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Greek Banking

From the Pre-Euro Reforms to the Financial Crisis and Beyond

Fotios Pasiouras

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To my wife Hara, my daughter Katerina, my parents Kleanthis and Katerina, and my sister Eleftheria

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Preface

Two main reasons lie behind the writing of this. First, over the last 20 years or so, the Greek banking sector has witnessed fundamental changes. These include technological improvements, mergers and acquisitions, internationalization, deregulation, entry into the eurozone and considerable growth. There is no question that these important developments merit a comprehensive discussion. Further to this, Greek banks have recently found themselves at the heart of the financial crisis and have made headlines around the globe. This brings us to the second reason for writing this book, which is the discussion of one of the most difficult and most challenging periods for the Greek banking sector. Following a period of growth and very high levels of profitability, Greek banks found themselves battling with a cut in Greek bonds, a considerable decrease in demand in the local market and a sharp increase in non-performing loans. Naturally, this generates a number of questions such as: what are the characteristics of the Greek banking system? Is it able to survive the crisis? What lies ahead? The present book answers such questions by providing a detailed discussion of the Greek banking system from the mid-1990s up to the end of 2011. The main features of the text are outlined below.

Chapter 1 provides an overview of the Greek banking sector, discussing issues such as its importance, its structure, the expansion of the branch network and the acquisition and internationalization activity of the last 15 years.

Banks do not operate in a vacuum. Therefore, before discussing their performance and the risks that they take, it is important to consider the environment in which they operate. This is accomplished in Chapters 2 to 5. Chapter 2 discusses the economic and institutional environment in Greece. The first sections of this chapter provide a discussion of basic macroeconomic indicators such as gross domestic product (GDP), inflation, unemployment and government debt in comparison to the EU since the mid-1990s. Then, the discussion moves to indicators of institutional development such as regulatory quality and corruption, as well as to the 'business' environment. Banks are not the only players in the financial sector. Chapter 3 provides a discussion of the non-banking financial institutions (e.g., insurance, mutual funds) and the money and capital markets (e.g., bonds, stock exchange). Chapter 4 begins

with a discussion of the two central banks that influence the operations of the Greek financial institutions, namely the Bank of Greece and the European Central Bank (ECB). Then, it discusses the policy responses of central banks and European governments to the financial crisis. These policy initiatives include, among others, the ECB's 'enhanced credit support' measures, the private sector involvement programme (PSI), the European stabilization mechanism, financial assistance from the eurozone and the IMF, etc. Chapter 5 provides a discussion of the supervisory framework, in terms of licensing, the activities of credit institutions, capital requirements, reporting and transparency, supervisory power, liquidity requirements, provision, money laundering and the financing of terrorism, and the deposit insurance scheme.

Chapter 6 focuses on retail banking. It starts with a discussion of the use of ATMs and point of sales, the relative importance of the various means of payment, and the financial card market. It then provides an overview of lending activity, while distinguishing between loans for consumer credit, loans for house purchasing, other household lending, and loans to non-financial corporations. The discussion is accompanied by numerous figures and tables that provide comparisons of the Greek banking sector with the European one. The chapter closes with a reference to the deposits market, as well as the loan and deposit interest rates.

The performance of banks is of paramount importance to bank managers, policy-makers and the general public. The first section of Chapter 7 discusses the main indicators of performance while comparing commercial banks in Greece with institutions operating in other EU countries, as well as in the USA. The second section provides a more detailed discussion of the figures of the commercial banks in Greece, by disaggregating the data, and by revealing the main developments on a yearly basis. The third and the fourth sections focus on cooperative banks. The fifth section discusses the findings of empirical studies on the efficiency and profitability of Greek banks.

Risk is an integral part of the banking sector that can be an important source of profitability and shareholder value. The first three sections of Chapter 8 cover the main types of risk discussed in Basel II, namely credit risk, market risk and operational risk. The fourth section discusses the capital adequacy of Greek banks – in other words, the funds that are required for covering the banking system's aforementioned types of risk. The fifth section discusses the liquidity risk of Greek banks. The importance of liquidity became apparent during the recent crisis, and it will be a major addition in the new regulatory framework, namely Basel III. While the first five sections cover developments in

the commercial banking sector, the last section focuses on cooperative banks in Greece.

Chapter 9 outlines various issues related to corporate governance in banking. The discussion starts with a reference to recommendations at an international level, such as the Walker report for the UK, the European Union's directives and the principles of the Basel Committee on Banking Supervision. The discussion that follows outlines the corporate governance framework and laws that are applicable in the case of Greek banks, along with an overview of the main governance characteristics of the major banks in Greece.

Finally, Chapter 10 discusses various developments during 2011, including the financial performance of banks, the results of stress testing, the resolution of credit institutions and credit rating downgrades. This chapter closes with a discussion of the future challenges for the Greek banking sector owing to the exposure of Greek banks to government bonds, the negative developments in the macroeconomic environment and the intention to adopt the new regulatory framework.

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FOTIOS PASIOURAS

List of Abbreviations

AC	Audit Committee
AML	Anti-Money Laundering
ASE	Athens Stock Exchange
ATEbank	Agricultural Bank of Greece
BCBS	Basel Committee on Banking Supervision
BCC	Banking and Credit Committee
BFSR	Bank Financial Strength Rating
BIR	Bank Individual Rating
BoE	Bank of England
BoG	Bank of Greece
CAR	Capital Adequacy Ratio
CEBS	Committee of European Banking Supervisors
CEO	Chief Executive Officer
CET1	Common Equity Tier 1
CFT	Combating the Financing of Terrorism
CGQ	Corporate Governance Quotient
CONC5	Concentration of Five Largest Banks
CRD	Capital Requirements Directive
CRO	Chief Risk Officer
CRR	Capital Requirements Regulation
CU	Compliance Unit
DEA	Data Envelopment Analysis
DOPIS	Department of Private Insurance Supervision
EBA	European Banking Authority
EC	European Commission
ECB	European Central Bank
ECOFIN	European Union's Economic and Financial Affairs Council
EDP	Excessive Deficit Procedure

EFG	EFG Eurobank Ergasias SA
EFSF	European Financial Stability Facility
EFSM	European Financial Stabilization Mechanism
EQAS	Equity to Total Assets
ESCB	European System of Central Banks
ESRB	European Systemic Risk Board
ETBA	Hellenic Industrial Development Bank
ETEBA	National Investment Bank for Industrial Development
EU	European Union
FATF	Financial Action Task Force
FSA	Financial Services Authority
FYROM	Former Yugoslav Republic of Macedonia
GDP	Gross Domestic Product
GGB	Greek Government Bond
GMM	Generalized Methods of Moments
HCMC	Hellenic Capital Markets Committee
HDAT	Electronic Secondary Securities Market
HDGF	Hellenic Deposit Guarantee Fund
HDIGF	Hellenic Deposit and Investment Guarantee Fund
HFSF	Hellenic Financial Stability Fund
HI	Herfindahl Index
HICP	Harmonized Index of Consumer Price
IAU	Internal Audit Unit
IEF	Index of Economic Freedom
IMF	International Monetary Fund
IT	Information Technology
LLP	Loan Loss Provisions
M&As	Mergers and Acquisitions
MFI	Monetary Financial Institution
MMQ	Manufacturing, Mining and Quarrying
NBG	National Bank of Greece

NCBs	European National Central Banks
NED	Non-executive Director
NPL	Non-performing Loans
NSFR	Net Stable Funding Ratio
OAED	Manpower Employment Agency
OECD	Organisation for Economic Co-operation and Development
PISC	Private Insurance Supervisory Committee
POS	Points of Sale
PSI	Private Sector Involvement
QIS	Quantitative Impact Study
RMC	Risk Management Committee
RMU	Risk Management Unit
ROA	Return on Assets
ROE	Return on Equity
SCP	Structure-Conduct-Performance
SEV	Hellenic Federation of Enterprises
SFA	Stochastic Frontier Analysis
SME	Small–medium Enterprise
SMP	Securities Markets Programme
TEMPTE	Credit Guarantee Fund for Small and Very Small Enterprises
TFP	Total Factor Productivity
VaR	Value at Risk
WGI	Worldwide Governance Indicators

NCBs	European National Central Banks
NED	Non-executive Director
NPL	Non-performing Loans
NSFR	Net Stable Funding Ratio
OAED	Manpower Employment Agency
OECD	Organisation for Economic Co-operation and Development
PISC	Private Insurance Supervisory Committee
POS	Points of Sale
PSI	Private Sector Involvement
QIS	Quantitative Impact Study
RMC	Risk Management Committee
RMU	Risk Management Unit
ROA	Return on Assets
ROE	Return on Equity
SCP	Structure-Conduct-Performance
SEV	Hellenic Federation of Enterprises
SFA	Stochastic Frontier Analysis
SME	Small–medium Enterprise
SMP	Securities Markets Programme
TEMPTE	Credit Guarantee Fund for Small and Very Small Enterprises
TFP	Total Factor Productivity
VaR	Value at Risk
WGI	Worldwide Governance Indicators

1
Overview of the Greek Banking Sector

1.1 Introduction

Until the 1980s the Greek banking industry was characterized by various restrictions and administrative regulations, with extensive government intervention influencing the pricing, volume and allocation of financial resources, all contributing to a low degree of competition and poor competitiveness.[1] However, in an attempt to keep up with developments in the financial industry worldwide, to incorporate EU regulations into its banking legislation and to enhance the competitiveness of banks, Greece introduced a number of initiatives. As mentioned in Hondroyiannis *et al.* (1999), the deregulation began in the early 1980s with an aim to set the foundations for the conduct of quasi-independent monetary policy and the rationalization of the credit market. This was followed by the extensive liberalization of the late 1980s and early 1990s, a period characterized by: (i) the implementation of the EC Council Directives, (ii) the lifting of foreign exchange controls on current transactions and capital movements, (iii) the liberalization of interest rates, (iv) the abolition of direct credit controls, (v) the de-specialization of credit institutions, (vi) the licence to offer new products, (vii) the allowance to use financial derivatives and (viii) the freedom to provide cross-border financial services within the EU.

To respond to these changes in their operating environment, Greek banks expanded their services into various areas (e.g., real estate, insurance), and they increased their off-balance sheet operations and non-interest income. Moreover, over the years they expanded and modernized their distribution networks, they invested in communication and computing technology and they upgraded their credit risk measurement and management systems. The industry was also

restructured through a wave of mergers and acquisitions (M&As) aiming to strengthen the position of banks in the domestic market and provide them with a critical size to operate in the single EU market. Additionally, some banks, mainly the big ones, strengthened their position abroad via acquisitions, branches, joint ventures and strategic alliances with foreign banks.

This chapter starts with the discussion of the main structural features of the banking sector, such as its size, numbers and types of banks, concentration and the expansion of the branch network. The last two sections discuss the acquisition and internationalization activity of Greek banks.

1.2 Structural features of the Greek banking sector

The size of the banking sector

The depth of bank intermediation in Greece has developed considerably over the last 15 years. This is reflected in the ratio of the total assets of credit institutions to GDP, accounting for 206.38 per cent in 2009 compared with 107.03 per cent in 1997. Yet, this figure remains considerably lower than the 2009 average for the EU-15 countries (494.53 per cent). Even when we exclude three countries that stand out in this respect (Luxembourg: 2118.37 per cent, Ireland: 809.32 per cent, UK: 602.68 per cent), the 2009 average of the remaining 12 member states (323.97 per cent) remains much higher than that of Greece (Figure 1.1).

Figure 1.2 presents the ratio of a country's stock market capitalization relative to the total assets of credit institutions in the same country, which is an indicator of whether the financial system is bank-based or market-based. In the case of Greece, this ratio reached its peak in 1999 (118 per cent) when the stock market witnessed considerable growth. The average over the period 1997–2009 is considerably lower, standing at 46 per cent, compared with an EU-15 average of 70 per cent.

Numbers and types of banks

Between 1997 and 2009, almost all countries experienced a large decrease in the number of credit institutions. In total, the number of credit institutions operating in the EU-15 dropped from 9,624 in 1997 to 6,961 in 2009, representing a decrease of 27.67 per cent. The average decrease was equal to 18.77 per cent. Excluding Ireland, where a reclassification of 419 credit unions as credit institutions took place in 2009, results in even higher figures, being 32.85 per cent and 22.85 per cent, respectively. The highest reductions were recorded in the Netherlands

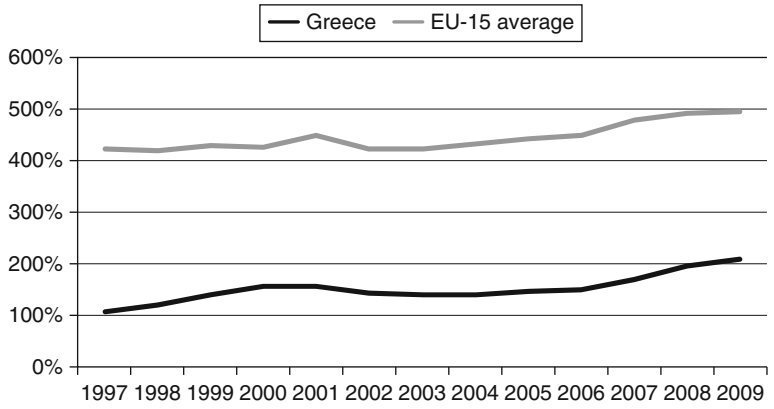

Figure 1.1 Total assets of credit institutions (% GDP)
Source: Based on data from various ECB reports on EU banking structure.

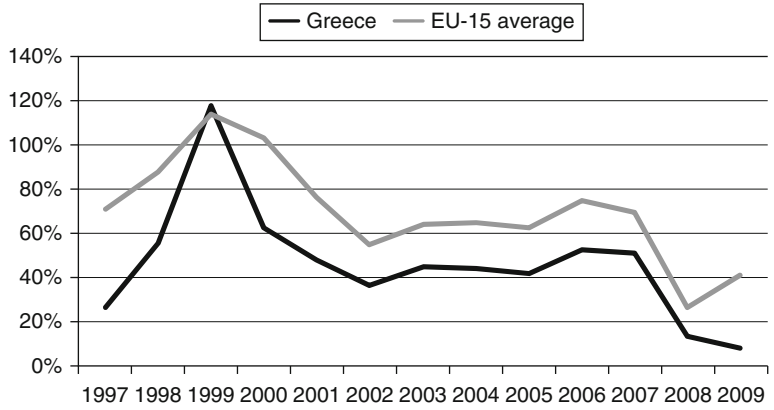

Figure 1.2 Stock market capitalization to total assets of credit institutions (%)
Source: Based on data from various ECB reports on EU banking structure and World Bank Development Indicators.

(54.48 per cent), France (43.40 per cent) and Germany (43.04 per cent). In contrast, over the same period Greece reported an increase of 20 per cent in the number of credit institutions (Table 1.1).

Data from the July 2010 Financial Stability Report of the Bank of Greece indicate that, at the end of 2009, credit institutions in Greece (domestic, foreign and cooperative banks) accounted for 87.4 per cent

Table 1.1 Number of credit institutions, 1997–2009

	Average 1997–2009	% Change 1997–2009
Austria	834	–14.87
Belgium	111	–20.61
Denmark	196	–23.00
Finland	357	0.29
France	965	–43.40
Germany	2443	–43.04
Greece	61	20.00
Ireland	112	601.41
Italy	837	–11.88
Luxembourg	177	–31.63
Netherlands	478	–54.48
Portugal	200	–30.25
Spain	367	–15.38
Sweden	204	–24.05
UK	442	–27.56

Source: Based on various ECB reports on EU banking structure.

of the total assets of the entire financial system, followed by institutional investors (e.g., insurance firms, social security organizations) with 10 per cent and other financial intermediaries (e.g., leasing, factoring, etc.) with 2.6 per cent.

Concentrating on credit institutions, the data show that the domestic ones had a market share of 79.8 per cent at the end of 2009. Branches of foreign banks operating in Greece do not seem to be major competitors for domestic credit institutions. At the end of 2009 foreign credit institutions from EU countries had a share of 6.7 per cent, while the corresponding figure for non-EU credit institutions was 0.2 per cent. The sector of cooperative banks has grown over recent years, and it currently consists of 16 institutions, a remarkable 300 per cent increase from the four cooperative banks in 1994 (the first year of their effective operation). However, the market share of cooperative banks remains very low, accounting for just 0.8 per cent of the total assets at the end of 2009. The aforementioned figures have not changed much over the last 15 years, with domestic commercial banks always being the dominant player in the market.

Market concentration

Measured by the market share of the five largest credit institutions in terms of total assets (CONC5), the degree of concentration of the Greek

banking system recorded an increase of 23.57 per cent, from 56 per cent in 1997 to 69.2 per cent in 2009. To a large extent this phenomenon has been attributed to numerous M&As over this period. However, this increase in concentration is in line with the average change in the EU-15 over the period 1997–2009 that was equal to 24.77 per cent. With the exception of Austria (–15.45 per cent), Denmark (–8.57 per cent) and Finland (–6.14 per cent), which showed a decline in concentration, all the other countries recorded positive changes ranging from 4.66 per cent (Sweden) to 70 per cent (UK). Looking at the averages over the entire period, the five more concentrated banking systems were the Netherlands (83.47 per cent), Finland (83.14 per cent), Belgium (77.47 per cent), Denmark (66.65 per cent) and Greece (66.82 per cent), all being well above the EU-15 mean of 52.05 per cent (Table 1.2).

The advantage of the CONC5 is that it is very easy to calculate, making it one of the most popular indices in the literature. However, one of its drawbacks is that it does not consider the size distribution of the remaining credit institutions in the market. Another measure of market concentration is the Herfindahl Index (HI), calculated as the sum of the squares of all the credit institutions' market shares in terms of total

Table 1.2 Concentration of five largest banks and Herfindahl Index

	CONC5		**Herfindahl**	
	Average, 1997–2009	**% Change 1997–2009**	**Average, 1997–2009**	**% Change 1997–2009**
Austria	42.79	–15.45	528.15	–19.61
Belgium	77.47	42.78	1,694.15	132.05
Denmark	66.65	–8.57	1,179.69	–27.18
Finland	83.14	–6.14	2,444.62	45.12
France	46.80	18.00	601.92	34.74
Germany	20.98	47.06	164.77	80.70
Greece	65.82	23.57	1,098.69	33.79
Ireland	46.25	43.41	598.46	76.20
Italy	27.96	36.00	253.54	75.62
Luxembourg	27.89	20.87	272.92	37.14
Netherlands	83.47	7.59	1,816.62	22.85
Portugal	60.55	52.39	959.15	100.00
Spain	41.39	35.31	470.08	77.89
Sweden	57.27	4.66	836.23	8.31
UK	32.36	70.00	336.62	124.52
Average EU-15	52.05	24.77	883.71	53.48

Source: Based on various ECB reports on EU banking structure.

assets. Thus, its advantage over CONC5 is that it considers the market position of all credit institutions in the sector. Theoretically, the index can take values between zero (i.e., a large number of credit institutions with very small market shares) and 10,000 (i.e., monopolist). However, as a general rule, an index below 1,000 indicates low concentration, an index above 1,800 reveals high concentration, while values between 1,000 and 1,800 indicate a moderately concentrated industry.[2] The HI of the Greek banking sector at the end of 2009 was 1,099, compared with 885 in 1997. The corresponding EU-15 average figures were 985 and 714. Looking at the average HI over the period 1997–2009, Finland (2,445) and the Netherlands (1,817) fall in the low-concentration zone, whereas Belgium (1,694), Denmark (1,180) and Greece (1,099) fall in the moderate-concentration zone. The remaining countries have average figures below 1,000, with Germany (165), the UK (337), Italy 254) and Luxembourg (273) being characterized by very low concentration.[3]

Trends in branch numbers and employment

Regarding branch networks, the number of branches in Greece increased considerably from 2,510 in 1997 to 4,078 in 2009. Over the same period, the picture for the EU-15 is mixed. Some countries, like Germany (–37.63 per cent), the Netherlands (–53.87 per cent) and the UK (–24.38 per cent), observed a large decline in the number of branches. However, this was offset by an increase in other countries like France (51.11 per cent), Portugal (35.48 per cent), Italy (32.94 per cent) and Ireland (30.36 per cent). As a result, the total number of branches in the EU-15 has not changed much over the period.[4]

Despite this considerable increase, the number of bank branches in Greece remains lower than the EU-15 average, when expressed relative to the population or to GDP (Table 1.3). Operating with an optimum branch network is crucial for Greek banks. On the one hand, branches offer the comparative advantage of proximity to customers, especially private individuals and small and medium-sized enterprises (SMEs). On the other hand, the maintenance of an extensive network is associated with higher operating costs. However, branches have changed over the years, as they tend to become smaller, with centralized back-up functions and more customer-oriented.[5]

The number of employees in Greece increased from 56,722 in 1997 to 65,673 in 2009, a percentage change of 16 per cent. With an average number of 1,000 employees per credit institution over the period 1997–2009, Greece stands second only to the UK (average: 1,137) within the EU-15. However, it should be mentioned that this ratio

Table 1.3 Number of branches relative to population and GDP

	Branches per 100,000 inhabitants		GDP per branch ratio	
	Greece	**EU-15 average**	**Greece**	**EU-15 average**
1997	23.29	44.92	42.67	51.09
1998	25.65	48.61	39.21	52.56
1999	26.19	48.48	41.35	57.11
2000	27.52	47.76	40.99	63.49
2001	28.62	46.21	42.04	66.48
2002	29.70	44.62	43.63	71.86
2003	29.94	43.56	46.71	75.51
2004	30.76	42.77	49.12	80.95
2005	31.91	42.52	55.14	87.34
2006	33.18	43.74	56.90	92.27
2007	34.40	44.19	58.81	95.66
2008	36.47	43.83	58.36	99.42
2009	36.14	43.23	58.24	86.92

Notes: The EU average for 1997 and 2009 does not include Belgium and Luxembourg.
Source: Based on various ECB reports on EU banking structure.

decreased slightly from 1,031 in 1997 to 995 in 2009, whereas over the same period countries like France, Luxembourg and the Netherlands recorded an increase of over 100 per cent. As a result of the considerable expansion of the branch network in Greece, the number of employees per branch also decreased by 28.74 per cent between 1997 and 2009 (Table 1.4).

1.3 Mergers and acquisitions (M&As)

M&A trends

Since the mid-1990s, the Greek banking sector has witnessed several M&As, as well as strategic alliances with foreign credit institutions. Starting in 1996, EFG Eurobank acquired Interbank, while in 1997 the two housing banks of the National Bank of Greece, namely National Mortgage Bank and National Housing bank, were merged. During the same year, Piraeus Bank acquired the network of Chase Manhattan in Greece.

The next two years resulted in an important restructuring of the Greek banking industry. In 1998, Piraeus Bank was involved in a series of deals, acquiring Macedonia-Thrace Bank, Xiosbank and Credit Lyonnais Greece. EFG Eurobank acquired another two banks (Athens

Table 1.4 Number of employees per credit institution and per branch

	Employees per credit institution		Employees per branch	
	Greece	**EU-15 average**	**Greece**	**EU-15 average**
1997	1031	363	23	17
1998	980	370	21	20
1999	1028	394	21	21
2000	1055	401	20	22
2001	977	422	19	24
2002	992	422	19	24
2003	1035	431	19	24
2004	957	430	17	25
2005	989	460	17	25
2006	1003	468	17	26
2007	1027	473	17	26
2008	1002	484	16	27
2009	995	427	16	21

Notes: The EU-15 average in the case of the number of employees per credit institution does not include: Ireland in 1997 and 1998, France in 2004 and 2009, Germany and Belgium in 2009. The EU-15 average for number of employees per branch does not include: Belgium in 1997 and 2009, France in 2004 and 2009, Germany in 2009, Ireland in 1997 and 1998, Luxembourg in 1997 and 2009.
Source: Based on various ECB reports on EU banking structure.

Bank, Cretabank), Egnatia Bank acquired the Bank of Central Greece, and the National Bank of Greece absorbed its subsidiary National Mortgage Bank. The year 1999 witnessed the acquisitions of Ergasias Bank by EFG Eurobank, Ionian Bank by Alpha Credit Bank, Dorian Bank by Telesis Brokerage Firm, and the Greek network of Natwest by Piraeus Bank. As mentioned in the annual report of the Bank of Greece for 2000, during that year the major Greek banks gave particular emphasis to completing, at operational level, the mergers and acquisitions which had taken place in the previous two years. This is a probably why no deals were completed in 2000.

The years that followed were characterized by deals with specialized non-bank financial institutions, internal restructurings and deals with foreign banks, rather than domestic M&As. For example, in 2001 Eurobank Ergasias acquired Telesis Investment Bank, Marfin Investment Firm acquired Piraeus Prime Bank and Piraeus Bank acquired the Hellenic Industrial Development Bank (i.e., ETBA). In 2002, merger activity in the Greek banking sector was again lower than that recorded over the period 1998–99, although the National Bank of Greece absorbed its

subsidiary National Investment Bank for Industrial Development (ETEBA) and Aspis Bank acquired ABN-AMRO's retail banking network and operations. Another important development was the acquisition of a qualifying holding of 17.2 per cent in the share capital of Attica Bank by Postal Savings Bank. In 2004, one of the most important developments was the acquisition of a majority share of 51 per cent of Geniki Bank by Societe Generale. Emporiki Bank also proceeded to a restructuring by absorbing four of its subsidiaries.

As discussed in more detail in the next section, over recent years all the large Greek banks have expanded their operations in the Balkans and Eastern European countries. While in some cases the Greek banks decided to enter the market by the establishment of branches and subsidiaries, in other cases they preferred to buy their entry through the acquisition of local banks. For example, in 2000 the National Bank of Greece acquired the United Bulgarian Bank, as well as a majority stake in Stopanska Bank (FYROM), while in 2003 it acquired Banca Romaneasca. Furthermore, Alpha Bank acquired a majority stake in Kreditna Bank (FYROM) in 1998, and became its sole shareholder by 2002. Piraeus Bank also acquired Pater Bank in Romania in 2000.

More recent acquisitions are those of the Serbian bank Jabanka by Alpha Bank and of Atlas Bank in Serbia by Piraeus, both in 2005. EFG Eurobank was very active in 2006, acquiring shares of over 70 per cent in Nacionalna štedionica – banka (Serbia), Tekfenbank (Turkey), Universal Bank (Ukraine) and DZI Bank (Bulgaria). During the same year, the National Bank of Greece acquired Vojvodanska Bank (Serbia), as well as a 46 per cent equity share of Finansbank (Turkey), a participation that increased to over 80 per cent in 2007. Another deal in 2007 was completed by Piraeus Bank with the acquisition of the International Commercial Bank in Ukraine.

Empirical evidence

Turning to the reasons for M&As in the Greek banking sector, the annual reports of the Bank of Greece for 1999 and 2001 highlight that the merger and acquisition activity was due to the need to: (i) increase bank size to allow the Greek banks to explore potential economies of scale in certain market segments, greater geographical expansion and easier access to international money and capital markets and (ii) achieve product and service diversification. In an empirical examination of the relationship between banks' performance and the likelihood of acquisition in the Greek banking industry over the period 1998–2002, Pasiouras and Zopounidis (2008) conclude that: (i) profitability and

expenses management, liquidity and capital strength do not seem to have an impact on acquisition likelihood, (ii) market share, the number of branches and the size of banks are negatively related to acquisition likelihood, providing support to the argument that Greek large banks have acquired smaller ones in an attempt to strengthen their position in the market, (iii) the annual growth of banks' total assets, and concentration of the five largest banks, are also negatively related to the probability of acquisition.

