated to be low. Finally, as the outstanding balance of housing loans is not expected to change significantly and the outstanding balance of consumer loans may decrease, the total amount of interest payments should remain roughly unchanged between 2009 and 2010.

3.3.3 Household income risk

Income risk is an important factor of uncertainty for households in 2010, as both total household income and employment are expected to decrease. It should be noted that household income risk is defined as the likelihood that households' debt repayment ability will decline as a result of a decrease in disposable income and/or of job loss (with adverse repercussions on the stability of the financial system).

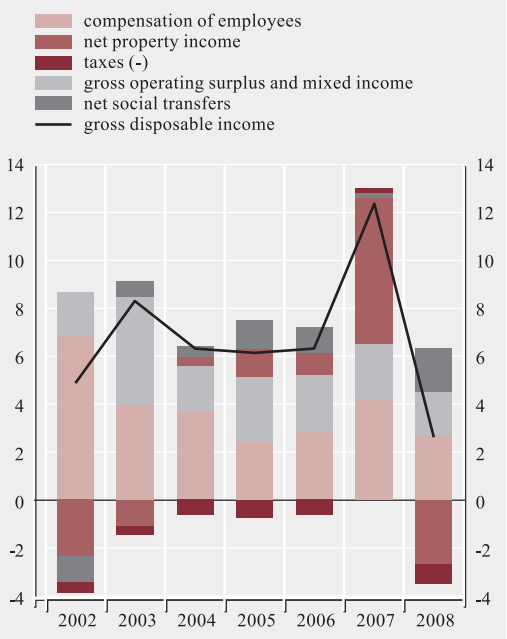
The macroeconomic environment and labour market conditions in particular are expected to continue to deteriorate. Against this background, income risk should keep increasing, exceeding the forecast of the Interim Financial Stability Report of December 2009. Employment in 2009 declined by 1.1% (annual average), while the unemployment rate rose to 9.5%, from 7.7% in 2008, and is expected to increase further in 2010. By the first quarter of 2010, unemployment had reached 11.7% (first quarter of 2009: 9.3%).

As regards household income, the economic downturn, the recent income policy measures and the new tax regime are causing an immediate reduction in earnings, especially among civil servants, broader public sector employees and pensioners. The average nominal gross earnings for the economy as a whole, after increasing by 4.6% in 2009, are expected to contract by around 3.5% in 2010. The real gross disposable income of households is estimated to have decreased in 2009, while a further significant decline is expected in 2010. Chart II.14 shows the contributions of individual components to overall disposable income growth[27] over the period 2002-2008. The growth rate of nominal gross disposable income decelerated from 12.4% in 2007 to 2.6% in 2008 and registered a further marginal decline in 2009. After the crisis intensified in 2008, the contributions of the respective household income categories lessened. "Net property income" had a negative contribution in 2008 (as opposed to a positive one in 2007), while the respective contributions of "compensation of employees" and of "gross operating surplus and mixed income" were lower. "Net social transfers" were an exception, as their positive contribution increased in 2008. The contributions of all categories are estimated to have been reduced in 2009, while almost all categories are expected to have negative contributions in 2010 due to their negative rates of change (positive rate in the case of taxes).

It is worth noting that the greatest income losses in 2010 were felt by households in the higher income brackets, whose outstanding loans account for an important share of the total outstanding amount of bank loans to households. However, as the indebtedness (outstanding loans over disposable income) of these households is low, they are likely to continue to service their debt without particular difficulty. On the other hand, the households in the lower income brackets may have suffered smaller income losses so far, but are expected to come under stronger financial stress. Chart II.13 depicts the findings of the

Chart II.14 Contribution of individual income sources[1] to households' disposable income (2002-2008)

(annual percentage changes; percentage points)



Sources: EL.STAT and Eurostat.
Individual income categories are defined according to the European System of Accounts 1995 (ESA 95).

latest survey on household borrowing (2007), which records household debt servicing costs by income quartile, as expressed by the ratio of (monthly) interest and principal repayments over (monthly) disposable income. As regards housing loans, for each of the lowest two income quartiles the median debt servicing ratio is close to 30%.[28] Thus, 50% of households in the lowest two income quartiles of the sample spend over one third of their income on paying their loan instalments and are particularly vulnerable to a decrease in income (or a rise in interest rates). Their remaining income probably covers other basic needs, which cannot be easily compromised to make up for the income squeeze. Household credit risk is therefore expected to rise in 2010. The

27 Individual income categories are defined according to the European System of Accounts 1995 (ESA 95).
28 A similar ratio is observed for consumer loans, the majority of which in Greece are not secured by collateral in the form of real estate.

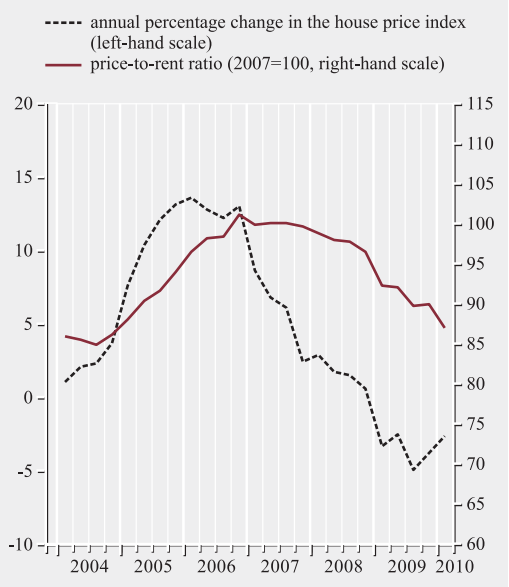
increase in non-performing loans is nonetheless expected to remain limited, given that (i) the total outstanding amount of loans taken out by households in distress is not high and (ii) banks have already begun offering these households the option of restructuring their debt, by deferring payment of all or part of the loan instalments and/or by lengthening loan maturity.

3.3.4 House price risk

Following a deceleration in house price growth rates during 2007-2008, house prices dropped in 2009 and into the first quarter of 2010. The average annual rate of change in the house price index[29] for the entire country was negative in 2009 (-3.6%, compared with +1.7% in 2008) and in the first quarter of 2010 stood at -2.6% on an annual basis.[30] The fall in housing market prices is consistent with the excess supply of dwellings[31] owing to the sizeable existing dwelling stock and subdued demand. The weakening in housing demand is reflected in the particularly low flows of housing loans and can be explained by the same factors that led to the moderation in credit expansion. In addition, uncertainty about the upcoming changes in real estate taxation also contributed to the deterioration in housing market conditions.

For the remainder of the year, the house price index is projected to decline slightly further. Despite the low level of demand, the existing dwelling stock is being absorbed, albeit at a slow pace. The Greek housing market does not show signs of significant overpricing, as indicated by the house price-to-rent ratio, which continued to decline in 2010, mainly reflecting the downward adjustment of residential prices (see Chart II.15). Overall, given the prevailing housing market conditions, the risk of an abrupt change in residential prices is estimated to be low. However, the risk outlook is subject to the broader economic environment in Greece and financial market volatility. Finally, the cumulative decrease in house prices, although the market correction has been mild, is expected to have a negative effect on households' wealth and collateral value until the end of 2010.

Chart II.15 House price-to-rent ratio (Q1 2004-Q1 2010)



Sources: Bank of Greece, based on data collected by credit institutions; EL.STAT (rent index).

29 New data series, based on prices reported by banks.
30 See Bank of Greece, *Annual Report 2009*, Chapter V.3.
31 All construction activity indicators show a continued decline.

III MONEY AND CAPITAL MARKETS

1 INTRODUCTION

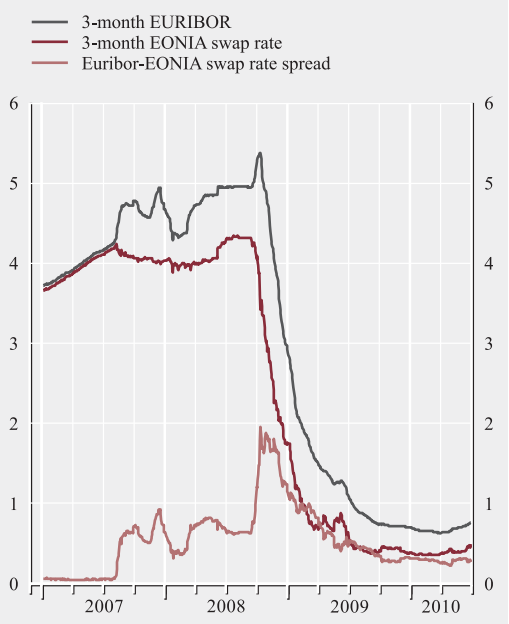
Conditions in money and capital markets during the period following the publication of the latest Financial Stability Report (December 2009) put strain on financial stability in Greece. Money and capital markets virtually closed to Greek banks and the ECB became their main source of funding. Developments in the government bond market made borrowing a difficult exercise for both the government and banks. Greece's fiscal derailment caused Greek bond yields to surge. This development triggered concerns amongst investors about the economic prospects of other euro area countries also facing high fiscal deficits and public debts (such as Portugal, Spain and, to a lesser extent, Ireland and Italy). As a result, the sovereign bond yields of these countries rose, albeit considerably less than Greek bonds. Conversely, bond yields of other euro area countries with comparatively better fiscal prospects, such as German sovereign bond yields, declined, reflecting investors' flight-to-quality. The euro depreciated substantially against the other major currencies amid concerns about euro area growth prospects over the medium term. Share prices in the Athens Exchange plummeted, in contrast with the relatively moderate downward trend recorded by most stock market indices around the globe. Lastly, commodity prices fluctuated, with gold prices recording a strong increase.

2 MONEY MARKETS

The gradual improvement of the conditions in the euro area money market, noticeable throughout 2009, continued into the first quarter of 2010. However, mounting investor concerns about the medium-term outlook of the euro area economy, stemming mainly from the expected adverse impact from countries facing high fiscal deficits and debts, exerted pressures from early May 2010 onwards. This development is reflected in a further widening of the spread between the Euribor and EONIA rates

Chart III.1 3-month Euribor, 3-month fixed EONIA swap rate and the Euribor-EONIA spread (2 January 2007-30 June 2010)

(percentages per annum; daily data)



Sources: ECB and Bloomberg.

(see Chart III.1). In order to deal with such pressures, the ECB re-established a U.S. dollar liquidity swap facility,[1] while continuing to conduct its three-month refinancing operations.

In particular with respect to Greece, the fiscal crisis that erupted in the last quarter of 2009 led to a series of downgrades of both the country's (see Table III.1) and Greek banks' credit ratings. As a result, Greek banks gradually lost access to the international interbank market, which essentially closed to them as from the end of 2009. Similarly, activity in the domestic interbank market was subdued and transactions were limited to shorter maturities. As a result, Greek banks had to cover their funding

1 It should be recalled that in December 2009, the ECB had announced the phasing-out of some of its non-standard liquidity-providing measures, such as the suspension of refinancing operations with a maturity of one year and six months after the last tenders conducted on 16 December 2009 and 31 March 2010, respectively.

Table III.1 Evolution of Greece's sovereign credit ratings

Fitch		Moody's		Standard & Poor's	
Date	Rating	Date	Rating	Date	Rating
9.4.2010	BBB-	14.6.2010	Ba1	27.4.2010	BB+
8.12.2009	BBB+	22.4.2010	A3	16.3.2010	BBB+
22.10.2009	A-	22.12.2009	A2	16.12.2009	BBB+
		29.10.2009	A1	14.1.2009	A-

Source: Bloomberg.

requirements by raising funds from the Eurosystem.

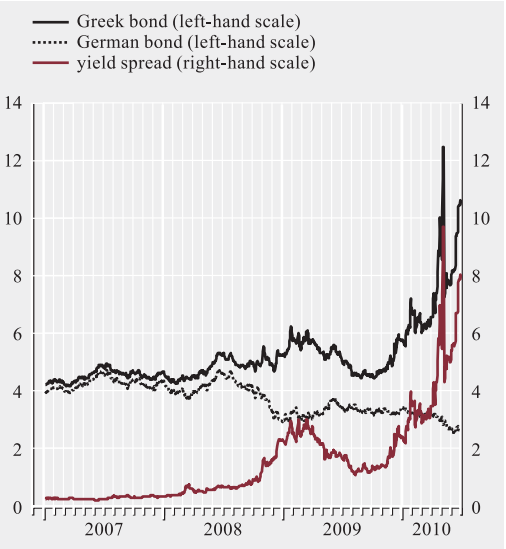
3 BOND MARKETS

3.1 GREEK GOVERNMENT BOND MARKET

In the last six months, the secondary bond market was marked by a sharp rise in the yields of Greek government bonds (see Chart III.2). Indicatively, the 10-year bond yield reached a 12-year high (7 May 2010: 12.5%).

Chart III.2 Yield on the Greek and German 10-year government bond and yield spread (1 January 2007-30 June 2010)

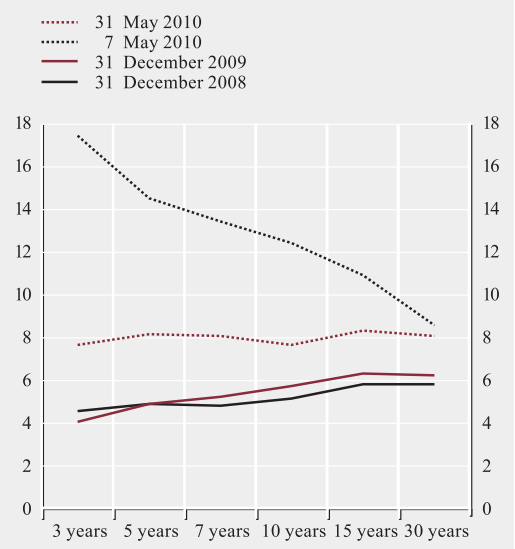
(percentages; daily data)



Source: Bloomberg.

Chart III.3 Greek government paper yield curves

(percentages per annum)

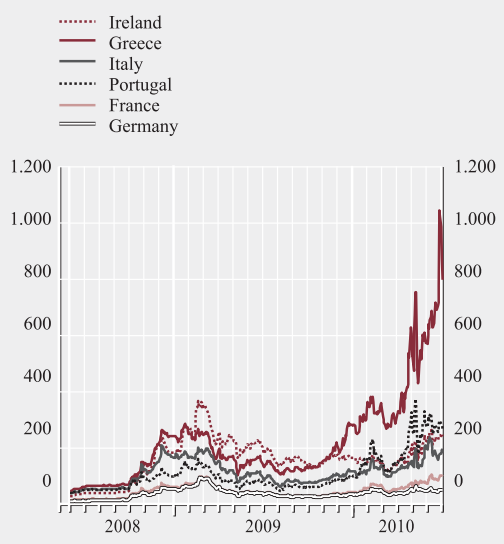


Source: Bloomberg.

Underlying this development were mainly the successive downgrades of Greece's sovereign debt rating (see Table III.1), due to a serious deterioration in fiscal aggregates and the macroeconomic environment, as well as several months of negative media reports concerning the country's economic prospects. General concerns surrounding the short-term course of the Greek economy are also reflected in the reversal of the yield curve of Greek government bonds during the same period (see Chart III.3). The prices of Greek credit default swaps (CDSs) followed a steep

Chart III.4 10-year sovereign credit default swaps (1 June 2008-30 June 2010)

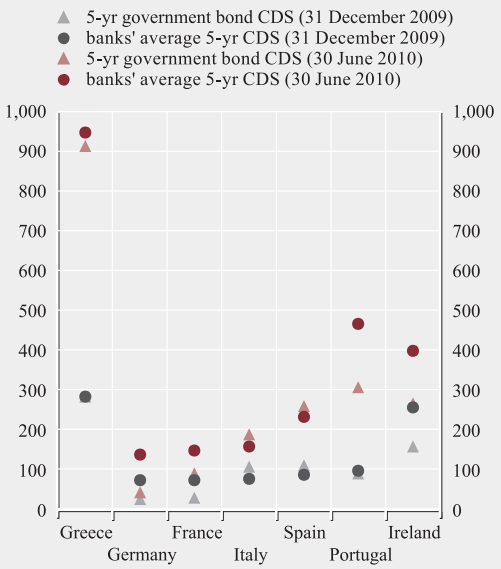
(spreads in basis points)



Source: Thomson Financial Datastream.

Chart III.5 5-year credit default swap (CDS) spreads for European countries and banks

(basis points)



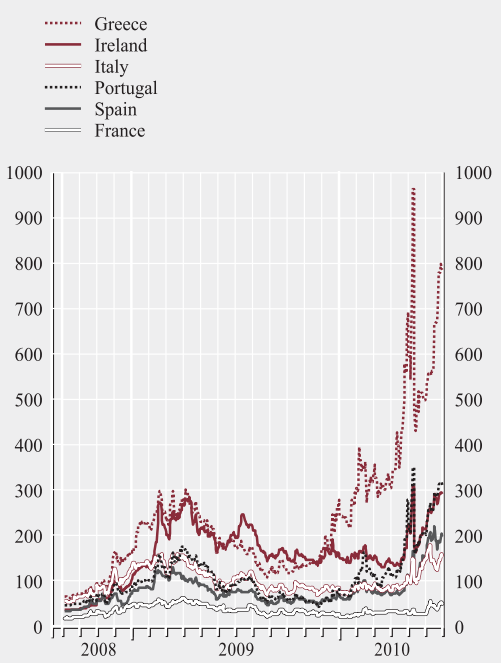
Sources: Markit and Bloomberg.

upward path (see Chart III.4), with the 5-year CDS spread exceeding 1,000 basis points at end-June.[2] CDS spreads for other countries also recorded an increase, albeit significantly smaller than for Greece. Heightened sovereign credit risk has inevitably affected banks' credit risk, as reflected in banks' CDSs (see Chart III.5). Comparing the evolution of CDSs on bank and government debt in this chart leads to two interesting conclusions: Firstly, between end-December 2009 and end-June 2010 a rise in both sovereign and bank credit risks was observed, which was small for Germany and France and quite significant in all other cases. Secondly, while at end-2009 sovereign credit risk and bank credit risk did not diverge greatly, at the end of June 2010 banks' credit risk was as a rule higher than sovereign credit risk.

The country's recourse to the support mechanism of the Greek economy, which was jointly established by the European Commission, the ECB and the IMF, coupled with the ECB's

Chart III.6 10-year government bond yield spreads vis-à-vis Germany (1 August 2008-30 June 2010)

(basis points; daily data)



Source: Bloomberg.

2 Source: Thomson Financial Datastream.

intervention through the purchase of bonds on the secondary market, contributed to a decline in the yields of Greek government bonds. Nevertheless, yields remain at a relatively high level compared with other euro area countries (see Chart III.6), while trading activity in Greek bonds continues to be particularly subdued.

Box III.1

EVENTS ASSOCIATED WITH THE RISE IN GREEK GOVERNMENT BOND YIELDS

The upward path of Greek government bond yields started in early September 2009. Subsequently, the following developments played a decisive role in their further significant rise (see chart):

- On 22 October 2009, Eurostat announced its estimates concerning Europe's fiscal aggregates, according to which Greece's deficit in 2008 (7.7% of GDP) was the largest across the EU-27, while its public debt was the second highest. In addition, Eurostat expressed serious reservations about the reliability of the fiscal data submitted by Greece to the EU, on the basis of which the 2009 deficit was estimated at 12.5% of GDP (up from an initial estimate of around 6%), while Greece's debt was estimated at 113.4% of GDP.

- On the same day, Fitch rating agency downgraded the country's credit rating. This was compounded by a significant downward revision of GDP data for the third quarter of 2009, implying a further contraction of the Greek economy.

- On 3 November 2009, the European Commission published a report entitled "Economic downturn challenges public finances", which forecast flat growth for the Greek economy in 2010 and stressed the need for correcting the Greek economy's fiscal imbalances.

- This report was followed by a plethora of economic analyses painting a bleak picture of Greece's fiscal position, coupled with increasing international media reports about a possible Greek default due to inability to unwind fiscal imbalances. Moreover, other ill-founded media reports predicted a restructuring of Greek debt or even Greece's exit from the euro area.

- In November 2009, Dubai World, an investment company owned by the Dubai government, due to its inability to repay its debt, sought a six-month standstill, while international financial media tried to associate this event with developments in the Greek bond market.

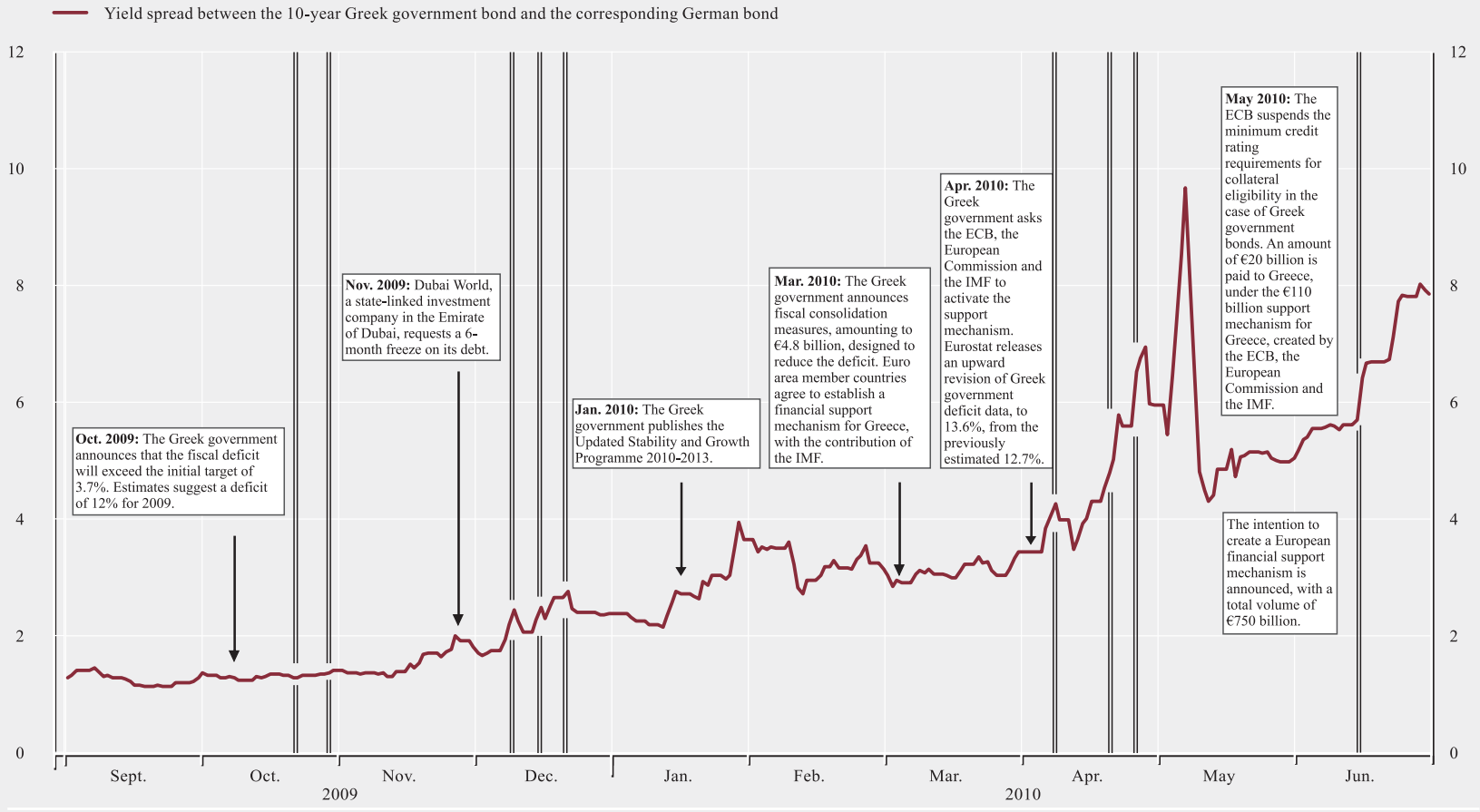
- After a warning on 7 December 2009 and a subsequent downgrade by Standard & Poor's rating agency, which was almost immediately followed by a Fitch downgrade, Greek spreads[1] exceeded 200 basis points. This spread to the bonds of other countries (i.e. Portugal and Spain), which also face fiscal challenges, sovereign debt downgrades by rating agencies and negative comments from international media.

- On 14 January 2010, the Greek government announced the Update of the Hellenic Stability and Growth Programme for 2010-2013, but this only temporarily reversed the upward trend of bond yields.

1 That is, the yield differential between ten-year Greek government reference bonds and the corresponding German bonds.

The timeline of yield spreads between the 10-year Greek bond and the corresponding German bond (September 2009-June 2010)

(percentages; daily data)



Sources: Bloomberg and press releases.
Note: The double vertical lines indicate downgrades in Greece's sovereign credit rating.

• In February and March 2010, yields fell slightly, as on 2 February the Greek government announced new cost-cutting measures, with an emphasis on trimming the public sector's wage bill, while on 5 March the Greek government announced new measures to reduce spending and raised taxes with a view to boosting public revenue.

• In its meeting of 25 March, the European Council approved and announced the creation of a support mechanism for the Greek economy with the participation of the European Commission, the ECB and the IMF. However, this announcement was not accompanied by details of the mechanism's implementation. At the same time, the European Central Bank eased its collateral eligibility criteria for liquidity provision to banks, but the lack of details of the operational modalities and conditions of activation of the support mechanism, as well as successive negative reports in international media about a possible Greek default or debt restructuring contributed to a further increase in bond yields.

• On 23 April 2010, the Greek Prime Minister announced the country's recourse to the financial support mechanism, after Eurostat had revised upwards the country's budgetary deficit one day earlier.

• On 27 April 2010, Standard & Poor's was the first rating agency to downgrade the country's sovereign debt rating below investment grade.

• This led to a surge in international media reports about a possible Greek debt restructuring, including also references to other countries that face fiscal imbalances. This sent Greek bond yields skyrocketing and caused bond yields to rise in other countries too.

• On 3 May 2010, the ECB suspended the application of the minimum credit rating threshold for Greek government bonds and bonds under Greek State guarantee in its collateral eligibility requirements for liquidity provision by the Eurosystem.

• On 10 May 2010, the establishment of a €750 billion financial assistance mechanism was announced by the EU, the ECB and the IMF with a view to maintaining financial stability in the euro area. At the same time, the ECB announced the adoption of a purchase programme of euro area government and corporate bonds for restoring their liquidity. These developments contributed to a decline in Greek bond yields as well.

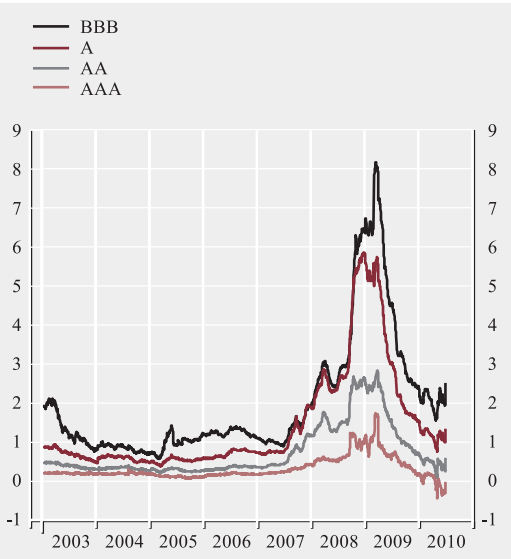
• On 14 June 2010, Moody's downgraded Greece's credit rating below investment grade; as a result, Greek government bonds were removed from international bond indexes and index tracking funds were forced to sell out Greek securities.

3.2 INTERNATIONAL CORPORATE BOND MARKETS

The euro area government bond market was characterised by two dominant trends: on the one hand, rising yields of government bonds of countries facing high fiscal deficits and public debts and, on the other hand, declining yields of government bonds of countries with relatively low fiscal imbalances. Between December 2009 and June 2010, the yield spread between euro area corporate and government bonds changed little, as the narrowing observed in the first months of 2010 was reversed in May (see Chart III.7). A closer examination of the components of this spread shows, on the one hand, an increase in investors' risk appetite (i.e. declining yields of corporate bonds) and, on the other hand, their

Chart III.7 Corporate bond spreads in the euro area[1]
(1 January 2003-30 June 2010)

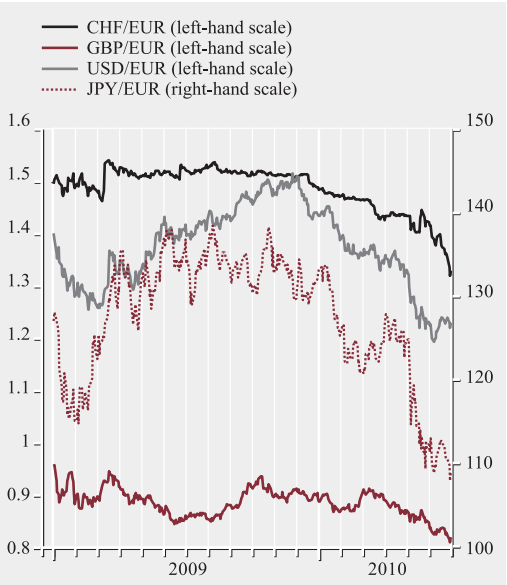
(percentage points)



Source: Thomson Financial Datastream.
1 Merrill Lynch indices for maturities of 7-10 years. The corporate bond indices refer to bonds rated within four rating categories from lowest (BBB) to highest (AAA).

Chart III.8 Exchange rates of the euro vis-à-vis the US dollar, the Japanese yen, the pound sterling and the Swiss franc
(January 2009-June 2010)

(daily data)



Source: Reuters.

mounting concerns about the fiscal position of euro area countries (i.e. increasing yields of government bonds). Indicatively, since the end of April 2010, the yields of AAA-rated corporate debt securities have stood lower than equally rated government bonds.

3.3 GREEK BANKS' SECURITIES ISSUANCE

In 2009, Greek banks raised from international capital markets funds totalling €4.3 billion through the issuance of senior debt (without Greek government guarantees), as well as funds amounting to €1.5 billion through issues of covered bonds. Moreover, they carried out loan securitisations (of about €22 billion), using them as eligible collateral in the Eurosystem refinancing operations.

In the first half of 2010, investors' interest turned away from Greek banks' bond issues, as a result of the continuous downgrades of banks' credit ratings (following the downgrades of Greek sovereign debt).[3]

4 FOREIGN EXCHANGE MARKET

Between December 2009 and June 2010, the exchange rate of the euro against the other major currencies declined significantly (see Chart III.8). The most pronounced change was observed in May 2010, reflecting investors' concerns about an eventual destabilisation of the euro area under the burden of some of its countries' fiscal aggregates, as well as about the likelihood of such problems spreading to other countries. Indicatively, at end-May 2010 the exchange rate of the euro against the US dollar reached a four-year low. In more detail, between December 2009 and June 2010, the exchange rates of the euro vis-à-vis the major currencies fell (by 18.6% against the US dollar, 17% against the Japanese yen, 10.2% against the pound sterling and

3 Nevertheless, in the first half of 2010, Greek banks issued bonds of €26.3 billion under Greek State guarantee, covered bonds of €9,8 billion and securitised loans totalling €1 billion, held in banks' balance sheets.

11.9% against the Swiss franc).[4] The nominal effective exchange rate of the euro followed a similar path.[5] Underlying the downward course of the euro during the reviewed period were investors' concerns about developments in the economic activity of the euro area as a whole.

5 STOCK MARKETS

Between December 2009 and June 2010, concerns about fiscal developments in euro area countries and the expected repercussions on their economic growth rate negatively impacted on share prices in the majority of euro area countries. Moreover, concerns about the likelihood that the escalating European fiscal crisis would affect global economic activity had a negative impact, albeit to a relatively lesser extent, on US share prices. Nevertheless, the decline in share prices in both Europe and the United States was moderate.

By contrast, share prices in the Athens Exchange increasingly diverged from prices in the other developed markets and declined considerably, reaching a 15-month low (see Chart III.9) in late June 2010. A sharper fall was observed in the banking subindex.

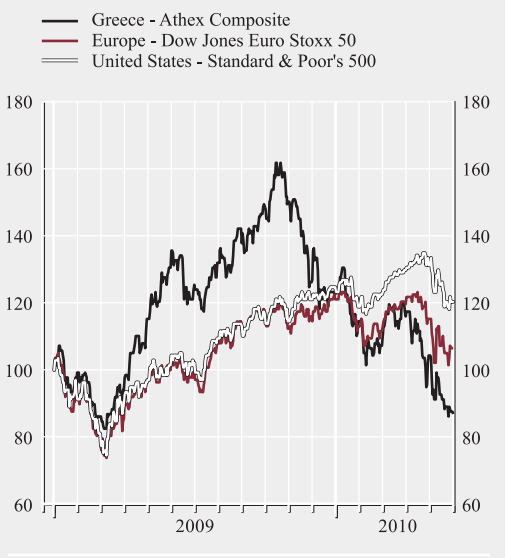
6 COMMODITY MARKETS

By early February 2010, the price of gold had slightly fallen from the previous historical high observed at the start of December 2009, only to rise thereafter, reaching a new historic high on 18 June 2010 (see Chart III.10). The evolution of the price of gold is, to a certain extent, attributable to investor concerns about a potential pick-up in inflationary pressures over the medium term and to flight-to-safety port-

4 According to the ECB's reference exchange rates.
5 The nominal effective exchange rate of the euro is calculated on the basis of the currencies of the 21 major trading partners of the euro area.

Chart III.9 Stock market indices in Greece, the euro area and the United States (January 2009-May 2010)

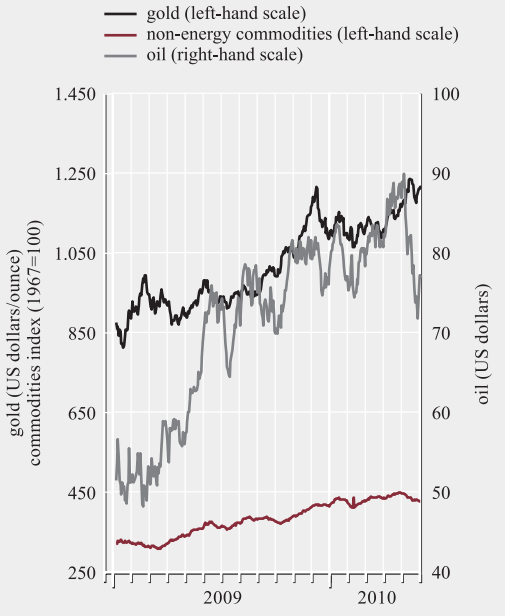
(daily data; index: 1 January 2009 = 100)



Source: Bloomberg.

Chart III.10 International prices of oil[1], gold[2] and other commodities[3] (January 2009-May 2010)

(daily data)



Sources: Bloomberg and Reuters.
1 Brent blend, US dollars per barrel.
2 In US dollars/ounce.
3 CRB spot index.

folio shifts against the risk of devaluation of all major reserve currencies.[6] Furthermore, monetary policy relaxation in most developed countries reduces the opportunity cost of investing in gold.

Oil prices moved in tandem with gold prices: they followed a downward path between early December 2009 and early February 2010, before rebounding considerably up to early May 2010, on account of increased demand as global economy entered a recovery phase. However, in May 2010 oil prices declined, reflecting the appreciation of the US dollar vis-à-vis the euro, as well as persisting concerns that the escalating European fiscal crisis may affect global economic growth.

The prices of non-gold and non-oil commodities followed an upward path between December 2009 and April 2010, as the recovery of many economies boosted demand and pushed prices up. However, prices fell between May and June 2010, influenced by the appreciation of the US dollar against the euro and continued concerns about a slowdown in the growth rate of the global economy.

6 Nevertheless, the contractionary fiscal policy announced by euro area countries, coupled with their still weak economic recovery, contributes to the persistence of inflation at low levels in the short run.

Box III.2

TRADING OF GREEK GOVERNMENT SECURITIES: BASIC NOTIONS

Each transaction in Greek government securities comprises two distinct stages: "trading" (i.e. the process leading to a securities purchase/sale agreement) and "settlement" (i.e. the process of delivery of securities, against payment, between the parties).[1]

As regards the first stage, bond trading is carried out in several markets and/or countries, as well as through a large number of banks and investment firms. Transactions in Greek government paper on a secondary market may be carried out either on the Electronic Secondary Securities Market (HDAT), operated by the Bank of Greece, or on other markets (EuroMTS, BrokerTec, BGC), or over-the-counter (OTC), i.e. on a bilateral basis outside regulated markets. OTC transactions and non-HDAT transactions account for the bulk of Greek government bond transactions on a secondary market. Characteristically, less than 10% of total transactions settled through the Book-Entry Securities System of the Bank of Greece[2] refer to HDAT transactions.

HDAT is a regulated secondary market for Greek government securities. Primary auctions of Greek government bonds and Treasury bills are also conducted on HDAT. HDAT was established by Article 26 of Law 2515/1997, para. 1(b) of which provides as follows: "HDAT, which shall be operated by the Bank of Greece, shall cover the OTC secondary market for Greek government securities, as well as primary auctions of such securities, in line with the relevant decisions of the Minister of Finance". The same Law introduced the Primary Dealers system[3] and established a Committee for Primary Dealers' Supervision and Control. Under the Law, the Committee has the

1 For settlement, see Section 5 of Chapter VI.
2 This System, i.e. the System for Monitoring Transactions in Book-Entry Securities, settles transactions in Greek government securities in Greece. For further details concerning this System, see Chapter VI.5.
3 The Primary Dealers system was established by Article 26(1)(a) of Law 2515/1997, according to which: "For the organisation of the primary and secondary markets for Greek government securities, a Primary Dealers system shall be established. Primary Dealers shall be credit institutions selected in accordance with the provisions of para. 2 hereof in order to provide specialised services in the government securities markets, to participate in primary auctions and in the Electronic Secondary Securities Market (HDAT)". Primary Dealers have the right to carry out transactions in Greek government bonds on every (regulated) eligible market according to Directive 2004/39/EC (MiFID). The current Regulation defines eligible markets as the HDAT regulated market and the EuroMTS, BrokerTec and BGC trading platforms. The transactions of Primary Dealers in Greek government securities are settled by the Book-Entry Securities System of the Bank of Greece.

power to supervise the smooth operation of the bond market and HDAT in particular, as HDAT is the sole market where Primary Dealers can perform their obligations. The Committee consists of ten members, including three representatives of the Greek government, three representatives of the Primary Dealers, one representative of the Dealers, one representative of the Hellenic Bank Association and two representatives of the Bank of Greece.

Following the transposition of the Markets in Financial Instruments Directive 2004/39/EC (MiFID) to Greek law by Law 3606/2007, HDAT was licensed by the Capital Market Commission and, being a regulated market within the meaning of Article 2(10) of Law 3606/2007, is subject to its supervision.[4] Under Law 3606/2007, a ten-member Committee for HDAT Supervision and Control was set up, nine members of which are the same as those of the Committee for Primary Dealers' Supervision and Control, with the exception of the representative of the Hellenic Banks Association. HDAT is included in the official list of approved regulated markets in the European Union, which is prepared and maintained by the European Commission.

HDAT members currently comprise the majority of domestic credit institutions, as well as major international financial institutions. In line with the principle of transparency, HDAT is linked with international information providers in order to provide real-time data on market activity.

HDAT is practically a "wholesale" market. The current 22 Primary Dealers and 5 Dealers have the right to carry out transactions on it even for relatively large amounts. An interested party who is not an HDAT dealer or wishes to conclude a transaction for a small sum may trade on HDAT through the official members of the regulated market or through any authorised financial institution.

An inherent characteristic of HDAT is that, unlike the trading systems of other (regulated or non-regulated) markets, Primary Dealers express simultaneously a double intention, i.e. they are obliged to quote both bid and ask prices with a pre-determined small bid/ask spread. As a result, a potential seller or buyer does not know whether he will eventually buy or sell until another member quotes. It is highly probable (and it actually happens) that a member, despite intending to sell, finally has to buy if someone else sells at the ask price quoted by the former. These characteristics of HDAT make clear that prices are set in conditions of absolute transparency and are determined by demand for and supply of traded securities. This acts as a natural deterrent against short-selling.

As regards prices in particular, HDAT benchmark prices[5] are not the key determinant of Greek bond prices, either in OTC transactions, which account for the bulk of Greek government bond transactions, or on other regulated markets worldwide. Investors throughout the world use various sources of benchmark prices (e.g. Bloomberg, Reuters, large banking groups etc.) and thus do not rely solely on HDAT prices. In any event, according to the ECB's recent publication "Blue Book: Payment and Securities Settlement Systems in the EU", the characteristics of the HDAT mechanism guarantee transparency, which is essential for preventing manipulation.

4 Under decision 1/507/2009 of the Capital Market Commission Board of Directors.
5 Benchmark prices are the prices of benchmark bonds, i.e. securities against which the yields of other securities are calculated on a comparative basis.

Lastly, HDAT prices are formed by demand and supply, the key determinants of which, according to international literature,[6] are:

– the issuer's fiscal situation (e.g. the fiscal deficit, the prospects of public debt servicing, the future burden of pension payments on public spending);

– the issuer's economic outlook and credit rating;

– prevailing liquidity conditions in the secondary bond market, which affect investors' ability to carry out transactions at any time without causing sharp fluctuations in bond prices; and

– investors' risk aversion.

6 Indicatively:
– ECB, "What explains the surge in euro area sovereign spreads during the financial crisis of 2007-09?", Working Paper No. 1131.
– European Economy, "Determinants of intra-euro government bond spread during the financial crisis", Economic Papers, 388, November 2009.
– IMF, "Euro area sovereign risk during the crisis", Working Paper 09/222, October 2009.
– Manganelli and Wolswijk, "What drives spreads in the euro area government bond market?", Economic Policy, 24 (58), April 2009, pp. 191-240.
– OECD, "What drives sovereign risk premiums? An analysis of recent evidence from the euro area", OECD Economics Department Working Paper no. 718, 2009.

IV THE BANKING SECTOR: DEVELOPMENTS IN 2009

1 INTRODUCTION

The Greek banking system continued to face significant challenges in 2009, but weathered them relatively well thanks to its sound fundamentals. Pressures peaked in the last quarter of 2009, as the fiscal crisis resulted in the downgrade of the sovereign credit rating of Greece and, inevitably, the credit ratings of Greek banks, their subsidiaries and their issues (securitisations, covered bonds, etc.). Amid increasing concerns about Greece's fiscal prospects,[1] the international money and capital markets gradually became inaccessible for Greek banks, which therefore had to rely exclusively on the Eurosystem for funding. As expected, these developments negatively affected liquidity and market risk.

At the same time, the deterioration of the macroeconomic environment in Greece put an additional strain on the financial condition of non-financial corporations and households, thus increasing the non-performing loans ratio (NPL ratio). In addition, despite an increase in impairment charges, the coverage ratio (accumulated provisions to NPLs) declined.

With regard to the robustness of the banking system in 2009, the pre-tax profitability of Greek banks and banking groups declined considerably, but remained in positive territory, while their capital adequacy improved in terms of both quantity and quality. Lower interest and commission income and increased impairment charges were a drag on profits. By contrast, profitability benefited from trading gains and gains from the investment portfolio.[2] The capital base was boosted by some banks' capital increases in cash and by increased internal capital generation through retained 2009 profits, as well as by the issuance of preference shares sold to the Greek State under Law 3723/2008.

At the current juncture, Greek banks are facing important challenges. If the banking sector is to maintain the resilience it has shown so far, Greece must rapidly achieve fiscal adjustment and restore market confidence in the future of the country's economy. Greek banks, for their part, need to proactively adapt to the new situation, seeking to:

- maintain significant capital buffers, comfortably above the regulatory minima;
- strengthen their provisioning buffer;
- rationalise operating costs;
- ensure a flexible and sound management of available funding sources; and
- formulate a strategy aimed at, *inter alia*, forging partnerships and mergers, given that a restructuring of the banking sector seems inevitable over the medium term.

The Bank of Greece, for its part, will continue to closely monitor and intervene in developments, so as to ensure the most effective response amid highly adverse conditions.