Other studies investigate the impact of M&As on Greek banks by examining the post-merger financial performance or the stock market abnormal returns around the merger announcement date. Mylonidis and Kelnikola (2005) follow both approaches over the period 1997–2002. They conclude that profit, operating efficiency and labour productivity ratios do not improve after merger; however, a comparison with the corresponding figures of non-merging banks (i.e., control group), indicates that merger activity has a positive impact on banks' operating performance. Further estimations, using an event study methodology, show that the shareholders of both targets and bidders earn abnormal returns. Using a sample from the period 1998–2007, Vergos and Christopoulos (2008) illustrate that the abnormal returns differ with bank ownership. More particularly, they find that the cumulative abnormal returns in the short run (0, 20 day) are positive when the target is a Greek bank, but negative when the target is a foreign bank. These results do not differ much when looking at longer periods. Liargovas and Repousis (2011) examine an overlapping period (1996–2009), but they follow both an event study approach and an operational performance approach. Their results can be summarized as follows. First, targets and bidders experience significant positive cumulative average abnormal returns before the announcement for a period of ten days. Second, cash deals generate higher abnormal returns than stock deals for the shareholders of the bidder. Third, there are significant positive cumulative average abnormal returns of horizontal and diversifying bank deals for targets' shareholders. Fourth, the overall result, calculated as the weighted average of gains to the bidder and target bank, indicates that bank mergers and acquisitions have no impact and do not create wealth. Fifth, operating performance, measured by financial ratios, does not improve after M&As.

There are also a few studies that measure performance using frontier techniques rather than financial ratios. Halkos and Salamouris (2004) examine the period 1997–99 to conclude that the results, as for the impact of M&As on efficiency, are mixed. However, a more recent

study by Rezitis (2008) finds that M&As exercise a negative impact on bank technical efficiency and total factor productivity growth over the period 1993–2004. Siriopoulos and Tziogkidis (2010) argue that one should examine M&As while accounting for other significant events like privatizations, regime changes, market crises, etc. Following such an approach over the period 1993–2005, they find that, in most cases, after significant events the efficiency of Greek banks declines, while a recovery period follows, leading to a greater efficiency score compared with the initial state within the next two to three years.

1.4 Internationalization of Greek banks

The first attempts of Greek banks to expand the scope of their activity outside Greek borders started in the 1960s. Karafolas (1986; 2006) distinguishes between two main periods. During the first period, lasting until the end of the 1980s, the main aim of Greek banks was to serve Greek immigrants abroad by collecting and transferring their savings; however, during the second period, beginning in the early 1990s, banks followed the bilateral trade relations and the investments of their customers in foreign countries.

In recent years, the internationalization undertaken by the most powerful Greek banks focused on the wider market of the Balkans (e.g., Bulgaria, Romania, FYROM, Albania, Serbia), adding to the previously limited international activities of the Greek banks in Cyprus and the main financial centres like the UK and the USA. Expansion into these countries took place mainly through takeovers of local credit institutions, establishment of branches and participation in joint ventures involving banks and/or financial companies (e.g., venture capital companies).

Table 1.5 presents the number of Greek banks operating abroad through either branches or subsidiaries, along with data on their personnel over the period 2002–9. It is evident that the number of both branches and personnel increased significantly over this period.

Data from a recent report of the Hellenic Bank Association (2010) indicate that the total assets of Greek subsidiaries and branches abroad at the end of 2009 were equal to 87.6 billion euros (see Table 1.6). It is worthwhile mentioning that the distribution of the invested total assets is quite uneven, with five countries accounting for over 80 per cent of the 87.6 billion euros, those being Turkey (21 per cent), Romania (20 per cent), Cyprus (14 per cent), UK (13 per cent) and Bulgaria (13 per cent). Data from the same report reveal the importance

Table 1.5 Network of Greek banks abroad, 2002–9

	Banks	Countries	Subsidiaries	Branches	Personnel
Panel A: Subsidiaries					
2002	6	13	22	324	6,736
2003	7	15	27	649	12,373
2004	7	15	27	615	12,741
2005	7	14	30	1,015	17,236
2006	6	13	33	1,859	29,377
2007	7	14	32	2,616	38,120
2008	7	13	34	3,170	44,277
2009	6	14	34	3,019	43,452
	Banks	**Countries**		**Branches**	**Personnel**
Panel B: Branches					
2002	7	14		48	811
2003	6	12		44	666
2004	6	13		66	942
2005	6	7		83	983
2006	6	7		146	1,452
2007	6	7		270	2,643
2008	6	7		383	4,414
2009	6	7		411	4,659

Sources: Various reports of the Hellenic Bank Association and author's calculations.

Table 1.6 Financial characteristics of Greek banks operating abroad

Country	Total assets million euros	Loans million euros	Deposits million euros	Market share %
Albania	1,774	1,452	1,031	25.86
Bulgaria	11,495	9,405	5,212	31.38
Cyprus	12,162	7,270	6,664	9.42
Egypt	1,487	771	1,171	1.10
FYROM	1,227	870	891	27.50
Germany	119	104	28	0.00
Poland	5,359	4,573	2,655	2.00
Romania	17,502	12,057	6,005	18.85
Serbia	4,609	3,214	1,869	17.8
South Africa	119	97	87	0.04
Turkey	18,368	13,287	9,553	4.06
UK	11,638	7,531	1,731	0.06
Ukraine	1,180	925	377	1.30
USA	579	390	506	0.00
Total	87,618	61,946	37,780	n.a.

Source: Based on data from Hellenic Bank Association (2010).

of Greek banks in the Balkan area with their cumulative end-2009 market share exceeding in some cases (e.g., Albania, Bulgaria) 20 per cent of the domestic market.

The managers of the divisions of international networks of the five largest Greek banking groups point out that among others the reasons that either motivated or forced their banks to expand to the Balkans area were (Hellenic Bank Association, 2003): (i) the decline in profit margins in the domestic market, (ii) a desire to follow their customers abroad, (iii) the knowledge of the economies of the Balkan countries, as a result of close commercial relationships over the years, (iv) increased opportunities offered by the expected economic development of these countries in the long term (i.e., the GDP in most of these countries is still relatively low), (v) opportunities offered by the expected development of the banking sectors in these countries, (vi) difficulties in expanding their banking activities to other developed countries (e.g., France, UK, Japan) due to the increased competition that Greek banks would face from large and, in a sense, 'global' banks that already operated in these markets. This is highlighted by the fact that even the group of National Bank of Greece, which is the biggest banking group in Greece, is significantly smaller, in terms of size, than the large banking groups operating in other European countries, not to mention the USA and Japan.

The empirical evidence on the internationalization of Greek banks is scarce, mainly focusing on the factors that influence the performance of the subsidiaries. For example, Kosmidou *et al*. (2005) examine the determinants of both size and profits of 13 subsidiaries of six Greek banks operating abroad over the period 1998–2001. They find that both the size and profits of the subsidiaries is related to the years of operation in the host country, the difference in the GDP growth between Greece and the host country, and the trade between the two countries. Furthermore, the size (profits) of the subsidiary is influenced by the parent bank's size (profits). In a later study that examines the period 1995–2001, Kosmidou *et al*. (2007) follow Williams (2003) to estimate an integrated model that considers both the multinational and domestic factors that may influence the profitability of bank subsidiaries. Their results show that years of operation in the host nation, size of the subsidiaries and profitability of the parent bank are the main determinants of profitability. Other factors, like bank liquidity, loan loss provisions, cost efficiency, market share of the subsidiary or parent bank's size, as well as market specific factors, such as concentration and stock market development, do not appear to matter.

1.5 Conclusions

In recent years, the Greek banking system has experienced important changes as a result of the deregulation, the establishment of the single EU market and the introduction of the euro. In response to these changes Greek banks engaged in mergers and acquisitions and the expanded their activities abroad. Sections 1.3 and 1.4 discussed both the trends and the empirical evidence related to these activities. This chapter also focused on the main structural features of the Greek banking sector, like the number and types of banks, concentration, the expansion of the branch network, etc. The aim was to provide an overview of the sector that will be useful in the discussion of other important changes that were introduced, such as the use of alternative distribution channels like ATMs and customer points of sale (Chapter 6) or improvements in risk management (Chapter 8).

2
Macroeconomic and Institutional Environment

2.1 Introduction

The operating environment can have a substantial impact on the performance and decision-making of banking institutions. The first sections of this chapter outline the developments in the basic macroeconomic indicators in Greece. Then the discussion moves on to the institutional framework and the 'doing business environment'. On several occasions, the data are summarized over three periods: (i) 1996–2000 (i.e., prior to the entry of Greece into the euro area), (ii) 2000–7 (i.e., the years prior to the crisis) and (iii) 2008–10 (i.e., the years of the crisis).

2.2 Basic macroeconomic indicators

Gross domestic product

The Greek economy was one of the fastest-growing economies in the EU-15 from 1996 to 2007, experiencing an average annual real GDP growth rate of 3.92 per cent. This marked this period as the longest period of continuing economic growth since the 1950s and 1960s.[1] The real GDP growth reached its peak of 5.9 per cent in 2003, before falling to 4.4 per cent in 2004 and 2.3 per cent in 2005. Furthermore, in each single year the growth rate of the Greek economy was higher than the corresponding EU-15 rate, with the difference ranging between 0.4 per cent (1999) and 4.8 per cent (2003). Figure 2.1 presents averages of the annual change in real GDP volume.

According to various annual reports of the Bank of Greece, the high GDP growth rates between 1996 and 2007 were mainly driven by an increase in domestic demand and in production capacity.[2] In particular, deregulation of the financial system in the 1990s and the entry of

Greece into the euro area resulted in a decline in borrowing costs, high credit expansion and, eventually, a rise in consumption, and both private and public investments. The improvement of business confidence in the economy's prospects, the increase in industrial production, the growth in the construction industry, the expansion of the services sector, an impressive change in manufacturing output and the utilization of resources from the 1st and the 2nd Commission's Structural Funds altogether played a significant role in altering economic activity over this period. Furthermore, it is worthwhile mentioning that during the second sub-period, 2001–7, the growth rate of the Greek economy increased at an even higher rate, despite the slowdown in the EU-15. This was, to a large extent, due to investments linked to the preparation for the 2004 Olympic Games, as well as other public infrastructure projects partly financed by EU capital inflows under the third Community Support Framework. Finally, the annual report of the Bank of Greece for 2006 also highlights the increase of Greek exports to the new markets of the South-eastern Europe.

In 2008, the real GDP growth fell to 1 per cent (EU-15: 0.2 per cent), from 4.3 per cent in 2007 (EU-15: 2.9 per cent). As mentioned in the annual report of the Bank of Greece for 2008, during this year the change in domestic demand turned out to be negative, and the rise in GDP was mostly driven by the improved real external balance of goods and services along with a significant inventory accumulation. In 2009, despite being in a better position that the EU-15 (real GDP annual change: –4.4

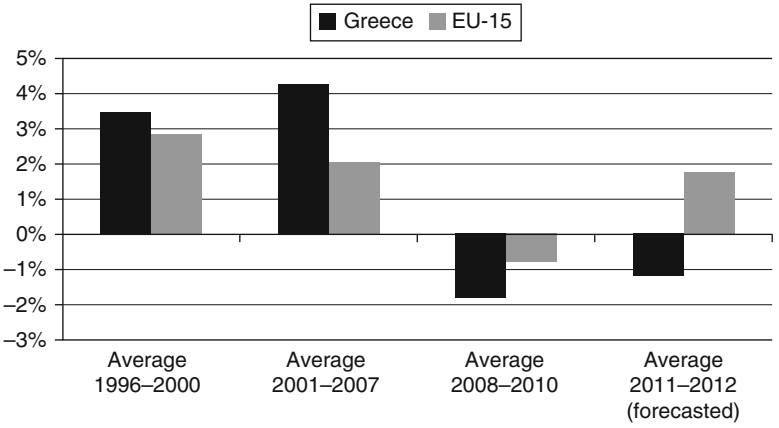

Figure 2.1 Real GDP growth rate
Source: Based on data from Eurostat.

per cent), Greece recorded a negative annual change in GDP (–2 per cent in real terms) for the first time since its entry into the euro area. Things turned out to be even worse in Greece in 2010, with real GDP growth falling by 4.5 per cent (EU-15: 1.8 per cent). This was mainly due to the highly restrictive fiscal policy, which had an adverse effect on domestic demand. Forecasts from various international organizations projected that the real GDP growth would fall by approximately 3.5 per cent in 2011, before returning to positive growth rates as of 2012.[3]

Not surprisingly, the aforementioned increase in GDP resulted in a considerable improvement in per capita GDP, which actually doubled from 10,200 euros in 1996 to 20,400 euros in 2010.[4] However, as shown in Figure 2.2, the per capita GDP in Greece continues to lag behind that of the EU-15. Interestingly enough, Greece lags behind even when compared with the EU-27, with the Greek GDP per capita in purchasing power standards being 89 in 2010 compared with 100 for the EU-27 and 110 for the EU-15.[5]

Inflation

Inflation rates in Greece have traditionally exceeded the corresponding euro area rates.Between 1997 and 2010, inflation in Greece, measured by the annual average rate of change in the harmonized index of consumer prices (HICP), exceeded the euro area-16 rate by 1.6 per cent, on average (see Figure 2.2).[6] During the first two years, the average difference was

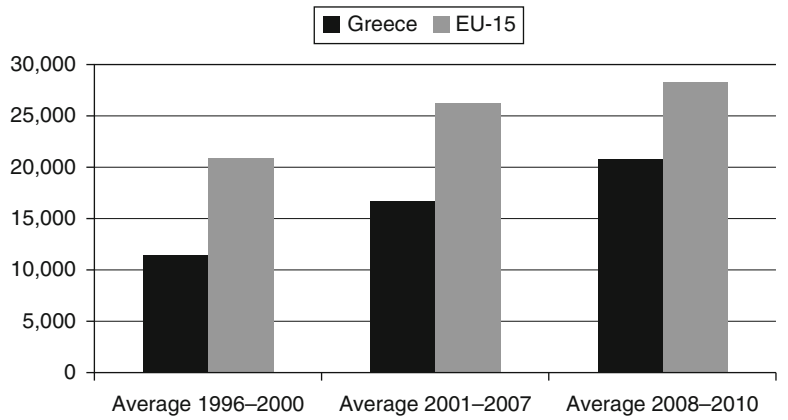

Figure 2.2 GDP per capita (in euros)
Source: Based on data from Eurostat.

3.5 per cent, while the corresponding figure for the period 1999–2009 was 1.1 per cent. This picture does not change much when we consider the core inflation (i.e., excluding energy and unprocessed food) with the average difference over the entire period being equal to 1.7 per cent (see Figure 2.3).

From 1974–90, inflation in Greece ranged between 12 per cent and 25 per cent. However, the period from 1990–9 was characterized as the decade of convergence towards stability, recording a significant decrease in inflation (Bank of Greece, 2000). Data from the Bank of Greece indicate that the average annual rate of increase in the consumer price index (CPI), which was equal to 20.4 per cent in 1990, decreased to 10.9 per cent in 1994 and 2.6 per cent in 1999 (2.1 per cent on the basis of the HICP, see Figure 2.4).

Looking in more detail at some specific years, it is worth mentioning that inflation increased during the first couple of months after the devaluation of the drachma in March 1998; however, this trend changed from June onwards, with the average annual rate of change in the HICP during the entire year being 4.5 per cent, compared with 5.4 per cent in 1997. According to the Bank of Greece, the inflationary effect of the devaluation of the drachma was approximately 2 per cent, an effect that was not limited to import prices, but was also reflected in an increase of firms' profit margins. Nonetheless, the adverse impact of the devaluation on inflation was counterbalanced by the favourable

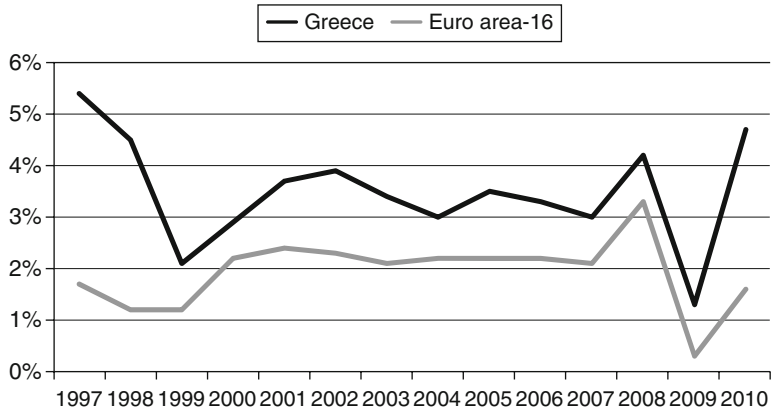

Figure 2.3 Annual average % change in the harmonized index of consumer price
Source: Based on data from Eurostat.

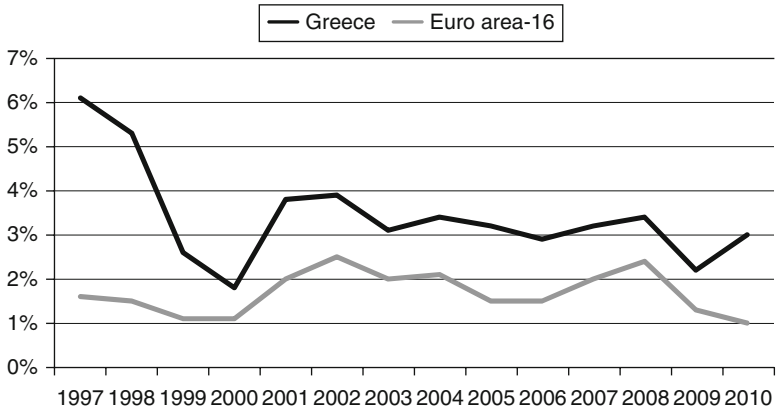

Figure 2.4 Annual average % change in core inflation
Source: Based on data from Eurostat.

effects of the employed economic and monetary policies (e.g., high interest rates, effective control of liquidity, lower increase in the government's wage bill, cuts in the consumption tax on petrol, etc.), and of other factors such as the promotion of 'gentlemen's agreements' with firms to contain price increases.

In 1999, inflation was reduced by more than half to 2.1 per cent, with the difference with the euro area falling for the first time slightly below 1 per cent. While inflation in Greece increased during the next year to 2.9 per cent, a similar trend was recorded in the euro area, with the HICP rising at an even higher rate. Consequently, in 2000 the difference in the annual average rate of change in HICP between Greece and the euro area was 0.7 per cent – the lowest over the entire period (1997–2010). In 2001, the HICP inflation rate increased to 3.7 per cent, coming very close to the average rate over the period 2001–8, which was 3.5 per cent. According to the annual report of the Bank of Greece for 2001, high inflation could be attributed to the indirect and lagged impact on the prices of goods and services of the rise in international fuel prices, unfavourable changes in the exchange rates and, to a lesser extent, to the faster rise of unit labour costs in the business sector in 2001 compared with 2000.

Year-to-year fluctuations in both the HICP and the core inflation between 2001 and 2007 could be seen as moderate, with absolute values ranging between 0.2 per cent and 0.5 per cent in the case of the HICP, and 0.1 per cent and 0.8 per cent in the case of core inflation.

These changes in inflation have been related to various reasons, some of which had a positive and others a negative effect, including changes in crude oil prices, indirect taxation, growth of low-cost imports from Asian countries, intensified market surveillance, the growth rate of unit labour, etc.

The 2008 average annual inflation rate in the HICP rose considerably above the level of 2007 (4.2 per cent compared with 3.0 per cent), mainly due to an increase in imported inflation (i.e., international oil and food prices) and, to a smaller degree, an increase in production costs. However, as highlighted in the annual report of the Bank of Greece for 2008, inflation was very volatile during this year. In the first seven months of the year, rising international oil prices resulted in the highest annual inflation rate since 1998. However, this was followed by significant declines in the international prices of oil and other commodities, with inflation falling substantially, in the remaining months. Nonetheless, it should be mentioned that core inflation (i.e., excluding energy and unprocessed food prices) increased only slightly compared with 2007.

In 2009, both the HICP and core inflation decreased, possibly reflecting the reduced demand and lower public investment spending. This was the result of the adoption of the austerity measures announced at the beginning of the year, and especially the increases in indirect taxation (VAT and special consumption taxes). In contrast, inflation increased substantially in 2010. However, estimates of the Bank of Greece and the OECD (2011) indicated that an adjustment for the

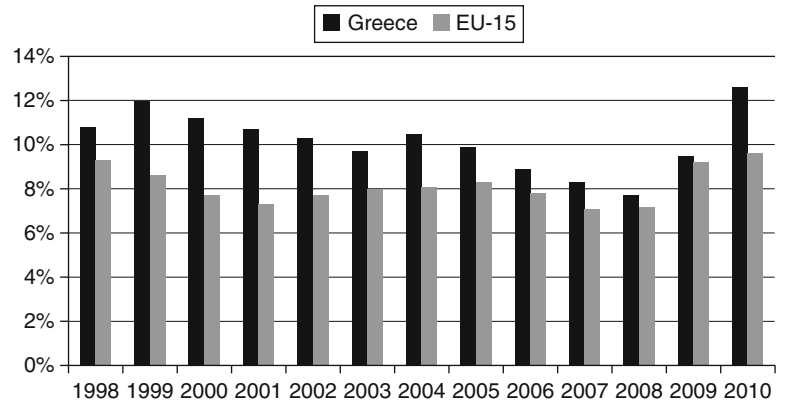

Figure 2.5 Unemployment rate (%)
Source: Based on data from Eurostat.

impact of policy-making (i.e., taxation and tariffs) aiming to boost fiscal revenues would bring inflation very close to zero.[7]

Unemployment

The unemployment rate in Greece has been traditionally higher than in the EU-15 and euro area-16. As Figure 2.5 shows, unemployment declined from 12 per cent in 1999 to 7.7 per cent in 2008, with the difference with the EU-15 unemployment rate falling from 3.4 per cent to 0.5 per cent (Euro area-16: from 2.6 per cent to 0.10 per cent). High growth rates over this period and the favourable effects of activity related to the Olympic Games are most likely the major reasons driving this trend. However, a number of policy initiatives also played a role in decreasing the unemployment rate. These include: (i) efforts towards the modernization of the Manpower Employment Agency (OAED) with an increase in employment promotion centres, and the launch of programmes for subsidizing vocational training as well as the acquisition of work experience (i.e., Stage) and (ii) legislative measures related, among others, to working-time flexibility, wage flexibility in high-unemployment areas, flexibility in the employment of handicapped people and other protected categories, immigrant workers from non-EU countries, tax incentives for the recruitment and training of personnel by enterprises, etc.[8] Not surprisingly, the recession in the Greek economy that spread to all sectors of activity had a negative impact on employment, leading to higher unemployment rates in both 2009 (9.5 per cent) and 2010 (12.6 per cent). Actually, unemployment in 2010 exceeded 12 per cent for the first time for more than a decade, raising the difference with the EU-15 unemployment rate to 3 per cent (euro area-16: 2.5 per cent).

Structural problems in the labour market, along with recommendations to address some of these problems, have been a regular theme in the annual reports of the Bank of Greece.[9] Of particular concern is the very high unemployment rate among young people (i.e., less than 25 years old) and women, and low part-time employment, all deviating significantly from the corresponding figures for the EU-15 and the euro area-16.

In particular, the rate of unemployment for young people fell to 22.1 per cent in 2008, from 31.5 per cent in 1999, but it remained much higher than the corresponding rate for the EU-15 (15.7 per cent) and the euro area-16 (16 per cent). In 2010, the unemployment rate of young people in Greece increased to a significant 32.9 per cent, with the difference from the corresponding EU-15 and euro area-16 figures

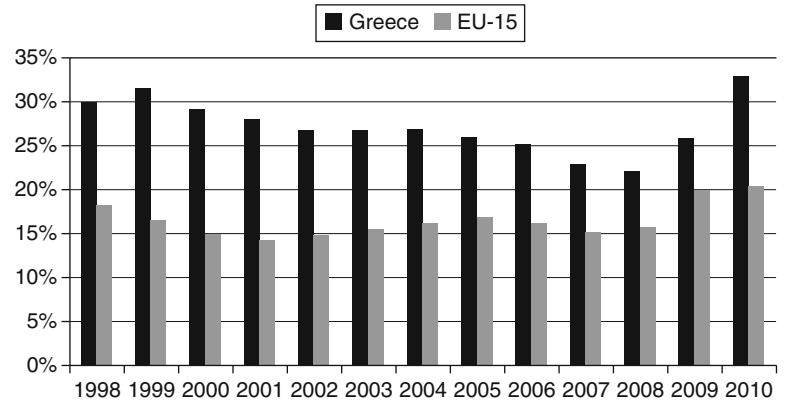

Figure 2.6 Unemployment rate of young people (%)
Source: Based on data from Eurostat.

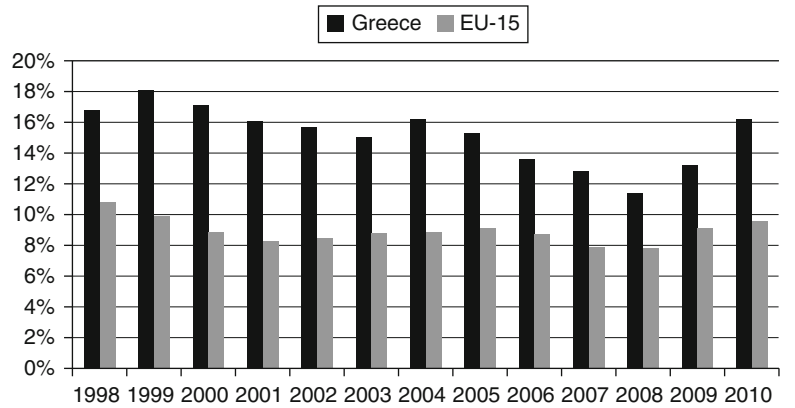

Figure 2.7 Female unemployment rate (%)
Source: Based on data from Eurostat.

being almost double compared with that recorded two years previously. Looking at the averages over the period 1998–2010 results in the same conclusion, with the average unemployment rate of young persons in Greece being equal to 27.2 per cent compared with 16.5 per cent in the EU-15 (euro area-16: 17.6 per cent).

The female unemployment follows a similar trend to that of young persons, falling from 18.1 per cent 1999 to 11.4 per cent in 2008, before

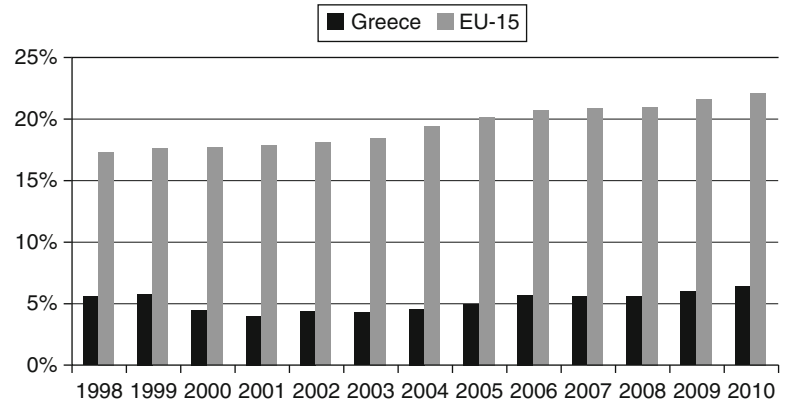

Figure 2.8 Part-time employment rate (%)
Source: Based on data from Eurostat.

increasing again to 16.2 per cent in 2010 (Figure 2.7). These figures are approximately 1.5 to 2 times higher than the corresponding EU-15 figures over the period 1998–2010, with the differences ranging between 3.6 per cent (2008) and 8.2 per cent (1999 and 2000, respectively).