2 ASSET AND LIABILITY STRUCTURE

Notwithstanding the adverse conditions, the assets of Greek commercial banking groups continued to increase in 2009 (by 7.0% compared with 2008), yet at the lowest rate in five years due to the considerable slowdown in credit growth (see Chart IV.1). Despite declining as a percentage of total assets, loans to customers continue to be the most important asset item of banking groups (see Chart IV.2). An increase was observed in investment in bonds and equity securities.[3]

On the liability side, borrowing from the Eurosystem as a percentage of total liabilities

1 The highly negative and persistent reports of the international business media contributed to the escalation of concerns.
2 These profits are highly volatile and are unlikely to be repeated in 2010.
3 It should be noted that holdings of equity securities are low and form only a small part of the total assets of the banking sector.

increased considerably, while bank bonds declined.[4] Furthermore, although customer deposits as a percentage of liabilities showed a small decrease, they rose slightly in absolute terms. Banks' equity also grew (see Chart IV.3).[5]

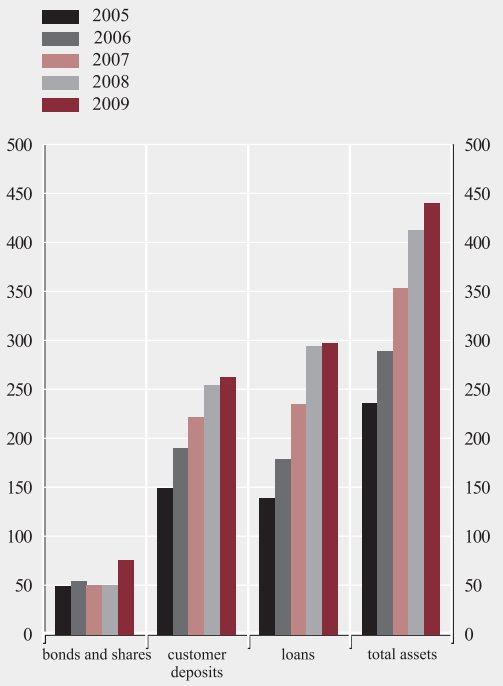
3 RESILIENCE

3.1 PROFITABILITY

In 2009, the profitability of the Greek banking system fell to a post-2002 low, as the pre-tax profits of Greek commercial banks and their groups stood at €65.7 million and €1.4 billion, respectively (down by 93.7% and 59.4%, respectively, compared with 2008 – see Table IV.1). Lower profitability is attributable to the exceptionally adverse macroeconomic conditions that prevailed in 2009 mainly in Greece, but also in most countries where Greek banks are active. These conditions had a negative impact on banks' main sources of income and led to a significant increase in impairment charges.

Chart IV.1 Main aggregates of Greek banking groups[1]

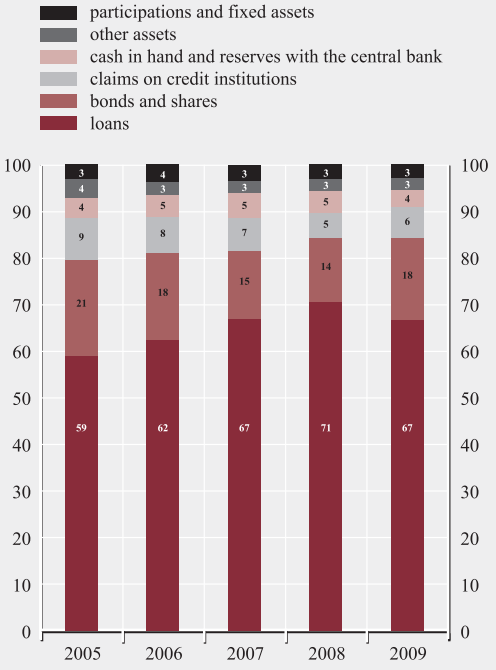
(billion euro)



Source: Bank of Greece.
1 Data refer to Athex-listed Greek commercial banks.

Chart IV.2 Asset structure of Greek commercial banks (on a consolidated basis) (December 2005-December 2009)

(percentages)



Source: Bank of Greece.

The wide gap between the profitability of banks and banking groups is attributed to the following:

- International business boosted the profitability of banking groups, contributing 25% of total pre-tax profits in 2009 (29% in 2008), for groups with notable international business activity.[6]

- The non-banking activities of banking groups (e.g. leasing, real estate management, etc.) were profitable.

4 For the reasons underlying this development, see Section 4.2 later in this chapter.
5 For the evolution of equity, see Section 3.2 later in this chapter.
6 The banking groups with significant international activity are the Alpha Bank, National Bank of Greece, Eurobank EFG and Piraeus Bank groups.

• The losses recorded by credit institutions with no significant activity abroad were roughly the same at both bank and group level, thus affecting more heavily the overall result at bank level.

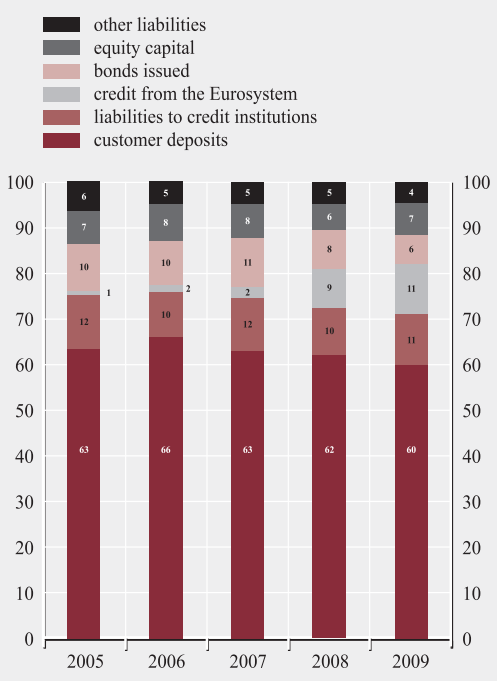
Furthermore, a one-off tax was levied in 2009 on profitable businesses (amounting to €170 million and €201 million on a solo and consolidated basis, respectively, for the banking system), raising banks' tax burden. In fact, the banking system as a whole recorded after-tax losses of €354 million on a solo basis, whereas taxation reduced profits on a consolidated basis roughly by half.

In greater detail, the slight increase in banks' operating income in 2009 over 2008 is solely attributable to higher net gains from financial operations, whereas net interest and commission income declined (see Chart IV.4). Transactions in Greek government bonds, with prices on the rise in the second and third quarters of 2009, contributed to this improvement in income from financial operations. By contrast, interest income was negatively affected by a strong slowdown in credit growth to the private sector (non-financial corporations and households), a decline in lending rates and a rise in NPLs. These factors more than offset the lower interest expenses that stemmed from a decrease in funding costs.[7] As a result, banks' net interest margin[8] fell below 2 percentage points, for the first time since Greece joined the euro area.

As regards banking groups, international operations contributed to a slight increase in interest income. As a result, the net interest margin declined (to 2.6%, from 2.9% in 2008), but remained satisfactory (in a sample of medium-sized banking groups in the EU-27, the net

Chart IV.3 Liability structure of Greek commercial banks on a consolidated basis (December 2005-December 2009)

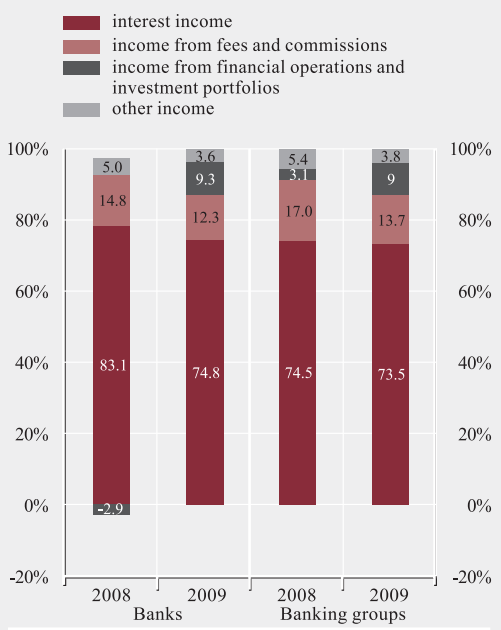
(percentages)



Source: Bank of Greece.

Chart IV.4 Income structure of Greek commercial banks and banking groups

(percentages)



Source: Bank of Greece, financial statements of banks and banking groups.

7 The decrease in funding costs is attributable to the fact that the average deposit rate in Greece has halved and the funding of Greek banks by the Eurosystem has increased.
8 Net interest income as a percentage of average assets.

Table IV.1 Financial results of Greek commercial banks and banking groups

(amounts in million euro)

	Banks			Banking groups		
	2008	2009	Change (%)	2008	2009	Change (%)
Operating income	**9,828**	**10,691**	**8.8**	**15,286**	**15,778**	**3.2**
Net interest income	8,169	7,998	-2.1	11,393	11,589	1.7
– Interest income	24,289	19,239	-20.8	28,907	24,182	-16.3
– Interest expenses	16,120	11,242	-30.3	17,514	12,593	-28.1
Net non-interest income	1,659	2,693	62.3	3,893	4,189	7.6
– Net fee income	1,456	1,318	-9.5	2,600	2,168	-16.6
– Income from financial operations	-284	989	-	478	1,423	197.4
– Other income	487	386	-20.7	814	597	-26.7
Operating costs	**5,895**	**6,140**	**4.2**	**8,532**	**8,640**	**1.3**
Staff costs	3,433	3,597	4.8	4,769	4,890	2.5
Administrative costs	1,996	2,037	2.0	2,954	2,875	-2.7
Depreciation	358	390	8.8	641	704	9.8
Other costs	108	117	8.0	168	172	2.1
Net income (operating income less costs)	**3,932**	**4,551**	**15.7**	**6,754**	**7,137**	**5.7**
Provisions for credit risk (impairment charges)	2,886	4,485	55.4	3,383	5,777	70.8
Pre-tax profits	**1,047**	**66**	**-93.7**	**3,377**	**1,370**	**-59.4**
Taxes	384	420	9.2	787	673	-14.5
After tax profits	**662**	**-354**	**-**	**2,590**	**697**	**-73.1**

Source: Financial statements of Greek commercial banks.

interest margin came to 2%[9]). Slower credit growth also impacted on net commission income (at both bank and group level), while "other income" declined because of lower income from dividends, insurance business and real estate management.

Operating costs rose slightly in absolute terms (by 4.2% and 1.3% at bank and group level, respectively, compared with 2008),[10] while falling as a percentage of average assets (see Table IV.2). The stronger growth of operating income, as compared to operating costs, helped reduce (i.e. improve) the cost-to-income ratio (operating costs to operating income) at both bank and group level (by 2.5 and 1.0 percentage points, respectively).

Profitability suffered most from a substantial increase in impairment charges, given the negative macroeconomic conjuncture and a significant worsening of the financial condition of non-financial corporations and households.[11] Impairment charges corresponded to more than one third of operating income in the period under review. For banking groups with significant foreign operations, the increase in impairment charges was steeper in their international business (see Chart IV.5).

The above trends resulted in a deterioration of key profitability ratios, i.e. after-tax return on assets (ROA) and return on equity (ROE), which were negative in 2009 at bank level (see Table IV.2). ROA worsened in

9 International comparisons are made to the weighted average of a sample of medium-sized banking groups in the EU-27, unless otherwise indicated.

10 It should be noted that the growth rate of operating costs had been much higher before the global financial crisis broke out. In 2007, for instance, it stood at 13.5% and 21.8% for banks and their groups, respectively.

11 Regarding loan portfolio quality and credit risk in Greece, see Section 4.1 later in this chapter.

Table IV.2 Profitability indicators in Greece and in the European Union

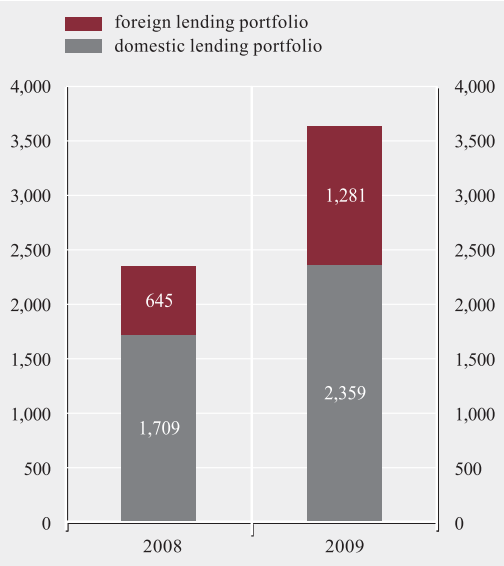
	Greece				EU-27[2]
	Banks		Banking groups		Banking groups
Percentage (%)[1]	2008	2009	2008	2009	2008
Net interest margin	2.2	1.9	2.9	2.6	2
Operating costs/total assets	1.6	1.4	2.2	2	2
Cost-to-income ratio	60	57.4	55.8	54.8	58.2
Provisions for credit risk/total assets	0.8	1.1	0.9	1.3	1
Provisions for credit risk/operating income	29.4	42	22.1	36.6	31
Return on assets – ROA (after tax)	0.2	-0.1	0.7	0.2	0.4
Return on equity – ROE (after tax)	2.9	-1.4	10	2.4	5.3

Sources: Financial statements of Greek commercial banks.
Note: For definitions, see Glossary.
1 Indicators are computed using average assets for each period.
2 Weighted average of a sample of medium-sized banking groups in EU-27.

most banks and banking groups, as evidenced by the ROA frequency distribution, which shifted towards lower values (see Chart IV.6 A).[12] A more pronounced shift was recorded in the ROE frequency distribution (see Chart IV.6 B), owing to an increase in equity (i.e. the denominator of the fraction taken as the profitability ratio). It should be noted that most of the banks that posted losses in financial year 2009 have already increased their capital in cash.[13]

Chart IV.5 Provisions for credit risk - Banking groups with a significant international presence

(million euro)



Source: Financial statements of banking groups with a significant international presence (Alpha Bank, NBG, Eurobank EFG and Piraeus Bank).

The medium-term outlook for the profitability of banks and their groups continues to be surrounded by high uncertainty, given the particularly adverse macroeconomic environment in Greece. In the current conjuncture, it is very hard to estimate bank profitability for 2010. The most important factors expected to affect it are:

- the magnitude of the recession in Greece given the ongoing fiscal adjustment;

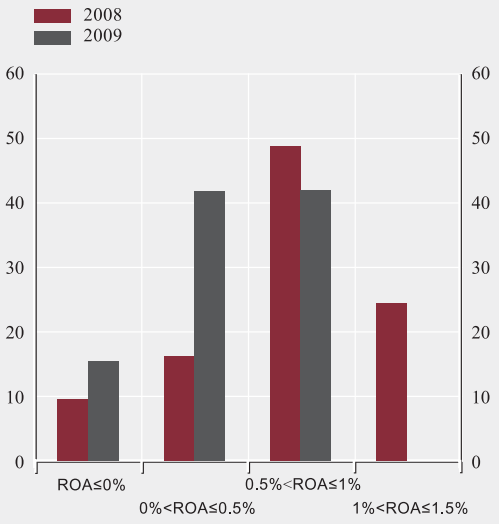
- the level of Greek banks' impairment charges, which is closely linked to macroeconomic developments and the financial condition of households and non-financial corporations;

12 The chart shows the frequency distribution of the assets of banking groups. Changes at bank level are similar.
13 In addition, some of these banks also received capital support through the issuance of preference shares acquired by the Greek State under Law 3723/2008.

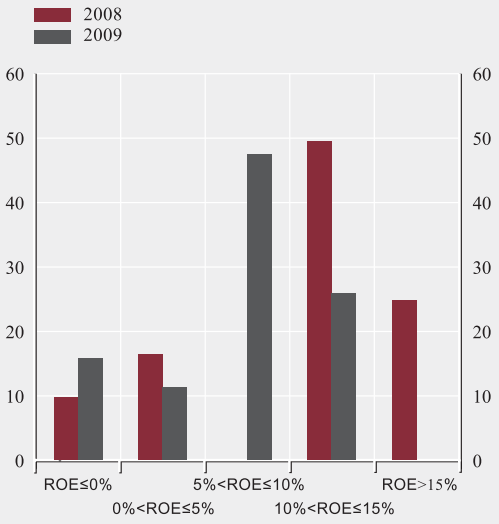
Chart IV.6 Frequency distribution of ROA and ROE for Greek banking groups

(percentages of total assets)

A. Frequency distribution of ROA (after tax)



B. Frequency distribution of ROE (after tax)



Source: Financial statements of Greek banking groups.

- the evolution of deposit rates, which depends on the restoration of depositors' confidence;[14]

- developments in bond markets and stock exchanges, which affect banks' non-interest income, such as gains from financial operations and commission income from portfolio management and investment banking; and

- cost-cutting.

With respect to banking groups, economic recovery in some of the host countries is expected to have a positive effect. However, impairment charges should remain high in 2010.

3.2 CAPITAL ADEQUACY

The capital adequacy of Greek commercial banks and their groups improved significantly in 2009, in terms of both quantity and quality. This development is mainly attributable to a substantial increase in regulatory capital, while risk-weighted assets rose only marginally.

The most important factors underlying the increase in the regulatory capital of banks and their groups were:

- capital increases in cash by some banks (€3.8 billion) and sales of own shares by others;[15]

- internal capital generation from retained 2009 profits and from the non-distribution to common shareholders of dividends in cash for financial year 2008;[16] and

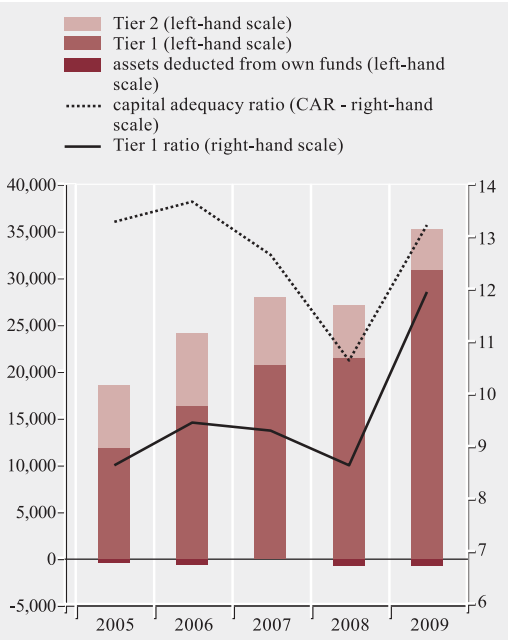
- issuance of preference shares sold to the Greek State under Law 3723/2008 (€3.83 billion in total).

A key factor for the stability of the banking system as a whole was the observed qualitative and quantitative improvement in own funds (see Chart IV.7), as reflected in the growth of the share of Tier I capital in total regulatory capital. Underlying this were redemptions of hybrid securities[17] at prices significantly below par, given that the difference between redemption and par value is added to Tier I capital.

14 A slight increase in interest rates on new deposits was observed in the first quarter of 2010.
15 Own shares are deducted from banks' equity and regulatory capital.
16 In accordance with Article 28 of Law 3756/2009 under the provisions of Law 3723/2008.
17 For a definition of hybrid securities, see the Glossary at the end of this Report under "Hybrid capital".

Chart IV.7 Composition of regulatory capital and evolution of capital adequacy of Greek commercial banks

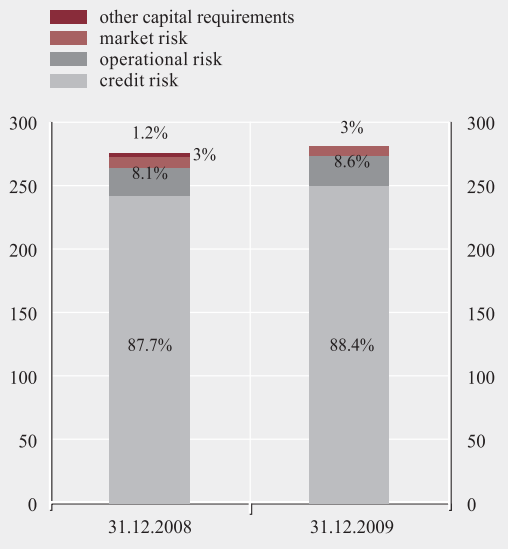
(million euro and percentages respectively)



Source: Bank of Greece.
Note: In 2008 the capital adequacy ratio and the Tier 1 ratio were affected by the first implementation of the Basel II framework.

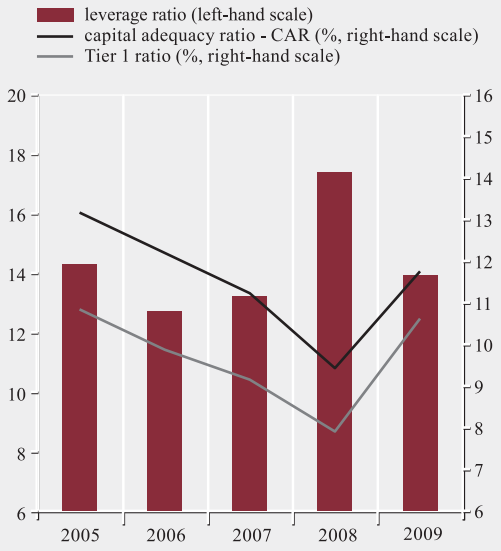
Chart IV.8 Breakdown of risk-weighted assets by type of risk (on a consolidated basis)

(billion euro; percentage of total assets)



Source: Bank of Greece.

Chart IV.9 Capital adequacy and leverage ratio of Greek banking groups



Source: Bank of Greece.

Risk-weighted assets recorded a marginal increase. This is attributable to a deceleration in credit growth, which resulted in a slower increase in risk-weighted assets for credit risk, which account for about 90% of total risk-weighted assets (see Chart IV.8).