Finally, part-time employment fell from 5.8 per cent in 1999 to 4.0 per cent in 2001, before rising slowly to 6.4 per cent in 2010 (Figure 2.8). However, the corresponding figure for the EU-15 as a whole was much higher, with the average part-time employment rate over the period 1998–2010 being 19.5 per cent (euro area-16: 17.6 per cent). While this indicates a preference among employment-seekers in Greece towards full-time employment, it also provides an important supply of part-time labour. For example, the annual report of the Bank of Greece for 2002 indicates that, during the last quarter of the year, 54.4 per cent of the unemployed were prepared to work either full time or part time, whereas only 38 per cent of them were exclusively interested in full-time employment.

Figure 2.9 presents the unemployment rate of those aged 25–64, while distinguishing between the three levels of educational attendance: (i) a pre-primary, primary and lower secondary education (i.e., levels 0–2), (ii) a medium level of education, defined as upper secondary and post-secondary non-tertiary education (i.e., levels 3–4) and (iii) a tertiary education (i.e., levels 5–6). While these unemployment rates do not vary much over time during the period 1998–2009, there is a clear increase in 2010. Additionally, there are some differences in the levels of the unemployment rate among the three groups of educational

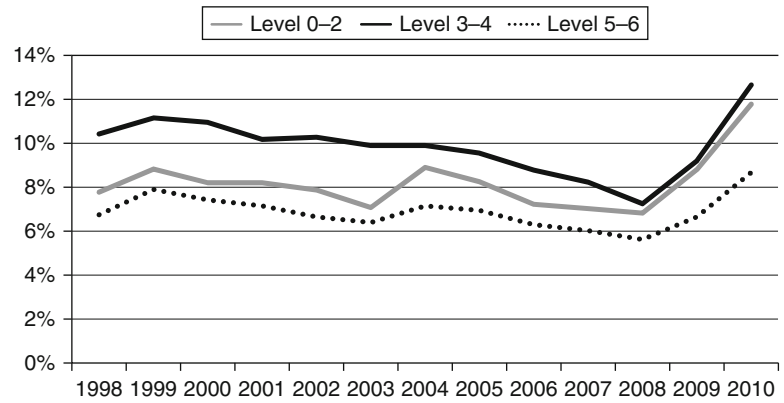

Figure 2.9 Unemployment rate in Greece by education level (%), age 25–64
Source: Based on quarterly data from Eurostat.

attainment. As expected, the lowest average unemployment rate over the period 1998–2010 is observed in the case of those with a tertiary education (6.9 per cent). Surprisingly, the average unemployment rate of those with a primary or lower secondary education (8.2 per cent) is higher than the corresponding rate of persons with a medium level of education attainment (9.9 per cent). One potential explanation is the large proportion of self-employment among those with a pre-primary, primary and lower secondary education.[10]

Public finance

In 2010, the fiscal deficit reached 24 billion euros or 10.4 per cent of GDP. As mentioned in the July 2011 review of the IMF, while this figure is approximately 0.75 per cent higher than earlier estimated, the adjustment by approximately 5 per cent compared with 2009 (deficit to GDP: 15.6 per cent) is impressive in the light of the deep recession in Greece (see Figure 2.10).

Nonetheless, as the Bank of Greece indicates in its annual report for 2010, this decrease was the result of short-term measures rather than important reforms, which were announced but were not implemented at the time. The decrease in government expenditure (by 3.4 per cent relative to GDP) was mainly achieved via the introduction of strict controls in public sector hiring (i.e., pursuing a policy of one recruitment for ten exits in 2011, and a ratio of one to five thereafter), significant cuts in wages and pensions, and the decrease of operating costs and grants.

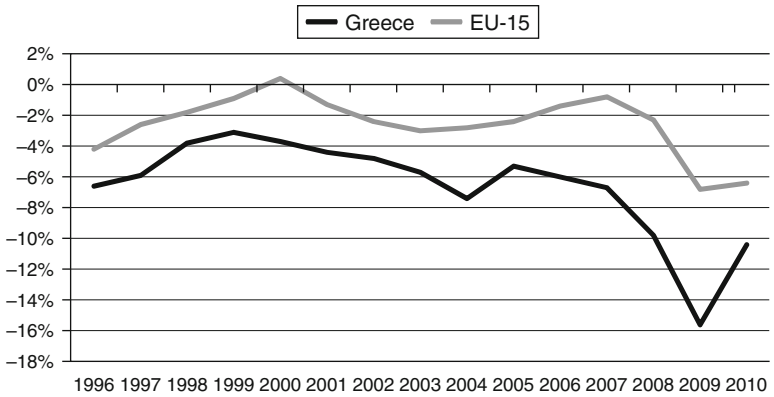

Figure 2.10 Fiscal deficit (% GDP)
Source: Based on data from Eurostat.

At the same time, the government increased its revenue (by 1.8 per cent relative to GDP) through increases in indirect taxes (i.e., VAT increased from 18 per cent to 23 per cent), the imposition of extraordinary levies on businesses and individuals, and the collection of revenue from back tax settlements. One of the main problems associated with this policy is its adverse impact on households' income, leading to a considerable decrease in consumer demand, lower contributions to social security funds and lower than expected tax revenues – despite the higher indirect rates – for the state.

Figure 2.11 presents the revenues and expenditures from another perspective, by relating them to the population rather than to the GDP. It is clear that with an average of 7,345 euros per inhabitant over the period 1996–2010, the Greek government spends considerably lower amounts than its European counterparties (EU-15: 11,863 euros per inhabitant; euro area-16: 11,417 euros per inhabitant); however, it lags behind in generating revenues (Greece: 6,218 euros per inhabitant, EU-15: 11,211 euros; euro area-16: 10,767 euros), leading to the aforementioned deficit. Thus, future policies should focus on revenue-related reforms like improving its tax collection system, which has tremendous shortcomings, rather than cutting down salaries, which affects consumer demand and results in a deeper crisis. The problem with the proposed strategy is that while the government has direct control over salaries and pensions, making it a relatively easy job, a true reform of revenue-related mechanisms requires considerable efforts. This probably explains why

progress, in terms of long-term reforms, can be described at best as minimal, despite various announcements and the adoption of new laws concerning social security, healthcare, the opening of closed-shop professions, etc.

It should be mentioned here that while the global crisis has definitely influenced Greece's fiscal performance and prospects, the problems were pre-existing and they were never appropriately addressed. For example, government deficit averaged 4.6 per cent of GDP in the period prior to the entry of Greece into the euro area (1996–2000), and 5.8 per cent in the years prior to the crisis (2001–7), which is almost double the maximum imposed by the Stability and Growth Programme, and much higher than the corresponding figures for the EU-15 and the euro area-16.

In an attempt to address this problem, in 2004 the ECOFIN issued a recommendation calling the Greek government to put an end to the excessive deficit situation. In response, the government announced a package of measures on March 2005, which included an increase in indirect taxation, along with a commitment to decrease the budget deficit below the 3 per cent threshold within a year. The policies that were introduced were unsuccessful and, despite a fall in 2005, the deficit increased again in subsequent years. Eventually, the excessive deficit procedure (EDP) was triggered in April 2009, on the basis of an assessment that the deficits of both 2007 and 2008 exceeded the reference value set by the Maastricht Treaty, for reasons not associated with the

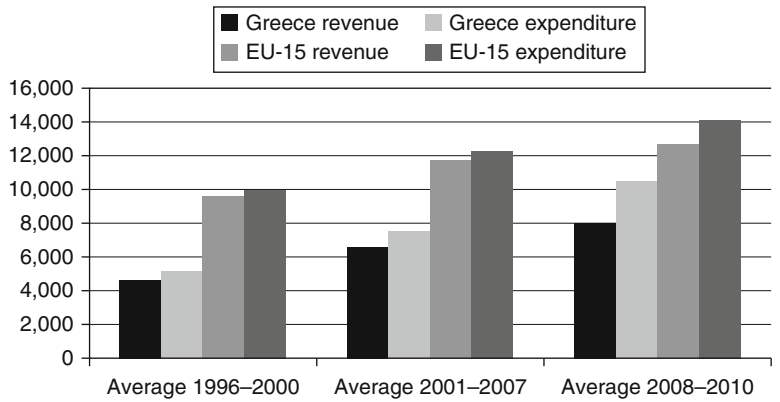

Figure 2.11 General government expenditure and revenue (euros per inhabitant)
Source: Based on data from Eurostat.

global financial crisis.[11] It should be emphasized that this phenomenon is not unique to Greece; the Netherlands also received a recommendation in 2004, while France and Germany were subject to an excessive deficit procedure from 2003. However, Greece is unique in having such a high deficit associated with a very high debt.

The debt of the general government in Greece has more than tripled over the last 15 years, increasing to 328.6 billion euros in 2010, from 95 billion euros in 1996. The corresponding figures for the debt to GDP ratio were 142.8 per cent (2010) and 99.4 per cent (1996) (see Figure 2.12). Over the first years of this period, the debt to GDP ratio recorded a cumulative decrease of 5.4 per cent, falling to 94 per cent in 1999. This positive outcome was achieved despite state participation in increases in the capital of public enterprises and the devaluation of the drachma in March 1998, which were counterbalanced by a drop in government borrowing rates (see Chapter 3), an increase in the primary surplus, faster economic growth and privatization proceeds.[12] However, despite this fall, the debt to GDP ratio remained much higher than the reference value of the relevant convergence criterion (i.e., 60 per cent), as well as the corresponding euro area-16 ratio (71.7 per cent) and the EU-15 ratio (67.1 per cent) in 1999. By 2000, the debt to GDP ratio increased to 103 per cent and it remained at this level, with small yearly negative and positive fluctuations, until 2007 (105 per cent). Then, it started increasing again, reaching 111 per cent in 2008, 127 per cent in 2009 and 143 per cent in 2010.

The problem of the high debt to GDP ratio, along with suggestions for reforms, has been discussed in many annual reports of the Bank of Greece. For example, the annual report of the Bank of Greece for 2002 highlights that the decline was smaller than would have been expected, given the level of the primary surplus and the downward effect on debt from GDP growth and falling interest rates. The same report also projects that, if the debt ratio is not reduced soon, central government may have difficulty coping with an increase in interest rates in the future, which would only magnify debt servicing costs. Further, it mentions that an increase in debt servicing costs coupled with a substantial drop in the growth rate could make it hard to maintain the annual budget within the limits set by the Stability and Growth Programme. Unfortunately, this is exactly what we witnessed in the post-2008 period. Finally, the report discusses that a sharp increase in public pension expenditure (per cent GDP) is anticipated due to the increasing number of workers that will reach the age for retirement, and highlights the necessity of reform in the social security system. The annual report for 2003 also

offers recommendations for lowering the debt to GDP ratio, suggesting that this could be achieved by establishing stricter terms and conditions on: (i) the granting of government guarantees for the financing of public enterprises and entities and (ii) the assumption by the government of public enterprise and entity liabilities.

Trade balance

One positive development in 2010 was the recovery in exports of goods and services by approximately 10 per cent, which became visible from the second half of the year onwards (see Figure 2.13). However, despite this increase, exports stood at 48.9 billion euros in 2010 (imports: 69.1 billion euros) compared with 56.2 billion euros in 2008 (imports: 89.8 billion euros).

Taken together with a small decrease in both the imports of goods and services (–2.4 per cent) and the GDP (–1.87 per cent), the increase in exports resulted in an improvement in the external balance to GDP ratio in 2010. Figure 2.14 also reveals that Greece is doing relatively well in terms of services (e.g., shipping and tourism), while the external balance to GDP ratio is rather low in the goods sector. This reflects the negligible tendency to export that could be related to the average small size of Greek firms (OECD, 2011).

As mentioned in the 2011 OECD Economic Survey, the Greek government has presented a national export strategy to improve the marketing of Greek products abroad, including: (i) the development of a national

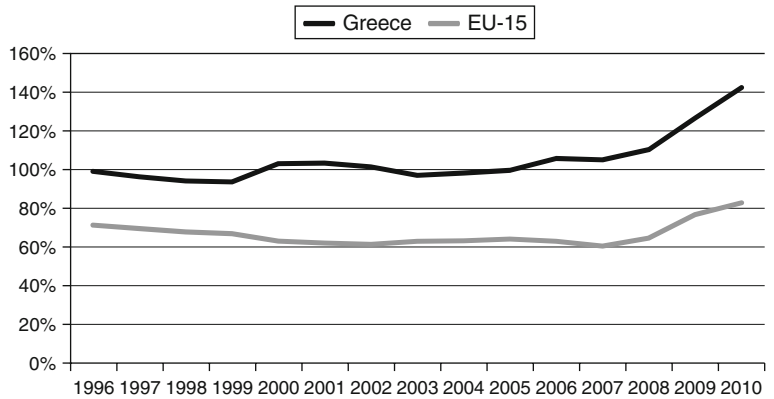

Figure 2.12 Debt of the general government (% GDP)
Source: Based on data from Eurostat.

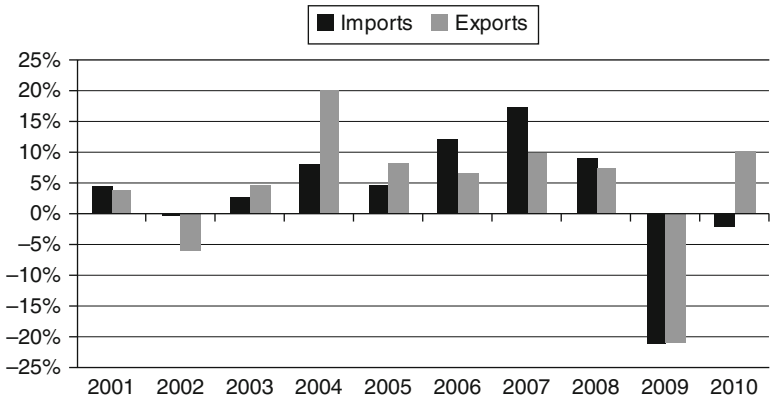

Figure 2.13 Annual % change in imports and exports, Greece
Source: Based on data from Eurostat.

brand, (ii) new financing tools to improve market liquidity and (iii) the establishment of an information network for exporters. This strategy could help small Greek firms to gain more visibility abroad, at least during the first steps of their outward expansion.

However, to support this strategy and exports, it is important to simplify related procedures. According to the World Bank *Doing Business 2012* study, Greece ranks in 84th position in the category 'trading across borders'. The number of documents (five), time (20 days) and cost per container (1,153 US dollars) all exceed the OECD averages for export (which stand at four documents, 11 days and 1,032 US dollars, respectively). The Index of Trade Freedom from the Heritage Foundation, which is an overall indicator of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services, also shows that, despite an improvement in recent years, Greece still lags behind its EU-15 counterparts (on average).[13]

2.3 Institutional framework and business environment

Numerous studies show that the institutional framework influences the development of capital markets as well as various aspects of the banking sector. For example, La Porta *et al*. (1997) find that countries with poorer investor protections, measured by legal rules and the quality of law enforcement, have smaller and narrower capital markets. Levine (1998) examines the relationship between the legal system and banking

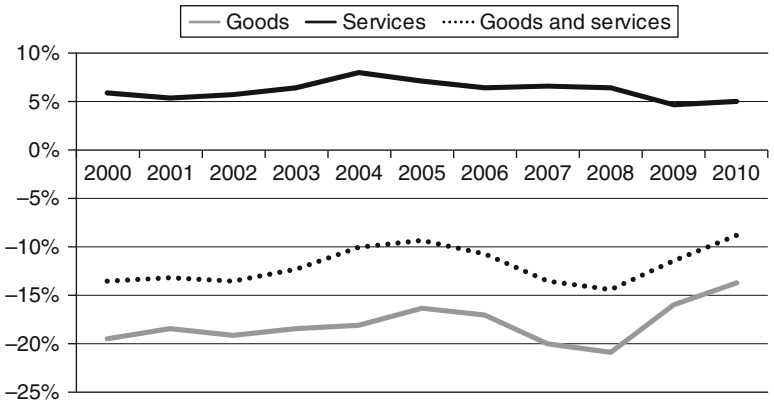

Figure 2.14 Annual % change in imports and exports of goods and services, Greece
Source: Based on data from Eurostat.

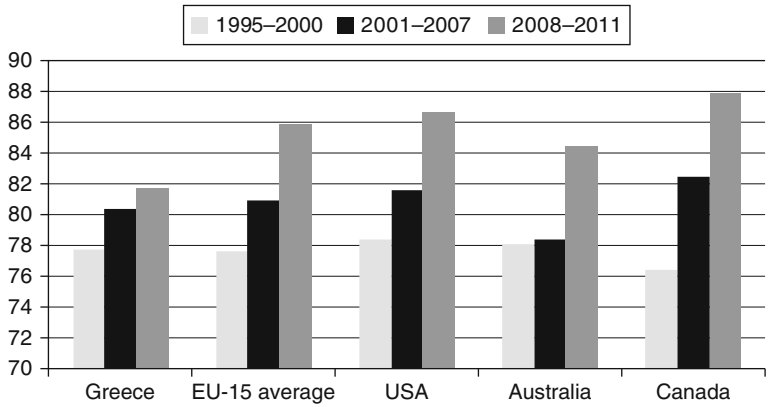

Figure 2.15 Heritage trade freedom index, Greece and selected countries
Source: Based on data from Heritage Foundation.

development as measured by the ratio bank credit to the private sector over GDP. His results show that countries where the legal system (i) emphasizes creditor rights and (ii) rigorously enforces laws and contracts have better-developed banking sectors. Demirguc-Kunt and Detragiache (2002) find that the negative impact of deposit insurance on the likelihood of banking crisis becomes larger in a weak institutional environment.

Studies at bank level tend to confirm the important role of the institutional environment. Demirguc-Kunt *et al*. (2004) find a strong link between institutional characteristics, such as economic freedom, property rights protection and country-level governance, on bank net interest margins. Breuer (2006) finds, among other things, that: (i) civil law countries are less prone to problem bank loans than common law countries and (ii) corruption increases non-performing loans. Qian and Strahan (2007) show that strong creditor protection results in loans with higher concentration of ownership, longer maturities, lower interest rates and increased participation of foreign banks. Lensink *et al*. (2008) conclude that well-developed institutions are important for the efficient operations of foreign banks. Further, they find that while ownership negatively affects bank efficiency, this negative effect is less pronounced in countries with good governance. They also find that higher quality of the institutions in the home country and higher similarity between home and host country institutional quality reduce foreign bank inefficiency.

Table 2.1 presents the averages of the six indicators of the World Bank Worldwide Governance Indicators (WGI) project over the period 1996–2010.[14] The first indicator, *voice and accountability*, reveals the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and free media. The second indicator, *political stability and absence of violence/terrorism*, reflects perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism. The third indicator, *government effectiveness*, indicates the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. The fourth indicator, *regulatory quality*, reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. The fifth indicator, *rule of law*, reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence. The last indicator, *control of corruption*, reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests.

Looking at the WGI average over the period 1996–2010, which combines all the available information, there is a considerable gap between

Greece (0.684) and the EU-15 (1.413). The largest differences are observed in the case of *control of corruption* (Greece: 0.38, EU-15 average: 1.62) and *political stability and absence of violence/terrorism* (Greece: 0.42, EU-15 average: 0.93), while the smallest one is recorded in the case of *voice and accountability* (Greece: 0.99, EU-15 average: 1.37). Unfortunately, despite numerous announcements of the Greek government, declaring its intention to fight corruption, the score for the *control of corruption* tends to decrease on a yearly basis. From its peak of 1.06 in 1998, it decreased to 0.10 in 2008, falling further to –0.12 in 2010. *Political stability and absence of violence/terrorism* also carries a negative sign in both 2009 and 2010. This could be partially explained by the frequent protests of Greek citizens against the austerity measures. In general, the averages over the three sub-periods show a deterioration of the values of the indicators during the years of the crisis. However, this phenomenon is not unique to Greece.

The Index of Economic Freedom (IEF) from the Heritage Foundation is another indicator that is frequently used to capture aspects of both the institutional and the business environment. This index is calculated on the basis of the scores of the following ten components of economic freedom: (i) business freedom (see Figure 2.18), (ii) trade freedom (see Figure 2.15), (iii) fiscal freedom, (iv) government spending, (v) monetary freedom, (vi) investment freedom, (vii) financial freedom (see Figure 2.17), (viii) property rights, (ix) freedom from corruption and (x) labour freedom.[15] Figure 2.16 shows the value of the IEF for Greece and selected countries, calculated over three sub-periods.

Obviously, one individual component that is of particular relevance to the theme of the present book is the index of financial freedom, which is estimated by considering: (i) the extent of government regulation of financial services, (ii) the degree of state intervention in banks and other financial firms through direct and indirect ownership, (iii) the extent of financial and capital market development, (iv) government influence on the allocation of credit and (v) openness to foreign competition.[16] Figure 2.17 shows that the value of this index has increased from an average of 30 over the period 1995–2000 to an average of 55 during the period 2008–11, confirming the significant steps towards the deregulation of the Greek banking and financial sector. However, a comparison with the values of other countries over the most recent sub-period reveals that Greece still lags behind its counterparts in the EU-15 (2008–11 average: 74), as well as Australia (2008–11 average: 90), Canada (2008–11 average: 80) and the USA (2008–11 average: 75).

The picture remains more or less the same, when one looks at the Heritage index of business freedom (Figure 2.18), which is based on

Table 2.1 World governance indicators (averages over various periods)

	VACC	PSAVT	GOVEF	RQUAL	RLAW	COR	WGI average
Greece							
1996–00	1.036	0.571	0.704	0.718	0.845	0.740	0.769
2002–7	1.026	0.569	0.742	0.913	0.804	0.391	0.741
2008–10	0.887	–0.012	0.585	0.775	0.678	0.011	0.487
1996–2010	0.994	0.424	0.693	0.830	0.783	0.383	0.684
EU-15 average							
1996–00	1.385	1.125	1.678	1.401	1.517	1.727	1.472
2002–7	1.384	0.910	1.618	1.474	1.489	1.619	1.416
2008–10	1.336	0.783	1.481	1.456	1.497	1.529	1.347
1996–2010	1.372	0.932	1.599	1.451	1.498	1.624	1.413
USA							
1996–00	1.378	0.950	1.773	1.645	1.535	1.584	1.478
2002–7	1.244	0.059	1.637	1.580	1.522	1.606	1.275
2008–10	1.121	0.355	1.455	1.451	1.594	1.281	1.209
1996–2010	1.247	0.356	1.625	1.564	1.543	1.519	1.309
Australia							
1996–00	1.471	1.236	1.669	1.471	1.735	1.870	1.575
2002–7	1.425	0.941	1.823	1.617	1.772	1.950	1.588
2008–10	1.396	0.856	1.790	1.736	1.758	2.079	1.602
1996–2010	1.429	0.993	1.776	1.610	1.759	1.962	1.588
Canada							
1996–00	1.603	1.090	1.932	1.487	1.726	2.209	1.675
2002–7	1.490	1.005	1.908	1.578	1.721	1.968	1.612
2008–10	1.406	1.028	1.837	1.680	1.792	2.045	1.632
1996–2010	1.497	1.032	1.896	1.581	1.740	2.048	1.632

Notes: VACC: voice and accountability, PSAVT: political stability and absence of violence/terrorism, GOVEF: government effectiveness, RQUAL: regulatory quality, RLAW: rule of law, COR: control of corruption, WGI average: average of all the indicators. The average of the period 1996–2000 is calculated using data from the years 1996, 1998 and 2000. Data for 2001 are not available in the WB database.
Source: Based on data from the World Bank.

data from the World Bank's *Doing Business* study and reveals the overall burden of regulation, as well as the efficiency of government in the regulatory process of starting, operating and closing a business.[17] A closer look at the most recent World Bank *Doing Business* study shows that Greece improved its overall rank by just one position in 2012 (2012: 100 out of 183 economies, 2011: 101); however, it made significant progress in the starting a business component, improving its rank by 14 positions (2012: 135, 2011: 149). Despite this improvement, in

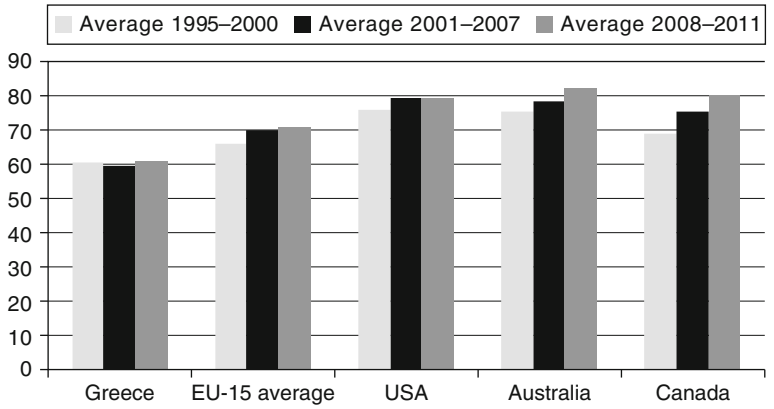

Figure 2.16 Heritage economic freedom index, Greece and selected countries
Source: Based on data from Heritage Foundation.

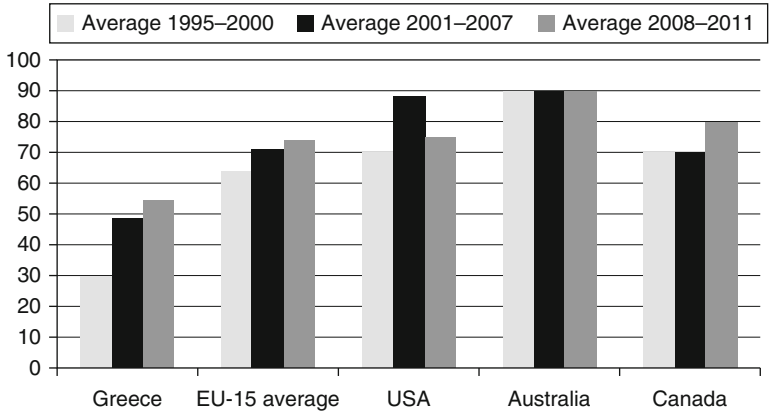

Figure 2.17 Heritage financial freedom index, Greece and selected countries
Source: Based on data from Heritage Foundation.

terms of starting a business, Greece lags considerably behind other EU countries like Italy (2012, ease of doing business rank: 87; 2012, starting a business rank: 77) and Spain (2012, ease of doing business rank: 44; 2012, starting a business rank: 133), not to mention France (2012, ease of doing business rank: 29; 2012, starting a business rank: 25) and the UK (2012, ease of doing business rank: 7; 2012, starting a business rank: 19).

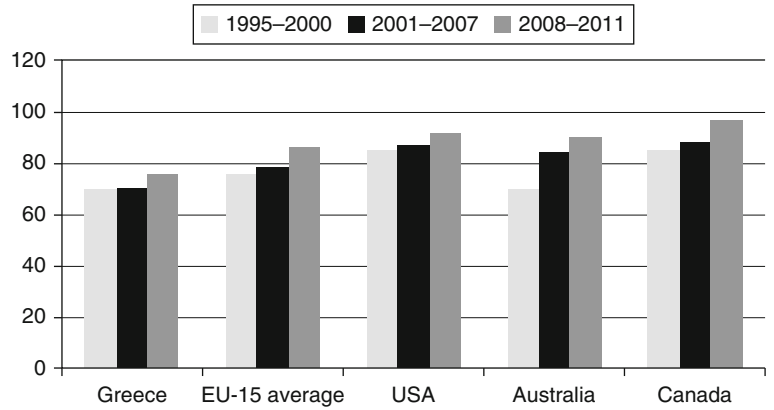

Figure 2.18 Heritage business freedom index, Greece and selected countries
Source: Based on data from Heritage Foundation.