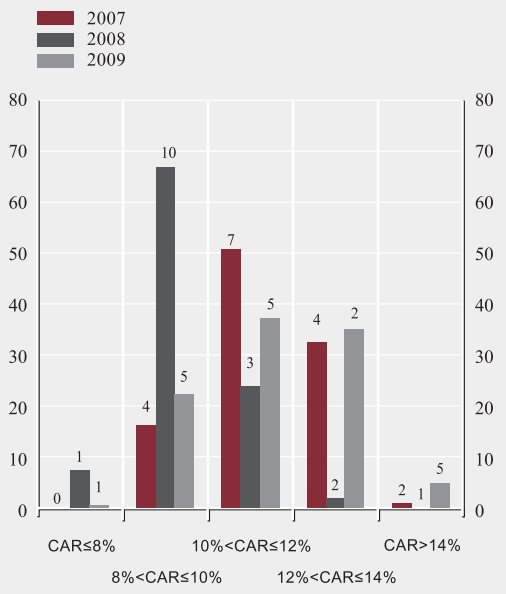
As a result, as shown in Charts IV.7 and IV.9, 2009 saw a rise in both the Capital Adequacy Ratio (banks: 13.2%, banking groups: 11.8%) and the Tier I Ratio (banks: 12.0%, banking groups: 10.6%), which stood higher than in a sample of medium-sized banking groups in the EU-27 (10.9% and 8.5%, respectively). Another positive development came from the improvement across the board in the Capital Adequacy Ratio (CAR), as evidenced by the frequency distribution of banking groups' CAR (see Chart IV.10).

As regards banking groups, it should be noted in particular that, owing to the improvement in the CAR in 2009, capital buffers[18] more than doubled (compared with 2008) and came to €10.3 billion at end-December 2009. More-

18 For a definition, see the Glossary under "Capital buffer".

Chart IV.10 Frequency distribution of capital adequacy ratios (CARs)

(percentages)



Source: Bank of Greece.
Note: The numbers above the bars indicate the number of banking groups per CAR interval.

over, the leverage ratio of Greek banking groups, i.e. the assets-to-equity ratio, fell to 13.9, from 17.6 at end-2008, due to their substantially higher (35%) equity and moderately higher assets (see Chart IV.9). Actually, Greek banking groups present a significantly lower leverage ratio than the large-sized euro area banking groups (December 2009: 28.5).

Although the trend to boost the quantity and quality of banks' capital by means of capital increases in cash is a clearly positive development, in the current conjuncture banks should be very cautious so as to properly formulate their medium-term capital strategy and optimise their utilisation of funds, taking into consideration the unprecedented financial conditions in Greece and the upcoming changes to the regulatory framework worldwide.[19] Therefore, for prudential reasons, they must maintain significant capital buffers, comfortably above the regulatory minima.

Over the medium term, the establishment of the Hellenic Financial Stability Fund provides an additional safety net for the capital adequacy of Greek banks, since its objective is to inject equity into credit institutions that do not meet the minimum capital requirements and have exhausted alternative options (see Box IV.1).

19 See the Special Feature at the end of this Report.

Box IV.1

ESTABLISHMENT OF THE HELLENIC FINANCIAL STABILITY FUND

The Memorandum of Economic and Financial Policies entered into between the Greek Government and the Bank of Greece, on the one hand, and the European Union, the ECB and the IMF, on the other hand, provides for the establishment of a Hellenic Financial Stability Fund (HFSF). The object of the HFSF is to contribute to financial stability in Greece by providing equity capital in case Greek credit institutions do not meet or are expected not to meet the minimum capital requirements, as these have been set by the Bank of Greece in its capacity as competent supervisory authority, and no other solution based on private initiative can be found.

I LEGAL FORM AND MANAGEMENT

The HFSF was established by Law 3864/2010 as a private law legal entity. It will be independent of any external influence and will have a duration of seven years (until 30 June 2017). It will be financed by the Greek government with an amount of €10 billion using resources from the support

mechanism for the Greek economy established by the euro area Member States and the International Monetary Fund.

The HFSF will be managed by a seven-member Board of Directors, composed of the President and two (2) Vice-Presidents (executive members), as well as four (4) non-executive members. The President, the Vice-Presidents and two (2) non-executive members of the Board of Directors will be chosen by the Governor of the Bank of Greece following a public invitation to express interest, from among persons of recognised standing and professional expertise in banking, finance and auditing. The other two (2) non-executive members will be ex officio the General Secretary of the Ministry of Finance and the Director of the Financial Stability Department of the Bank of Greece. The seven (7) members of the Board of Directors will be appointed by a decision of the Minister of Finance on a recommendation from the Governor of the Bank of Greece for a five-year term, renewable until 30 June 2017. One representative of the European Commission and one representative of the European Central Bank, appointed together with their alternates by the competent bodies, will participate as observers, without voting rights, in the meetings of the Board of Directors.

The activities of the HFSF will be subject to control by external auditors, while the Board of Directors will submit a semi-annual special report to the Hellenic Parliament, communicated to the Minister of Finance, the Governor of the Bank of Greece, the European Commission, the ECB and the IMF.

2 FORM OF CAPITAL SUPPORT TO A CREDIT INSTITUTION

Capital support shall be supplied through the participation of the HFSF in a capital increase of the credit institution carried out by issuance of preference shares. If the credit institution does not meet the capital requirements under Article 28 of Law 3601/2007 and Bank of Greece Governor's Act 2595/20.8.2007, the capital increase will be carried out through the issuance of common shares. Such capital increases will be covered entirely in cash and existing shareholders may not exercise any pre-emptive rights.

The selling price of shares will reflect their fair or market value, without taking into account the effect on the valuation of the credit institution from the availability of external support. This value will be determined taking into account the average of the appraisals by two independent auditing firms, carried out according to commonly accepted methods and criteria. These auditing firms will be appointed by the HFSF and the credit institution, respectively. If there is a divergence of more than 10% between the appraisals, the value will be finally determined by a third independent auditing firm, appointed by a Joint Decision of the Minister of Finance and the Governor of the Bank of Greece.

The preference shares will be purchased in their entirety by the credit institution after a period of five (5) years or earlier, upon approval by the Bank of Greece. No partial purchase shall be allowable.

The preference shares will be converted into common transferable shares by a decision of the HFSF, following a recommendation from the Bank of Greece, as long as (a) specific objectives of the restructuring plan are unattainable, including the targeted amount of capital adequacy of the credit institution; or (b) the compulsory minimum capital requirements regarding the Tier I ratio or the Capital Adequacy Ratio (as outlined under Article 28 of Law 3601/2007 and Bank of Greece Governor's Act 2595/20.8.2007) are not met.

The price and conversion rate will be determined, at the time of the capital injection, on the basis of the selling price of the preference shares, as determined by the HFSF and the credit institution, taking into consideration the auditing firms' appraisals, according to the provisions of the law, of the fair or market value of the share, in line with the regulatory framework of the European Union.

3 CONDITIONS AND PROCEDURE OF ACTIVATION OF THE HFSF

A request for capital support by the FSF may be submitted either on the initiative of the credit institution or on a recommendation from the Bank of Greece, subject to certain conditions. Specifically, a credit institution meeting the capital requirements of Article 28 of Law 3601/2007 and Bank of Greece Governor's Act 2595/20.8.2007 may submit a request for capital support to the HFSF on a recommendation from the Bank of Greece or on its own initiative, which may be backed by the Bank of Greece, provided that all of the following conditions are met in any event:

(a) on the basis of conservative assumptions of the Bank of Greece, there is a genuine risk that the credit institution may be unable to continue complying with the capital adequacy requirements under Article 28 of Law 3601/2007 and Bank of Greece Governor's Act 2595/20.8.2007; and

(b) all the efforts of the credit institution to increase its own funds through payments by existing or new shareholders have failed.

In addition, the Bank of Greece may recommend that a credit institution submit a request for capital support to the HFSF provided that:

(a) the credit institution does not meet the capital adequacy requirements under Article 28 of Law 3601/2007 and Bank of Greece Governor's Act 2595/20.8.2007 and all the efforts of the credit institution to increase its own funds through payments by existing or new shareholders have failed; or

(b) the credit institution does not meet the capital adequacy requirements under Article 28 of Law 3601/2007 and all the efforts of the credit institution to increase its own funds through payments by existing or new shareholders have failed.

The Bank of Greece's recommendations referred to above must be reasoned and documented in writing, and take into account the need to safeguard financial stability. Where a credit institution does not comply within a reasonable time with the Bank of Greece's recommendation to apply for capital support to the HFSF, the Bank of Greece will impose the penalties provided for by Law 3601/2007. Moreover, in such case, the Bank of Greece may request the removal of the persons responsible for directing the business of the credit institution referred to in Article 5(10)(c)(i) of Law 3601/2007 if it considers that these persons did not take all measures within their scope of authority and did not take the action required to comply with its recommendation in order to increase the capital adequacy of the credit institution. Their successors must be acceptable to the HFSF and will be assessed, in terms of their adequacy and efficiency, throughout the capital support period, and may be removed either on the initiative of the Bank of Greece or on a recommendation from the HFSF. Pending the assumption of duties by the new persons, their powers may be exercised provisionally by representatives of the HFSF, for a time period not to exceed six months.

The credit institution's capital support request to the HFSF must be accompanied by:

a) a business plan establishing the required amount of capital support and describing in detail the measures the credit institution intends to take so as to safeguard and strengthen its solvency the soonest possible, i.e. by increasing its capital and/or restoring its profitability, cutting expenses or reducing risks, or securing support from other companies of its group, etc.; the plan will include all probable prospects of its merger or absorption or transfer of its activities or units to another credit institution or financial organisation; and

b) a detailed timetable for the implementation of the measures, explicitly stating the estimated time at which the credit institution shall be in a position to purchase the preference shares.

Within ten (10) days after submission of the plan, the HFSF, following a consultation with, or on a recommendation from, the Bank of Greece, may indicate any amendments required, which the credit institution must adopt within ten (10) days. As long as the HFSF deems the above amended plan sustainable, it will decide, following consultation with, or on a recommendation from, the Bank of Greece, to supply the capital injection, without prejudice to the provisions of Community legislation on government subsidies and the practices of the European Commission. The amount of the capital injection will be decided by the HFSF, on a recommendation from the Bank of Greece.

Subsequently, the HFSF and the credit institution must jointly prepare a detailed restructuring plan or amend the plan submitted to the European Commission, in line with Community legislation on government subsidies and the practices of the European Commission. Within six (6) months from the capital injection, the restructuring plan must be submitted for approval by the Ministry of Finance to the European Commission. The implementation of the restructuring plan must not exceed three (3) years. The implementation time period may be extended by up to two (2) years by a decision of the HFSF, following a consultation with the Bank of Greece, in compliance with the above-mentioned procedure and subject to approval by the European Commission. The HFSF will monitor and assess the due implementation of the restructuring plan and must further provide to the Ministry of Finance any information and data required, so that it may inform the European Commission as required.

4 POWERS OF THE HFSF

To achieve its objects, the HFSF shall have certain powers over the credit institutions financed by it, without prejudice to the powers of the Bank of Greece. Specifically, preference shares grant to a representative of the Fund the right to participate in the credit institution's Board of Directors as an additional member. Such representative will have the right to:

a) request a call to a General Meeting of Shareholders;

b) veto any decision by the credit institution's Board of Directors:

i) relevant to the distribution of dividends and the policy regarding the remuneration of the Chairman, the Managing Director and the other members of the Board of Directors, as well as the general managers and their deputies; or

ii) in case the decision in question may put the interests of the depositors at risk, or may have a serious impact on the credit institution's liquidity or solvency or overall prudent and smooth operation (e.g. business strategy, management of assets and liabilities, etc.);

c) request for the meeting of the credit institution's Board of Directors to be suspended for three (3) working days in order for him/her to receive instructions from the Board of Directors of the HFSF, which shall consult for this purpose with the Bank of Greece. Such right may be exercised until the end of the meeting of the credit institution's Board of Directors.

Moreover, the representative of the HFSF may attend the General Meeting of Common Shareholders, having the right to veto any decision on the above issues and enjoying free access to the credit institution's accounting books, receipts and invoices.

5 RESTRICTIONS ON CREDIT INSTITUTIONS SUPPORTED BY THE HFSF

For so long as a credit institution receives capital support from the HFSF:

a) distribution of dividends to its shareholders is subject to the provision of Article 1(3) of Law 3723/2008, i.e. no more than 35% of after-tax profits may be distributed; and

b) the remuneration of the Chairman, the Managing Director and the other members of the Board of Directors, as well as the general managers and their deputies, may not exceed the total earnings of the Governor of the Bank of Greece. Moreover, all additional remunerations (bonuses) of any kind granted to the same persons are abolished.

4 BANKING RISKS

4.1 CREDIT RISK[20]

Credit risk has consistently been the most important risk factor for the Greek banking system, given that:

- household and corporate loans account for 59% and 67.7% of the total assets of Greek commercial banks and their groups, respectively; and

- capital requirements for credit risk represent almost 90% of total capital requirements.

The deterioration in the quality of Greek commercial banks' loan portfolios, which began in 2008, continued into 2009, with the NPL ratio rising to 7.7%, from 5.0% in 2008 (see Chart IV.11).[21] The adverse macroeconomic environment negatively affected the financial condition of households and non-financial corporations, making it increasingly difficult for them to service their debt and causing a notable increase in NPLs (ratio numerator). At the same time, it led to lower demand for new loans and increased bank reluctance to extend new credit, thus contributing to a deceleration in credit growth (ratio denominator).

A rise in the NPL ratio was recorded across all types of loans (consumer, housing, corporate loans – see Chart IV.12), but most notably for consumer loans. Specifically, the NPL ratio for consumer loans rose to 13.4% in 2009 (from 8.2% in 2008), while the NPL ratios for housing and corporate loans were 7.4% (5.3% in 2008) and 6.7% (4.3% in 2008), respectively.

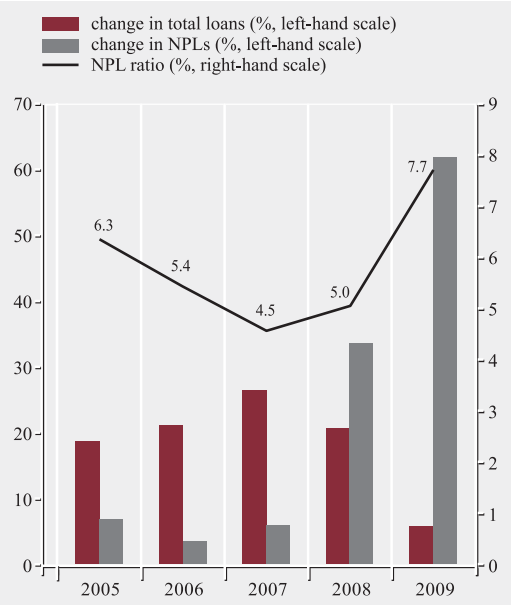
An increase, albeit of varying degree, was observed in the NPL ratios of most Greek commercial banks, as banks accounting for 74% of the total assets of Greek commercial banks recorded NPL ratios of between 5.0% and 8.5% (see Chart IV.13).

Important information on the evolution of credit risk, which confirms the deterioration in

20 This section analyses Greek commercial banks' domestic credit risk. Their international credit risk is discussed in Section 4.4 later in this chapter.

21 Excluding the data of foreign bank subsidiaries operating in Greece, the NPL ratio came to 6.9% in 2009, up from 4.4% in 2008.

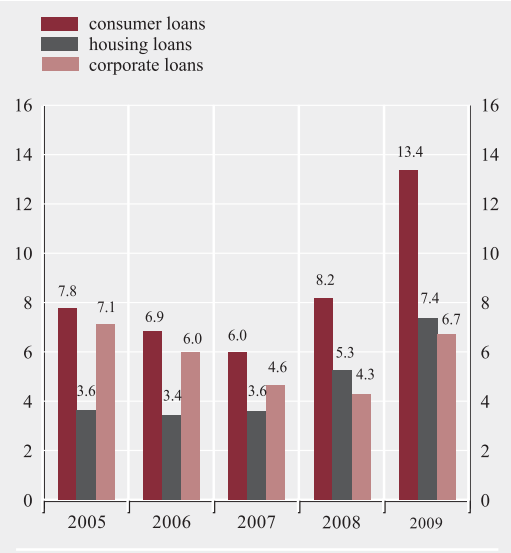
Chart IV.11 Year-on-year change in NPLs and total loans, and NPL ratio



Source: Bank of Greece.

Chart IV.12 Evolution of Greek commercial banks' NPL ratios by type of loans

(percentages)

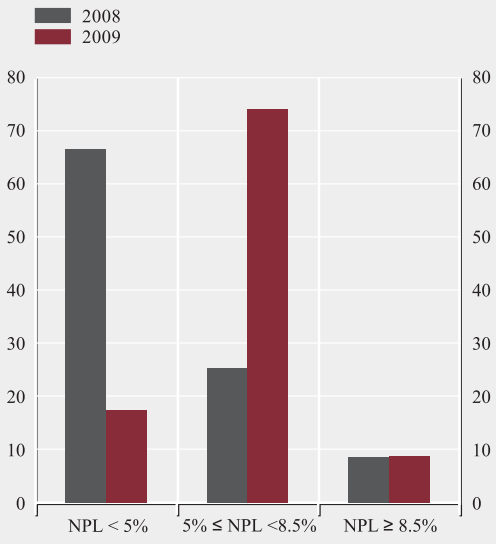


Source: Bank of Greece.

the quality of loan portfolios, is provided by the evolution of the gross NPL flow ratio,[22] which rose to 3.9% in 2009, from 2.4% in 2008 (see

Chart IV.13 Frequency distribution of NPL ratios

(percentages)



Source: Bank of Greece.
Note: NPL: non-performing loan ratio.

Chart IV.14). It should be noted that this ratio is not affected by either the rate of credit growth,[23] the write-offs/write-downs during the period under review or the initial level of NPLs.

In order to address the higher losses expected on their loan portfolio in Greece and in response to repeated recommendations from the Bank of Greece, banks in 2009 increased their impairment charges (i.e. loan-loss provisions) and strengthened their provisioning buffer. Accumulated provisions for credit risk[24] thus came to €9 billion (from €6.6 billion in 2008) and to 3.2% (from 2.5% in 2008) as a percentage of total loans. However, the rate of increase in accumulated provisions was con-

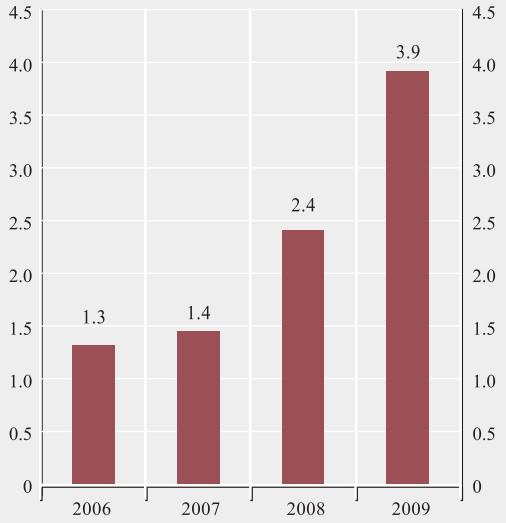
22 The gross NPL flow ratio is computed as the ratio of NPLs of period T less those of period T-1 plus the write-offs/write-downs of the reviewed period to performing loans of the previous year T-1. This index adopts the concept of probability of default, but is computed on the basis of the outstanding balances of loans, not the number of borrowers in default during the year.

23 Assuming that the new loans granted during this period will not become overdue within the period under review.

24 Accumulated provisions (or loan-loss reserves) are the sum of impairment charges (i.e. loan-loss provisions established per period) less each year's loan write-offs/write-downs.

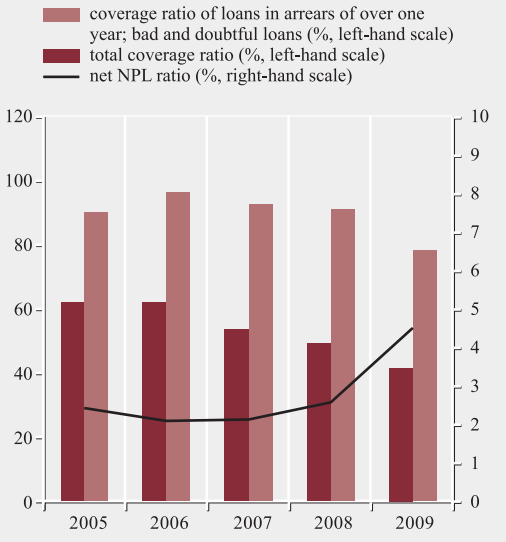
Chart IV.14 Gross NPL flow (before write-offs) as a percentage of previous period's performing loans

(percentages)



Source: Bank of Greece.

Chart IV.15 Coverage and net NPL ratios



Source: Bank of Greece.
Note: For definitions, see Glossary.

siderably lower than the rate of increase in NPLs; hence, the coverage ratio fell to 41.5% in 2009 (from 48.9% in 2008), continuing the declining course of the past three years (see Chart IV.15). Another negative development was the decrease in the coverage ratio of loans overdue by more than one year. Finally, a significant rise (deterioration) was also recorded in the ratio of net NPLs (i.e. NPLs net of accumulated provisions for credit risk) to total loans (4.5% in 2009, against 2.6% in 2008) and to total regulatory capital (38.2% in 2009, against 26.1% in 2008). It should be noted, however, that banks hold guarantees and real estate collateral,[25] which considerably limit credit risk and are not taken into account in the above ratios.

At the same time, in an effort to facilitate distressed borrowers (households and non-financial corporations), banks proceeded to sizeable debt restructuring, in an amount roughly 3.5 times higher than in 2008 (€3.4 billion in 2009, compared with €0.9 billion in 2008). Debt restructuring is expected to continue in 2010, given also the new legal framework on the restructuring of business debt (Law 3816/2010).[26]

Banks' increased provisioning policy must be maintained and tightened in 2010, so that the banking system will be in a position to address the expected further deterioration in the financial condition of households and non-financial corporations and the ensuing adverse impact on the quality of banks' loan portfolios.