2.4 Conclusions

This chapter provided an overview of the operating environment of Greek banks. The first sections of this chapter discussed the main macroeconomic indicators such as gross domestic product, inflation, unemployment and government debt in comparison to the EU since the mid-1990s. Most of the indicators illustrate that in the period preceding the entry of Greece into the euro area and up to the financial crisis, Greece experienced a profound growth. As discussed later, in Chapter 7, these developments influenced positively the performance of Greek banks. However, during the last couple of years, there has been a considerable worsening in the macroeconomic conditions, posing great challenges for banking institutions.

The present chapter also discussed selected indicators of institutional development such as regulatory quality and corruption, as well as the 'doing business environment'. These country-specific attributes are considered to be important drivers of the development of the capital and banking markets. While, on some occasions, there have been some improvements over the years (e.g., financial freedom), Greece still lags considerably behind other EU countries. Thus, reforming the institutional environment should be one of the main priorities of the Greek government.

3
Non-Banking Financial Institutions and Capital Markets

3.1 Introduction

There is no doubt that banks are the most important players in the financial services industry. In fact, non-bank financial sectors (insurance companies, mutual funds, investment firms, etc.) make up only a very small part of the Greek financial system. However, given the linkages of these sectors with banking as well as with the overall economic development, the present chapter provides a brief discussion of the recent trends in these sectors. Furthermore, Section 3.3 discusses the developments in capital markets, focusing on the Athens stock exchange (ASE) and the market for government paper. The conditions in the stock exchange can influence the banking sector through various avenues. First, the stock exchange can be an alternative source of funds for corporations. Second, as most of the Greek banks are publicly listed their stock market capitalization depends on the conditions in the ASE. Considering that Greek banks traditionally maintain important positions in government paper issued by the Greek state, the developments in this market can have important implications for the sector.

3.2 Non-banking financial institutions

Insurance firms

The annual report of the Private Insurance Supervisory Committee (PISC) for 2009 indicates that, at the end of the year, the insurance market in Greece comprised 57 Greek-based insurance firms, of the following type: life insurance (13 firms), non-life insurance (32 firms) and mixed-activity insurance (12 firms).[1] The same report also reveals that, in addition to the Greek-based insurance firms, the market comprises

751 branches of insurance firms based in the EU or the EEA, three branches of insurance firms based outside the EU and the EEA and three mutual insurance cooperatives.

Despite the relatively large number of insurance firms operating in Greece, the market is characterized as highly concentrated. As mentioned in the July 2010 financial stability report of the Bank of Greece, the aggregate market share of the five largest firms in Greece on the basis of premium turnover during 2007–9 was: 65 per cent in the life insurance market segment, 35 per cent in the non-life insurance market segment and approximately 40 per cent for the insurance sector as a whole.

Figure 3.1 presents the average contribution of life and non-life insurance firms in the total gross premium over the period 2006–9. The total gross premium of insurance firms reached 5.3 billion euros in 2009 compared with 4.8 billion euros in 2006.[2] Over this period, life insurance premiums increased by 5.6 per cent, compared with a considerably higher change of 17.15 per cent that was achieved in the case of non-life insurance firms.

At the end of 2009, the total assets of insurance firms in Greece reached 15.5 billion euros, recording an increase of approximately 270 per cent compared with their 1997 value of 4.2 billion euros. Figure 3.2 presents yearly percentage changes in total assets in Greece and the EU-15. With an average annual change of 14.09 per cent over this period, the Greek insurance industry ranked third in terms of total assets growth among

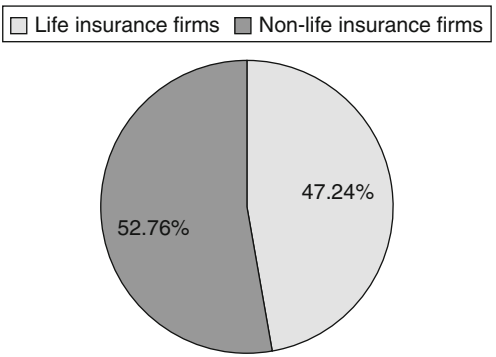

Figure 3.1 Contribution of life insurance firms and non-life insurance firms in total insurance gross premium in Greece, average figures over 2006–9
Source: Based on data from the 2008 and 2009 reports of the Private Insurance Supervisory Committee.

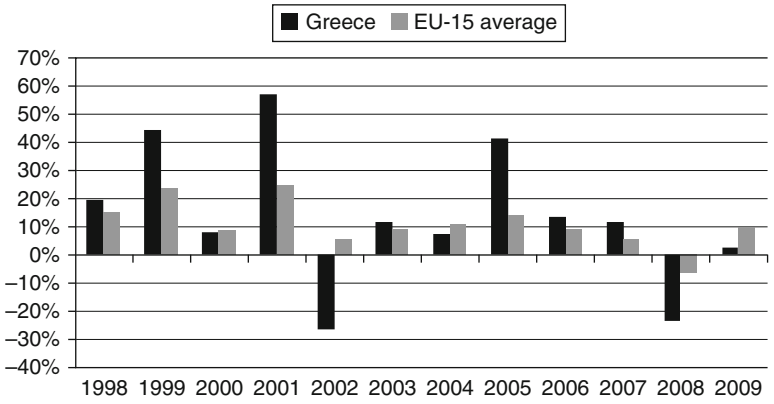

Figure 3.2 Annual percentage change in total assets of insurance firms
Notes: The 2009 data of the EU-15 average do not include Belgium, Ireland and Luxembourg.
Source: Based on data from the ECB.

the EU-15 countries, after Finland (28.31 per cent) and Ireland (18.30 per cent), and far ahead of mature markets like the UK (5.98 per cent) or Germany (4.55 per cent). The total assets of insurance firms in Greece reached a peak of 17.6 billion euros in 2007; however, the financial crisis exercised an adverse effect on the insurance industry, resulting in a considerable decrease of 23 per cent in 2008, and a marginal increase of 3 per cent in 2009.

Figure 3.3 plots the ratio of total assets of insurance firms to GDP, revealing that, despite the aforementioned growth over the last decade, the size of the Greek insurance industry remains at a relatively low level. With an average ratio of 6.63 per cent over the period 1997–2009, the Greek insurance industry ranks in last position, followed by Finland (21.81 per cent) and Spain (22.58 per cent), and with a huge gap not only from Luxembourg (130.87 per cent) or the UK (113.36 per cent), but also from countries like France (60.86 per cent), Belgium (50.40 per cent) and Denmark (62.06 per cent).

Investment funds

Starting from around 8.4 billion euros at the end of 1997, the total assets under management by investment funds (excluding money market funds) in Greece reached a peak of approximately 23.3 billion euros in 2005; this was followed by three years of continuous decline

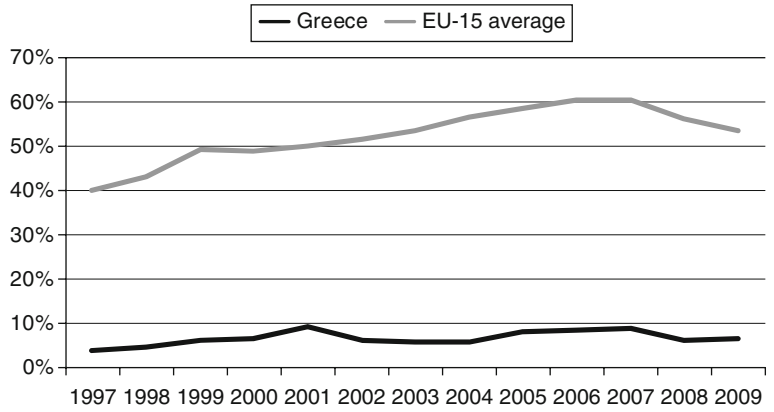

Figure 3.3 Total assets of insurance firms (% GDP)
Notes: The 2009 data of the EU-15 average do not include Belgium, Ireland and Luxembourg.
Source: Based on data from the ECB.

(Figure 3.4). A fall in the assets of investment funds was observed in most EU countries; however, most of them experienced this decline in 2007 or 2008, a phenomenon that was attributed to the declining asset prices and deleveraging induced by the financial crisis (ECB, 2010a). In most of the countries, including Greece, the assets of these institutions started to increase again in 2009. As a result of these developments, the assets of investment funds in Greece grew with an average annual growth rate of 6.82 per cent over the period 1998–2009, whereas the corresponding EU-15 average figure was 13.59 per cent.

Figure 3.5 presents the ratio of total assets under management as a percentage of GDP. With an average ratio of 9.30 per cent over the period 1997–2009, the Greek market lags considerably behind the EU-13 average (excluding Luxembourg and Ireland) of 29.14 per cent.[3]

Table 3.1 presents further information on the annual growth of the Greek mutual funds and investment firms (in terms of total assets) while distinguishing among various categories.[4] Mixed mutual funds experience the highest average annual decrease (–12.86 per cent) in total assets among the three types of mutual funds, followed by equity mutual funds (–2.56 per cent) and bond mutual funds (–2.39 per cent).

The total assets of bond mutual funds account on average for 42.43 per cent of total mutual fund assets over the period 2001–9, followed

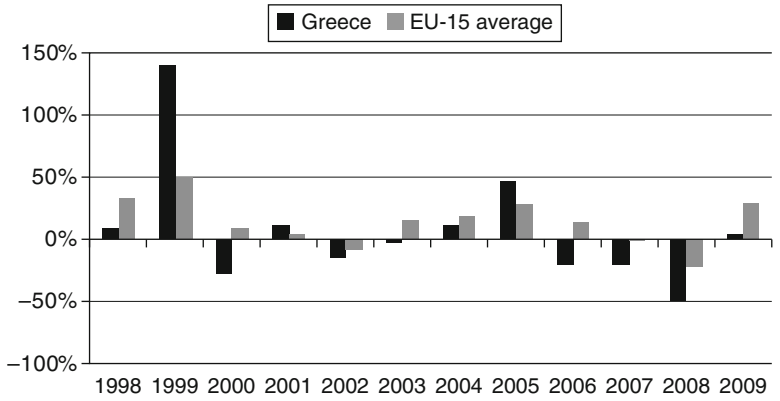

Figure 3.4 Annual percentage change in total assets of investment funds
Notes: The following are not included in the calculations of the EU-15 average: Germany in 1998; Ireland in 2000 and 2001; Sweden in 2000 and 2001.
Source: Based on data from the ECB.

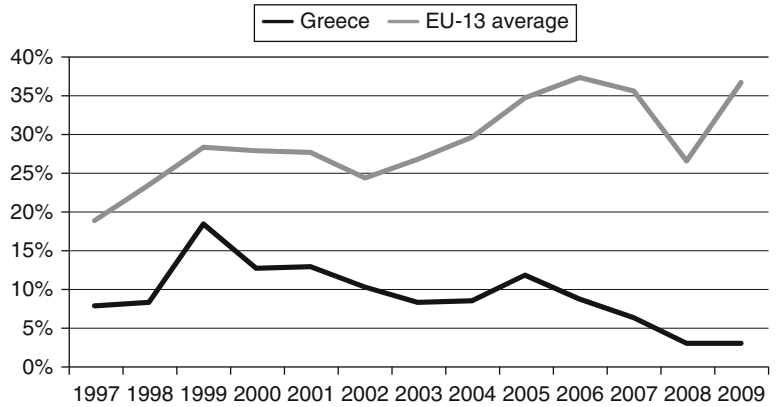

Figure 3.5 Total assets under management by investment funds (% GDP)
Notes: The following are not included in the calculations of the EU-13 average: Germany in 1997; Ireland in 2000; Sweden in 2000. Luxembourg and Ireland are excluded from all the years due to extremely high ratios.
Source: Based on data from the ECB.

by equity mutual funds (34.97 per cent) and mixed equity funds (22.42 per cent). Figure 3.6 presents the ratio of the total assets to GDP for the three categories of mutual fund, indicating that, between 2001 and 2009, the ratio has fallen from approximately 4 per cent to around 1 per cent in all the cases.

Table 3.1 Annual % change in total assets of mutual funds and investment firms

	2002	2003	2004	2005	2006	2007	2008	2009
MFs all	–15.24	–2.71	10.93	41.37	–22.50	–24.49	–53.22	4.80
Bond MFs	–6.30	20.86	16.63	77.52	–51.71	–30.38	–36.35	–9.42
Mixed MFs	–8.81	–48.05	6.63	–12.43	45.09	–25.75	–63.90	4.38
Equity MFs	–31.45	29.68	5.93	13.29	18.15	–18.33	–61.17	23.39
PICs	na	–35.32	0.59	–73.92	4.66	7.09	–42.71	4.25
REICs	na	na	na	252.55	234.90	57.42	–1.23	0.86

Notes: The above figures do not include data on money market funds; MFs: mutual funds; PICs: portfolio investment companies; REICs: real estate investment companies.
Source: Based on Bank of Greece data.

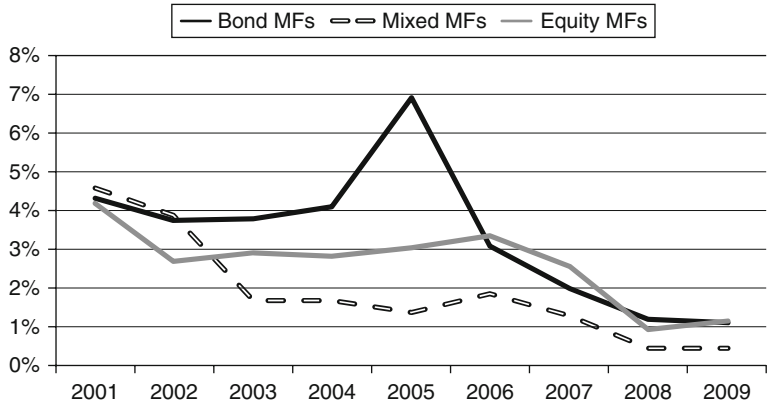

Figure 3.6 Total assets of bond, mixed and equity mutual funds in Greece (% GDP)
Notes: The above figures do not include data on money market funds; MFs: mutual funds.
Source: Based on data from the Bank of Greece and the European Central Bank.

Leasing and factoring firms

The size of the leasing and factoring industries in Greece remains quite small. As shown in Figure 3.7, the ratio of the total assets of leasing firms relative to GDP reached 4.09 per cent in 2009 compared with 2.30 per cent in 2002. The corresponding figures for factoring firms are 0.79 per cent and 0.54 per cent, respectively.

Further data from the Bank of Greece indicate that the pre-tax profits of leasing companies reached 69.8 million euros in 2008, falling by 42.4 per cent compared with 2007. Over the same year, the total assets

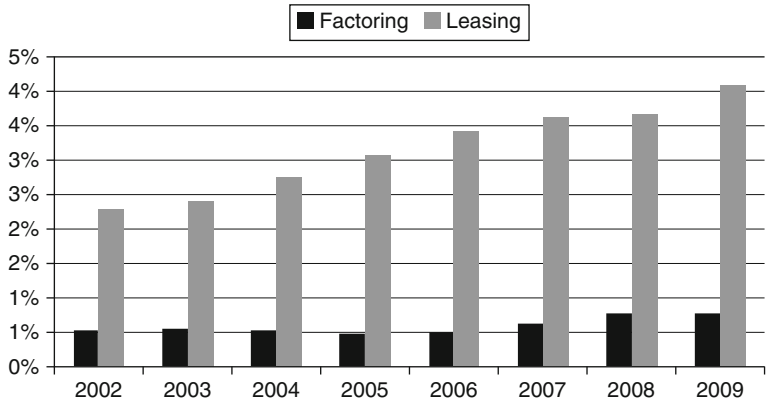

Figure 3.7 Total assets of factoring and leasing firms in Greece (% GDP)
Source: Based on data from the Bank of Greece and the European Central Bank.

of these firms increased by 29 per cent, from 8.2 billion euros in 2007, to 8.8 billion euros in 2008 (see Figure 3.8). As a result, the return on assets (ROA) of leasing companies declined to 0.8 per cent in 2008 from 1.5 per cent in 2007.[5]

In contrast to the leasing companies, factoring firms recorded an increase of 37.6 per cent in their pre-tax profits in 2008, reaching 25.4 million euros. During the same year, their assets increased from 1.4 billion euros in 2007 to 1.9 billion euros in 2008. Taken together, these developments had a positive effect on their ROA (2008: 1.4 per cent, 2007: 1.3 per cent).[6]

3.3 Capital markets

Athens stock exchange

Figure 3.9 presents the annual percentage change of the composite index and the banking index of the ASE, averaged over four time periods. From the end of 1995 to mid-September 1999, the ASE witnessed considerable growth. For example, as mentioned in the annual report of the Bank of Greece for 1998, during this particular year the prices of shares traded on the ASE increased at a rate that not only exceeded the corresponding figure of all other European stock exchanges, but also ranked second on a global basis. Between end-1998 and end-1999, the composite index recorded an even higher return,

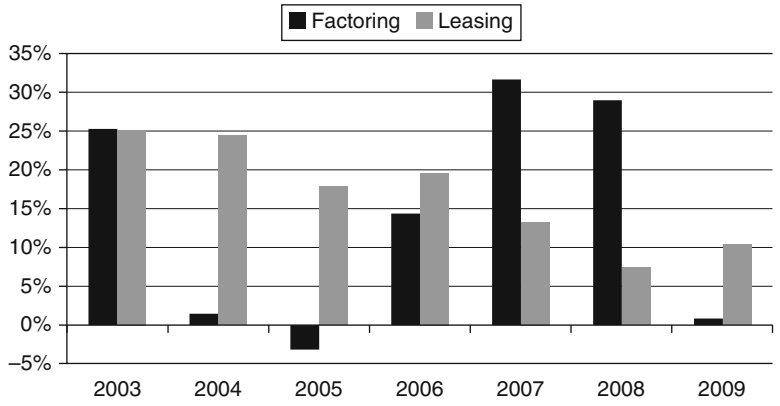

Figure 3.8 Annual % change in total assets of factoring and leasing firms in Greece
Source: Based on data from the Bank of Greece.

rising by 102 per cent (1998: 85 per cent). The rise in the composite share price index during this period was mainly driven by the increase in bank share prices. From end-1995 to end-1999, the banking index grew by 776.10 per cent and on average by 77.96 per cent per year, whereas the corresponding figures for the composite index were 505.49 per cent and 61.96 per cent.

The annual report of the Bank of Greece also highlights that the upward trend in the stock exchange was the result of: (i) the entry of the drachma into the ERM in March 1998, (ii) the prospects of Greece joining the euro area, (iii) the downward trend of nominal interest rates, (iv) the rise in the profits of most listed firms and (v) the drop in inflation.

The rapid growth of the market and the investment of numerous individuals with inadequate information and limited understanding of the nature of stock market transactions during 1999 highlighted some problems in the operation of the ASE, and delayed the stabilization of the market in the months that followed. Over the next three years, the stock prices followed a downward path, with the composite index recording an average annual decrease of 31.61 per cent between the end of 1999 and the end of 2002. During 2000, the banking index, declined at a lower rate (22.1 per cent) than the composite index; however, this was reversed in the following two years.[7] Therefore, between end-1999 and end-2002, the composite index lost, on average, 31.61 per cent

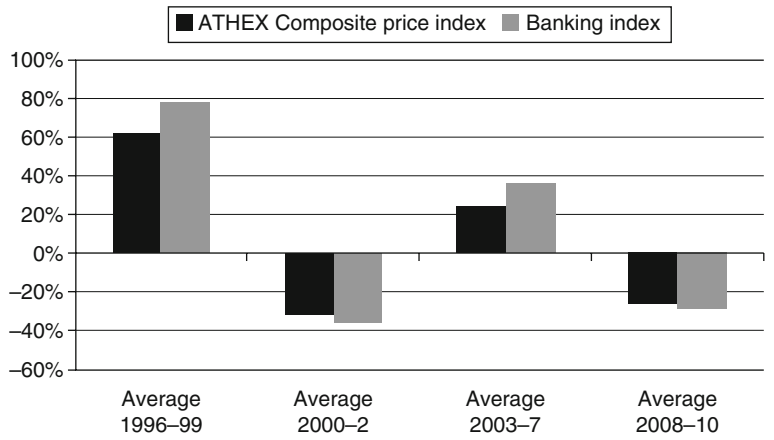

Figure 3.9 Annual % change in the composite index and the banking index of the Athens stock exchange
Notes: 2005 is not considered in the calculation of the banking index due to the launch of a new sectoral index with a starting value equal to 5,000 on 31 December 2005.
Source: Based on data from the Bank of Greece.

per year, while the corresponding figure for the banking index was 35.48 per cent.

In mid-March 2003, the investment environment in the stock exchanges of the euro area and the USA was reversed. Consistent with this trend, the shares traded in the ASE followed an upward path which lasted until November 2007. Between end-2002 and end-2007, the composite index of the ASE achieved an average annual increase of 24.37 per cent. This return was outperformed by the banking index which, over the same period, recorded an average annual increase of 35.99 per cent.

Between end-2007 and end-2008, the composite index decreased by 65.50 per cent. As highlighted in the annual report of the Bank of Greece for 2008, this decline was higher than the one recorded in the case of the Dow Jones Euro Stoxx broad index (–46.3 per cent) and the third largest among the major stock market indices in the euro area. The same report highlights that the main reasons behind this trend were: (i) developments in international stock markets due to increasing uncertainty among investors about the extent and duration of the financial crisis and (ii) the exit of foreign investors from the ASE. Over the same period, the banking index recorded an even higher decrease (–73.97 per cent) that also exceeded the decline in the corresponding euro area banking

index (–63.7 per cent). According to the annual report of the Bank of Greece for 2008, this could be explained by the drop in bank profitability and the prospects for even lower profitability in 2009, as well as investors' concerns about the exposure of Greek banks to countries in South-eastern and Eastern Europe, rather than the limited and indirect exposure to risks related with the financial turmoil.

Following an international trend, the share prices on the Greek stock market, and particularly the ones of financial firms, increased sharply between early March 2009 and mid-October 2009. Although concerns about the Greek economy reversed this trend after mid-October, the Athex composite index continued to outperform well-known indices like the Dow Jones Euro Stoxx 50 index and Standard & Poor's 500 index until end November 2009 (Bank of Greece Financial Stability Report, 2009). As a result of the developments, the Athex composite price index recorded an increase of 22.93 per cent between end-2008 and end-2009, while the banking index changed by 40.13 per cent over the same period.

Concerns about the worsening position of Greece during the year, and the not so favourable prospects for the future, resulted in a decrease of 35.62 per cent in the Athex composite price index between end-2009 and end-2010. Over the same period, the banking index recorded a decrease of 53 per cent, this being considerably higher than the one of the corresponding euro area banking index (–26.8 per cent). The monetary policy report of the Bank of Greece for 2011 attributes this downward trend to liquidity pressures, and the worsening in the profitability and the quality of the credit portfolio of the banking sector due to the Greek economic crisis.

The primary market for government paper

Figure 3.10 presents the nominal value of the government paper issued per year in the primary market as percentage of GDP over the period 1997–2010. The downward trend of the early years was reversed in the period 2002–4, due to factors such as a substantial increase in the public sector's gross borrowing requirements, the upgrading of the country's credit rating, conditions in international bond markets and liquidity requirements associated with the 2004 Olympic Games.[8] The nominal value of Greek government securities issued in 2005 and 2006 fell drastically, due to a decrease in the government's borrowing needs, with the bulk of new paper issued during this period aiming to refinance debt maturing over these years. In contrast, both 2007 and 2008 recorded an increase in funds raised, due to the growing government deficit,

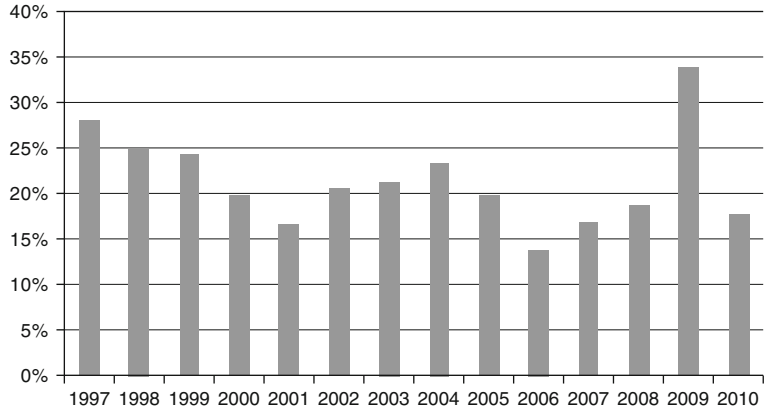

Figure 3.10 Nominal value of new issues of government paper (% GDP) in Greece
Source: Based on data from Bank of Greece, Hellenic Republic Ministry of Finance and Eurostat.

higher redemptions of past issues and higher interest payments. This upward trend continued in 2009, with the nominal value of newly issued government securities increasing substantially to 78 billion euros or approximately 34 per cent of GDP.

As shown in Figure 3.11 the weighted average maturity of the Greek government securities increased considerably between 1997 (3.65 years) and 2007 (13.25 years) as a result of a policy to prolong the maturity of public debt through, among other things, the substitution of bonds for Treasury bills (see Figure 3.12). During 1997 and 1998, Treasury bills accounted on average for 44.5 per cent of the total value of new government paper issues. This percentage decreased by half to 22.60 per cent in 1999, reflecting the decision of the government to extend the maturity of public debt. This trend continued in the next two years, with Treasury bills accounting for only 5 per cent of the total value of new issues in 2001, a percentage that was maintained (with small fluctuations) up to 2008. In 2009, the share of Treasury bills returned to 1999 levels, accounting for 21.50 per cent of total value of new issues, a percentage that increased further to 41.70 per cent in 2010. This was the result of the deterioration of the macroeconomic indicators of the Greek economy, with chain reactions such as the downgrade of the creditworthiness of Greece by the rating agencies, pressures from the markets and a continuous widening of the bond yield spread (see Figure 3.15). Consequently, the government issued bonds only during

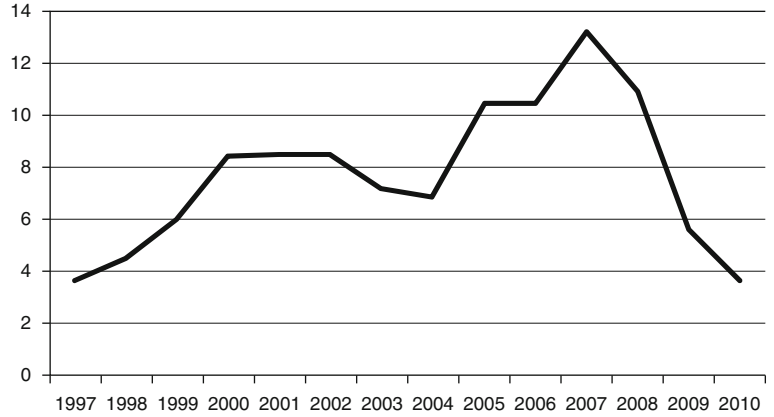

Figure 3.11 Weighted average maturity (in years) of Greek government securities (new borrowing)
Source: Based on data from various issues of the Hellenic Republic Public Debt Bulletin of the Ministry of Finance.

the first quarter; between April and December 2010 the issuance of government paper was restricted to Treasury bills with maturities of 13, 26 and 52 weeks. As a result of the developments in 2009 and 2010, the weighted average maturity of the Greek government securities returned to the levels observed in the pre-euro era.