4.1.1 Household credit risk

At end-2009, loans to households accounted for 48.4% of Greek banks' total financing to the private sector in Greece, about 2/3 of which regarded housing loans. As already mentioned, banks tightened their credit standards on

25 Real estate collateral consists, for the most part, of mortgage prenotations.

26 This law allows for restructuring not only of overdue debt, but also – on the basis of economic criteria – of the performing debt of borrowers active in trade and agriculture. Furthermore, the law amends the existing legal framework on the registration and processing of credit behaviour data by the Greek credit bureau Tiresias SA, reducing – in specific cases – the time of relevant data storage by one year. However, the possibility of "moral hazard" and the deletion of data from the Tiresias database imply that the credit risk arising from these corporations will increase, as will the uncertainty and difficulty that banks face in assessing this risk (see Bank of Greece, *Annual Report 2009*).

household loans in 2009 in the face of increased credit risk and a rise in non-performing consumer and housing loans. Regarding consumer loans, this trend is confirmed by the lower approval ratio for new uncollateralised consumer loans (i.e. the ratio of new loans to total loan applications) in the second half of 2009.[27] Likewise, a decrease was recorded in the total number of approvals for new housing loans, as well as in the total amount of mortgage lending. The loan-to-value (LTV) ratio for new housing loans also improved. According to relevant data, this ratio exceeded 80% for just 15.8% of new housing loans in 2009 (against 24.1% in 2008), which corresponds to 17.3% of the total amount disbursed. The percentage of new housing loans for which the LTV ratio exceeded 100% remained almost unchanged at 6.0% (compared with 5.7% in 2008), which corresponds to 5.2% of total amounts disbursed. Finally, it should be noted that the average level of the LTV ratio for 2009 came to 68.5% (72.3% in 2008), which is considered consistent with international practices.[28]

Housing loans denominated in foreign currency (mainly Swiss francs), which additionally subject borrowers to foreign exchange risk, account for only a small share of total housing loans and, in fact, decreased marginally as a share of total housing loans to 7.8% in 2009 (from 8.1% in 2008). Thus, the fluctuations in the exchange rate of the euro vis-à-vis the Swiss franc are not expected to considerably affect the quality of the housing loan portfolio.

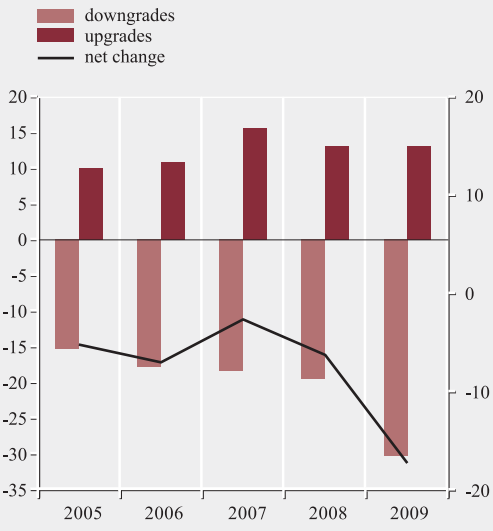
Credit risk from consumer and housing loans for 2010 is expected to remain high, as lower purchasing power, the higher tax burden and the anticipated rise in unemployment are expected to further affect households' financial condition and, consequently, their debt-servicing capacity.

4.1.2 Corporate credit risk

At end-2009, corporate loans accounted for 51.6% of Greek banks' financing to the private sector of the Greek economy.

Chart IV.16 Changes in credit ratings of enterprises

(percentage of total outstanding corporate loans)



Source: Bank of Greece.

The NPL ratio for corporate loans, after improving marginally in 2008, followed an upward course in 2009. This development is due to the fact that the activity of non-financial corporations was affected by reduced demand for their products, as well as by a worsening in the competitiveness of the economy (as reflected in the large increase in unit labour costs).

The deterioration in non-financial corporations' financial condition is, on average, also reflected in the credit migration matrix, which points to a worsening of the credit ratings they received from most commercial banks, as downgrades exceeded upgrades (see Chart IV.16).

27 Specifically, on the basis of data from application scorecards from a number of commercial banks with a market share in consumer credit of about 80% concerning loan applications by new customers, the percentage of application approvals for uncollateralised consumer loans fell to 26.9% in the second half of 2009 (from 33.7% in the first half), whereas the percentage of application approvals for credit cards increased to 35.9% in the second half of 2009 (from 32.6% in the first half). Regarding existing clients, i.e. those who have already obtained credit from a bank, the assessment of their new applications for other products is based on specific risk models that factor in these customers' credit history.

28 According to the Basel II framework, mortgage loans are considered fully collateralised if the LTV ratio does not exceed 75%.

Indications about the financial condition of non-financial corporations can be gleaned from the credit registry data compiled by the Greek credit bureau "Tiresias SA" (it should be noted, however, that these data, which are associated with banks' credit risk, are volatile and often subject to revisions). These data show a notable increase in the number and value of unpaid cheques, court payment orders and unpaid bills of exchange in 2009. The indications provided by the credit registry data of Tiresias SA for the first four months of 2010 are mixed. The number and value of unpaid cheques fell, those of unpaid bills of exchange remained almost unchanged, while those of court payment orders rose.

The outlook for credit risk from commercial banks' corporate loan portfolios appears negative for 2010. The adverse macroeconomic situation in Greece is expected to lead to a decline in non-financial corporation activity and turnover and to a further increase in corporate NPLs.

4.1.3 Concentration risk

Credit risk facing banks is also influenced by the degree of concentration of their loan portfolios in groups of customers whose probability of default is affected by such common factors as the macroeconomic environment, geographical location and sector of activity. The higher the degree of concentration, the more serious the impact will be from a potential default on a bank's total aggregates and, consequently, on the banking system.

Concentration in individual customers or groups of customers

The degree of credit risk concentration in individual customers or groups of associated customers[29] is usually assessed on the basis of the ratio of banks' or banking groups' large exposures[30] to their regulatory capital. In 2009, banks' total net large exposures to individual customers or groups of associated customers increased in absolute terms (2009: €44.6 billion, 2008: €42.3 billion); as a percentage of their regulatory capital, however, they not only remained low in comparison with the regulatory maximum,[31] but also decreased significantly (2009: 133.9%, 2008: 152.9%).

At banking group level, net exposures to individual customers or groups of customers fell to €19.6 billion in 2009 (from €23 billion in 2008). The smaller amounts of net large exposures at banking group level are attributable to the fact that the bulk of banks' exposures involves their subsidiaries, and is therefore eliminated on a consolidated basis. The aforementioned decrease in large exposures, in conjunction with the increase in regulatory capital, led to a considerable decline in the ratio of net large exposures to banking groups' regulatory capital to 60.1% in 2009 (from 84.6% in 2008).

Sectoral concentration

The concentration of a loan book in individual sectors of economic activity is an important factor in the credit risk facing banking groups.[32] The sectors with the largest shares in total exposures in 2009 were wholesale and retail trade, manufacturing, construction and real estate management, as well as shipping

29 A group of associated customers is considered as two or more natural persons who represent a single risk for the lending bank, either because one of the borrowers (directly or indirectly) controls the other(s) or because, even though there is no relationship of control between them, they are associated in such a way that if one were faced with financial problems, the other(s) would also be likely to face difficulties in servicing their debt.

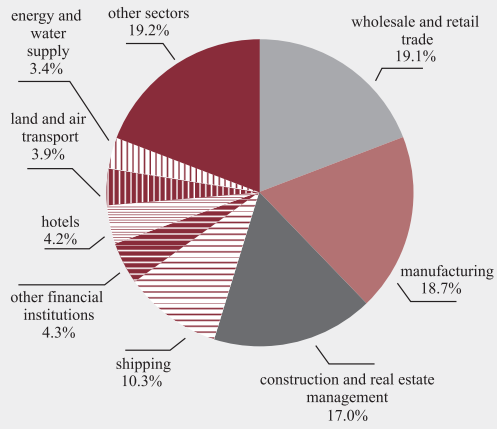
30 An exposure is considered large when it equals or exceeds 10% of a bank's or banking group's regulatory capital. An exposure to an individual customer or a group of associated customers should not exceed 25% of regulatory capital, while the total of a credit institution's large exposures should not exceed 800% of regulatory capital. For the calculation of a net exposure, a certain amount is deducted from the gross exposure in accordance with Bank of Greece Governor's Act 2246/16.9.1993. It should be clarified that the concept of a (gross) exposure covers a bank's total exposure to one customer, i.e. loans, bonds, letters of guarantee, shares, etc.

31 The regulatory maximum for large exposures as a percentage of regulatory capital is 800%.

32 Sectoral concentration was estimated by taking into account Greek banking groups' loans and corporate bonds to various sectors of economic activity in excess of €1 million. These data are submitted in accordance with Banking and Credit Committee Decision 159/26.9.2003 and include Greek banking groups' cross-border exposures exceeding 2% of the assets of their local subsidiaries and branches (as stipulated in Bank of Greece Governor's Act 2563/15.7.2005).

Chart IV.17 Sectoral concentration of corporate loans and bonds[1]

(percentages)



Source: Bank of Greece.
1 Loans and corporate bonds > €1 million.

(see Chart IV.17). These sectors combined accounted for 65% of total exposures.

In 2010, the economic downturn is expected to have an unfavourable impact on several sectors. Specifically, the construction sector is expected to be negatively affected by the decline in construction activity, cuts in the public investment programme and pressures on residential and commercial property prices. Furthermore, the weakening of domestic demand is expected to affect wholesale and retail trade, with demand for consumer durables (such as cars) recording the largest decline (bank exposures to the car trade and repair sector represent 3.2% of total exposures). Land and air transport is also expected to be negatively affected as a result of lower trade volumes and higher oil prices. Pressure will also be exerted on certain manufacturing industries, such as clothing/footwear and furniture production, which however account for a small percentage of total exposures (1.7% and 0.3% respectively). As for the hotel sector, the effects on its activity are expected to be negative due to an anticipated decrease in tourist traffic. A smaller impact is expected for foods and beverages, as well as for public utility services (energy, telecommunications, etc.) due to the relevant income inelastic demand. Finally, the course of the shipping sector will mainly depend on economic activity abroad, the prospects of which appear more favourable.

In any case, based on the Herfindahl-Hirchmann index (HHI), which captures the share of each sector in total lending and corporate bonds, the sectoral concentration of the Greek banking system at banking group level appears to be relatively low (428 in 2009).[33] The same conclusion can be drawn from the ratio of banking group exposure to the industry with the largest share in total lending and corporate bonds to their Tier 1 capital, which stands at a low level.[34]

4.2 LIQUIDITY RISK

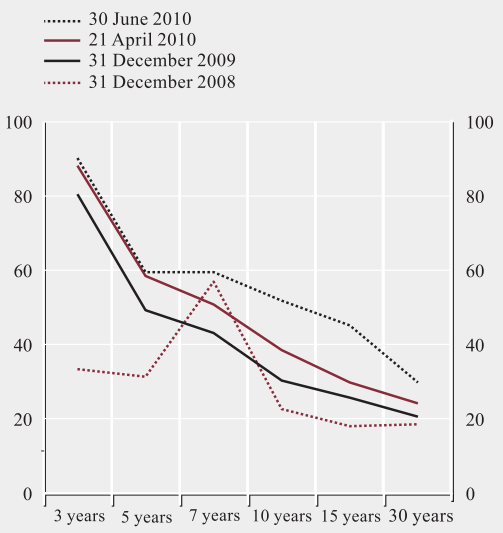
The Greek fiscal crisis heavily affected the liquidity of the Greek banking system, particularly in the last quarter of 2009. The successive downgrades of Greece's credit rating triggered similar downgrades for Greek banks, essentially closing off their access to international money and capital markets. Meanwhile, the considerable decline in customer deposit growth in 2009 caused Greek banks' liquidity needs to rise. The downward trend in Eurosystem funding, observed in the third quarter of 2009, was therefore reversed, and Greek banks again became increasingly reliant on Eurosystem funding.[35] However, a buffer against liquidity risk was provided in 2009 by Greek banks' strong deposit base, which remains their primary source of funding. This is also reflected in their loan-to-deposit ratio, which remained satisfactory at end-2009 (banks: 106.6%, banking groups: 113.7%).

In addition to the direct impact mentioned above, the Greek banks' downgrades also had

33 The index values range from 0 to 10,000. Values lower than 1,000 suggest a low degree of concentration, from 1,000 to 1,800 a moderate degree and values over 1,800 a high degree. This calculation regards sectors according to the STAKOD statistical classification used by the Hellenic Statistical Authority.
34 This ratio, known as Moody's Industry Concentration Ratio, is a measure of a bank's (or, in the present case, of a Greek banking group's) exposure to a sector in relation to its capital base.
35 At end-2009, funding by the Eurosystem stood at €49.4 billion.

Chart IV.18 Volatility curves of Greek government bond yields

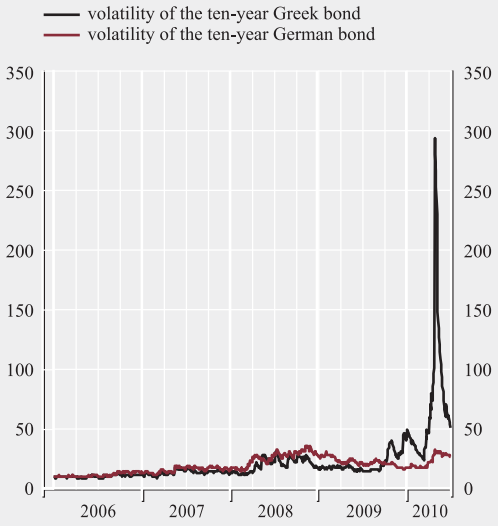
(percentages per annum)



Source: Bloomberg.

Chart IV.19 Volatility of Greek and German ten-year government bond yields

(percentages per annum; daily data)



Source: Bloomberg.

some negative indirect effects, the most important of which was a decrease in collateral available for refinancing from the Eurosystem. Against this backdrop, Greek banks took the necessary action (e.g. covered bonds issuance) in order to boost their stock of eligible securities (accepted as collateral by the Eurosystem).

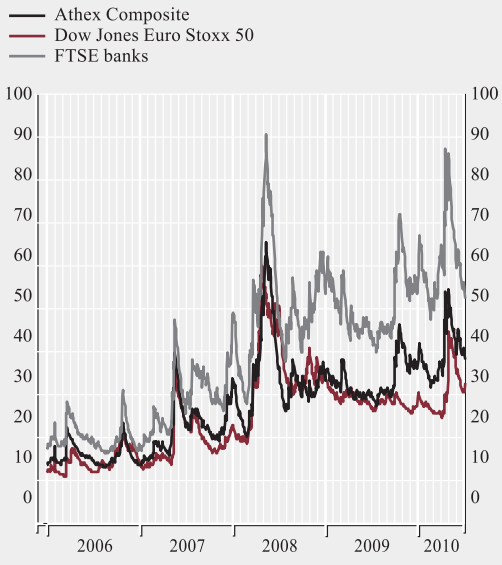
Nevertheless, the supervisory liquidity ratios, i.e. the liquid asset ratio and the asset/liability maturity mismatch ratio, remained at levels above the regulatory minima (20% and -20%, respectively), standing at 23.9% and -6.5%, respectively, on 31 December 2009.

4.3 MARKET RISK

In 2009, the market risk faced by Greek commercial banks rose due to high volatility of bond and share prices in the Greek market, to which domestic banks[36] are most exposed. Regarding bonds, increased volatility all along the yield curve of Greek government securities, particularly in the last quarter of 2009 (see Charts III.3 and IV.18), mirrored the developments in perceived credit risk as reflected in the widening of credit spreads (see Chart

Chart IV.20 Stock market volatility in Greece and the euro area

(percentages per annum; daily data)



Source: Bloomberg.

36 It should be noted that the held-to-maturity portfolio is not affected by short-term market fluctuations.

Table IV.3 Composition of commercial banks' trading book on a consolidated basis

(thousand euro)

	31 December 2008		31 December 2009	
	Market value	% of total assets	Market value	% of total assets
Greek government bonds	3,059,298	0.7%	4,739,876	1.0%
Foreign government bonds	79,652	0.0%	689,177	0.2%
Corporate and other bonds	1,657,032	0.4%	3,204,632	0.7%
Total debt securities	*4,795,982*	*1.1%*	*8,633,686*	*1.9%*
Equity securities	222,953	0.1%	361,617	0.1%
Financial derivatives	4,076,530	1.0%	4,497,462	1.0%
Total value of trading book	**9,095,465**	**2.2%**	**13,492,764**	**3.0%**

Source: Bank of Greece.

III.6). The volatility of German government bonds, on the other hand, remained low in 2009 (see Chart IV.19). Stock prices on the Athens Exchange[37] showed high volatility, unlike what was the case in the euro area as a whole (see Chart IV.20).

The above developments contributed to a small increase in banks' capital requirements for market risk (2009: €840 million, 2008: €821 million). However, the relatively small share of the trading book[38] —which mainly consists of bonds (see Table IV.3)— in banks' total assets (2009: 3%, 2008: 2.2%) mitigates the impact that a potential drop in the prices of financial assets could have on banks' capital adequacy. This small share partly explains why capital requirements for market risk account for only a small part (3.7%) of total capital requirements. This, however, does not eliminate the need for a close monitoring and effective management of market risks, as well as for the adoption of prudent investment strategies.

4.4 GREEK BANK ACTIVITY IN EMERGING EUROPE: RISKS AND PROSPECTS

The presence of Greek banking groups in Emerging Europe (EE)[39] is of great importance to the Greek banking system, as well as to the EE banking systems and economies (see Chart IV.21). Greek banking group assets in the region account for 11.6% of their total assets and around 22% of Greek GDP.[40] The most important market for Greek banking groups is Turkey (which accounts for 4.5% of the Greek banking system's total assets), while in other countries (such as Bulgaria) Greek banks hold a market share of around 1/3 (see Chart IV.22).

Given the current economic environment in Emerging Europe, the challenges for the Greek banking groups active in the region will be to:

- cope with the increased credit risk arising from the deterioration in the financial condition of non-financial corporations and households in these countries;

- maintain the liquidity and capital adequacy of their local business units (subsidiaries and branches) at satisfactory levels; and

37 Volatility in the present analysis was estimated using a GARCH (1,1) model.

38 Banks' capital requirements for market risk are only affected by investments in financial products (e.g. bonds, shares) included in this portfolio.

39 The countries of Emerging Europe in which Greek banking groups are active, in alphabetical order, are: Albania, Bulgaria, FYROM, Poland, Romania, Serbia, Turkey and Ukraine.

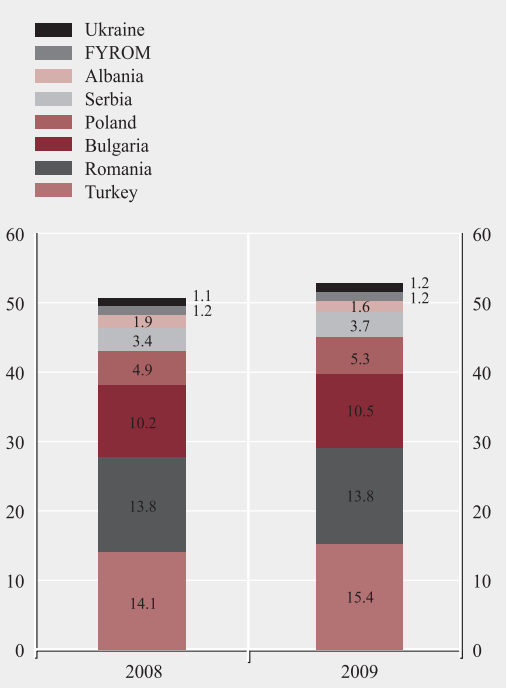
40 For more details on the presence of Greek banking groups abroad, see the relevant section of the Bank of Greece, *Financial Stability Report*, June 2009.

• adapt their business model to new conditions.

Credit risk remains the major risk for Greek banking groups in Emerging Europe, where corporate and household loans make up the bulk of their business. The deterioration in macroeconomic conditions, which started in the fourth quarter of 2008, led – with a small lag – to considerably higher NPL ratios across the region. For Greek banking group units (i.e. branches and subsidiaries) in the region, this ratio more than doubled (December 2009: 6.3%, December 2008: 2.9%).[41] On account of increased credit risk and reduced demand for new loans, in 2009 Greek banking group units in Emerging Europe kept their outstanding loans in the region virtually unchanged (up by a marginal 0.6%), while substantially increasing their impairment charges (by 87%). However, as accumulated provisions grew at a slower pace than NPLs, the coverage ratio decreased (December 2009: 74%, December 2008: 84%), yet stood at satisfactory levels by international standards.

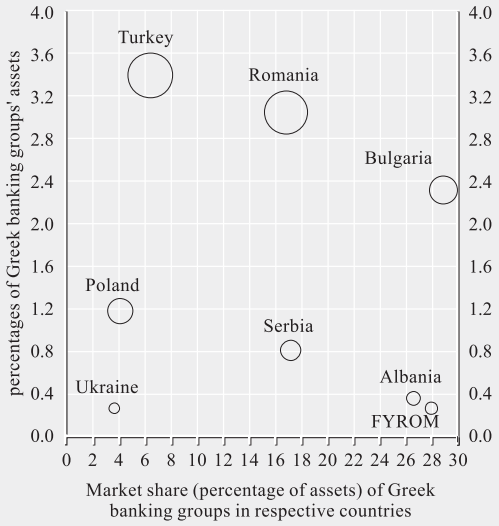
Chart IV.21 Asset distribution of Greek banking groups in Emerging Europe countries

(billion euro)



Source: Bank of Greece.

Chart IV.22 Systemic importance of Greek banking groups' presence to Emerging Europe (31 December 2009)



Source: Bank of Greece.

The expected stabilisation or even recovery of economic activity in most countries of the region should boost demand for new loans.

As a result, NPL growth is expected to slow down in 2010. However, given the frail macroeconomic situation in these countries, Greek banking groups must continue to monitor credit risk developments closely and tailor their credit policy and risk management systems to the economic conditions of each country.

As regards the funding of their activities abroad, Greek banking groups, in view of the economic conjuncture in Greece, should be

41 Bank of Greece estimate, including loans extended to non-financial corporations in Emerging Europe but booked in subsidiaries in other countries.

Table IV.4 Vulnerability and shock-absorption capacity indicators of cooperative banks

(percentages)

	December 2008	December 2009
Loan portfolio quality		
Non-performing loans (NPLs) - total	6.7	10.7
- Housing loans	5.6	9.0
- Consumer loans	16.6	19.5
- Business loans	5.8	10.0
Coverage ratio (accumulated provisions over NPLs)	59.9	45.2
Net NPL ratio	2.7	5.9
Net NPLs to regulatory capital ratio	17.4	37.9
Profitability		
Cost-to-income ratio	43.2	49.0
Return on assets (ROA)	1.4	1.3
Return on equity (ROE)	10.3	8.7
Capital adequacy		
Capital adequacy ratio (CAR)	15.6	15.1
Tier 1 ratio	15.1	14.7

Source: Bank of Greece.

particularly cautious when planning their funding requirements. On a positive note, deposits with Greek bank subsidiaries and branches in Emerging Europe rose by 11.7% in 2009, thereby reducing their reliance on parent funding. This, in fact, points to a broader need to change the business model adopted by foreign banking groups in the region, as the global financial crisis highlighted the risks inherent to the strong reliance of Emerging Europe's banking systems (and economies) on foreign fund inflows.