Finally, it should be mentioned that investor demand in the primary market remained strong and exceeded supply during the entire period. For instance, in 2006 the weighted average coverage ratio was 4.9, one of the highest in the euro area. In 2009, despite the economic crisis, this figure came to 5.2, a phenomenon that could be explained by the increased yields. For example, data from the Public Debt Management Agency reveal that the weighted average cost of funding in 2009 was 4.1 per cent compared with 3.1 per cent in 2005.[9]

The secondary market for government paper

The existence of an organized secondary market for government securities, with sufficient liquidity, width and depth, is considered a perquisite for the effective operation of the corresponding primary market. The Electronic Secondary Securities Market (HDAT), a fully automated system, covering the over-the-counter secondary market for government securities in book-entry form, started operating at the Bank of Greece in May 1998.[10]

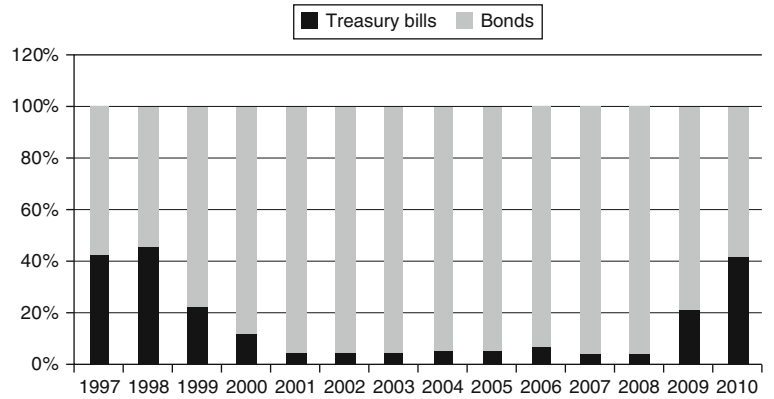

Figure 3.12 Percentage share of treasury bills and bonds in new issues of government paper in Greece
Source: Based on data from various issues of the Hellenic Republic Public Debt Bulletin of the Ministry of Finance.

The average daily value of total transactions in government securities in the HDAT stood at 390 million euros in 2010, considerably lower than one year before (2009: 1,294 million euros), as well as than in the pre-crisis period (1999–2006: 2,954 million euros). Figure 3.13 presents the annual percentage change in the average daily value over the period 2002–10.

Transactions in ten-year bonds absorbed the bulk of the total value of transactions, with an average percentage share of 54.7 per cent over the period 2001–6 (see Figure 3.14). Among the securities with an initial maturity of up to seven years, the five-year bonds appear to be the most popular ones, accounting for 12.73 per cent of the total value of transactions, on average, between 2001 and 2006. In the case of the long-term issues in excess of ten years, the bonds with a maturity of 15 and 20 years account for around 9.5 per cent (each) of the total value of transactions during the above-mentioned period.

As shown in Figure 3.15, the spread between yields from ten-year Greek bonds and German bonds fell substantially prior to the entry of Greece into the euro area, from 4.14 per cent in 1997 to 0.84 per cent in 2000. It decreased further to 0.20 per cent by 2003, a level that was maintained with small fluctuations until 2007. In 2008, the yield spread started to increase, and it eventually returned to the levels observed in 2000. This was the result of high uncertainty in the international money and capital markets, with investors showing a preference for quality

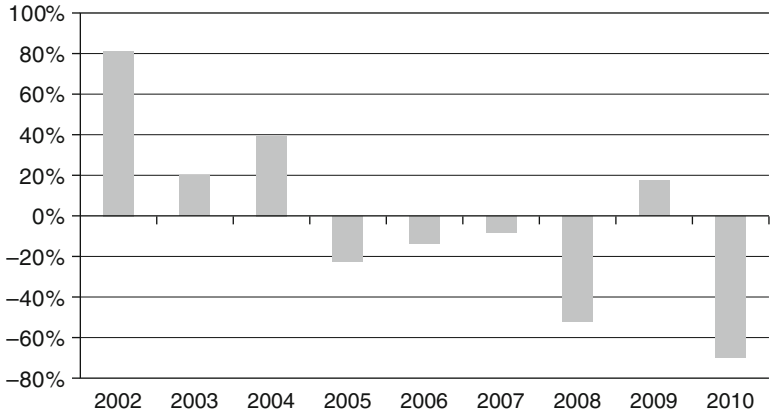

Figure 3.13 Annual percentage change in average daily value of total transactions in governance securities in HDAT
Source: Based on data from the Bank of Greece.

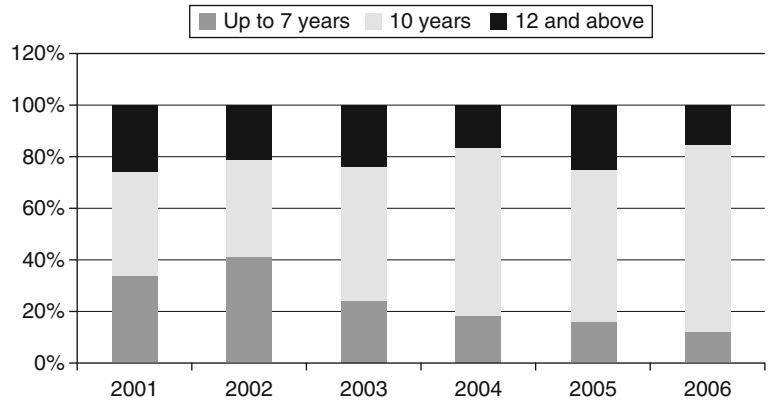

Figure 3.14 Percentage share in total value of transactions in HDAT on the basis of initial maturity
Notes: Up to seven years includes: Treasury bills, three-year, five-year and seven-year bonds; 12 years and above includes: 12-year, 15-year, 20-year, 23-year and 32-year bonds.
Source: Based on data from the Bank of Greece.

bonds like those of Germany. In 2009 and 2010 the differential between the two bond yields increased sharply, mainly due to: (i) the uncertainty about the prospects of the Greek economy, (ii) successive downgrades of the sovereign debt rating and (iii) negative media reports.

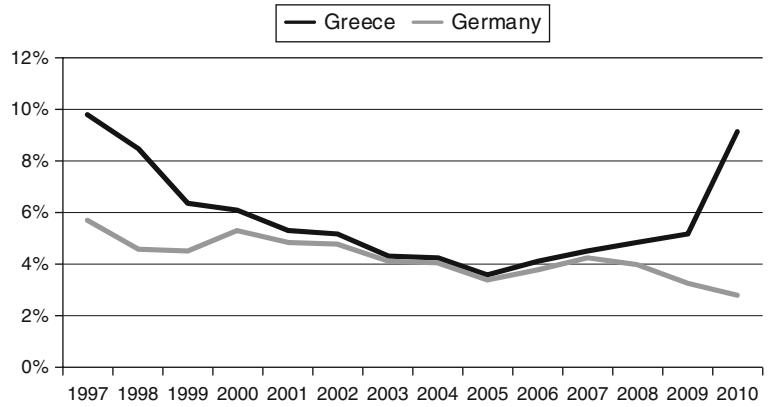

Figure 3.15 Ten-year bond yields (% per annum, period averages)
Source: Based on data from OECD.

The Bank of Greece provides, in its annual report for 2010, an extensive list and a timeline of various events that occurred between October 2009 and June 2010, and were associated with the rise in the Greek government bond yields. They can be summarized as follows:

- An announcement by Eurostat on 22 October 2009, with serious reservations about the reliability of the fiscal data submitted by Greece to the EU, and estimates showing that Greece's deficit in 2008 was the largest across the EU-27.
- The downgrades of the country's credit rating by Fitch and Standard & Poor's (S&P's) in October and December 2009.
- A publication of the European Commission on November 2009, forecasting flat growth for the Greek economy in 2010 and highlighting the need to correct the fiscal imbalances.
- Media reports about a possible Greek default or restructuring of the Greek debt and a potential exit of Greece from the euro area. There was also an effort from some international financial media to associate the six-month standstill of Dubai World with the developments in the Greek bond market.
- The creation of a support mechanism for the Greek economy with the participation of the European Commission, the ECB and the IMF, along with the decision of the ECB to ease its collateral eligibility criteria for liquidity provision to banks on March 2010, were expected to have a positive impact on the markets. However, lack of details

about the operation of these initiatives and negative reports in the international media contributed to a further rise in bond yields.
- S&P's and Moody's downgraded the Greek sovereign debt rating below investment grade, in April and June, respectively. These actions had two important implications. First, they triggered discussions in the international media about a possible Greek debt restructuring. Second, Greek government bonds were removed from international bond indexes, forcing index-tracked funds to sell their positions in Greek government paper.

The list of the Bank of Greece also includes some events that temporarily reversed the upward trend of the bond yields, such as:

- Various announcements by the Greek government. These include: an update of the Hellenic Stability and Growth Programme for 2010–13 (14 January 2010), cost-cutting measures to reduce wages in the public sector (2 February 2010) and measures to reduce spending and raise taxes (5 March 2010).[11]
- The establishment of a 750 billion euro financial assistance mechanism that was announced by the EU, the ECB and the IMF, with a view to maintaining financial stability in the euro area, along with the ECB decision to adopt a purchase programme of euro area government and corporate bonds (10 May 2010).

3.4 Conclusions

Banks form the largest group of institutions in the financial services industry in terms of size; however, other sectors like insurance, mutual funds, leasing and factoring provide important services that complement or substitute those offered by banks. As discussed in Section 3.2, the size of these sectors has increased over the years. Yet, when expressed relative to GDP, it remains considerably lower than the European average. Moreover, it seems that in most cases the financial crisis had an adverse effect on either the size or the performance of these sectors.

This chapter also discussed developments in the Athens stock exchange, which recorded considerable growth in the years prior to entry of Greece into the euro area (e.g., end-1995 to mid-September 1999). This period was followed by sub-periods with downward (e.g., end-2007 to end-2008) and upward trends (e.g., March 2003 to November 2007), which brought the Athex composite index at end of 2010 to levels comparable to those of 1997.

The final two sections focused on a topic that attracted considerable attention in the recent years – that is, the issue of bonds and T-bills by the Greek government. The aim was to form a basis for discussion on the exposure of banks to Greek government bonds (Chapter 10). There are two main conclusions that one can draw by looking at the trends in this market. First, the weighted average maturity of the government securities increased considerably between 1997 and 2007 by substituting bonds for T-bills. Second, after the entry of Greece into the euro-zone bond yields were relatively stable and at levels comparable to the yields of the German bonds. However, as of 2008, the yield spread started to increase, initially to due to uncertainty in the international money and capital markets and, more recently, due to fears over a possible Greek default.

4
Central Banking and Policy Responses to the Crisis

4.1 Introduction

The history of central banking goes back to the seventeenth century, with the establishment of the Bank of Amsterdam in 1609 (Quinn and Roberds, 2009), that was followed by the foundation of the Swedish Riksbank in 1668. One of the most well-known central banks in Europe, the Bank of England, was established in 1694 with the goal of purchasing government debt and financing the King's military campaign. The establishment of the Banque de France in 1800 aimed to stabilize the hyperinflation of paper money and to aid government finance (Bordo, 2007; Lykogiannis, 2003).

Generally speaking, the central bank can be described as an institution or authority responsible for policies that affect a country's supply of money and credit. Goodhart (2011) mentions that, traditionally, central banks had the following three main objectives: (i) to maintain price stability, (ii) to maintain financial stability and promote financial development and (iii) to support the state's financing needs at times of crisis, but in normal times to constrain misuse of the state's financial powers. Furthermore, he argues that the balance between these three objectives has changed over time, with the third one being important mainly during times of war, making the balance between the other two the main point of interest. Within this context, he identifies the following three periods: (i) the Victorian era (1840s–1914), (ii) the decades of government control (1930s–60s) and (iii) the triumph of the markets (1980s–2007). Moreover, as he mentions, it is likely that due to the ongoing financial crisis, central banks are now probably close to a new epoch.

The UK is one of the most well-known examples, where the responsibility for monetary policy, financial stability and the regulation

and supervision of the financial services industry are split between the central bank (i.e., Bank of England, BoE) and another regulatory body (i.e., Financial Services Authority, FSA). However, HM Treasury mentioned in a recent report (2011) that the fragmentation of responsibilities between the Treasury, the Bank of England and the Financial Services Authority has had a number of dysfunctional results. Recent reforms in the UK include the establishment of the Financial Policy Committee, the Prudential Regulation Authority and the Financial Conduct Authority.

In closing this section, it should be mentioned that the functions that should be performed by the central bank, along with the characteristics of supervisors (e.g., independence, single versus multiple supervisors, etc.) have also attracted the attention of academic literature, generating a lot of discussion.[1] Within this context, Herring and Camassi (2008) highlight that, during normal times, with stable economic and financial conditions, the integrated supervisor, located outside the central bank, has the potential to achieve economics of scope and to mitigate conflicts of interests and moral hazard problems; however, the real question is how this framework will perform during a crisis. The authors also mention that there are a number of instances in which political interference (i.e., lack of independence) in macro- and micro-prudential supervision has precipitated or exacerbated crises.

4.2 The Bank of Greece (BoG)[2]

The establishment of the BoG

The Bank of Greece (BoG), the central bank of the country, was established in September 1927 by an Annex to the Geneva Protocol, and started operations in May 1928. As mentioned in Bank of Greece (1978), until that time, central banking functions were mainly performed by a major commercial bank, the National Bank of Greece (NBG), which was established in 1841. NBG was a joint company, with the King and the government among its shareholders, which enjoyed the privilege to issue banknotes, acting at the same time as both the government's bank and a commercial bank (Lykogiannis, 2003). Not surprisingly, in the view of the League of Nations, the NBG was involved in conflicts of interest. Three other banks that were established around that time, the Ionian Bank (1840), the Pronomiouchos Trapeza Epirothessalias (Privileged Bank of Epirothessaly, established 1882) and the Bank of Crete (1899) were also given issuing privileges, which they exercised at a relatively low scale, until 1920 (Bank of Greece, 1978).[3]

In 1927, the bad economic situation in Greece forced the government to seek international help which resulted in a stabilization plan that would allow Greece to receive a loan of 9 million pounds sterling net worth. One of the main terms of the plan that was signed in the Geneva Protocol was to set up an independent central bank in Greece that would not be allowed to engage in commercial banking (Bank of Greece, 1978).[4] Initially, western negotiators hoped that the NBG would rapidly transform itself into a pure central bank, by giving up its commercial functions within two to three months. However, the Greek negotiators insisted that, due to the central role and the remarkably high market share of the NBG, it was not possible to proceed with the transformations in such a short time period. At the same time, they also insisted that the NBG should maintain some of its commercial banking activities, and especially its deposit-taking functions, an issue that was considered unacceptable by the League of Nations, which threatened to cancel the entire negotiation process (Bank of Greece, 1978). Eventually, the NBG's deputy governor, Emmanuel Tsouderos, submitted a proposal suggesting that NBG could become a purely commercial and deposits bank and hand over its privilege of note issue to a new central bank. While this proposal reflected Tsouderos's own view, without binding the Greek government or the National Bank of Greece, it was quickly accepted by all the involved parties, leading to the creation of the new central bank, namely the Bank of Greece.

The Statute of the BoG

The Statute of the BoG was attached, as an Annex, in the aforementioned Protocol, signed in Geneva on September 1927. One month later, the Greek state and the NBG agreed with regards to: 'Waiving by the National Bank of Greece of its privilege of issuing banknotes and establishment of a new Bank under the name "Bank of Greece"'. This agreement and the Statute of the Bank of Greece, pursuant to which the Bank of Greece was established, were ratified by another Legislative Decree (10 November 1927), which was further ratified by Law 3427/7.12.1927. According to the Legislative Decree, the provisions of the Statute of the BoG not only have the force of law, but they also prevail over any other provision of domestic law, given that they are part of an international agreement, that was ratified by Law.

Until 1997, several rather minor amendments were made to the Statute of the BoG. However, the decisions of the General Meeting of Shareholders of the BoG on 22 December 1997 (ratified by Law 2609/1998) and 25 April 2000 (ratified by Law 2832/2000) resulted in

substantial amendments. These amendments – relating to issues such as the determination of the Bank's primary objective and its main tasks, the establishment of its independence, the relations of the Bank with Parliament and the government, as well as the creation of a Monetary Policy Council – aimed to modernize the operational framework of the BoG and bring it in line with the provisions of the Treaty on European Union and the Statute of the European System of Central Banks.[5]

The BoG was incorporated as a corporation (société anonyme), whose shares are registered and have been listed on the Athens Exchange since 12 June 1930. According to the Statute of the BoG (2000c), the state, as well as public enterprises, shall not, directly or indirectly, hold shares of the Bank amounting, in the aggregate of such holdings, to more than 35 per cent of the nominal issued share capital.

Administration and decision-making bodies of the BoG

In the performance of its tasks, the BoG enjoys institutional, personal and operational independence, and is accountable to the Greek Parliament. The governor and the two deputy governors are each appointed by a Presidential Decree for a term of six years. Other administrative and decision-making bodies of the BoG are: the General Meeting of shareholders, the General Council, the Monetary Policy Council and the Credit and Insurance Committee. Currently, the BoG has also one audit committee and 19 departments and units, such as the financial stability department, the department of private insurance supervision, the payment and settlement systems department, the economic research department, the statistics department, the internal audit department, etc. The nationwide network of BoG consists of 18 branches, 38 agencies and eight outlets.

Responsibilities of the BoG

One of the most important dates in the history of the BoG was in January 2001, when it became one of the European national central banks (NCBs) which, along with the European Central Bank (ECB), form the Eurosystem. As a result, the BoG is currently responsible for the implementation of the Eurosystem's monetary policy and the maintenance of the stability of the financial system in Greece. The tasks of the Bank of Greece fall in two broad categories, namely Eurosystem-related tasks and other tasks.

The first category includes: (i) participating in the formulation of the single monetary policy in the euro area and its implementation in Greece, in accordance with the guidelines and instructions of the ECB

monetary policy, (ii) managing part of the ECB's foreign exchange and gold reserves on behalf and in line with the instructions of the ECB, (iii) overseeing the payment systems and instruments with an aim to ensuring their soundness, reliability and efficiency, (iv) monitoring financial stability and promoting arrangements for its maintenance, (v) collecting statistical data from monetary financial institutions, (vi) issuance of euro banknotes and responsibility for their circulation and handling.

The second category includes tasks related to: (i) supervision and monitoring of credit institutions, insurance and reinsurance firms, and insurance intermediaries, (ii) management and operation of the system for monitoring transactions in book-entry securities, which is the system through which all transactions in Greek government bonds on both the primary and the secondary market are settled, (iii) cash settlement of transactions in securities on the Athens exchange and the derivatives exchange, (iv) operation of the electronic secondary market for securities, which is a regulated secondary market in Greek government securities, (v) overseeing of payment systems, (vi) maintaining and managing the country's official reserve assets, (vii) providing of treasurer and fiscal agent services to the government, (viii) compiling and publishing various statistics for the Greek economy and (ix) publication of reports and conduct of research.

4.3 The European Central Bank (ECB)

The establishment of the ECB

The ECB was established on 1 June 1998; it based in Frankfurt, Germany. The European System of Central Banks (ESCB), the institutional framework that comprises the ECB and the central banks of all the EU member states, was also established on the same day.[6] The legal basis for the single monetary policy is the Treaty establishing the European Community and the Statute of the ESCB and of the ECB, which is a protocol attached to the Treaty.

The initial capital of the ECB, which comes from the NCBs of all EU member states, was 5 billion euros, the contribution of each NCB being determined on the basis of each country's share of the total population and gross domestic product of the EU – in equal weightings.[7] In view of increased volatility in foreign exchange rates, interest rates and gold prices, as well as credit risk, the ECB recently decided to increase its subscribed capital to 10.76 billion euros, with effect from 29 December 2010.[8] The contributions of the euro area and non-euro

area NBCs in the subscribed capital are 69.79 per cent and 30.21 per cent, respectively. The five NBCs with the highest contribution in the subscribed capital, as of 29 December 2010, are: Deutsche Bundesbank (18.94 per cent), Bank of England (14.52 per cent), Banque de France (14.22 per cent), Banca d'Italia (12.50 per cent) and Banco de España (8.30 per cent). On the other side, the ones with the lowest contribution are: Central Bank of Malta (0.06 per cent), Central Bank of Cyprus (0.14 per cent), Banque centrale du Luxembourg (0.17 per cent), Eesti Pank (0.18 per cent) and Latvijas Banka (0.28 per cent).

Administration and decision-making bodies of the ECB

The transfer of the single monetary policy from the national level to the supranational level (i.e., Community level) resulted in an institutional setting that combines centralized decision-making for monetary policy with decentralized implementation, as well as fiscal and structural policies. According to ECB (2008), this decentralization offers the following three advantages. First, the ECB benefits from the expertise, infrastructure and operational capabilities of the NCBs. Second, the NCBs facilitate communication between the ECB and the people of the euro area, as they speak the language(s) of each country and know its culture(s). Third, the NCBs provide the credit institutions in each country with access to the central banking network, an important factor given the size of the euro area and the longstanding relationships between the national banking communities and their NCB.

The main decision-making body of the ECB is the Governing Council, which consists of the six members of the executive board, plus the governors of the NCBs of the 17 euro area countries. Its main responsibilities are: (i) to adopt the guidelines and take decisions that safeguard the performance of the tasks entrusted to the Eurosystem and (ii) to formulate monetary policy for the euro area, by taking decisions that relate to monetary objectives, key interest rates, the supply of reserves in the Eurosystem and by establishing the necessary guidelines for the implementation of those decisions.

The day-to-day business of the ECB is managed by the executive board, the members of which are appointed by the European Council, on the basis of a qualified majority. The board members are: the president, the vice-president and four other members. Other duties of the executive board include: (i) the preparation of Governing Council meetings, (ii) the implementation of monetary policy in the euro area by giving the necessary instructions to the NCBs and (iii) the exercise of certain powers, delegated by the Governing Council.

The General Council is broader than the Governing Council; in addition to the governors of the NCBs from the 17 euro area member states, it also includes the governors from the ten non-euro area countries.[9] As before, the president and the vice-president of the ECB are members of the Council; however, the other members of the ECB's executive board, the president of the EU Council and one member of the European Commission do not have the right to vote, despite having the right to attend the meetings of the General Council. Currently, this Council contributes, among others, to the following: (i) the advisory functions of the ECB, (ii) the collection of statistical information, (iii) the preparation of the annual report of the ECB, (iv) the establishment of those rules that are necessary in order to standardize the accounting and reporting of operations undertaken by the NCBs, (v) the taking of measures relating to the establishment of the key for the ECB's capital subscription other than those specified in the Treaty, (vi) the establishment of the conditions of employment of the ECB's members of staff and (vii) the preparations for fixing the exchange rates of the currencies of the EU member states with a 'derogation' against the euro.

The ECB has also a number of corporate governance mechanisms. Internal control layers include the internal audit, ethics framework, budgetary authority, data protection officer and an internal control structure, which is based on a functional approach with each organizational unit (e.g., division, directorate, directorate general) being responsible for its own control and efficiency. Of course, special units also exist, advising and making proposals on issues related to internal control on a horizontal basis. In addition to these internal control layers and in accordance with the Statute of the ESCB, there are also two external control layers: (i) external auditors who audit the annual accounts of the ECB and (ii) the European Court of Auditors, that has responsibility for examining the operational efficiency of the management of the ECB.

The objective and strategy of the ECB

Article 2 of Chapter II of the Statute of the ESCB and the ECB mentions that: 'In accordance with Article 127(1) and Article 282(2) of the Treaty on the Functioning of the European Union, the primary objective of the ESCB shall be to maintain price stability. Without prejudice to the objective of price stability, it shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union as laid down in Article 3 of the Treaty on European Union. The ESCB shall act in accordance with the principle of

an open market economy with free competition, favouring an efficient allocation of resources, and in compliance with the principles set out in Article 119 of the Treaty on the Functioning of the European Union.'[10]

Within this context, according to the Treaty establishing the European Community (Article 105.2), the basic tasks of the ECB are to: (i) define and implement a monetary policy for the euro area, (ii) conduct foreign exchange operations, (iii) maintain and manage the official foreign reserves of the euro area countries and (iv) promote the smooth operation of payment systems. Additional tasks include: (i) the exclusive authorization to issue banknotes within the euro area, (ii) the collection of statistical information from national authorities and economic agents, (iii) the smooth conduct of policies pursued by the authorities in charge relative to the supervision of credit institutions and the stability of the financial system and (v) maintaining international and European cooperation with relevant institutions and bodies.

As mentioned in Casu *et al*. (2006), the implementation of the monetary policy of the ECB is based on the use of the following three main policy tools: (i) open market operations such as repo transactions or secured loans, (ii) standing facilities to provide or absorb overnight liquidity in the markets and (iii) a minimum reserve requirement applied to selected financial institutions. The ECB (2008) states that the overall strategy of the ECB in analyzing and evaluating the information that is relevant for assessing the risks to price stability is forward-looking, based on the cross-checking of two analytical perspectives, known as the two pillars. The first is the economic analysis that focuses on potential risks in the short to medium term, by considering a broad range of economic activity, price and cost indicators, at the sector, country and euro area levels. The second is the monetary analysis that focuses on potential risks at the medium to long term. This analysis draws on a wide set of monetary, financial and economic information, employing various complementary tools and techniques, along with informed judgement.[11]

4.4 Policy responses to the crisis

Central bank intervention

Trichet (2010) identifies the following three phases of the financial crisis and the corresponding responses of the ECB and the Eurosystem over the period 2007 to February 2010: (i) the phase of financial turmoil, which started on 9 August 2007, (ii) the phase of the full-blown financial crisis, which set on 15 September 2008, and (iii) the phase marked

by the first steps in the gradual phasing out of non-standard measures towards the end of 2009. The responses of the ECB are discussed in more detail below.

The first reaction of the ECB was to provide 95 billion euros of overnight credit, against collateral, to euro area banks at the then prevailing main refinancing rate. As mentioned by Trichet (2010), this operation, was the first of four very large overnight fine-tuning operations, with a fixed rate, accommodating the entire demand. In the months that followed, the ECB intervened in three more ways: (i) by lengthening the average maturity of its liquidity provision, (ii) by providing US dollar liquidity against euro-denominated collateral and (iii) by conducting special tender procedures.

The filing for Chapter 11 bankruptcy protection of the Lehman Brothers Holdings on 15 September 2008 marked the beginning of the second phase of the crisis. In response to the panic in the financial markets, the central banks of Canada, England, USA, EU, Sweden and Switzerland coordinated to announce a decrease in policy interests.[12] Between 8 October 2008 and 13 May 2009, the ECB decreased the rates rapidly. The main refinancing operations (MRO) rate fell to 1 per cent from 4.25 per cent a few months earlier. Similarly, the marginal lending (ML) rate decreased from 4.75 per cent to 1.75 per cent and the deposit facility (DF) rate decreased from 2.75 per cent to 0.25 per cent. All the rates were kept at these historically low levels until April 2011 when the Governing Council decided to increase them by 25 basis points. This was complemented by two more rate increases in November and December 2011 bringing all the rates back to the levels of May 2009 (see Figure 4.1).[13]

Furthermore, on 7 May 2009 the Governing Council of the ECB decided on the adoption of a number of non-standard measures, known as the ECB's 'enhanced credit support'. These can be summarized as follows (see June 2009 ECB *Monthly Bulletin*; Trichet, 2010; González-Páramo, 2010). First, the Eurosystem provided unlimited central bank liquidity to euro area banks at a fixed rate (i.e., the main refinancing rate) and against adequate collateral in all refinancing operations. Second, the list of assets accepted for use as collateral was extended, allowing many banks to refinance a larger share of their balance sheet. Third, the Eurosystem provided liquidity through longer-term refinancing operations with a maturity of 12 months, at a quarterly frequency. Fourth, the Eurosystem provided liquidity in foreign currencies, mainly US dollars, while at the same time the ECB agreed with the central banks of various non-euro area European countries to enhance the provision of euro liquidity to their banking sectors. Finally, the ECB initiated the

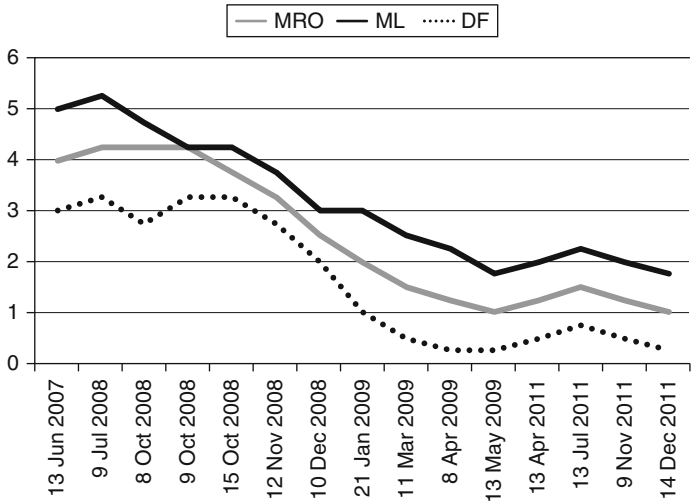

Figure 4.1 ECB key interest rates (% per annum)
Notes: MRO: main refinancing operations; ML: marginal lending; DF: deposit facility.
Source: Based on data from the European Central Bank Statistical Warehouse.

covered bond purchase programme (CBPP), under which 60 billion euros of euro-denominated covered bonds issued in the euro area were purchased between July 2009 and July 2010.[14] González-Páramo (2010) mentions that this initiative had four objectives: (i) reducing money market term rates, (ii) easing funding conditions for credit institutions and enterprises, (iii) encouraging credit institutions to maintain or expand their lending to households and enterprises and (iv) improving market liquidity in important segments of private debt securities markets. On 6 October 2011, the Governing Council of the ECB announced the second CBPP, under which 40 billion euros will be bought between November 2011 and October 2012.

The intention of the ECB was to gradually phase out the enhanced credit support policy and, in summer 2009 the ECB announced the overall framework that would guide its exit (Trichet, 2009, 2010). Nonetheless, taking into account both the financial market conditions and the need to avoid distortions associated with a long reliance on non-standard measures, the Governing Council decided on 3 December 2009 to maintain its enhanced credit support while phasing out selected standard measures only. The measures that were gradually discontinued were the open market operations denominated in Swiss francs and US dollars at end January 2010, the six- and 12-month operations in euros

and the use of fixed-rate tenders in the three-month euro operations in April 2010 (González-Páramo, 2010). Eventually, the phasing-out process was suspended in May 2010, in light of the renewed financial market turbulence, which also led to the introduction of the Securities Markets Programme (SMP). The aim of the SMP is to ensure depth and liquidity in those market segments that are dysfunctional through specific interventions by the Eurosystem in the public and private debt securities markets in the euro area. Furthermore, the Governing Council decided to reactivate the temporary liquidity swap lines with the Federal Reserve, reintroduce the fixed-rate full allotment procedure in the three-month longer-term refinancing operations and to carry out one additional six-month longer-term refinancing operation.[15]

In closing this section, two very important initiatives should be emphasized. First, in response to the sovereign debt crisis, the ECB decided to suspend the minimum credit rating threshold for debt instruments issued or guaranteed by the Greek (May 2010), Irish (March, 2011) and Portuguese (July 2011) governments, which are implementing EU and IMF programmes. Second, between May 2010 and June 2011 the ECB purchased government bonds totalling 78 billion euros, with market analysts estimating that more than half (45 billion euros) of these purchases were Greek bonds (see Nelson *et al.*, 2011).

Measures taken by the Greek government

The collapse of Lehman Brothers affected the confidence of depositors, and forced the European governments to take measures to complement the liquidity support provided by the Eurosystem. In October 2008, following a meeting in Paris, the euro area countries decided to provide coordinated support to the banking sector, by: (i) harmonizing the provision of retail deposit insurance, (ii) issuing government guarantees for bank debt securities, (iii) making funds available for bank recapitalization and (iv) providing asset relief measures (see April 2010b ECB *Monthly Bulletin*).

Deposit insurance schemes were among the first policy initiatives to mitigate the adverse impact of the collapse of Lehman Brothers. In Greece, the Hellenic Deposit Guarantee Fund (HDGF) was first established in 1995, with its founding law being amended in 2000, 2008 and 2009. The result of the 2008 amendment was the establishment of the Hellenic Deposit and Investment Guarantee Fund (HDIGF) as HDGF's universal successor. Consistent with EU legislation prior to the crisis, the maximum cover for deposits was set by Law 2324/1995 at 20,000 euros per depositor. Following the trend in other European countries,

the Greek Law 3714/2008 temporarily raised the maximum deposit guarantee cover to up to 100,000 euros per depositor.[16] This provision was supposed to remain in force until 31 December 2011; however, in May 2011 the Ministry of Finance decided to extend this coverage up to 31 December 2015 (Decision 23384/27.5.2011, Government Gazette 1309/16.06.2011).[17]

In accordance with the Paris summit declaration, the Greek Parliament enacted Law 3723/2008 on the 'enhancement of liquidity in the economy in response to the impact of the financial crisis and other provisions'. This law implements a bank rescue plan and includes the following measures: (i) a recapitalization scheme, through the distribution of the maximum amount of 5 billion euros for the purchase of preference shares, (ii) the granting of up to 15 billion euros (extended by another 15 billion euros with Law 3845/2010, another 25 billion euros with Law 3872/2010 and another 30 billion euros with Law 3965/2011) Greek state guarantee to credit institutions, for loans to be granted to them by 31 December 2009 with a maturity of three months to three years, in order to face the liquidity needs of the banking system and (iii) the issuance of special purpose securities by the Greek state until 31 December 2009, with maturity up to three years and a value of up to 8 billion euros. The aim of these securities was to enhance the liquidity of banking institutions by using them as collateral for obtaining credit from the Eurosystem or the interbank market. As mentioned in the annual report of the Bank of Greece for 2009, by the end of the year banks had achieved recapitalization of 3.8 billion euros through the issuance of preference shares, had drawn liquidity of 4.6 billion euros using Greek government securities as collateral and had obtained loans of 1 billion euros using state guarantees.

Another important initiative was the establishment of the Hellenic Financial Stability Fund (HFSF) by Law 3864/2010, with the purpose of providing equity capital to Greek credit institutions that do not meet the minimum capital requirements. The HFSF is an independent private law legal entity, with an expected duration of seven years that will be financed by the Greek government with an amount of 10 billion euros using resources from the support mechanism for the Greek economy. Credit institutions that meet the capital requirements may also submit a request for capital support to the HFSF when it is expected that they will not continue to meet the regulatory requirements and all their efforts to increase their own funds through payments by existing or new shareholders have failed. To accomplish its mission, the HFSF can appoint a representative in the board of directors of credit institutions that seek

its support. This representative shall have the right to: (i) request a call to a general meeting of shareholders, (ii) veto decisions related to the distribution of dividends, the remuneration of the board of directors and the general managers, and other decisions that may put the interest of the depositors and other stakeholders at risk, (iii) request the suspension of the meeting of the board of directors for three working days in order to receive instructions from the board of directors of the HFSF, (iv) attend the general meeting of common shareholders with a right to veto decisions relating to the aforementioned issues and (v) have access to the accounting books and other documents of the credit institution. Furthermore, over the period that a credit institution receives capital support from the HFSF, there are certain restrictions with regards to the distribution of dividends and the remuneration of the chairman, the managing director and the other members of the board of directors.

Financial assistance from Eurozone and IMF

On 15 April 2010, the Greek Ministry of Finance sent a letter to the European Commission, the ECB and the IMF requesting discussions on a multi-year programme of economic policies that could be supported with financial assistance if the Greek authorities were to decide to request such assistance. A few days later (23 April 2010) the Greek government followed up with an official request for financial assistance which resulted in the announcement (2 May 2010) by the European Commission, the ECB and the IMF for a three-year package of 110 billion euros in loans to Greece. In return for this assistance, the Greek government committed to proceed to important reforms such as the reduction of public wages and pensions, an increase in value-added tax, a reform in the healthcare and pension system, etc.[18] However, these measures had a significantly negative impact on domestic consumption and growth, increasing further the debt and deficit as a percentage of GDP. Therefore, it became clear that Greece was in need of additional assistance to avoid default. Nonetheless, prior to the disbursement of funds from the original euro-zone–IMF package, as well as for securing a second package, Greece was forced to take additional austerity measures, reduce public sector staff and commit to a privatization programme. Finally, in July 2011, the European leaders announced a second financial assistance package of 109 billion euros.

The PSI and PSI plus bond exchange programmes

Based on the decisions of the European Summit of 21 July 2011, the European leaders announced that Greek bond holders were expected

to contribute 50 billion euros over the period 2011–14, by participating on a voluntary basis in the private sector involvement (PSI) programme of bond exchanges, bond rollovers and debt paybacks in an attempt to lower Greek debt payment and avoid default.[19] The loss in the net present value of bond holdings was anticipated to be around 21 per cent. However, the continuing worsening of the European and global economy, led the EU Summit of 26 October 2011 to take additional decisions and to adopt a comprehensive set of new measures. Within this context, the European leaders invited Greece, private investors and all parties concerned to develop a new voluntary bond exchange ('New PSI' or 'PSI plus') with a nominal discount of 50 per cent on notional Greek debt held by private investors. According to initial announcements, the negotiations for the specifications of the revised private sector involvement programme were expected to begin immediately and to be completed by the end of 2011, so that the exchange would take place in early 2012. Nonetheless, as negotiations are taking longer than expected, the agreement was not finalized by the end of 2011, and it was postponed to January 2012.

European stabilization mechanism

Another important initiative of the EU and euro-area member states was the set-up of the European stabilization mechanism, which consists of the European Financial Stabilization Mechanism (EFSM) and the European Financial Stability Facility (EFSF). The decision to establish these two temporary funds was taken during the meeting of the Extraordinary Economic and Financial Affairs Council of 9 May 2010.[20]

The EFSM is an emergency funding programme that has the authority to raise up to 60 billion euros in financial markets on behalf of the Union using the budget of the EU as collateral. The Commission then lends the proceeds to the beneficiary member state. The EFSM has currently been activated for Ireland and Portugal, for a total amount up to 48.5 billion euros to be disbursed over three years. Within this context, it raised a total of 20.25 billion euros for Ireland and 7.75 billion euros for Portugal between January and September 2011.

While under the EFSM the borrower is the European Union, the EFSF was established as a separate, legally independent institution that was registered in Luxembourg on 7 June 2010 and started its operations on 4 August 2010. The aim of the EFSF is to ensure financial stability in Europe by providing financial assistance to euro-area member states by: (i) providing loans to countries in financial difficulties, (ii) intervening in the debt primary and secondary markets, (iii) acting on the basis

of a precautionary programme and (iv) financing recapitalizations of financial institutions through loans to governments. Initially, the EFSF was backed by guarantee commitments from the euro area member states for a total of 440 billion euros, an amount that was increased to 780 billion euros on 21 July 2011.

Basel III and CRD IV

In response to the financial crisis, the Basel Committee on Banking Supervision (BCBS) released, on December 2010, its proposal for a new framework (Basel III) that strengthens capital requirements and introduces new requirements for liquidity and leverage. In Europe, this framework will be transported into EU law by legislation known as the CRD IV package, which was proposed by the Commission on 20 July 2011. This package includes the Capital Requirements Directive (CRD) and the Capital Requirements Regulation (CRR), which not only reflect the Basel III capital proposals, but also include new proposals for important changes to the banking regulatory framework. In particular, the CRD aims to: (i) enhance governance, by strengthening the requirements with regard to corporate governance arrangements and processes and by introducing new rules to improve the effectiveness of risk oversight by boards, etc., (ii) ensure that all supervisors can apply sanctions (e.g., administrative fines, temporary bans on members of the institution's management body) if EU rules are violated, (iii) reinforce the supervisory regime to require the annual preparation of a supervisory programme for each supervised institution on the basis of a risk assessment, wider use of on-site supervisory examinations, etc. and (iv) reduce the reliance on external credit rating. As for the CRR, it introduces a single set of harmonized prudential rules that is applicable to all EU banks, in an attempt to ensure uniform application of Basel III in all member states.

4.5 Conclusions

Central banks play an important role in the functioning of the banking sector. Apart from monetary policy, they regularly supervise credit institutions, a role associated with the development and implementation of the regulatory framework discussed in more detail in Chapter 5. The present chapter started with a brief discussion on the establishment and the Statute of the Bank of Greece. One of the most important moments in the recent history of the Bank of Greece was its inclusion in the Eurosystem in 2001 and the responsibilities of the BoG as part of this

system are discussed above. Within this context, Section 4.3 provided a discussion of the European Central Bank.

From a relatively stable period up to 2007, European policy-makers found themselves suddenly in the centre of the financial crisis which started in the summer of 2007 and was followed by a number of events such as the collapse of Lehman Brothers, the request of the Greek government for financial assistance and the involvement of the IMF in the rescue of Greece, Portugal and Ireland. Therefore, Section 4.4 discussed the policy responses to the crisis while placing particular emphasis on the intervention of the ECB and the actions of the Greek government. In closing, it should be mentioned that, on several occasions, policy-makers were criticized for the delay in their response, as well as for their inability to bring the financial crisis to an end.

5
Supervisory Framework

5.1 Introduction

As discussed in Chapter 4, the Bank of Greece, in particular, the Department for the Supervision of Credit and Financial Institutions, is responsible for the prudential supervision of the Greek banking sector. Within this context, the BoG has issued executive decisions laying down supervisory rules in the areas of: (i) capital adequacy (Basel II), (ii) adequacy of provisions, (iii) liquidity, (iv) reporting and (v) internal control systems.

In general, the supervisory framework in Greece draws heavily on the relevant Community legislation, which is, in turn, consistent with the Basel principles. Law 3601/2007 (as modified by subsequent Laws and Bank of Greece Governor's Acts) comprises the supervisory framework (Basel II), which incorporates the provisions of the Directives 2006/48/EC, 2006/49/EC and 2009/111/EC of the European Parliament and of the Council and Commission Directives 2009/27/EC and 2009/83/EC.

The sections that follow summarize the main issues relating to (i) to (iv) above, whereas regulations relating to internal control systems are discussed in Chapter 9. The present chapter closes with a reference to the characteristics of the Deposit Guarantee and Investors' Compensation Scheme in Greece.

5.2 Licensing and activities of credit institutions

Requirements for setting up and pursuing the business of a credit institution

According to Article 5 – Chapter II of Law 3601/2007, credit institutions may only be established and operate in the form of a société anonyme or

in the form of a pure credit cooperative, referred to in Law 1667/1986.[1] Furthermore, credit institutions established and operating in Greece shall be required to have their actual centre of administration in Greece.

To seek authorization (i.e., approval) by the Bank of Greece, by which the right to set up and carry out the business of a credit institution is granted, the interested parties must submit the following to the Bank of Greece:

1. An application for authorization and, before the authorization is granted, pay the initial capital, which is at least 18 million euros in the case of credit institutions, 9 million euros in the case of a branch of a credit institution authorized in a third country and 6 million euros in the case of a credit cooperative as a credit institution.[2]
2. The identities of: (i) the shareholders who directly or indirectly hold 5 per cent or more of the capital or voting rights of the credit institution, along with details on the proportions that they hold, (ii) the credit institution's ten largest shareholders as well as details on their holdings or voting rights and (iii) any natural persons other than those referred to in (i) and (ii) above who exercise control over the credit institution under written agreements or other arrangements or through common action, (iv) the persons (at least two) who will be responsible for directing the business of the credit institution and will participate as members in its board of directors, (v) the other members of the board of directors and (vi) the persons in charge of the functions of the credit institution, in accordance with the applicable Bank of Greece decisions on credit institutions' internal control systems.
3. A programme of operations outlining the types and scope of business envisaged, a business plan, the structure of the credit institution's parent group (where appropriate), as well as the credit institution's structural organization and internal control system.[3]

Activities of credit institutions

According to Article 11 (Chapter III), the activities of credit institutions are as follows: (1) acceptance of deposits or other repayable funds, (2) lending or extension of other credit (including factoring transactions), (3) financial leasing, (4) payment operations (including transfers of funds), (5) issuing and administering means of payment, (6) guarantees and commitments, (7) trading for own account or for account of customers in: (i) money market instruments, (ii) foreign exchange, (iii) financial futures and options, (iv) exchange and interest rate

instruments and (v) transferable securities, (8) participation in securities issues and the provision of services related to such issues (including in particular underwriting), (9) advice to undertakings on capital structure, industrial strategy and related questions and advice, as well as services relating to mergers and the purchase of undertakings, (10) money broking, (11) portfolio management and advice, (12) safekeeping and administration of securities, (13) credit reference services, including customers' credit rating, (14) safe custody services, (15) issuance of electronic money, (16) activities other than the above, provided for in paragraphs 1 and 2 of Article 2 of Law 2396/1996, and (17) other financial or ancillary activities, as long as the entailed risks are fully hedged and in accordance with the legislation in force.

Other matters relating to licensing and services

Law 3601/2007 also lays out the rules on various other matters relating to licensing and services such as: the grounds for denial of authorization (Article 7), the reasons for the withdrawal of authorization (Article 8), the establishment of branches in Greece and other member states by credit institutions authorized in Greece (Article 12) and in other member states (Article 13), the establishment of representative offices of credit institutions authorized in Greece (Article 17) and the provisions of services in other countries or by institutions from other countries under various scenarios (e.g., Articles 14, 15, 18, 19, 20, etc.).

5.3 Capital adequacy requirements

The capital adequacy framework consists of numerous Bank of Greece Governor's Acts which, by authority of Law 3601/2007, transport into Greek law the provisions of Directives 2006/48/EC and 2006/49/EC on capital adequacy of credit institutions and investment firms.

Act 2630/2010, which replaced Governor's Act 2587/2007, incorporates the provisions of Directive 2009/111/EC of the European Parliament and Council concerning the definition of own funds of credit institutions. This Act defines tier 1 and tier 2 capital, while distinguishing between upper- and lower-tier capital, on a solo and on a consolidation basis. Furthermore, the Act: (i) specifies the items to be deducted from regulatory capital (e.g., intangible fixed assets), (ii) defines tier 3 capital that may be used to cover bank's market risk capital charge, (iii) sets limits on the composition of regulatory capital, such as the recognition of lower tier 1 capital as a proportion of total tier 1 capital, the recognition of hybrid instruments on tier 1 capital, etc. and

(iv) defines the responsibilities of the Bank of Greece with regards to capital adequacy requirements.[4]

The methods for the calculation of capital requirements with regards to credit risk, operational risk and market risk are laid down in four Acts of the Governor of the Bank of Greece.[5] Acts 2588/20.8.2007 (amended by Governor's Act 2631/29.10.2010) and 2589/20.8.2007 (amended by Governor's Act 2631/29.10.2010) establish the standardized approach and the internal ratings-based approach, respectively, for the calculation of capital requirements for credit risk. Moreover, the Bank of Greece Governor's Act 2590/20.8.2007 (amended by Governor's Act 2631/29.10.2010) introduces the standardized and advanced approaches for the calculation of capital requirements for operational risk. Finally, Bank of Greece Governor's Act 2646/9.9.2011 refers to capital requirements for market risk. This Act which replaced Governor's Act 2591/2007, and incorporates the provisions of Directive 2010/76/EC, emphasizing issues such as the calculation of additional capital charges according to value at risk models, based on a stressed period, the obligation for credit institutions to perform hypothetical back-testing for the evaluation of internal models for potential loss, the requirement to adopt procedures that will adjust the current value of the non-highly liquid assets of credit institutions, etc.

The capital requirements framework is complemented by further Acts by the Governor of the Bank of Greece referring to: (i) the disclosure of data and information on the capital adequacy, the risks and the management of credit institutions (Act 2592/20.8.2007 as amended by Act 2632/29.10.2010), (ii) the calculation of weighted exposures for securitization positions (Act 2645/9.9.2011),[6] (iii) counterparty risk (Act 2594/20 August 2007, as amended by Governor's Act 2634/29.10.2010), (iv) the qualitative criteria for the calculation of each credit institution's capital adequacy, the notion of internal capital and the supervisory review process by the Bank of Greece (Act 2595/20.8.2007), (v) the supervision and control of credit institutions' large financial exposures (Act 2635/29.10.2010) and (vi) the conditions under which asset-backed bonds issued directly by a credit institution or through a special purpose vehicle subsidiary are recognized by the supervisory authority as covered bonds (Act 2620/28.8.2009).

5.4 Reporting and transparency-related regulations

Article 29 of Law 3601/1.8.2007 and the Bank of Greece Governor's Acts 2520/10.2.2003 and 2640/18.1.2011 lay down the requirements for

information disclosure by credit institutions, and supervisory data and information to be submitted to the Bank of Greece, respectively.

According to Law 3601/1.8.2007, credit institutions have the obligation to publicly disclose on an at least an annual basis data and information on their financial position and their policies in relation to risk-taking and management. Furthermore, they must adopt a formal policy to comply with the disclosure requirements laid down from time to time by the Bank of Greece, along with policies for assessing their disclosures, mainly in relation to appropriateness, verification and frequency. The Law also specifies that credit institutions may determine the appropriate medium, location, frequency and means of verification to comply effectively with the disclosure requirements. Additionally, credit institutions must (if requested), explain their rating decisions to SMEs and other corporate applicants for loans made pursuant to the relevant Bank of Greece decisions on the calculation of their weighted exposures on the basis of the internal ratings-based approach.[7]

Further to the above, according to the Bank of Greece Governor's Act 2520/10.2.2003, credit institutions based in Greece must provide the Bank of Greece with information on financial exposure to non-residents, by country and economic geographic region. These data include both on- and off-balance sheet assets, covering cross-border exposures of credit institutions' branches in Greece to non-residents, and local exposures in non-local currency of credit institutions' branches established in a foreign country to its residents.

In addition, Bank of Greece Governor's Act 2640/18.1.2011 lays down the supervisory data and information to be submitted to the Bank of Greece by credit institutions and certain financial institutions and defines the persons that have a special relationship with the credit institution. The Act requests the submission of information or changes about the credit institution's shareholders (i.e., direct or indirect participation in excess of 5 per cent, ten largest shareholders, etc.), the board of directors and senior managers, special participation in the equity of financial and non-financial firms. The credit institutions must also complete and submit specific templates with information about: (i) their own equity and capital adequacy ratios, (ii) credit risk, (iii) market risk, (iv) operational risk, (v) large financial exposures and concentration risk, (vi) liquidity risk, (vii) financial statements (annual and periodic), (viii) covered bonds, (ix) internal control systems, (x) annual reports on the prevention and suppression of money laundering and terrorist financing, (xi) computer systems, (xii) other information (e.g., distribution of new mortgage loans, results of the supervisory review

of subsidiaries operating abroad, etc.). The frequency of the disclosure depends on the type of information, and it is usually quarterly (e.g., ownership structure, large financial exposures, balance sheet and profit-loss account on a consolidated basis), bi-annual (e.g., information about subsidiaries and branches abroad) or annual (e.g., migration matrix, internal review of the internal control systems). In a few cases, information is requested on a monthly basis (e.g., detailed balance of payments, balance sheet and profit-loss account on an individual basis), while the external review of the internal control systems is submitted every three years.

To enhance transparency of banking transactions, the Bank of Greece Governor's Act 2501/31.10.2002 mentions that, among others, the following two general principles should apply: (i) credit institutions should duly inform their customers on the nature and the characteristics of the products and services offered and, in general, on the terms and conditions governing bank transactions, (ii) credit institutions should periodically inform their customers, in writing, on the way the terms of any contractual agreement signed are abided by, throughout the contractual period.[8] The Act then lays down the minimum disclosure requirements for various types of services such as deposits (e.g., interest rate levels offered, depending on duration and the amount of deposit; the day count convention; any taxation on interest income, commissions and fees or handling charges, etc.), loans (e.g., the day when interest on loans granted begins to accrue, including information on periods of grace; for fixed-rate housing and consumer loans, detailed breakdown of payments of principal, interest and other charges for the period during which the fixed rate is applicable, etc.), other operations (e.g., details about the fees charged for the provision of services on behalf of third parties and for relevant expenses), credit cards (e.g., conversion rate for foreign currency transaction, case of theft or loss of the card, etc.) and derivative financial instruments (e.g., basic characteristics of derivatives).

The above Act was subsequently clarified and supplemented by the following decisions of the Banking and Credit Committee: (i) BCC Decision 178/3/19.7.2004, which mentions that it is no longer possible to set administrative ceilings on bank rates; it also clarifies matters relating to floating rates, (ii) BCC Decision 234/20/11.12.2006, which prohibits the collection of inactivity fees on savings accounts, to the extent that they are higher than interest and reduce the balance of the deposit principal. The same decision lays down that, in cases of unilateral change in any contractual term by the credit institution, information must be provided on an individual basis, (iii) BCC Decision

243/2/16.5.2007, which prohibits the collection of management fees on savings accounts for at least five over-the-counter transactions per month and (iv) BCC Decisions 259/4/2.5.2008 and 263/2/31.7.2008, which clarify issues relating to presentation of key information in credit institutions' advertisements.

5.5 Supervisory power

The supervisory powers and the sanctions that can be imposed by the Bank of Greece are discussed in its Statute (article 55A), Law 3601/1.8.2007 and Bank of Greece Governor's Act 2602/4.2.2008.

Article 25 of Law 3601/1.8.2007 states that the Bank of Greece may lay down criteria and rules or take measures, either general or credit institution-specific, assess and continuously monitor credit institutions' compliance with their obligations by requiring them to submit data or provide written explanations upon request, as well as by conducting on-site examinations. The same Article mentions that the Bank of Greece shall have, in particular, the following powers to:

1. Review (a) the strategies, arrangements, processes and mechanisms implemented by credit institutions, laying down the required criteria with a view to ensuring their compliance with their obligations under Law 3601/1.8.2007 and (b) the risks to which credit institutions are or might be exposed. The review and evaluation shall be updated at least annually, and their intensity shall be established by considering the size, systemic importance, nature, scale and complexity of each credit institution's activities, taking into account the principle of proportionality.
2. Lay down the criteria and overall obligations of credit institutions as regards their disclosure of and/or failure to disclose data and information under Article 29 of Law3601/1.8.2007. The Bank of Greece may also request: (a) more data to be disclosed and a higher disclosure frequency for one or more of the items of information to be disclosed under (1a) above, (b) disclosure time limits, (c) disclosure means and locations other than those applicable to credit institutions' annual and consolidated accounts, (d) the employment of specific verification means for the disclosures not covered by the statutory audit of credit institutions' annual and consolidated accounts carried out according to the legislation in force and (e) disclosures by credit institutions pursuant to other provisions of the legislation in force that it considers equivalent to those required under point (2a).

3. Lay down the criteria: (a) for the recognition of the eligibility of external credit assessment institutions for the purposes of implementation of its decisions on 'Risk-Weighted Exposures according to the Standardized Approach' and (b) for determining with which of the credit quality steps set out in its decision referred to in (a) above the relevant credit assessments by an eligible external credit assessment institutions are to be associated.
4. It may recognize, on an *ad hoc* basis, without carrying out its own determination process: (a) an external credit assessment institution as eligible according to point (3a) provided that it has been recognized by the competent authorities of other member states; and (b) the association of the credit assessments made by an agency recognized according to the above point, which has been determined by the competent authorities of other member states.
5. Specify the form and frequency of data reporting by the credit institutions and undertakings it supervises under this Law.
6. Allow credit institutions to use credit assessments by export credit agencies for the purposes of weighting exposures *vis-à-vis* central governments and central banks, according to its decisions on 'Risk-Weighted Exposures according to the Standardized Approach', if any of the following conditions is fulfilled: (a) it is a consensual risk assessment by export credit agencies participating in the Arrangement on Officially Supported Export Credits of the Organisation for Economic Co-operation and Development (OECD), or (b) the export credit agency publishes its credit assessments and applies the methodology agreed within the OECD and the credit assessment is associated with one of the eight minimum export credit premia provided for by this methodology.