Greek banking groups should be equally cautious in planning their capital requirements, taking into account the effects of increased NPLs, as well as of the expected gradual strengthening of credit growth on the capital requirements of their regional units. Given the subdued activity in the local capital markets and their expected higher capital requirements in Greece, Greek banking groups need to make full use of the potential for internal capital generation in their units abroad.

5 COOPERATIVE BANKS

The cooperative banks sector consists of 16 credit institutions and accounts for just 1% of the banking system's total assets. The deterioration of the domestic macroeconomic environment in 2009 did not leave the cooperative banks unscathed, causing a considerable deterioration in their loan portfolio quality and a slight decrease in profitability. Their capital adequacy declined marginally, but remained at satisfactory levels.

In more detail, cooperative banks' assets came to €4.6 billion at end-2009, rising by 21.3% year-on-year due to an increase in loans to customers (10.3%), as well as in receivables from credit institutions (131.5%). Deposits rose rapidly to €3.6 billion in 2009 (+23.4%), resulting in a decline in the loan-to-deposit ratio to 93.7% (December 2008: 104.8%).

The deterioration in the domestic macroeconomic environment led to a considerable wors-

ening of the loan portfolio quality of cooperative banks. The NPL ratio rose to 10.7% in 2009 (December 2008: 6.7%, see Table IV.4), mainly due to a significant increase in the NPLs for corporate loans, which make up roughly 80% of cooperative banks' loan portfolios. At the same time, the coverage ratio decreased to 45.2% in 2009 (December 2008: 59.9%), as accumulated provisions grew at a slower pace (+32.3%) than NPLs (+58.9%). It should also be noted that NPLs net of provisions[42] rose considerably and their ratio to total loans stood at 5.9% (December 2008: 2.7%), while the ratio of net NPLs to regulatory capital came to 37.9% (December 2008: 17.4%). Moreover, cooperative banks performed less loan write-offs/write-downs in 2009 than in 2008,[43] which is inconsistent with the increase in their NPLs and the deterioration in the financial condition of non-financial corporations. In view of the expected further deterioration of the macroeconomic environment in 2010, cooperative banks should enhance their risk management systems, adapt their credit policies to the new conditions and increase their loan-loss provisions.

Increased impairment charges (+22.4%) also contributed to a slight decline (-10.4%) in cooperative banks' pre-tax profits, which came to €45.3 million. Their operating income continued to rise, mainly as a result of an increase in net interest and commission income, contrary to the domestic business of commercial banks. Cooperative banks' operating costs, however, grew at a faster pace than their operating income, leading to a rise (i.e. deterioration) in their efficiency ratio[44] (2009: 49%, 2008: 43.2%). A slight worsening was also recorded in 2009 in the (pre-tax) ROE and ROA of cooperative banks.

A marginal decline was recorded in the relevant capital adequacy ratios for 2009. Specifically, the CAR stood at 15.1%[45] (December 2008: 15.6%) and the Tier I ratio came to 14.7% (December 2008: 15.1%). Capital adequacy remained satisfactory and the marginal decrease in these ratios is attributable to the stronger growth of risk-weighted assets (+13.3%) than of regulatory capital (+9.7%). However, given the ownership structure of cooperative banks, increasing their capital would, if required, be a long and complex process. Hence, these banks must seek to strengthen their capital base and adopt a prudent dividend policy.

42 Namely NPLs less accumulated provisions for credit risk.
43 Loan write-offs/write-downs fell to €4.7 million in 2009, from €15.6 million in 2008.
44 Operating costs to operating income.
45 It should be noted that the Bank of Greece, taking into consideration the special nature of cooperative banks, has set the CAR regulatory minimum at 10%, against 8% for commercial banks.

APPENDIX TO CHAPTER IV

The structure of the Greek financial system

	2008			2009		
	Number	Total assets (million euro)	Total market share	Number	Total assets (million euro)	Total market share
Credit institutions	**66**	**461,985**	**87.2**	**65**	**490,137**	**87.4**
Greek credit institutions[1]	20	418,658	79.1	20	447,151	79.8
Branches of foreign credit institutions	30	39,437	7.4	29	38,260	6.8
– from EU countries	*24*	*38,740*	*7,3*	*24*	*37,409*	*6.7*
– from non-EU countries	*6*	*697*	*0.1*	*5*	*851*	*0.2*
Cooperative banks	16	3,890	0.7	16	4,726	0.8
Institutional investors	**359**	**54,495**	**10.3**	**320**	**55,850**	**10**
Insurance companies	81	15,058	2.8	76	15,476	2.8
Social security organisations[2]		29,562	5.6		30,952[3]	5.5
Undertakings for collective investment	278	9,875	1.9	244	9,422	1.7
– Mutual funds	*269*	*8,700*	*1.6*	*236*	*8,230*	*1.5*
– Portfolio investment companies and real estate investment trusts	*9*	*1,175*	*0.2*	*8*	*1,192*	*0.2*
Other financial intermediaries	**92**	**13,111**	**2.5**	**84**	**14,647**	**2.6**
Securities firms	72	1,629	0.3	65	1,551	0.3
Leasing firms	12	8,801	1.7	11	10,171	1.8
Factoring firms	4	1,857	0.4	4	1,873	0.3
Credit companies and venture capital companies	4	823	0.2	4	1,052	0.2
Total		**529,591**	**100**		**560,634**	**100**

Sources: Bank of Greece, Ministry of Employment and Social Protection, Hellenic Capital Market Commission and ICAP.
1 Including the Hellenic Postbank and the Deposits and Loans Fund. Excluding assets of Greek bank branches operating abroad.
2 Comprising entities under the Ministry of Employment and Social Protection.
3 The figure refers to assets held by social security organisations on 31 December 2008, valued as at 31 August 2009.

V OTHER SECTORS OF THE FINANCIAL SYSTEM

1 INTRODUCTION

The activity of the other sectors of the financial system did not pose any threats to the system's stability. Insurance firms, despite continued redemptions of life insurance policies, recorded profits in 2009, as well as a small increase in their assets. The assets of mutual funds declined, while investment firms and credit companies showed increased activity. With regard to leasing and factoring companies, there were no major developments during 2009.

2 INSURANCE FIRMS

According to Bank of Greece data, the assets of Greek-based insurance firms stood at €15.5 billion in December 2009 (up from €15.1 billion one year earlier) and accounted for 2.8% of the total assets of the financial system (December 2008: 2.8%).

As at end-2009, according to data from the Private Insurance Supervisory Committee (PISC), the domestic insurance market comprised 57 Greek-based insurance firms, 751 branches of insurance firms based in the EU or the EEA (of which 21 under the right of establishment and 730 under the freedom to provide services), three branches of insurance firms based outside the EU and the EEA and three mutual insurance cooperatives.[1]

Six banking groups are active in the insurance industry, with substantial participations in nine insurance firms (life, non-life and combined). In most cases, these holdings represent a very small percentage of banking groups' own funds on a consolidated basis; as a result, any unfavourable change in insurance firms' aggregates would not likely have a significant systemic impact on the financial system.

Despite the large number of insurance companies active in Greece, the market exhibits a high degree of concentration (see Chart V.1). Specifically, in 2007-2009 the five largest (on the basis of premium turnover) life insurance firms in Greece have an aggregate market share of more than 65%, compared with 35% for the five largest non-life insurers and about 40% for the insurance sector as a whole.

Chart V.1 Concentration of the insurance sector on the basis of premium turnover

(total market share, %)

Source: Private Insurance Supervisory Committee (PISC).

According to PISC data, total premium turnover came to €5.34 billion in 2009, up by only 0.6% over 2008. In the life insurance sector, premium turnover dropped by 2.9% in 2009 in comparison with 2008; by contrast, in the non-life insurance sector, premium turnover rose by 3.8% between 2008 and 2009 (see Chart V.2). The 2009 figures do not include the premium turnover of the firms whose authorisation was withdrawn in 2009. On the other hand, in the first quarter of 2010 premium turnover rose year-on-year, by 6.3%, 6.0% and 6.1% in the life, non-life and overall insurance sector, respectively.

1 The PISC supervises insurance firms based in Greece, mutual insurance cooperatives and branches of firms based outside the EU and the EEA. A draft law entrusting the supervision of insurance firms to the Bank of Greece and establishing a Guarantee Fund for life insurance policies was tabled to Parliament on 28 June 2010.

The share of non-life insurance in total premium turnover has been increasing in the last three years, reaching 54.6% in 2009, with life insurance accounting for the other 45.4%. In the first quarter of 2010, the share of non-life premium turnover was 57.6%, compared with 42.4% for life insurance.

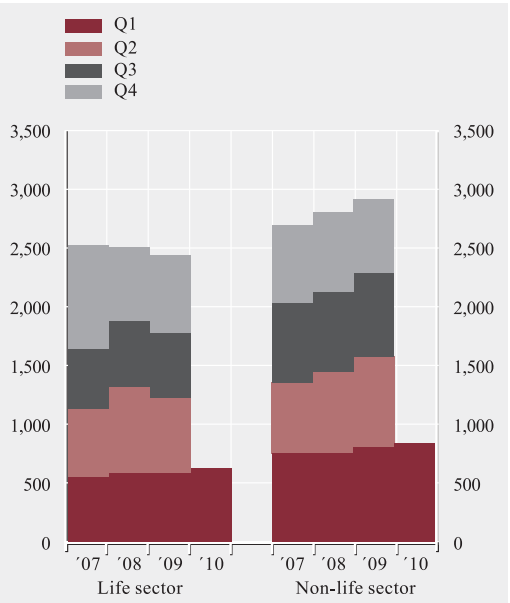
The value of life insurance policies redeemed before their maturity in 2009 rose to €660 million (from €600 million in 2008). This amount corresponds to 58.2% of total compensations paid in 2009. In the first quarter of 2010, the value of life insurance policies redeemed before their maturity corresponded to 58.6% of total compensations paid.

On the basis of insurance firms' operating results, in 2009 the insurance industry as a whole recorded net profits of €147 million, compared with losses of €488 million in 2008. A sectoral breakdown of insurance market revenues is shown in Table V.1.

The improved profitability of insurance firms is mainly attributable to an increase in investment income, as well as to cost-cutting. Specifically, income from investment rose by 159% for the motor vehicle liability insurance sector and 82% for the sector of other damages, while in the life insurance sector the losses of 2008 (€214 million) were reversed to considerable profits of €591 million (see Chart V.3).

Chart V.2 Premium turnover

(million euro)



Source: Private Insurance Supervisory Committee (PISC).

3 MUTUAL FUNDS

In December 2009, the assets of mutual funds stood at over €8 billion, having declined by 3.8% relative to 2008. The assets of money market funds showed a remarkable decrease of 29.3% for the year as a whole, mainly as a result of strong competition from banks, which offered higher interest rates on time deposits,

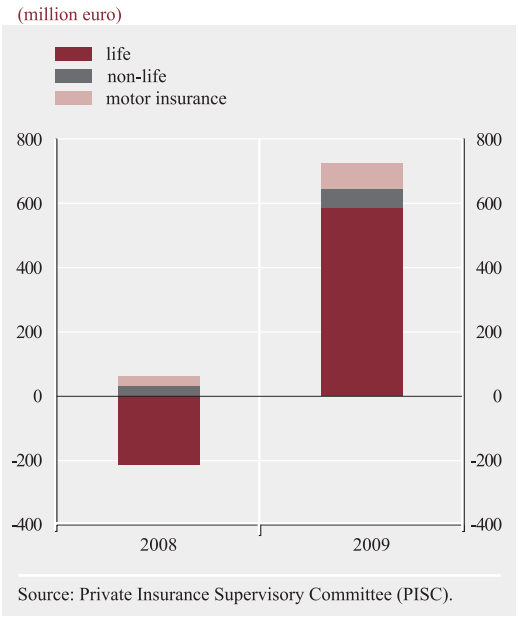
Table V.1 Financial results of insurance companies per insurance sector (2008-2009)

(million euro)

	2008	2009
Income		
– Life	22	300
– Non-life	403	421
– Motor insurance	-157	20
Total income	**268**	**741**
Total expenses	**756**	**594**
Net result	**-488**	**147**

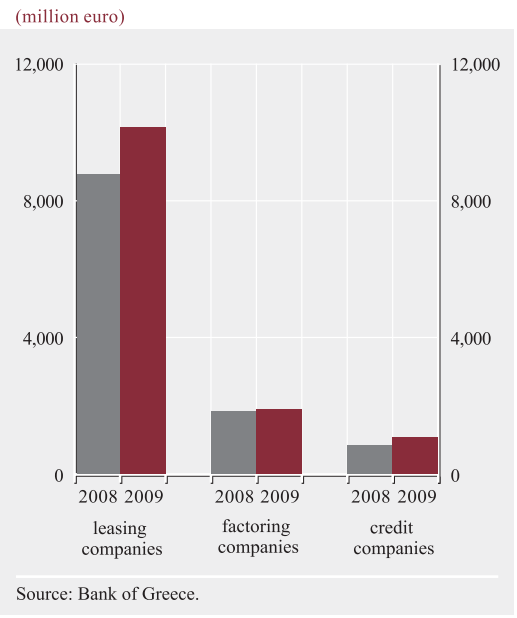
Source: Private Insurance Supervisory Committee (PISC).

Chart V.3 Investment income per insurance sector for 2008 and 2009



Source: Private Insurance Supervisory Committee (PISC).

Chart V.4 Assets of other financial companies



Source: Bank of Greece.

especially in the first quarter of 2009. Regarding the portfolio composition of mutual funds, holdings of foreign equity securities holdings increased by a substantial 50.8%, Greek government debt securities and Athex-listed shares by 41.7% and 35% respectively, while the corporate bond portfolio shrank by 39.4%.

According to data from the Association of Greek Institutional Investors, the mutual fund categories with the highest yields in 2009 were equity funds of funds, mixed-type foreign funds and equity funds (domestic and foreign).

4 INVESTMENT FIRMS

Based on data provided by the Hellenic Capital Market Commission, in 2009 investment firms' total turnover came to €101.7 billion, up by 10.5% over 2008. This increase reflected the improved conditions in world capital and money markets as a result of continued low interest rates and the ample liquidity provision.

As noted in previous reports of the Bank of Greece, the investment firm industry is characterised by high concentration. Despite a decline in the market shares of large investment firms in 2009, the four largest players accounted for some 50% of the sector's business, while the ten largest accounted for almost 75%. Finally, it should be noted that the number of investment firms carrying on business in Greece dropped to 69 at end-2009, from 72 at end-2008.

5 OTHER COMPANIES

During the reviewed period, no important changes were observed in the regulatory framework or in the market structure for the other companies of the financial sector (leasing, factoring and credit companies). The credit companies industry recorded a considerable increase in its lending business and increased its share in the consumer credit market. The assets of leasing, factoring and credit companies are shown in Chart V.4.

VI FINANCIAL MARKETS INFRASTRUCTURES

1 INTRODUCTION

This chapter provides an overview of financial markets infrastructures, i.e. payment and securities settlement systems. Despite the strong pressure that several factors exerted on the financial system, as discussed in earlier chapters, the market infrastructures exhibited remarkable resilience and robustness in 2009 and the first months of 2010, thereby making a positive contribution to financial stability.

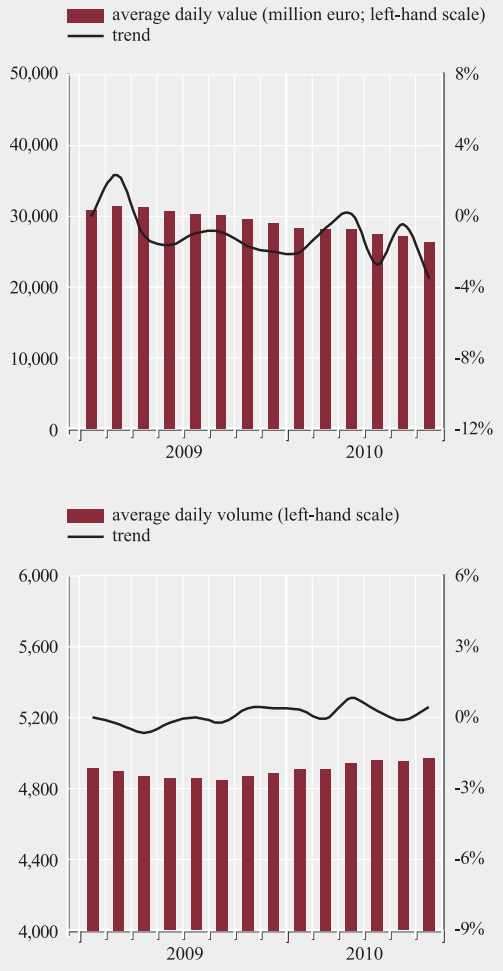
2 PAYMENT SYSTEMS

At present, there are three payment systems operating in Greece: TARGET2-GR, which is a large-value real-time gross settlement system, and two multilateral net settlement systems for retail payments, DIAS SA and the Athens Clearing Office (ACO).

2.1 TARGET2-GR

Throughout 2009 and the first half of 2010, TARGET2-GR, i.e. the Greek component of the Europe-wide euro payment system TARGET2, functioned smoothly, contributing to financial stability by ensuring the safe and efficient processing of large-value payments. Between June 2009 and June 2010, the system settled on average a daily volume of 5,000 payments, representing an average daily value of €27.3 billion. Data on cumulative traffic of the last 12 months show that, year-on-year over the same period, the average daily volume of settled transactions remained unchanged, while the average daily value showed a downward trend, declining at an average rate of 1.2% (see Chart VI.1). The decrease was due to the global financial crisis and the ensuing contraction in economic activity, as well as to the limited participation of domestic banks in the main refinancing operations of the Eurosystem during the period from July 2009 to March 2010, when banks' liquidity needs were met through longer-term refinancing operations.

Chart VI.1 Average daily payment traffic in TARGET2-GR and annual trend (May 2009-June 2010)



Source: Bank of Greece.

TARGET2-GR is a very effective payment system that ensures fast real-time payment settlement. More specifically, an analysis of daily data regarding the processing of transactions in the course of June 2010 shows that by 13:30 hours —i.e. halfway through the system's operating time— 79% of the total volume of payments and 62% in terms of value had already been settled[1] (see Chart VI.2). During the same month, the average daily value of queued payment orders remained very low, at 3‰ of

1 Compared with 71% and 61% respectively in June 2009.

the total daily turnover, indicating adequate liquidity in the domestic banking system.

The Bank of Greece contributed to the smooth settlement of transfer orders, and thus to the uninterrupted flow of payments during the day, by providing intraday credit against eligible collateral. In June 2010, the maximum value of collateral provided for the purposes of intraday credit and monetary policy operations averaged €11.1 billion, down from €13.9 billion in June 2009 (-20.1%). The maximum intraday credit extended that month averaged €2.5 billion, i.e. 28.1% less than in June 2009. From July 2009 to February 2010, the maximum amount of deposited collateral was significantly higher, whereas that of intraday credit was significantly lower, owing mainly to the fact that banks, during that period, obtained liquidity through longer-term refinancing operations, causing the amount of intraday credit to decline sharply. Meanwhile, banks used as collateral the special Greek government securities issued under the liquidity support scheme (Law 3723/2008) and continue to do so.

The technical availability of TARGET2 stood, on average, at 99.99% in 2009 as a whole, and 100% from January to June 2010, certifying that the system is not only entirely reliable, but also fulfils market needs for uninterrupted operation. TARGET2 guarantees business continuity even under the most exceptional circumstances, thanks to its disaster recovery sites.

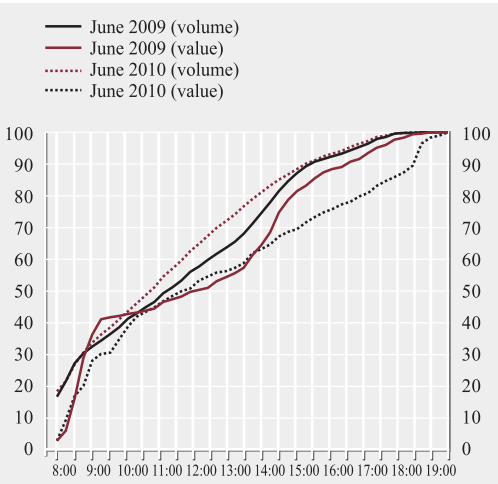
Finally, by end-2010, TARGET2-GR will have undergone two major changes, namely the expiration, at the end of the first half, of the transition period during which indirect TARGET2 participants could make payments via their PHAs (Proprietary Home Account application)[2] and the launching of web-based connectivity in November 2010.

2.2 DIAS INTERBANKING SYSTEMS SA

The most important development in the DIAS retail payment system was the launching of the

Chart VI.2 Intra-day pattern of payments in TARGET2-GR

(percentage of daily total)



Source: Bank of Greece.

SEPA direct debit processing services[3] in November 2009. In fact, although the Payment Services Directive providing the necessary legal basis for SEPA direct debits (SDDs) was only transposed into Greek law on 13 July 2010, DIAS INTERBANKING SYSTEMS SA began processing this new type of payments earlier, based on contractual arrangements with its members.

In 2009, credit transfer orders cleared in DIAS edged up by a marginal 0.2% (in terms of volume) and 7.3% (in terms of value). A similar pattern was recorded in the direct debits handled by the system over the same period (+0.3% in terms of volume and +6.5% in terms of value). This, however, was not the case with euro cheques netted in the system, which decreased year-on-year in 2009 by 6.8% in volume and by 9.5% in value.

2 A specialised facility offered by the Bank of Greece, among other NCBs (Oesterreichische Nationalbank, Nationale Bank van België/Banque Nationale de Belgique, Deutsche Bundesbank, etc.), to resident credit institutions, which in the first years of TARGET2 operation gave them indirect access, via the respective central bank, to the system.