Further to the above, the same Article states that the Bank of Greece may lay down rules relating to the information and data that the credit institutions are obliged to provide to their customers regarding their transaction terms, with an aim to ensure transparency and clarity.

Article 55A of the Bank of Greece's Statute asserts that, in performing its supervisory tasks, the Bank may impose administrative sanctions on all persons subject to its supervision, as well as their legal representatives and managers, in cases of non-compliance with provisions pertaining to the responsibilities of the Bank of Greece. The Bank of Greece Governor's Act 2602/4.2.2008 raises the upper limits of the administrative sanctions that the Bank of Greece can impose on banks and other supervised entities, under its Statute, as follows: (i) from 8,804,108 euros

to 20,000,000 euros for the maximum penalty imposed in the form of a non-remunerated deposit with the Bank of Greece, in the event that the amount of the violation cannot be verified, (ii) from 880,441 euros to 2,000,000 euros, the fine imposed as one-off penalty in favour of the Greek state and (iii) from 1,467,351 euros to 3,000,000 euros, the maximum penalty that may be imposed in the case of a repeated violation. These penalties may be combined with other administrative sanctions and corrective measures, as laid down by law.

Over recent years, the Bank of Greece has exercised its power and imposed fines on various occasions. For example, by decision of the Banking and Credit Committee (meeting 300/28.7.2010), the Bank of Greece imposed the amount of 902,000 euros in fines on 20 banks for violations and failures related to, among others: (i) violations concerning overdue responses to complaints (National Bank of Greece, Alpha Bank, EFG Eurobank Ergasias, Piraeus Bank, Bank of Cyprus, Citibank International Plc., Millenium Bank, Postal Savings and Commercial-Credicom), (ii) violations regarding late or incomplete data towards the traders (Piraeus Bank, Attica Bank, National Bank of Greece, Emporiki Bank, Agricultural Bank of Greece, EFG Eurobank Ergasias, Bank of Cyprus, and Citibank International), (iii) unilateral modification of contract terms (National Bank of Greece), (iv) failure to timely inform the debtor and the guarantor within 30 days on receipt of debt in default (Attica Bank, Alpha Bank), (v) not clearly defining costs to the borrowers, the loan margin (spread) and the total costs of issuing the loan (Alpha Bank, General Bank, Marfin Bank) and (vi) significant deficiencies in internal control systems (Attica Bank). The fines are imposed after considering the type of violation, its importance, whether it is a case of relapse, its impact on the efficient operation of the institution and the need to prevent similar actions in the future.[9]

Moreover, Law 3691/5.8.2008 and BCC Decision 290/11.11.2009 define the fines and the framework for the imposition of administrative sanctions on institutions supervised by the Bank of Greece, in the case of money laundering and terrorist financing. For example, on a recent occasion (BCC meeting 280/25.2.2009), the Bank of Greece imposed the amount of 930,000 euros in fines on ten banks for matters related to the aforementioned Law.[10]

5.6 Liquidity requirements

The framework and the main principles for the management of liquidity of credit institutions, is set out in the Bank of Greece Governor's Act

2614/7.4.2009, as amended by BCC Decision 285/9.7.2009 (issue 8) and Bank of Greece Governor's Act 2626/29.7.2010. This framework replaced the Bank of Greece's Governor's Act 2560/1.4.2005 with the main changes being as follows: (i) it extends the obligation for abiding and submitting liquidity set ratios and relevant data on a consolidated basis, rather than on a solo basis, only, (ii) it adopts the liquidity management guidelines of the Committee of European Banking Supervisors and of the Basel Committee for Banking Supervisor, (iii) it provides incentives for the avoidance of too much dependence on the financial and capital markets, with the adoption of the appropriate technical adjustment on the calculation of liquidity ratios and (iv) it adopts criteria for distinguishing deposits, to retail and wholesale.

The liquidity framework defines two ratios and their minimum accepted value. The first is the 'liquid asset ratio', calculated as the cumulative balance of banks' 'liquid assets' maturing in up to 30 days over the 'short-term liabilities'. The supervisory minimum in this case is 20 per cent. The second is the 'maturity mismatch ratio', calculated as the cumulative balance of the difference between the bank's total assets and liabilities maturing in up to 30 days divided by the 'short-term liabilities'. The supervisory minimum for this ratio is –20 per cent. The framework provides detailed information and guidance for the classification of assets and liabilities in time bands and the completion of the so-called liquidity templates.

Additionally, it sets out the requirements for the data that have to be submitted to the Bank of Greece. These include: (i) the liquidity templates, (ii) an annual funding plan (at group level), along with projections of expected future inflows/outflows, the funding gap that arises from the mismatch of the inflows/outflows, estimates of the funds required to finance the ongoing operations, etc., (iii) a documented liquidity policy, (iv) a documented liquidity limits framework, (v) a contingency funding plan (at group level) and (vi) the results of stress tests conducted at group level, on a semi-annual basis.

Finally, the framework outlines the basic principles for the management of liquidity risk, addressing the following issues: (i) liquidity risk management policy, (ii) the role of the board of directors and senior management, (iii) liquidity risk management systems, procedures and methods, (iv) management information systems and reporting framework, (v) liquidity risk indicators and limits, (vi) projections of future inflows and outflows, (vii) contingency funding plan, (viii) stress testing and (ix) internal control systems. Within this context,

the framework also discusses a few more specific liquidity management issues such as: (i) securitization and liquidity risks, (ii) contingent liabilities from off-balance sheet items, (iii) assets and liabilities in foreign currencies and liquidity risks, (iv) stress testing assumptions, covenants and (v) early warning indicators.

5.7 Provisioning

The minimum provisions that are applicable to certain categories of credit institutions' non-performing loans are set out in the Bank of Greece Governor's Act 2442/29 January 1999, as modified by various subsequent Acts (2513/15.1.2003, 2557/26.1.2005, 2565/11.10.2005, 2619/30.7.2009), and the Banking and Credit Committee Decision 254/6.12.2007. The minimum provisions are determined for supervisory purposes and are associated with the assessment of credit institutions' capital adequacy.

5.8 Money laundering and the financing of terrorism

The framework on the prevention and suppression of money laundering and terrorist financing (i.e., Anti-Money Laundering and Combating the Financing of Terrorism – AML/CFT – Framework) is based on Law 3691/5.8.2008 (as amended by Laws 3875/2010 and 3932/2011) and the decisions of the Banking and Credit Committee (BCC) of the Bank of Greece. This framework transposes the relevant Community legislation (Directives 2005/60/EC and 2006/70/EC), which is in line with the recommendations on the prevention of money laundering and the special recommendations on combating the financing of terrorism issued by the Financial Action Task Force (FATF).

Law 3691/5.8.2008 consists of 56 articles classified in nine chapters, which among other things: (i) define the competent authorities which supervise the compliance of obligated persons, (ii) establish the Anti-Money Laundering and Anti-Terrorism Financing Commission, (iii) designate the Ministry of Economy and Finance as the Central Coordinating Authority, (iv) establish the Committee for the Elaboration of a Strategy and Policies to combat Money Laundering and Terrorist Financing, (v) establish a special entity, known as the Anti-money Laundering and Anti-terrorist Financing Consultation Forum, (vi) deal with customer matters with due diligence, (vii) define the reporting obligations and probation of disclosure, (viii) set out requirements for record keeping and statistical data, (ix) discuss implementation

issues, (x) define the criminal and administrative sanctions, seizure and confiscation of assets and (xi) require the appointment of a compliance officer.

Law 3875/2010 introduced amendments with regards to the criminalization of the offence of terrorist financing, whereas the main difference introduced by Law 3932/2011 is the replacement of the Anti-Money Laundering and Anti-Terrorism Financing Commission by the Anti-Money Laundering, Counter-Terrorist Financing and Source of Funds Investigation Authority. This Authority enjoys administrative and operational independence and consists of a president and 11 board members, as well as an equal number of alternates. The Authority has three independent units (i.e., Financial Intelligence Unit, Financial Sanctions Unit, Source of Funds Investigation Unit), with separate responsibilities, staff and infrastructure, reporting to the president.

Further to the above, the Bank of Greece issued a decision of the Banking and Credit Committee (281/5/17.3.2009) whose main points could be summarized as follows: (i) it requires credit institutions to follow a documented AML/CFT policy, approved by their boards of directors, (ii) it enhances the role and specifies the duties of the compliance officer, (iii) it provides detailed instructions to supervised institutions concerning the application of AML/CFT methodology by customer and transaction risk category, (iv) it recommends that, when customers withdraw amounts over 250,000 euros in cash, the credit institutions should provide these sums in the form of a bank cheque or payment order into a bank account. The aforementioned decision is complemented by another BCC decision (290/12/11.11.2009) which provides a framework of administrative sanctions against institutions supervised by the Bank of Greece in cases of non-compliance with the requirements of the Law 3691/2008, Regulation 1781/2006, BCC decision 281/5/17.3.2009 and the other regulatory provisions adopted by authorization of the Law 3691/2008. Finally, these two BCC decisions were more recently completed by BCC Decision 300/30/28.07.2010.

The responsibilities of the Bank of Greece with regards to AML/CFT are to: (i) check the compliance of the supervised institutions with their AML/CFT-related obligations and (ii) assesses the adequacy and effectiveness of their AML/CFT procedures. However, it should be stressed that the Bank of Greece has no power to conduct preliminary investigations or to examine in substance suspicious transaction reports submitted by supervised institutions. These powers are reserved to the AML/CFT Committee, law enforcement or judicial authorities, as appropriate.

5.9 Deposit guarantee and investors' compensation scheme

As discussed in Chapter 4, the Greek deposit guarantee scheme was introduced by virtue of Law 2324/95 that was based on EC Directive 94/19/EC. The law came into effect in July 1995 and established the Hellenic Deposit Guarantee Fund (HDGF) as manager of the scheme. The HDGF started operating at the end of the same year as a legal entity governed by private law. In 2000, Law 2832/2000 codified and supplemented the provisions of Law 2324/1995, while, more recently, Law 3746/2009 replaced Articles 1-17 of Law 2832/2000, establishing the Hellenic Deposit and Investment Guarantee Fund (HDIGF).

The HDIGF has the responsibility for two separate schemes, one for deposits (i.e., Deposit Cover Scheme) and one for investments (i.e., Investment Cover Scheme). Its purpose, with a view to ensuring stability in the credit system, is to: (i) pay compensation to depositors of credit institutions that are licensed in Greece and become unable to meet their obligations towards depositors and (ii) pay compensation to investors/customers of credit institutions that: are licensed in Greece, do not participate in the Athens Exchange Members' Guarantee Fund and become unable to meet their obligations arising out of investors' claims and have no early prospect of being able to do so.

The HDIGF's resources derive from initial membership and annual regular contributions paid by the credit institutions. In the event that these resources are not sufficient for the compensation, further supplementary resources are provided (Law 3746/2009). The initial capital of the HDIGF, as successor in interest to the HDGF, amounts to 8.80 million euros, covered by the Bank of Greece and the Hellenic Bank Association's member credit institutions, with their participation being 60 per cent and 40 per cent, respectively. The regular annual contribution of each participating credit institution is calculated on the basis of a deposit thresholds scale (Article 6 of Law 3714/2008). The assets of the HDIGF available for meeting the needs of the Deposit Cover Scheme of the HDIGF are clearly distinct from the assets which are destined to serve the purpose of the Investments Cover Scheme of the HDIGF. The total accumulated resources of the Deposit Cover Scheme at the end of 2010 were 2.97 billion euros, while the total accumulated resources of the Investments Cover Scheme were 170 million euros.

The Deposit Cover Scheme is activated if it is determined, either by court ruling or by a formal decision of the Bank of Greece, that one of its member credit institutions is unable to repay its customers' deposits.

As mentioned in Chapter 4, the maximum compensation is currently set at 100,000 euros. The Investment Cover Scheme is activated when there is a court ruling or a formal decision of the Bank of Greece that an HDIGF-participating credit institution is unable to repay its investors'/customers' covered investment services.[11] The maximum compensation for the total claims per investor/customer of the credit institution is 30,000 euros and applies irrespective of covered services, number of accounts, currency of denomination and place where the service is provided. The resources of the Investment Cover Scheme consist of: (i) the initial contribution of the participating credit institutions,[12] (ii) the annual contribution of the participating credit institutions, (iii) the supplementary contribution, (iv) the revenues and income arising from management of the assets of the Investment Cover Scheme and (v) the proceeds from the liquidation of claims of the assets of the Investment Cover Scheme.

5.10 Conclusions

The failure of banks can have important implications for households, enterprises and the entire economy. Therefore, in most countries the banking industry is heavily supervised with regulations relating to licensing, activities, capital requirements, supervisory power, reporting requirements, etc. As discussed in this chapter, the supervisory framework in Greece draws heavily on the relevant Community legislation, which is in line with Basel II. Further to that, the Bank of Greece, which has responsibility for the supervision of banking institutions, has already imposed liquidity requirements, attracting the interest of the international community due to the recent liquidity problems in the interbank market, resulting in the introduction of liquidity requirement in the Basel III framework. Another important initiative was the establishment of the Greek deposit guarantee scheme in 1995 and the recent increase in the maximum compensation per deposit, in an attempt to restore confidence in the market.

6
Retail Banking

6.1 Introduction

Retail banking constitutes the main element of the domestic banking system. Therefore, this chapter discusses the developments in the distribution channels, the means of payment, the financial cards market, the loans market and the deposits market in Greece over the last decade. The statistics in Chapter 1 illustrate that the number of retail bank branches in Greece has increased considerably over the last 15 years or so. However, the competitive environment in which banks operate, as well as technological advances, does not allow them to ignore the alternative distribution channels discussed in Section 6.2. The use of cashless means of payment has also developed significantly in recent years (Section 6.3); however, cash maintains its importance in daily transactions in Greece. Section 6.4 provides a detailed discussion of the financial cards market, while distinguishing between credit cards, debit cards and delayed debit cards, while Sections 6.5 and 6.6. discuss the developments in various segments of the loans and deposits market compared with other member states of the EU.

6.2 Distribution channels

In recent years, banks have expanded significantly the number of ATMs and customer POS (point of sale) terminals, improved e-banking services, enhanced their cooperation with retail chains (e.g., electronic shops, car agencies, etc.) and professional associations (e.g., manufacturers) and increased direct phone and postal sales (Bank of Greece, 2006a). Still, these channels are supplementary to branches, which retain their key role as points of sale.

The number of ATMs in Greece increased from 3,472 in 2000 to 7,947 in 2009, a change of approximately 129 per cent. Additionally, the operations of ATMs expanded over the years to include fund transfers to third-party accounts, and credit card and utility bill payments.[1] Another important development was the launch of the DIAS ATM system, which connects all the networks, allowing bank customers to make cash withdrawals and balance enquiries from the ATMs of any bank.[2] Of course, this upward trend in the number of ATMs was not unique to Greece. With the exception of Finland, which recorded a 36 per cent decrease in the number of ATMs, all the remaining countries experienced an increase that was between 9 per cent (Denmark) and 161 per cent (Ireland). As a result, the total number of ATMs in the EU-15 increased from 240,784 in 2001 to 385,609 in 2009. Thus, the average number of ATMs over the 15 EU countries in 2009 was 25,707 – that is, approximately three times higher than the Greek figure. However, as shown in Figure 6.1, when we weight the number of ATMs by population, we observe that the 2009 figure for Greece (approximately 706 ATMs per million inhabitants) is much closer to the EU-15 average (approximately 900 ATMs per million inhabitants).

Table 6.1 presents the number and the value of cash withdrawals per capita via ATM, using cards that were issued and used in Greece (or issued and used in the reporting countries in the case of the EU-15). The number of cash withdrawals per capita increased from 10.50 in 2000 to 16.65 in 2009. Thus, over the period the population-weighted

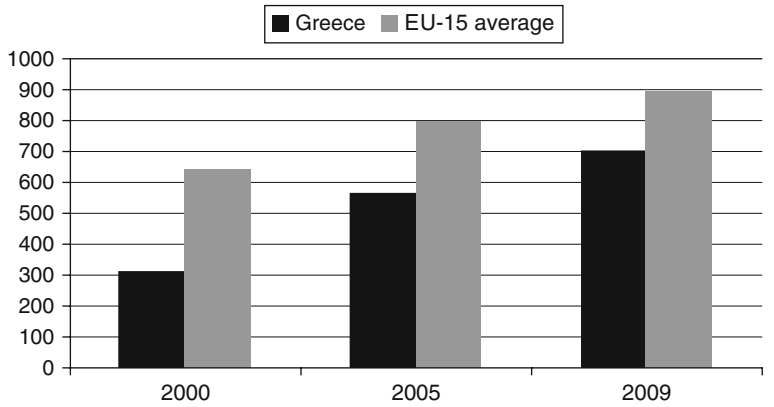

Figure 6.1 ATMs per million inhabitants
Source: Based on data from the European Central Bank Statistical Warehouse.

Table 6.1 Number and value of cash withdrawals per capita through ATMs in Greece and the EU-15

	Greece	EU-15 average	Greece % change	EU-15 average % change
Panel A: no. of withdrawals per capita				
2000	10.50	22.18	n.a.	n.a.
2001	13.40	23.27	27.55%	4.88%
2002	13.09	23.66	–2.30%	1.68%
2003	13.90	24.24	6.21%	2.49%
2004	13.66	24.59	–1.76%	1.43%
2005	14.13	24.93	3.45%	1.39%
2006	15.11	25.32	6.95%	1.55%
2007	15.46	25.46	2.30%	0.58%
2008	16.00	25.93	3.49%	1.81%
2009	16.65	25.49	4.08%	–1.69%
Panel B: value of withdrawals per capita				
2000	1598.79	2121.68	n.a.	n.a.
2001	2153.14	2303.24	34.67%	8.56%
2002	2588.05	2413.97	20.20%	4.81%
2003	2924.40	2560.04	13.00%	6.05%
2004	3166.64	2678.30	8.28%	4.62%
2005	3348.52	2764.76	5.74%	3.23%
2006	3728.23	2900.57	11.34%	4.91%
2007	3932.65	2958.91	5.48%	2.01%
2008	4164.48	2919.67	5.90%	–1.33%
2009	4215.31	2836.39	1.22%	–2.85%

Notes: The figures refer to cards issued and used in the reporting country; in the case of Spain, 2002 figures were also used for the calculation of the 2000 and 2001 EU-15 average values due to missing data for the early years.
Source: Based on data from the European Central Bank Statistical Data Warehouse.

withdrawals increased by 58.51 per cent, with an average annual change of 5.55 per cent. The EU-15 figures increased at a slower pace, by 14.89 per cent over the entire period, or an average annual change of 1.57 per cent. However, at the end of 2009 the EU-15 average number of withdrawals per capita was still 1.5 times higher than the corresponding figure in Greece. The value of withdrawals per capita also increased considerably in Greece, from 1,598.79 euros in 2000 to 3,182.02 euros in 2009, recording an average annual change of 11.76 per cent. After reaching a peak of 2,958.91 euros, the corresponding figure for the EU-15 average decreased in both 2008 (2,919.67 euros) and 2009 (2,836.39 euros), resulting in an average annual change of only 3.33 per cent.

As Table 6.2 shows, the number of POS terminals in Greece has increased considerably in recent years, reaching 45,164 POS per million inhabitants in 2009 (EU-15 average: 22,016) compared with 18,459 POS per million inhabitants in 2000 (EU-15 average: 12,459). This represents a change of 144.64 per cent, compared with a change of approximately 76.70 per cent in the population-weighted number of POS for the EU-15 as a total. The average percentage change among the EU-15 countries (i.e., the mean of the individual country percentage changes) was 84.29 per cent, with Portugal (185.98 per cent), Finland (154.67 per cent), Austria (140.92 per cent), Sweden (137.37 per cent), the Netherlands (110.58 per cent) and Italy (100.41 per cent) also experiencing an increase above 100 per cent. Denmark was the only country that recorded a decrease in the corresponding figure (–16.10 per cent), while Germany and Belgium both recorded a small increase of about 10 per cent.

Table 6.3 presents the number and the value of payment transactions per capita, for cards that were issued and used in Greece (or in the reporting countries in the case of the EU-15) via customer terminals (i.e., POS) over the same period. It is clear that, despite the aforementioned increase in the number of POS, their use by Greek customers is very low compared with other EU-15 countries. In 2009, the number of transactions per capita in Greece was as low as 6.22. While this

Table 6.2 Number of POS per million inhabitants in Greece and EU-15

	Greece	**EU-15 average**	**EU-15 total**	**Greece as % of EU-15 total**	**Greece, annual % change**	**EU-15, annual % change in total number**
2000	18,461	12,459	186,890	9.88	n.a.	n.a.
2001	25,324	13,857	207,851	12.18	37.18	11.22
2002	31,921	14,999	224,989	14.19	26.05	8.25
2003	27,635	15,312	229,687	12.03	–13.43	2.09
2004	30,858	16,365	245,481	12.57	11.66	6.88
2005	30,273	16,806	252,085	12.01	–1.89	2.69
2006	32,009	17,967	269,502	11.88	5.73	6.91
2007	34,636	19,181	287,708	12.04	8.21	6.76
2008	35,673	20,441	306,618	11.63	3.00	6.57
2009	45,164	22,016	330,241	13.68	26.61	7.70

Note: In the case of Denmark, 2001 figures were also used for the calculation of the 2000 EU-15 values due to missing data for 2000.
Source: Based on data from the European Central Bank Statistical Data Warehouse.

represents a considerable improvement when compared with the 2.58 transactions per capita recorded in 2000, it is not comparable to the 2009 EU-15 average, which stood at 87.27. Other countries with low number of transactions per capita in 2009 were: Italy (24), Germany (27.78), Austria (35.01) and Spain (43.31). In contrast, the highest figures, with over 100 transactions per capita, were recorded in Finland (171.76), Sweden (164.64), 151.50 (Denmark), the UK (127.62), the Netherlands (119.80) and France (104.08).

As shown in Panel B (Table 6.4) this picture does not change much when we consider the value of the transactions per capita. Despite a

Table 6.3 Number and value of payment transactions per capita through POS in Greece and the EU-15

	Greece	EU-15 average	Greece % change	EU-15 average % change
Panel A: no. of transactions per capita				
2000	2.58	38.76	n.a.	n.a.
2001	3.30	44.34	27.73	14.40
2002	3.22	50.85	–2.30	14.67
2003	4.19	55.82	29.98	9.78
2004	4.31	60.89	2.87	9.09
2005	5.94	66.24	37.92	8.80
2006	5.76	70.68	–2.96	6.70
2007	5.70	77.21	–1.15	9.24
2008	5.89	83.22	3.45	7.78
2009	6.22	87.27	5.53	4.87
Panel B: value of transactions per capita (in euro)				
2000	170.16	2,113.58	n.a.	n.a.
2001	229.16	2,419.37	34.67	14.47
2002	275.45	2,697.92	20.20	11.51
2003	364.10	2,934.25	32.18	8.76
2004	354.20	3,187.12	–2.72	8.62
2005	480.94	3,488.24	35.78	9.45
2006	448.58	3,698.77	–6.73	6.04
2007	464.23	4,047.18	3.49	9.42
2008	483.64	4,171.44	4.18	3.07
2009	567.21	4,086.22	17.28	–2.04

Notes: The figures refer to cards issued and used in the reporting country; Austria is not considered in the calculation of the EU-15 average over the period 2001–5 due to missing data. In the case of Spain, 2002 figures were also used for the calculation of the 2000 and 2001 EU average values due to missing data.
Source: Based on data from the European Central Bank Statistical Data Warehouse.

considerable increase of 233.33 per cent between 2000 and 2009, Greece is ranked at the bottom of the list with the value of the transactions per capita being 567.21 euros in 2009. This figure is about seven times lower than the EU-15 average of 4,086.22 euros. As before, Germany (1,705.86 euros), Austria (1,726.86 euros), Italy (1,896.91 euros) and Spain (1,915.19 euros) are ranked in the last five positions among the EU-15 countries, while the UK (7,195.26 euros) and Denmark (6,704.59 euros) are in the top of the list.

All the above statistics clearly indicate a wider use of ATMs and POS terminals compared with a few years ago. However, it is also interesting to compare the use of the two terminals while focusing on the number of transactions per card. Over the period 2000–9, the average number of cash withdrawals per card at ATMs in Greece was 18.53, while the average number of transactions per card at POS was 4.37. Nonetheless, it should be noted that the number of transactions per card at ATMs decreased from 19.47 in 2000 to 16.97 in 2009 (i.e., –12.84 per cent), while it increased from 4.30 in 2000 to 4.61 in 2009 in the case of the POS terminals (i.e., +7.09 per cent).[3] As mentioned in the 2007 ECB *Blue Book*,these trends indicate the increasing use of cashless payment instruments.

E-banking first appeared in the Greek market in 1997; however, it was adopted by major Greek banks after 1999 (Lymperopoulos and Chaniotakis, 2004). As mentioned in Giannopoulos (2003), the chronological launch of internet banking activities around that period was as follows: Egnatia (1997), Alpha (1998), Eurobank (1999), Piraeus Bank, National Bank of Greece, Bank of Cyprus, Nova Bank, Citibank (all in 2000), Emporiki, Laiki (both in 2001). In May 2010, Piraeus Bank introduced the country's first stand-alone online bank, namely Winbankdirect. According to the Hellenic Bank Association, more than 1,929,800 users were enrolled in e-banking services by the midpoint of 2010, indicating an annual increase of 12 per cent. The corresponding figure at the end of 2009 was 1,719,800, while it is worth mentioning that, according to the same source, this number was lower than 100,000 in 2004.[4,5]

In a study of the range of internet banking services and the pricing policy of 11 Greek commercial banks as of March 2008, Giordani *et al.* (2009) conclude that: (i) some banks offer basic services (e.g., viewing of account balance, transferring funds), while others offer more advanced services (e.g., buying or selling shares), (ii) the most popular internet banking services were: information on account balance, transfer of funds, payment of loan instalments, payment of credit cards and

payment of utility and mobile phone bills, (iii) the majority of internet banking users in Greece are male between 45 and 54 years old, with postgraduate education, (iv) there are disparities in the fees that Greek commercial banks charge their customers for e-banking services and (v) internet banking fees are lower than both branch and ATM fees.

Using data from a sample of 302 e-banking users in Greece, Tsoukatos (2008) finds that the satisfaction of the respondents is influenced primarily by improvements in accessibility-convenience and transaction security, whereas improvements in personalized service and innovation do not have a significant effect.