3 DIAS has been processing SEPA credit transfers (SCTs) since January 2008. Since October 2008, it is linked to the Dutch Equens SE which gives its users access to some 3,200 banks for the exchange of SCTs.

2.3 ATHENS CLEARING OFFICE

The Athens Clearing Office (ACO) handles the clearing of cheques denominated in euro and in foreign currency. The total value of cheques cleared came to €198.3 billion in 2009, i.e. 2.9% less than in 2008, whereas their volume also decreased (-9.3%) to 2.6 million pieces.

3 THE SINGLE EURO PAYMENTS AREA (SEPA)

Major steps and decisions were taken in 2009 to set up an integrated European retail payment market, among which particularly worth noting was the roll-out of SEPA direct debit (SDD) services in November 2009.

Given the delays in the acceptance of, and the migration to, SEPA payment instruments, both the Council of the European Union (2 December 2009) and the European Parliament (12 March 2009 and 10 March 2010) stressed the need to improve the governance of SEPA and establish legally binding migration end-dates.

The need to enhance policy coordination across Europe and ease existing disputes among stakeholders in the SEPA project led to the establishment of the SEPA Council as a coordination and consultative forum,[4] which brings together representatives from the supply and demand sides on an equal footing and meets under the co-chairmanship of the European Commission and the ECB, with the rotating attendance of four NCBs.

With regard to the SEPA implementation process in Greece, the most important development was the roll-out of SDD services at banks, made possible once DIAS developed the necessary infrastructure. Between November 2009 and June 2010, SDDs accounted for an average 70% of the total volume of direct debits (DDs), making Greece the country with the highest ratio in Europe.

Meanwhile, the adaptation to SEPA standards of card schemes and accepting terminals is still ongoing. According to end-of-March 2010 data, the SEPA compliance of automated teller machines (ATMs) was close to 100%, that of point-of-sale (POS) terminals 69% and that of card schemes approximately 38%.

Lastly, the use of SEPA credit transfers (SCTs) remains very limited in Greece (less than 1% of the total volume of credit transfers); in the euro area, albeit somewhat more extensive, it still falls short of expectations. Even though a major improvement in Greece can only be expected once SEPA instruments are adopted in government payments (given the large volumes involved), banks should nevertheless increase the priority given in their marketing strategies to the promotion of SEPA payment products among the public.

4 OVERSIGHT OF PAYMENT SYSTEMS AND INSTRUMENTS

As the overseer of payment systems in Greece, the Bank of Greece is actively involved in work under way within the Eurosystem aimed at developing an oversight policy framework to ensure effective financial crisis management. In this context, it develops procedures and collects information necessary for the effective management of potential financial crisis situations. Specifically, the Bank of Greece:

- monitors the interconnections between the domestic infrastructures, using a market participants database;
- maintains a list of contacts to ensure effective communication in the event of a crisis;
- identifies and addresses any conflicts among interconnected infrastructures regarding the rules governing participant insolvency; and

4 The Council held its first meeting on 7 June 2010.

• has put in place an early warning system to alert market participants in the event that insolvency proceedings are initiated against a system participant.

The Bank of Greece also took part in the testing of the system's crisis communication framework carried out by the Eurosystem in February 2010 with the participation of national Payment System Overseers and TARGET2 Crisis Managers and Settlement Managers.

As the overseer of payment instruments, the Bank of Greece is developing a framework for monitoring card fraud that will enable it to systematically monitor and assess the extent and types of fraud in the market. Furthermore, the analysis of this information will be useful for assessing the adequacy of the anti-fraud measures and procedures put in place by credit card issuers and acceptors. After a pilot compilation of data in 2009, the framework was revised and put up for consultation by the banking community in March 2010, and is expected to enter into effect in the second half of this year.

5 THE SECURITIES SETTLEMENT SYSTEM FOR GREEK GOVERNMENT SECURITIES

Transactions in Greek government securities are settled through the System for Monitoring Transactions in Book-Entry Securities ("BOGS"), operated by the Bank of Greece.

BOGS is responsible solely for the proper settlement of trades of Greek government securities, and therefore has no control over the terms of the relevant sale/purchase agreements.

The System only settles transactions that are carried out:

• in the regulated market of HDAT;

• on the platforms of (regulated or non-regulated) foreign markets, involving custodians operating in Greece; and

• in the over-the-counter (OTC) market in Greece, between resident custodians.

Trades in all types of bond derivatives, such as credit default swaps (CDSs) on Greek securities, are not settled in the System or otherwise related to it.

BOGS, like other Securities Settlement Systems (SSSs) in the euro area, is regularly assessed by the European Central Bank (ECB) against the high standards for use in the Eurosystem credit operations. Its ongoing compliance with such standards makes it one of the 23 eligible SSSs of the Eurosystem, as listed on the ECB website.[5]

Transactions in Greek government securities carried out abroad are for the most part settled in non-resident depositories. Therefore, they do not enter and are not monitored by BOGS.

The settlement of transactions in Greek government securities is subject to the following time frames:

• for trades carried out in the regulated market of HDAT, on the third business day following the trade (T+3), as clearly stipulated in the Operating Rules of HDAT;

• for trades carried out on platforms of regulated or non-regulated foreign markets, according to the settlement arrangements applying to the relevant platform;

• for OTC trades, on the settlement date agreed upon between the two counterparties to the transaction.

For transactions entered into the System, the System must apply as settlement date the date specified by the parties following bilateral negotiation, through their participation in a trading system, or on the date arising from the trading system they participate in and whose

5 http://www.ecb.int/mopo/assets/coll/elisss/html/index.en.html

operating procedures and regulations they have read and accepted.

In 2009, the average daily value of transactions settled through the System was roughly €25.5 billion, i.e. 23% lower than in 2008 (see Table VI.1). The first months of 2010 saw a further decline in the value of transactions, which continued into the second quarter. Underlying the overall decrease in value was the lower trading activity in Greek government securities, as a result of changing attitudes on the part of Greek government bond holders and major portfolio shifts by domestic and foreign institutional investors. The main drivers of these developments were:

- the deterioration —for a number of months— in the medium-term outlook for Greece's fiscal deficit and debt, current account deficit, overall economic activity and employment;

- Greece's budgetary situation, i.e. its public debt-servicing capacity, the burden of future pension payments, etc.;

- the successive downgrades of the country's sovereign credit rating;

- negative coverage in the media; and

- the tight liquidity situation in the secondary securities market.

The combination of the above factors, as expected, caused some increase in rejected or cancelled payments, which nonetheless remain very low by international standards (see Table VI.2).

It should be noted that the existence of some percentage of non-settled transactions, on an almost daily basis, is a common phenomenon for all depositories worldwide.

Non-settlement can, according to an ECB study,[6] be due to several reasons, the most important of which are:

Table VI.1 Average daily value of transactions in the Book-Entry Securities System of the Bank of Greece

(nominal value in million euro)

	2007	2008	2009
January	26,182.55	39,058.98	23,673.47
February	26,685.29	40,575.63	24,088.57
March	30,457.28	35,838.16	23,614.13
April	32,673.81	39,903.72	24,118.60
May	28,985.00	35,415.27	28,075.78
June	31,798.25	34,938.66	29,539.38
July	27,152.47	37,963.20	24,395.28
August	24,670.45	32,428.88	22,524.80
September	30,327.10	27,038.84	22,949.52
October	36,646.92	27,129.42	25,937.06
November	35,162.15	25,722.26	31,542.83
December	30,693.32	22,606.55	25,992.54
Annual averages	**30,119.55**	**33,218.30**	**25,537.66**

Source: Bank of Greece.

(a) Operational reasons:

- Miscommunication between front office (traders) and back office (settlement);

- Non-matching of confirmation messages;

- Failures in the IT systems of settlement operators, etc.

(b) Insufficient market liquidity:

- adverse conditions and/or a freezing-up of the securities markets (increased market instability, for instance, often leads to securities shortages);

- the securities to be delivered are unavailable on the delivery date for reasons beyond the control of the delivering parties;

- a shortage of cash balances due to insufficient liquidity among certain market participants or in the market in general.

6 This is an unpublished internal ECB study on the efficiency of the euro area SSSs (2008).

Table VI.2 Book-Entry Securities System of the Bank of Greece: total number of transactions, rejections and cancellations

(number of transactions)

Year	Total	Transactions rejected due to insufficient balance of securities in participants' accounts	Rejection rate (% of total)	Transactions cancelled by participants	Cancellation rate (% of total)
2007	441,071	83	0.02	32	0.01
2008	377,444	207	0.05	34	0.01
2009	401,832	1340	0.33	380	0.09

Source: Bank of Greece.

BOGS has a number of features that safeguard settlement against several of these risks, thereby supporting financial stability. More specifically, it is directly connected in real time to the TARGET large-value payment system[7] at the Bank of Greece, which ensures the fast and safe real-time settlement of the cash leg of transactions at the lowest possible cost for members. In addition, access to liquidity facilities, subject to the requirements of the Eurosystem, practically eliminates counterparty liquidity risk, to the benefit of settlement certainty and smooth market functioning.

Settlement efficiency in BOGS was significantly enhanced by a number of technical upgrades —in particular those introduced in 2005— which ensure a high level of automation across the board, always in compliance with the most stringent international standards to minimise the risks of technical or manual error. These upgrades have greatly benefited the market for Greek government bonds, by enabling the safe handling of a large and (until recently) increasing volume of transactions and the electronic supply of front-office and information services to domestic and foreign participants.

One of these technical upgrades concerns the procedures for handling non-settled transactions. Once the settlement deadline has expired, the parties to transactions are informed of settled, as well as of non-settled, transactions. In the case of the latter, if the counterparties/custodians still wish to execute the trade, they can re-enter it into the system for immediate settlement, the terms of the transaction remaining unchanged. The re-entering procedure is part of a broader procedure for handling non-settled transactions and, if the parties agree, enables the further processing (and eventually the settlement) of such transactions in accordance with the terms of the initial (purchase/sale) agreement.

This re-entering option is a standard practice followed worldwide, which can be activated either:

– manually, in which case the counterparties/custodians, after consulting their instructing clients (through an exchange of messages), send new standardised messages to the Operator of the System; or

– through an automated procedure known as "recycling" or automated re-entering – a standard procedure worldwide that has already been adopted, for some years now, by almost all depositories in the euro area.

More generally, the automated clearing and settlement procedures (straight-through processing) have the advantages of:

7 The Bank of Greece has already begun preparations for the migration to the new system for cross-border and domestic settlement of securities (bonds and shares) called TARGET2-Securites (T2S). The new system is due to become operational in September 2014.

- minimising the risk of manual error;

- reducing operating costs;

- reducing the number of non-settled transactions, in line with the broader effort to improve operational efficiency and transparency;

- ensuring better cash and liquidity management and faster final settlement (since no new messages need to be sent on the following day, the Operator of the System knows what amounts are required for the cash settlement of securities transactions from the very start of the business day and can duly inform the custodians of the parties about the amounts due);

- mitigating settlement risk and thereby the reputation risk associated with high settlement failure rates; and

- reducing system congestion, by eliminating the need for multiple messages regarding one same transaction.

These features increase the transparency and efficiency of settlement, since the original instructions remain in the system until final settlement. At the same time, processing times are shortened, as queued transactions can be settled from the start of the following day's settlement cycle without the need for new messages.

It should be noted that, prior to the introduction of the automated re-entering process, the parties to a transaction, if they so wished and agreed, had the option of manually re-entering their non-settled transaction for settlement under exactly the same terms (price, quantities, etc.) as those contained in the original instructions.

To sum up, the BOGS procedures contribute on an ongoing basis to the sound settlement of transactions in Greek government securities and, consequently, enhance the stability of the domestic financial system.

6 SECURITIES CLEARING AND SETTLEMENT – DEVELOPMENTS AND REGULATORY FRAMEWORK

The securities clearing and settlement industry in the European Union is currently governed by national legal and regulatory arrangements, which vary considerably across countries. Key guidance on the rules and practices that should govern SSSs at a global level was provided in 2001, when a set of recommendations (know as the "CPSS/IOSCO recommendations") was jointly developed by the Committee of Payment and Settlement Systems of the central banks of the G-10 and the International Organisation of Securities Commissions. A set of recommendations for central counterparties (CCPs) was then adopted in 2004 within the same framework of cooperation.

At the European level, a similar initiative was undertaken in 2001, aimed at adapting the CPSS-IOSCO recommendations to the specific conditions and requirements of the European Union. This project, jointly undertaken by the Eurosystem and the Committee of European Securities Regulators (CESR), was finalised in June 2009 with the release of a set of recommendations ("ESCB-CESR recommendations"), addressed to national regulators and overseers of SSSs and CCPs. The main purpose of these recommendations is to prevent risks across the entire spectrum of securities settlement and CCP activities and to enhance the soundness of these systems and of markets in general. A large part of the ESCB-CESR recommendations refer to technical standards and legal aspects of securities clearing and settlement. Shortly prior to their final approval, the scope of these recommendations was expanded to address additional risks brought to light by the recent financial crisis, particularly those associated with CCPs and their OTC derivatives exposures.

Work is currently under way to revise the CPSS-IOSCO recommendations, with a view to making them stricter and broader in scope

in the light of the lessons drawn from the recent financial crisis. A first draft of the revised framework was released for public consultation in June 2010. A similar revision of the ESCB-CESR recommendations is expected, which will provide the standards against which the eligibility of SSSs in the context of the Eurosystem collateral framework will be assessed.

Important work in the field of clearing and settlement is also under way at the European Commission, which, for the first time, proposed relevant legislation at the EU level. The Commission's proposals are currently under public consultation, so that they can be finalised as soon as possible. It should be noted that the Commission's previous involvement in the area of clearing and settlement had not taken the form of legislative intervention, and had focused instead, in line with the proposals of the Giovannini Group report, on the removal of barriers to European clearing and settlement market integration through studies, liaising with market participants and the issuance of relevant communications. This objective had, to some extent, been achieved with the establishment of, and adherence to, the industry-led Code of conduct for clearing and settlement. The Commission's legislative proposals, also referred to as the European Market Infrastructure Legislation (EMIL), will at a first stage seek to establish a single operational, supervisory and oversight framework for CCPs in the EU, together with rules for the clearing and settlement of OTC transactions in derivatives; other aspects of securities clearing and settlement are expected to be covered at a later stage.

Legislation at the EU level would make up a complementary and supportive framework to the ESCB-CESR recommendations, aimed primarily at improving control and supervision mechanisms for securities clearing and settlement.

The main points covered by the ESCB-CESR recommendations for securities settlement systems are as follows:

- An appropriate legal framework providing adequate legal certainty (Recommendation 1).

- Clear and mandatory rules for trade confirmation and settlement matching and cycles, and adequate mechanisms for assessing compliance with these rules (Recommendations 2 and 3).

- Evaluation of measures and mechanisms designed to ensure greater settlement certainty; more specifically, assessment of the introduction of a CCP or a guarantee arrangement and promotion of securities lending (Recommendations 4 and 5).

- Safeguarding the integrity of securities issues and the interests of investors across all operations and trades (Recommendations 6 and 12).

- Linking securities transfers to fund transfers in a way that achieves delivery versus payment (DvP), and clearly defined timing of settlement finality (Recommendations 7 and 8).

- CDS risk controls to address participants' failure to settle (Recommendation 9).

- Ensuring settlement in a highly liquid instrument such as central bank money (Recommendation 10).

- Assessing, monitoring and addressing operational risk and sound governance arrangements; adequate control and mitigation of risks in the case of interconnected settlement systems; com-

pliance with international messaging standards to promote straight-through processing (STP) across the entire securities transaction flow (Recommendations 11, 13, 16 and 19).

- Objective and publicly disclosed access criteria; operational efficiency; transparency and provision of sufficient information to market participants (Recommendations 14, 15 and 17).

- Effective regulation and clear designation of authorities responsible for supervision and oversight, and central bank involvement (Recommendation 18).

SPECIAL FEATURE
EUROPEAN COMMISSION PROPOSALS TO FURTHER AMEND THE CAPITAL REQUIREMENTS DIRECTIVE (CRD)

1 INTRODUCTION

In February 2010, the European Commission released a set of proposals for further possible changes to Directive 2006/48/EC (CRD IV) on the capital requirements of credit institutions active in EU Member States. The proposed amendments, which are closely aligned with the corresponding proposals of the Basel Committee on Banking Supervision (BCBS), aim at enhancing the capital and liquidity framework, as well as improving the banking system's ability to absorb any unexpected losses arising from financial shocks. Moreover, they reflect the commitments made by the G-20 leaders as regards building high-quality capital, strengthening risk coverage, mitigating pro-cyclicality, discouraging leverage, as well as strengthening liquidity risk requirements and forward-looking provisioning for credit losses. In order to assess the impact of the above proposals, the BCBS, alongside the Committee of European Banking Supervisors (CEBS), is conducting Quantitative Impact Studies (QIS), which are expected to be concluded within 2010. After taking into consideration the results of these QIS, the European Commission and the BCBS are expected to submit their final proposals by end-2010, so that they will be implemented by end-2012. Nevertheless, a revision of the proposals or a deferral of the effective date in the light of the QIS conclusions cannot be ruled out.

2 QUALITATIVE AND QUANTITATIVE IMPROVEMENT OF REGULATORY CAPITAL

The purpose of regulatory capital[1] is to absorb the losses that a credit institution does not expect to make in the normal course of business, i.e. unexpected losses. By contrast, the role of credit loss provisioning is to cover expected losses.

According to the current capital adequacy framework, banks' regulatory capital is classified as follows:

- Tier 1 capital, which comprises:
  - Core Tier 1 capital, including: i) equity capital and share premium accounts; ii) disclosed reserves; iii) profit and loss carried forward; and iv) minority interests, on a consolidated basis; and
  - Non-core Tier 1 capital, consisting of hybrid securities and non-cumulative preference shares.
- Tier 2 capital, which includes, inter alia, revaluation reserves, subordinated debt and cumulative preference shares.
- Tier 3 capital, which primarily consists of short-term subordinated debt.

The international financial crisis, which started in mid-2007 and intensified in September 2008, among other things shed light to some major weaknesses in the global capital adequacy framework. In particular, it became clear that:

- banks' capital was not sufficient to meet the risks assumed, while at the same time its quality was relatively lower, as it included a comparatively small percentage of Core Tier 1 assets; and
- the inclusion of certain assets in capital not only did not contribute to loss absorption, but also encouraged credit expansion through short-term subordinated debt.

As a result, capital held by banks in certain countries proved insufficient to absorb the large losses suffered due to the international financial crisis. The extent of these losses, coupled with the disruption of money and capital markets during the crisis, undermined financial stability, forcing governments worldwide to take unprecedented measures in order to restore stability and rescue banks.

In the light of the lessons from the crisis, governments and regulatory authorities recognise the need to amend the supervisory framework

1 For a definition of regulatory capital, see Glossary.

with a view to enhancing credit institutions' capital in terms of both quantity and quality. At European level, the European Commission proposals, which are closely aligned with the corresponding proposals of the Basel Committee of Banking Supervision (BCBS), are based on the following principles:

- the composition of banks' capital should ensure the absorption of losses on a going concern basis;

- Core Tier 1 capital should, as a priority, be enhanced;

- the eligibility criteria for the inclusion of hybrid instruments in Core Tier 1 capital should be tightened considerably;

- regulatory capital should continue to include Tier 2 instruments, which would absorb losses on a gone concern basis;

- Tier 3 capital should be eliminated.

The proposed changes are expected to lead to a decline in Core Tier 1 capital, forcing banks across the world to seek alternative options for strengthening their capital so as to meet the new CAR regulatory minima. Greek credit institutions are expected to be comparatively less affected, as their strong capital buffers should contribute to a, more or less, smooth transition to the new regime.

3 MEASURES TO MITIGATE PRO-CYCLICALITY – DYNAMIC PROVISIONING

3.1 GENERAL

The shortfall in provisions that became evident during the financial crisis calls for the adoption of a provisioning method that would ensure that credit institutions establish in time adequate provisions for credit risk.[2]

In seeking the most appropriate dynamic provisioning method and taking into account the relevant principles adopted by the BCBS, the European Commission examines and assesses:

– the Expected Cash Flow Model (ECF) proposed by the International Accounting Standards Board (IASB); and

– through-the-cycle provisioning approaches.

3.2 EXPECTED CASH FLOW MODEL (ECF)

The main characteristic of the ECF model[3] is expected loss provisioning.[4] In particular, this model:

- initially estimates the expected cash flows for the remaining life of the financial instrument (loans and securities), including the expected credit losses and taking into account the collateral;

- calculates the effective interest rate, which would be lower than the contractual interest rate as expected losses are also taken into account; and

- reviews the initial cash flow and credit loss expectations at each financial reporting date and revises them, when necessary, through the profit and loss accounts.

Although it acknowledges that this method has certain advantages and is less pro-cyclical than the current "incurred loss" model, the European Commission doubts whether this method can ensure dynamic provisioning to dampen pro-cyclicality.

3.3 THROUGH-THE-CYCLE METHODS

3.3.1 Credit institutions using the internal ratings-based (IRB) approach

Regarding credit institutions which estimate their capital requirements on the basis of the

2 See also Special Feature II – *Financial Stability Report*, December 2009.
3 The IASB published a relevant text (Exposure Draft) concerning the ECF method on 5 November 2009. The deadline for comment submission was 30 June 2010.
4 Unlike current accounting standards, which are based on incurred losses (the "objective evidence of impairment" principle).

internal ratings-based approach (IRB),[5] the European Commission is examining a revised version of the Spanish model. Under this model, which has been in use by the Bank of Spain since 2000, in addition to specific provisions for "already existing" credit losses, general/dynamic provisions for "not-yet manifested" losses in the performing loan portfolio are also set aside. Therefore, this model allows banks to create additional provisions (stock of provisions) in good times (when they usually grant more non-performing loans), which could be used in bad times to cover (part of) incurred losses. For the estimation of individual parameters, e.g. the probability of default (PD) and the loss given default (LGD), which are necessary to calculate provisions under this model, credit institutions will use the IRB approach.[6]

3.3.2 Credit institutions using the standardised approach

For those credit institutions that use the standardised approach[7] to calculate capital requirements against credit risks, instead of the PD and LGD parameters, the European Commission suggests the use of expected loss (EL), embedded either in risk-weights under the standardised approach or in the credit ratings of certain approved credit rating agencies (External Credit Assessment Institutions – ECAIs).

In conclusion, as regards the European banking system, under the method proposed by the European Commission, credit institutions would adopt a dynamic provisioning system, which should contribute to adequate provisioning, thus reducing the volatility of banks' financial results and, therefore, pro-cyclicality, as well as strengthening the resilience of individual banks and the banking system as a whole.

4 LIQUIDITY RATIOS

4.1 GENERAL

The financial crisis brought to light the defects and inconsistencies of liquidity frameworks across the EU. To deal with these issues, the competent international institutions (G-20, Financial Stability Board, European Commission, BCBS) seek to adopt a framework for liquidity risk measurement, standards and monitoring, which would be in harmony with the corresponding BCBS framework[8] and include:

- two regulatory liquidity ratios (Liquidity Coverage Ratio and Net Stable Funding Ratio), which should be officially adopted by supervisory authorities for the supervision of banks with cross-border activities; and

- a set of Monitoring Tools, which should be used by supervisory authorities to monitor liquidity of credit institutions.

4.2 PROPOSED REGULATORY LIQUIDITY RATIOS

Specifically, as regards the proposed liquidity requirements, the Liquidity Coverage Ratio is the ratio of the stock of high quality liquid assets to net cash outflows over a period of 30 days. The assets and outflows of the numerator and denominator are presented in Table A. The stock of liquid assets should more than cover net cash outflows within a 30-day period under the applied stress scenario,[9] allowing a credit institution to survive the initial phase of acute stress and then take crisis management actions as appropriate.

The Net Stable Funding Ratio is calculated as the ratio of the available amount of stable funding to the required amount of stable funding. This ratio promotes a more conservative funding liquidity management whereby credit institutions fund their business mostly through medium- to long-term (i.e. stable) funding and maintain an adequate level of "stable funding",

5 Regarding the application of this approach in the Greek banking system, see Bank of Greece Governor's Act 2589/2007.
6 It should be noted that IRB models of credit institutions are validated by the competent supervisory authority.
7 It should be noted that the majority of Greek and European credit institutions use the standardised approach.
8 BCBS, International framework for liquidity risk measurement, standards and monitoring, Consultative document, December 2009.
9 This scenario mainly features a three-notch downgrade of the institution's credit rating, which brings about a run-off in retail deposits and other sources of funding.

Table A Liquidity coverage ratio

Numerator: Stock of high quality liquid assets	Factor (to be multiplied against total amount)
Cash	100%
Government bonds	100%
The Committee will consider the inclusion of the following items in the numerator:	
a) Corporate bonds not issued by a bank, investment, insurance or financial services firm or by the bank itself, excluding complex structured products and subordinated debt	Rated at least AA, 80%, rated at least A-, 60%
b) Covered bonds not issued by the bank itself	Rated at least AA, 80%, rated at least A-, 60%
Denominator: Outflows within 30 days (stress scenario)	**Factor (to be multiplied against total amount)**
Stable retail deposits	7.5%
Less stable retail deposits	15%
Unsecured wholesale funding provided by small business customers	Stable 7.5%, less stable 15%
Unsecured wholesale funding provided by non-financial corporate customers	With operational relationship 25%, without operational relationship 75%
Unsecured wholesale funding provided by credit institutions	100%
Funding secured by highly liquid assets (i.e. essentially government bonds) maturing within the 30-day time frame	0%

Note: Bonds included in the numerator must be unencumbered.

i.e. own funds, stable retail deposits and medium- to long-term bonds issued by the credit institution, which meets the "stable funding" needs of their assets, i.e. most asset items except for readily marketable assets (cash, interbank deposits and the bulk of government bonds). In this light, the Net Stable Funding Ratio should limit credit institutions' over-reliance on interbank borrowing and ensure that long-term investment, investment in illiquid assets and a part of tradable instruments are financed with stable funding. The numerator and the denominator are analysed in Table B.

4.3 THE IMPACT OF THE PROPOSED LIQUIDITY RATIOS

The method of calculating the above ratios shows that banks should maintain more readily marketable assets. Moreover, they should limit over-reliance on market funding (interbank market, bond issuance, securitisation of loans). Additionally, they should aim at attracting long-term and relatively stable funding (e.g. deposits with an agreed maturity). Therefore, banks with a strong deposit base and a low loan-to-deposit ratio should have an advantage over banks which mainly rely upon market funding. The design of the regulatory liquidity ratios indicates that the proposed framework aims at restoring internationally the traditional banking model, which is in use by Greek credit institutions. Therefore, Greek banks should not experience difficulties in complying with the proposed liquidity ratios. Besides, the current liquidity framework, as defined in Bank of Greece Governor's Act 2614/7 April 2009, is in line with all the above proposals of the European Commission, as it provides for regulatory quantitative liquidity ratios, monitoring tools and basic principles that are fully in line with the corresponding CEBS and BCBS principles.

Table B Net stable funding ratio

Numerator: Available stable funding	Availability factor
Total own funds including Tier 1 & Tier 2 capital	100%
Total liabilities with remaining maturity of 1 year or greater	100%
Deposits and other loans with remaining maturity of less than 1 year	
– Stable retail deposits and stable unsecured wholesale funding provided by small business customers	85%
– Less stable retail deposits and less stable unsecured wholesale funding provided by business customers	70%
– Unsecured wholesale funding by non-financial corporate customers	50%
– All other liabilities and equity not included above	0%
Denominator: Required stable funding	**Availability factor**
Cash, bonds and other assets with remaining maturity of less than 1 year	0%
Government bonds rated at least AA	5%
Corporate bonds or covered bonds rated at least AA, not issued by a bank, investment, insurance or financial services firm or by the bank itself	20%
Bonds included in the above category and equity securities listed on a recognised exchange and included in a large capitalisation market index, as well as loans to enterprises with remaining maturity of less than 1 year	50%
Loans to retail customers with remaining maturity of less than 1 year	85%
All other assets	100%

Note: Bonds included in the denominator must be unencumbered.

5 LEVERAGE RATIO

The years preceding the crisis were characterised by a significant build-up in credit institutions' leverage. The losses made during the crisis forced credit institutions to reduce significantly the extent of their leverage in a short period. This process adversely impacted the availability of credit to the real economy and further compounded the adverse effects of the crisis.

The risk-based minimum capital requirements of the CRD are essential to ensure the closer alignment of regulatory capital with the underlying risk. However, risk-based capital requirements alone are not able to prevent institutions from taking on excessive leverage. As a result, the European Commission, in line with the relevant proposals of the Basel Committee, considers that a leverage ratio is required to supplement risk-based minimum capital requirements by:

- measuring leverage in a way that facilitates meaningful comparison across jurisdictions; and

- acting as a potential constraint on excessive growth in credit institutions' on- and off-balance-sheet assets.

The ratio considered by the European Commission is calculated as the ratio of regulatory

capital to total on- and off-balance-sheet assets of a credit institution. The above aggregates will be adjusted for accounting differences across countries. As in calculating leverage it is useful to associate the size of assets with the credit institution's loss-absorbing capacity, the European Commission also seeks alternative regulatory capital measures. While the European Commission proposes, in principle, the use of either Core Tier 1 capital or Tier 1 capital, it does not rule out the use of Tier 1 plus Tier 2 capital. The final decision will depend on the evaluation of the results of the relevant QIS.

GLOSSARY

Accumulated provisions: amounts set aside in order to cover expected losses on assets (mainly on the loan book). Accumulated provisions for credit risk at the end of a period are equal to accumulated provisions at the beginning of the period plus impairment losses (according to International Financial Reporting Standards – IFRS – terminology), less the amount of write-offs/write-downs for this period.

Available-for-sale financial assets: mainly equity securities and bonds/debentures and, secondarily, loans, designated as at fair value; unrealised gains and losses are recognised in equity, while realised gains and losses are recognised in operating results.

Basel II: Basel II is the existing framework for the supervision of the international financial and banking system. It succeeded the Basel I framework and is aimed at ensuring a more comprehensive and more precise measurement of the risks assumed by credit institutions and at better aligning capital requirements with these risks. It consists of three pillars. Pillar 1 refers to the calculation of capital requirements, improving the method of their calculation for credit risk and first introducing capital requirements for operational risk. Pillar 2 concerns the supervisory assessment procedure, where all the credit risks assumed by a credit institution, including those not quantified under Pillar 1, are assessed by qualitative criteria. Finally, Pillar 3 aims at ensuring market discipline by requiring the disclosure of data for the information of credit institutions' shareholders and counterparties.

Capital adequacy ratio (CAR): it measures banks' capacity to absorb expected and unexpected losses on their assets. It is calculated as regulatory own funds divided by risk-weighted assets.

Capital buffer: it is defined as regulatory own funds less the amount required to meet the minimum capital adequacy ratio (namely 8%). Consequently, the higher the capital buffer, the more able a bank is to absorb unexpected losses.

Central counterparty: an entity that interposes itself as the buyer to every seller and as the seller to every buyer for transactions in securities. Clearing through a central counterparty reduces counterparty risk.

Compulsory liquidity ratios: the compulsory liquidity ratios are the liquid asset ratio and the mismatch ratio. These ratios were introduced by Bank of Greece Governor's Act 2560/1 April 2005.

Concentration ratio: the concentration ratio of a sector is usually measured either on the basis of the aggregate market share of a specified number (N) of enterprises in the total assets of the sector's enterprises (CR-N) or on the basis of the Herfindahl-Hirschmann index (HHI).

Contagion risk: the risk that a disturbance occurring in an enterprise/sector/market/country will spread to other enterprises/sectors/markets/countries through their interlinkages.

Core capital or Tier 1 capital: it comprises shareholders' equity, paid-in surplus, reserves, profit and loss carried forward, asset valuation differences and hybrid securities. Capital gains from acquisitions and certain other items, as defined in Bank of Greece Governor's Act 2587/20 August 2007, are deducted from the sum of the above.

Coverage ratio: it is defined as accumulated provisions for credit risk to total non-performing loans (NPLs). This ratio is an indication of a credit institution's ability to cover potential losses from the non-servicing of NPLs.

Covered bonds: covered bonds are dually secured bonds, as investors on the one hand have a preferential claim to the assets of the "cover" pool, which mainly consists of mortgage loans and government securities, and on the other hand rank pari passu with senior debt holders against the remaining property of the issuer, for any claims that are not satisfied by the assets included in the "cover" pool.

Credit default swaps (CDSs): derivative products that are associated with the credit risk of underlying assets (usually bonds and loans) and serve as a kind of security for the buyer of such products, since the seller of the product undertakes, in exchange for a premium, to compensate the buyer in the event that the underlying asset's issuer defaults. These agreements allow the transfer of credit risk of a reference asset from one party to the other without transferring title to the asset.

Credit rating: an assessment of the borrower's creditworthiness, namely its ability to repay debt. It is assessed by credit rating agencies and is based on the borrower's credit history and financial condition.

Credit risk: the risk of loss due to default by a debtor (bond issuer or borrower).

Debt-to-equity ratio: it is defined as the ratio of a firm's total debt to shareholders' equity.

Default risk: the risk of the counterparty defaulting on its obligations.

Defaulted loans: loans which banks consider it almost certain that the borrowers will not be able to service.

Doubtful loans: loans for which collection in full is improbable.

Emerging Europe: for the purposes of this report, Emerging Europe is defined as comprising Albania, Bulgaria, FYROM, Poland, Romania, Serbia, Turkey and Ukraine.

EONIA (euro overnight index average): it is calculated as a weighted average of the interest rates on unsecured overnight lending transactions denominated in euro, as reported by a panel of contributing banks.

EONIA swap rate: interest rate agreed on an overnight indexed swap, which remains fixed throughout the duration of the agreement (e.g. three months). On the basis of this interest rate, a party pays interest on a specified amount and, in return, the counterparty makes interest payments on the same amount at the interbank overnight market rate (EONIA), compounded on a daily basis over the duration of the agreement.

Euribor (euro interbank offered rate): a reference interest rate for interbank market operations at which a prime bank is willing to lend funds in euro to another prime bank. It is computed on a daily basis (for interbank deposits with different maturities of up to 12 months), as the average of the daily offer rates of a representative panel of prime banks for operations conducted in the euro area interbank market for unsecured loans.

Expected loss (EL): the average loss a bank expects to sustain on a given asset within a given period (typically one year).

Foreign exchange risk: the risk of valuation losses on a foreign currency investment or placement due to unfavourable changes in exchange rates.

Funding liquidity risk: the potential failure of a credit institution to find the funds required to meet its obligations as they fall due without incurring excessive losses.

Held-to-maturity portfolio: it includes non-derivative financial assets with fixed or determinable payments and fixed maturity that banks have the positive intention and ability to hold to maturity.

Herfindahl-Hirschmann Index (HHI): it measures the concentration ratio of a sector and is calculated as the sum of the squares of the market shares of all firms in the sector. Index values range from 0 to 10,000. A level lower than 1,000 suggests low concentration, from 1,000 to 1,800 moderate concentration and over 1,800 high concentration.

Household debt servicing ratio: it is defined as households' debt servicing costs to disposable income.

Household debt-to-income ratio: it is defined as households' debt to disposable income.

Hybrid capital: hybrid capital is usually preference shares issued by banks and included in core capital, provided that they meet the conditions of Administration's Circular 21/2004. Hybrid instruments are recognised by the supervisory authorities up to a percentage of core capital, in the case of Greece by Bank of Greece Governor's Act 2587/2007. Hybrid capital combines features of bonds and shares, and issuers usually pay to investors a fixed yield instead of a dividend. Moreover, in the event of a bank's winding-up and liquidation, hybrid capital holders rank ahead of shareholders and after bondholders.

Impairment loss: the amount by which the carrying value exceeds an asset's fair value (provision for risk).

Interest coverage ratio: it is used to determine how easily a company can pay interest expenses on outstanding debt. The ratio is calculated by dividing a company's earnings before interest and taxes (EBIT) by the company's interest expenses for the same period.

Interest rate risk: the risk that an asset's value will change due to a change in the absolute level of interest rates.

Interest rate spread: it is defined as the difference between lending and deposit rates.

Large exposure: a net exposure exceeding 10% of a credit institution's regulatory own funds. (Gross) exposure includes a bank's total exposure to a customer, namely loans, bonds, letters of guarantee, shares, etc. Net exposure is calculated by subtracting a fixed amount from gross exposure, according to Bank of Greece Governor's Act 2246/16 September 1993.

Leverage ratio: it is defined as the ratio of assets to equity.

Liquid assets ratio: it is calculated as the quotient of liquid assets (cash assets and claims on credit institutions) with a maturity of up to 30 days and readily realisable assets to total borrowed

funds with a maturity of up to one year. According to Bank of Greece Governor's Act 2614/7 April 2009, the regulatory minimum is 20%.

Liquidity buffer: liquid or readily realisable assets (as defined in Bank of Greece Governor's Act 2614/7 April 2009) held by a credit institution and enabling it to meet unexpected liquidity requirements in situations of stress.

Liquidity risk: the potential failure of a credit institution to meet its obligations as they fall due without incurring excessive losses. Liquidity risk is distinguished into funding liquidity risk and market liquidity risk.

Loans and receivables: they include financial assets with fixed payments that are not quoted in an active market. Derivative financial products are not included.

Loan-to-deposit ratio: it is defined as the ratio of the total outstanding balance of loans to the total balance of customers' deposits.

Loan-to-value (LTV) ratio: the amount of the outstanding mortgage divided by the appraised value of the property. It indicates the extent to which the bank's claim on the borrower is secured by collateral. It is calculated either upon approval of a mortgage loan or during its servicing.

Loss given default (LGD): the loss incurred by a bank due to a debtor's default, expressed as a percentage of total exposure. It is calculated by subtracting the amount recovered by the bank from the use and/or sale of collateral.

Macro-prudential supervision: systematic monitoring of structural features and conjunctural trends (a) in the financial system as a whole and its main subsets; (b) in the rest of the economy and its main subsets; and (c) in the channels connecting the financial system with the rest of the economy.

Main refinancing operations: regular, liquidity-providing reverse transactions with a weekly frequency and maturity of one week. They are conducted by the National Central Banks on the basis of weekly standard tenders and according to a pre-specified calendar. Main refinancing operations are the most important among open market operations, as they signal the monetary policy stance and contribute to steering short-term interest rates in the euro area.

Marginal lending facility: a standing facility of the Eurosystem which counterparties may use to receive overnight credit from an NCB at a pre-specified interest rate against eligible assets.

Market liquidity risk: the risk that a credit institution will be unable to unwind a position without significantly lowering market prices.

Market risk: the potential loss from variations in the market valuations of financial assets, e.g. bonds, shares, including off-balance-sheet instruments. In the case of banks, for supervisory purposes, the monitoring of market risk is focused on assets included in trading books.

Micro-prudential supervision: it focuses on individual supervised institutions, such as banks, insurance companies firms, etc., as opposed to macro-prudential supervision, which covers the financial system as a whole.

Mismatch ratio: it measures the ability of a credit institution to cover short-term obligations as they fall due and are not renewed. It is defined as the ratio of assets net of liabilities with a maturity of up to 30 days to total borrowed funds with a maturity of up to one year. According to Bank of Greece Governor's Act 2614/7 April 2009, the regulatory minimum is -20%.

Non-performing loans (NPLs): for supervisory purposes, "non-performing loans" are considered those that are more than 90 days past due (i.e. where the repayment of interest and/or principal has been partly or wholly delayed for more than 90 days). In order to calculate the level of these loans, total outstanding debt (not just the overdue amount) is taken into account.

Operational risk: the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events, including legal risk.

Probability of default: the probability of a borrower defaulting on its contractual obligations.

Pro-cyclicality of the financial system: the dynamic interaction between the financial and the real sector of the economy which tends to amplify the normal fluctuations of the business cycle.

Ratio of non-performing loans (NPLs) net of provisions to regulatory capital: it shows the degree to which a bank's own funds will be affected if additional provisions are required to cover the loss from NPLs. It is defined as the ratio of NPLs net of accumulated provisions for credit risk to regulatory capital. High values suggest inadequate provisions.

Real time gross settlement system (RTGS): a settlement system in which processing and settlement take place on an order-by-order basis (without netting) in real time, subject to sufficient liquidity in the counterparty's settlement account, where liquidity is equal to the balance of the settlement account plus any credit available under the intraday credit facility.

Regulatory own funds: regulatory own funds are credit institutions' liabilities that are recognised by the Bank of Greece as core capital in the calculation of capital adequacy. Most of equity items are included, as well as some of the debt obligations of credit institutions that fulfil specific criteria (see Bank of Greece Governor's Act 2587/20 August 2007). Regulatory own funds are divided into core capital and supplementary capital.

Return on assets (ROA): a measure of how profitable a bank is in relation to its total assets; it is defined as the ratio of (pre- or after-tax) profits to average annual assets.

Return on equity (ROE): a measure of how profitably a bank employs its equity; it is defined as the ratio of (pre- or after-tax) profits to average annual shareholder's equity.

Return on risk-weighted assets: it is a measure of how profitably a bank employs its assets in relation to the risks stemming therefrom. It is calculated as a supplement to ROA and is defined as the ratio of (pre- or after-tax) profits to average annual risk-weighted assets.

Risk-weighted assets (RWA): a credit institution's assets adjusted for risk, on which capital requirements are calculated at specific percentages. Weighted assets and capital requirements are calculated in accordance with Bank of Greece Governor's Acts 2588, 2589, 2590 and 2591/20 August 2007.

Securitisation: a financing instrument, particularly for credit institutions and insurance firms, through the transfer (sale) of claims that generate financial flows. Securitisation is implemented by pooling financial assets and their financial flows and then selling them to investors in the form of securities through a special purpose vehicle independent from the originator.

Single euro payment area (SEPA): SEPA will allow customers to make non-cash euro payments to any beneficiary located anywhere in the euro area using a single bank account and a single set of payment instruments. All retail payments in euro will thereby become "domestic".

Solvency II: the regulatory framework "Solvency II" introduces risk-based capital requirements to be taken into account by life and casualty insurers and reinsurers. It has three pillars: Pillar 1 considers key quantitative requirements with a view to ensuring the solvency of insurance firms in relation to the real risks faced. Pillar 2 includes an effective risk management system and a supervisory review process, while Pillar 3 lays down disclosure and transparency requirements, allowing for more effective supervision of the insurance market and stronger consumer protection. The "Solvency II" framework will be transposed into Greek law by the end of October 2012.

Solvency ratio: it measures the capacity of insurance firms' funds to absorb substantial unforeseeable losses, with a view to ensuring the payment of their debt obligations to the insured, according to the "Solvency II" Directive, which will mandatorily come into effect at end-October 2012. The ratio covers all risks assumed by an insurance company (insurance, market, credit and operational risk), taking into account all risk hedging techniques in place. It is calculated with the VaR approach and has a confidence level of 99.5% for over one year.

Subordinated debt: debt which ranks after senior debt should a company go into receivership.

Supplementary capital/Tier 2 capital: it includes regulatory capital items which may compensate for losses in the event of a bank's winding-up and liquidation, since supplementary capital holders rank after all other creditors of the bank. It includes, inter alia, revaluation reserves, subordinated debt and cumulative preference shares.

Systemic risk: the risk of a shock that affects a financial institution or a market spreading across the financial system through their interactions, thus threatening the stability of the financial system as a whole.

TARGET (Trans-European Automated Real-time Gross settlement Express Transfer system): a payment system comprising a number of national real-time gross settlement systems (RTGS) and the ECB payment mechanism (EPM). The interconnection of the national RTGS systems and the EPM provided a mechanism for the processing of euro payments in euro area and non-euro area EU Member States. The TARGET system operated from 1999 to November 2007, when it was replaced by TARGET2.

TARGET2: a payment system, successor to TARGET, designed to offer a harmonised level of services on the basis of a single shared platform, through which all transactions are settled in the same way. TARGET2 was launched in November 2007. The Greek component of this system is TARGET2-GR.

Tier 1 ratio: it is defined as core capital to risk-weighted assets.

Trading book: it comprises total positions in financial instruments (e.g. bonds, shares, etc.) and commodities held for trading or for hedging risks inherent in other assets of the trading book.

Value at risk (VaR): the maximum loss on a portfolio of assets within a given period at a given level of probability.

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