6.3 Means of payment

Cash maintains its importance in daily transactions. However, the use of cashless means of payment has developed significantly over the last 15 years or so. Data from the ECB indicate that the total number of cashless payment transactions increased constantly between 2000 and 2008, when it reached its peak with 167.81 million transactions. In 2009, the number of transactions decreased to 158.63 million. As a result, over the period 2000–9, the number of cashless payment transactions increased by 102.72 per cent. Over the same period, the value of the transactions appears to have decreased by 61.72 per cent. However, this is due to a record figure of 2,621,172.54 million euros for credit transfers in 2000. Concentrating in the period 2001–9, we observe that

Table 6.4 Relative importance of cashless payment instruments, averages over the period 2000–9

	Number of transactions (% of total)		**Value of transactions (% of total)**	
	Greece	**EU-15 average**	**Greece**	**EU-15 average**
Cards payments*	53.80	39.93	0.51	1.69
Cheques	20.27	9.10	30.26	12.83
Credit transfers	15.56	28.96	68.71	79.80
Direct debits	9.70	19.28	0.48	4.77
E-money purchase transactions	0.21	1.92	0.00	0.02
Other payment instruments	0.46	0.81	0.04	0.87

Notes: * Except with e-money cards.
Source: Based on data from European Central Bank Statistical Data Warehouse.

the value of the transactions increased from 972,610.23 million euros in 2001 to 1,309,502.41 million euros in 2005, before decreasing gradually to 1,118,719.69 million euros in 2009. Thus, the annual average increase in the value of cashless payments between 2001 and 2009 was about 2 per cent.

According to the 2007 ECB *Blue Book*, this positive trend in the use of cashless payments can be attributed to: (i) the public's growing familiarity with the use of cashless payment instruments, (ii) the promotion of such payment instruments by banks, (iii) the ease with which they can be used by consumers and (iv) the benefits of their automation with regards to execution times.

There are various cashless payment transaction instruments in the Greek market, such as credit transfers, cheques, direct debits, payment cards, e-money purchases and others (e.g., postal instruments). Table 6.4 presents their relative importance (i.e., as percentage of the total number and value of cashless payment transactions), in Greece and in the EU-15, over the period 2000–9.

The use of cards in Greece has undergone a significant increase in recent years. This can be attributed to a number of reasons, such as the promotional efforts of the banks, the increase of POS and public demand fuelled by the economic growth of the Greek economy up to early 2008. However, the financial crisis that followed resulted in a high level of unemployment and the reduction of income of many employees with an adverse impact on the use of cards. Between 2000 and 2009 the transaction value of payments by cards (excluding e-money cards) reached its peak of 9,068.32 million euros in 2008, from 3,134.28 million euros in 2000, before decreasing to 8,504.33 million euros in 2009. The number of payment transactions also dropped during 2009, but at a slower pace (–0.38 per cent) from 84.73 million in 2008 to 84.41 million in 2009. Over the entire period (2000–9), the number of payments increased by 66.08 per cent. The relative importance of cards in terms of the number of transactions accounted for 53.80 per cent on average over the period 2000–9. The corresponding figure in terms of the value of transactions was as low as 0.51 per cent, despite an impressive increase from 0.11 per cent in 2000 to 0.76 per cent in 2009. This can be explained by the small average value per transaction with cards in Greece (89.87 euros on average over the period 2000–9), compared with other instruments such as cheques (15,023.08 euros), credit transfers (83,954.14 euros) and direct debits (457.02 euros).[6]

Cheques form a traditional payment instrument that is used mainly for corporate payments. The law is strict in the case of uncovered

cheques, with customers issuing an uncovered cheque being registered on the Tireasias 'blacklist'. This is communicated to all the banks, which usually do not issue a cheque book to this customer for a certain time period. Furthermore, those issuing uncovered cheques may face imprisonment and monetary penalties from the court. Over the period 2000–9, the average relative importance of cheques in terms of the number of transactions was 20.27 per cent (EU-15 average: 9.10 per cent) while the corresponding figure in the case of the value of transactions was 30.26 per cent (EU-15 average: 12.83 per cent). The number of transactions increased from 17.41 million in 2000 to 25.34 million in 2009, whereas the corresponding figures for the value of payments were 296,376.58 million euros (2000) and 408,757.27 million euros (2009). However, when we look at the relative importance of cheques over the period, we observe a decline in their percentage share in terms of the number of transactions (2000: 22.25 per cent, 2009: 15.97 per cent), despite the increase in terms of the value of transactions (2000: 10.14 per cent, 2009: 36.54 per cent).

Direct debits are offered by banks as an alternative cost-effective payment instrument. While this instrument has been traditionally used for the payment of public utility bills and subscriptions, the number of enterprises, either public or private, offering their customers the possibility to make such payments has been increasing constantly (ECB *Blue Book*, 2001, 2007). As such, the number of transactions increased from 3.43 million in 2000 to 12.47 million in 2009, a percentage change of 263.6 per cent. The value of the transactions increased by an even higher percentage (311.01 per cent), from 1,891.94 million euros in 2000 to 7,776.11 million euros in 2009. In terms of the relative importance of direct debit it remains low, despite the increase from 4.38 per cent in 2000 to 7.86 per cent in 2009 in terms of the total number of cashless transactions and from 0.07 per cent in 2000 to 0.70 per cent in 2009 in terms of the value of transactions.

Credit transfers were the preferred non-cash payment instrument in 14 out of the 15 member states of the EU-15 in terms of the average relative value of transactions between 2000 and 2009. The only exception was Ireland, where credit transfers accounted for 16.19 per cent of the value of the total cashless payments, while the respective percentage in the remaining countries ranged between 67.22 per cent (Portugal) and 96.57 per cent (Finland). In Greece, credit transfers experienced a downward trend in terms of the relative value of the transactions, with their percentage share falling from 89.69 per cent in 2000 to 61.93 per cent in 2009. Their average importance over the entire period was relatively

high at 68.71 per cent. Moreover, the corresponding figures in terms of the number of transactions increased from 8.42 per cent (2000) to 21.36 per cent (2009), recording an average of 15.56 per cent over the period 2000–9. In absolute terms, the number of transactions increased by an impressive 414.47 per cent, from 6.59 million in 2000 to 33.89 million in 2009. As mentioned in the 2001 and 2007 ECB *Blue Book*, the launch of two payment systems (HERMES and DIAS) that allowed the electronic clearing and settlement of credit transfers led to short execution times along with the development of alternative access channels to this payment instrument – such as telephone, ATM and internet banking – and were important steps in enhancing the popularity of this instrument.

6.4 The financial cards market

As shown in Figure 6.2, data from Euromonitor International (2011a) indicate that Visa Europe and MasterCard International Inc. dominate the market of the operators. Together they held a combined average share of approximately 90 per cent of the market in terms of both the number of cards in circulation and the value of transactions over the period 2005–9.

The National Bank of Greece SA (NBG) and EFG Eurobank Ergasias SA (EFG) rank in the first two positions in terms of card issuance and

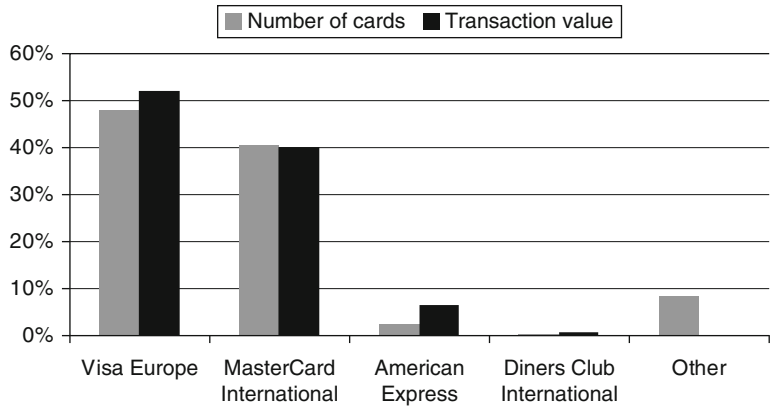

Figure 6.2 Average market shares in terms of number of cards in circulation and card payment transaction values by operator over the period 2005–9
Source: Based on data from Euromonitor International: Country Market Insight (March 2011).

transaction value, with a combined market share of around 50 per cent (Figure 6.3). Alpha Bank SA ranks third, with a market share of 18 per cent (16 per cent) in terms of the number of cards (transaction value).

Table 6.5 presents averages and the change in the number and value of transactions by type of card over the period 2000–9. Clearly, the majority of the transactions are conducted with the use of credit cards. The number of transactions with credit cards increased from 50.22 million in 2000 to 73.21 million in 2009, with an annual average rate of increase of 5.03 per cent. As for the value of the transactions, it increased annually by 13.85 per cent (on average), reaching 7,114.20 million euros in 2009 from 3,092.12 million euros in 2000. However, it should be mentioned that both the number and value of transactions, reached their peak in 2008, after which they experienced a decrease by 2.76 per cent and 8.51 per cent, respectively, in 2009.

As mentioned in the reports of Euromonitor International (2011b,c), the financial crisis may have something to do with this trend as customers are becoming sceptical about the fees and interest rates charged for the use of credit cards, and they prefer to *pay* now for what they *buy* now. The two top banks in terms of market share in the credit cards segment are the National Bank of Greece SA and EFG Eurobank Ergasias SA, accounting together for 52.52 per cent in terms of card issuance and 49.70 per cent in terms of the value of transactions in 2009. The

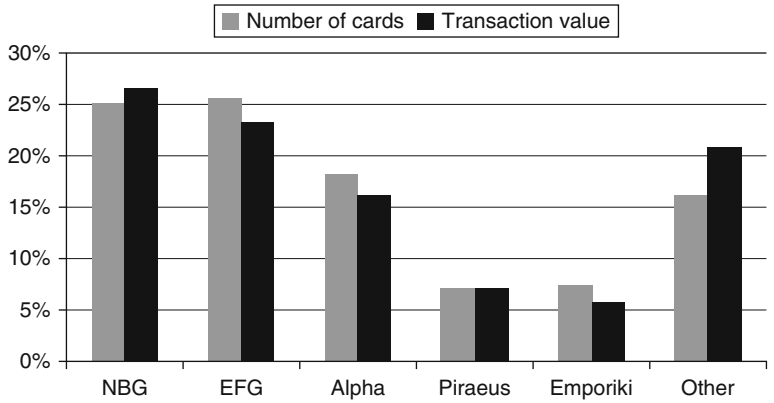

Figure 6.3 Average market shares in terms of number of cards in circulation and card payment transaction values by bank issuer over the period 2005–9
Source: Based on data from Euromonitor International: Country Market Insight (March 2011).

Table 6.5 Transactions by card type, 2000–9

	All cards	Credit cards	Debit cards	Delayed debit cards*
Number of transactions Average 2000–9 (million)	65.68	58.46	4.26	3.28
Value of transactions in euro Average 2000–9 (million)	6129.82	5208.81	497.70	470.34
Number of transactions Change 2000–9 (%)	66.08	45.78	1434.72	–66.93
Value of transactions Change 2000–9 (%)	171.33	130.08	2406.06	–50.37
Number of transactions Average annual change 2000–9 (%)	6.11	5.03	40.01	–6.46
Value of transactions Average annual change 2000–9 (%)	13.61	13.85	51.93	–4.33

Notes: * Data for delayed debit cards are from 2001 onwards.
Source: Based on data from European Central Bank Statistical Data Warehouse.

corresponding figures for the top five banks are: 87.57 per cent (number of cards) and 80.38 per cent (value of transactions).[7] Despite this high market concentration, the competition among banks, especially since the onset of the financial crisis, is fierce. For example, the report of Euromonitor International (2011b) states that while prior to the financial crisis all banks charged customers almost the same interest rates on revolving debt (i.e.,14–17 per cent), more recently the decrease in consumer spending has forced banks to decrease rates and offer cash-back bonuses to retain their customers. Banks also offer special deals, with attractive interest rates, to customers who wish to transfer their balance from one bank to another.

Greek customers have been traditionally reluctant to use debit cards instead of cash payments in their everyday purchases. However, higher merchant acceptance and increased consumer awareness in recent years have encouraged the use of cards with a debit function (Euromonitor International, 2011c), with the number of transactions increasing substantially from 0.60 million euros in 2000 to 9.24 million euros in 2009. This represents a remarkable increase of 1,434.72 per cent over

the entire period, or an annual average rate increase of 40.01 per cent. As mentioned in the 2007 ECB *Blue Book*, this increase could also be related to the replacement of cash cards with cards incorporating a debit function in addition to the cash function. Similarly to the case of the credit card segment, the National Bank of Greece SA and EFG Eurobank Ergasias SA hold together a market share of 57.54 per cent in terms of debit card issuance and 51.56 per cent in terms of the transaction value in 2009, while these percentages increase to an impressive 98.20 per cent and 88.43 per cent, respectively, when considering the top five banks (Euromonitor International, 2011c).[8]

The rest of the payments were conducted by cards with a delayed debit function, which recorded 1.96 million transactions in 2009, with a value of 334.42 million euros. Both these figures are slightly lower than the corresponding averages over the period 2000–9 being 2.95 million transactions and 423.31 million euros, respectively.

6.5 Loans to households and non-financial corporations

Loans to households

The balance of loans for consumer credit in Greece increased considerably during the last decade, reaching 27 billion euros in 2009 from 3 billion euros in 1998. As shown in Figure 6.4, consumer credit accelerated substantially between 1998 and 2006, recording an average annual growth of 31.29 per cent (EU-15 average: 11.16 per cent). Loans for consumer credit continued to increase, albeit with a considerably lower rate, during 2007 (Greece: 7.73 per cent, EU-15 average: 6.60 per cent) and 2008 (Greece: 2.96 per cent, EU-15 average: 0.48 per cent), before recording a decrease in the year-end balance of 2009 (Greece: –4.84 per cent, EU-15 average: –0.02 per cent).

Figure 6.5 plots the ratio of consumer credit to GDP over the period 1998–2009. The fast growth in recent years resulted in a ratio that exceeded the EU-15 average in 2003, reaching 11.35 per cent in 2009 (EU-15 average: 7.54 per cent) from 2.70 per cent in 1998 (EU-15 average: 5.49 per cent). However, consumer credit still accounts for a rather small proportion of total bank lending.

The growth rate of loans for housing purchase was similar to that of consumer loans, with the balance of housing loans reaching 67.7 billion euros in 2009 from 6.8 billion euros in 1998, representing a considerable increase of 899 per cent. The expansion of housing loans has been attributed, among other things, to the fall in interest rates, the relatively rapid increase of real estate prices and the associated increase in the

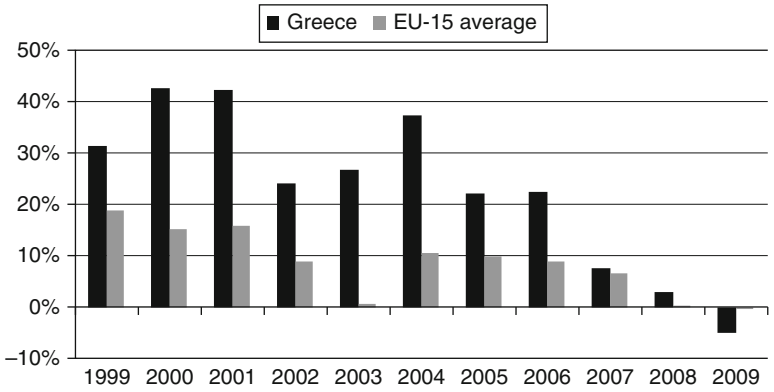

Figure 6.4 Annual % growth in loans for consumer credit
Notes: EU-15 average does not include Germany in 1998, Denmark during 1998–2002 and Sweden during 1998–2002.
Source: Based on data from various ECB reports on EU banking structure.

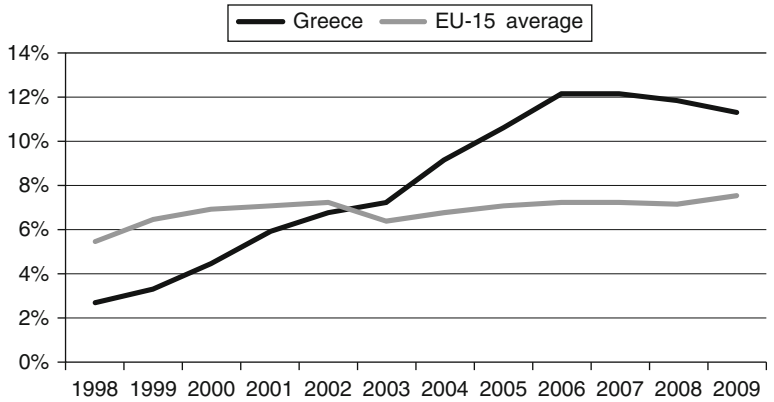

Figure 6.5 Loans for consumer credit (% GDP)
Notes: EU-15 average does not include Germany in 1998, Denmark during 1998–2002 and Sweden during 1998–2002.
Source: Based on data from various ECB reports on EU banking structure.

financing needs of purchasers up to the beginning of the crisis. As in the case of consumer loans, the demand and supply in the housing loans market has changed dramatically since 2007, with the growth in housing loans being around 3 per cent in 2008 and 4 per cent in 2009. This represents a considerable fall in growth when compared with growth

rates ranging between 21 per cent (2007) and 39 per cent (2001) in the pre-crisis era. This could be explained by the tightening of credit standards during the last couple of years, as well as the weaker demand due to the uncertainty about future developments, the decrease in income of the households and an increase in the taxation of house owners.

Figure 6.7 shows that over the period 1998–2009 the ratio of housing loans to GDP in Greece has moved almost in parallel with the EU-15 average. Thus, despite the increase in the absolute value of the balance of housing loans, when expressed in relation to GDP, this figure remained at levels considerably lower than those of the EU-15. At the end of 2009, the ratio in Greece stood at 28.51 per cent, exceeding only that of Italy (18.44 per cent), Belgium (23.52 per cent) and Austria (26.47 per cent), and much lower than that of Denmark (119.74 per cent), Ireland (67.45 per cent), the Netherlands (66.36 per cent) and Portugal (66.03 per cent).

The importance of loans to households for '*other purposes*' is considerably lower than that of consumer credit and housing lending, with the end-2009 balance being equal to 3 billion euros. However, it should be mentioned that this segment of the loan market experienced remarkable growth, similar to that of the aforementioned categories (see Figure 6.8). The average balance prior to the entry of Greece into the euro area (1998–2000) was 105 million euros, increasing to an average of 1.4 billion euros in years that followed (2001–7), and reaching an

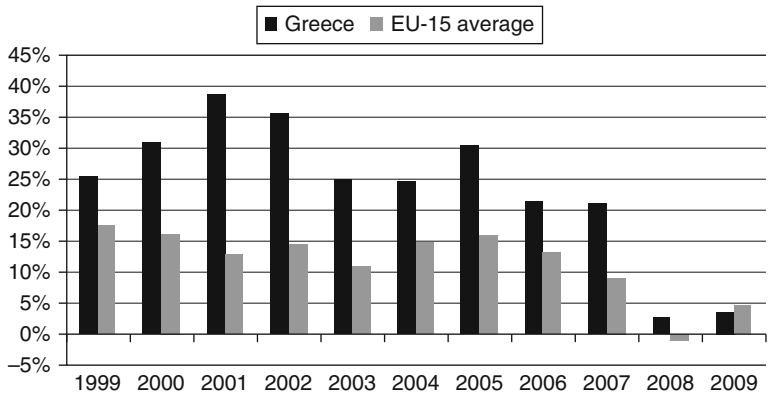

Figure 6.6 Annual % growth in loans for housing purchase
Notes: EU-15 average does not include Germany in 1998, Denmark during 1998–2002 and Sweden during 1998–2002.
Source: Based on data from various ECB reports on EU banking structure.

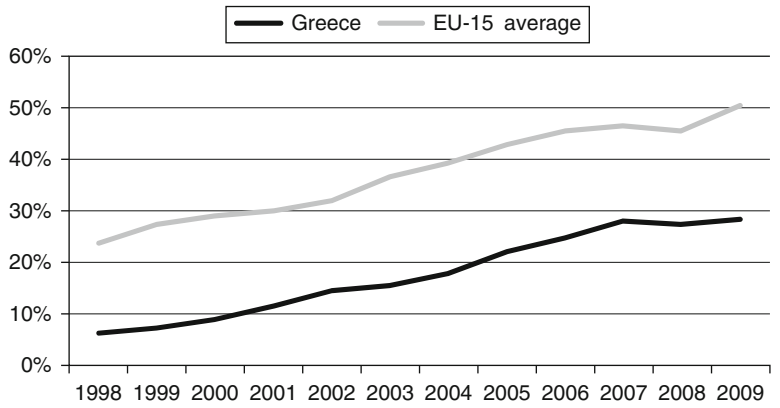

Figure 6.7 Loans for housing purchase (% GDP)
Notes: EU-15 average does not include Germany in 1998, Denmark during 1998–2002 and Sweden during 1998–2002.
Source: Based on data from various ECB reports on EU banking structure.

average of 3 billion euros over the last two years of the period. Figure 6.9 illustrates further the small importance of other household lending in Greece compared with the EU by plotting it over the GDP. This ratio ranges between 0.05 per cent in 1998 (EU-15 average: 10.87 per cent) and 1.28 per cent in 2009 (EU-15 average: 9.88 per cent), with an average figure over the period that is equal to 0.67 per cent (EU-15 average: 10.27 per cent).

Loans to non-financial corporations

The 2009 year-end balance of loans to non-financial corporations in Greece stood at 92.8 billion euros. This figure is comparable to the total balance of loans to households (97.7 billion euros in 2009), illustrating the importance of this particular market segment for banking institutions and the economy. While experiencing an average annual growth rate that exceeded the EU-15 average over the period 1998–2009 (Greece: 10.8 per cent, EU-15: 8.34 per cent), the growth of this market segment has been significantly lower than that of the household lending market.

Data from both the Greek market and the EU-15, shown in Figure 6.10, illustrate a fall in the 2009 year-end balance, by –8.42 per cent and –3.84 per cent, respectively. As mentioned in the recent *Financial Stability Reports* of the Bank of Greece (2009e, f; 2010g) this fall in Greece was

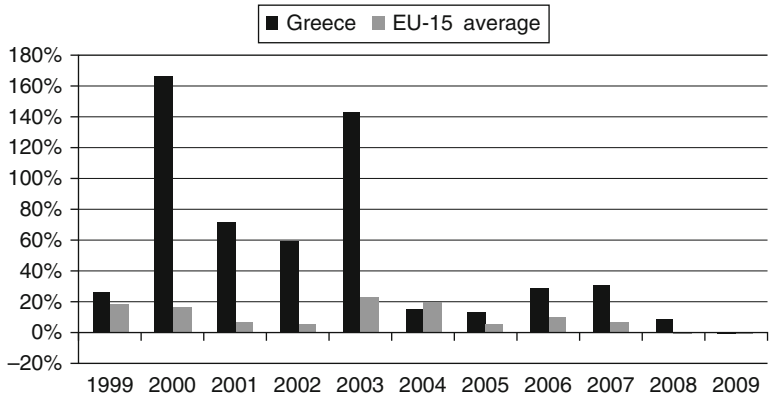

Figure 6.8 Annual % growth in other household lending
Notes: EU-15 average does not include Denmark during 1998–2002 and Sweden during 1998–2002.
Source: Based on data from various ECB reports on EU banking structure.

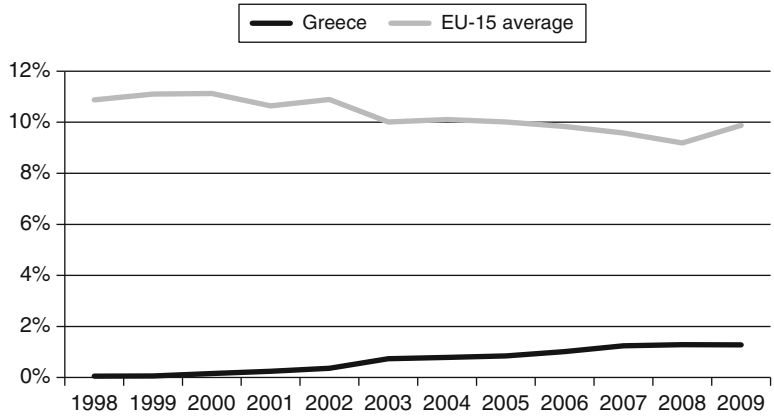

Figure 6.9 Other household lending (% GDP)
Notes: EU-15 average does not include Denmark during 1998–2002 and Sweden during 1998–2002.
Source: Based on data from various ECB reports on EU banking structure.

driven by both demand- and supply-side factors. On the demand side, the main drivers were: (i) decline in investments, (ii) decrease in sales and (iii) the adverse economic outlook, which made firms less willing to assume additional debt liabilities. The report for 2010 also highlights that this slowdown was more severe for short-term loans, implying that

non-financial firms partly swapped their short-term loans with longer-term ones, in an attempt to postpone their repayment deadlines. On the supply side, the results of the bank lending surveys conducted during 2009 show that Greek banks tightened credit terms and conditions over the year, as a result of banks' expectations of a further downturn and uncertainty about collateral values and, to a lesser extent, due to bank funding constraints.[9]

As in the case of housing loans, the ratio of loans to non-financial corporations to GDP in Greece has: (i) followed a similar trend to that of the EU-15 average and (ii) remained at significantly lower levels than the EU-15 average; this ratio stood at 39.08 per cent in 2009 compared with an EU-15 average value of 62.90 per cent (see Figure 6.11). Thus, it exceeds the values recorded in Finland (32.75 per cent), Belgium (33.11 per cent), Germany (37.43 per cent) and the UK (37.64 per cent), but it is substantially lower than those in countries like Luxembourg (157.28 per cent), Ireland (100.59 per cent), Spain (88.78 per cent) and Portugal (72.92 per cent).

Figure 6.12 presents the average exposure of the loan portfolio across different sectors of activity of the non-financial corporations, over the period 2007–9. High concentration can be an important source of credit risk, as the economic downturn is expected to have an unfavourable impact on various sectors. Manufacturing, mining and quarrying

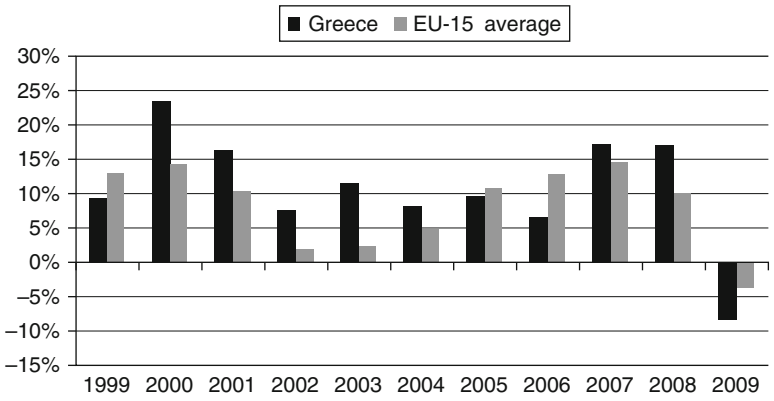

Figure 6.10 Annual % growth in loans to non-financial corporations
Notes: EU-15 average does not include Denmark during 1998–2002 and Sweden during 1998–2002.
Source: Based on data from various ECB reports on EU banking structure.

(MMQ) and trade (retail and wholesale) appear to be the sectors with the largest shares in total exposures, accounting together for 47 per cent.

Bank lending rates

Table 6.6 presents interest rates on various loan categories over the period 1999–2009. Due to a change in the basis on which the data are collected and reported, the data from pre-2002 refer to different lending categories from those presently used. Thus, Table 6.6 consists of two panels, covering the two sub-periods.[10] There are two important observations to be made.

First, while the data may not be directly comparable across the two sub-periods, it is clear that the convergence process, in view of the participation of Greece in the euro area, the deregulation of the banking system and the conditions of monetary stability that emerge from membership of the euro area, have led to a considerable decrease of bank interest rates, especially during the period 1999–2002. For example, interest rates on credit cards decreased from 22.30 per cent in 1999 to 15.82 per cent in 2002, while at the end of 2009 they stood at 15.42 per cent. In 1999, interest rates for housing loans were in the range of 8.37–13.09 per cent, depending on maturity and other characteristics. By 2002, these rates stood at around 6 per cent, to decrease further to levels below 5 per cent by the end of 2009. Similar observations

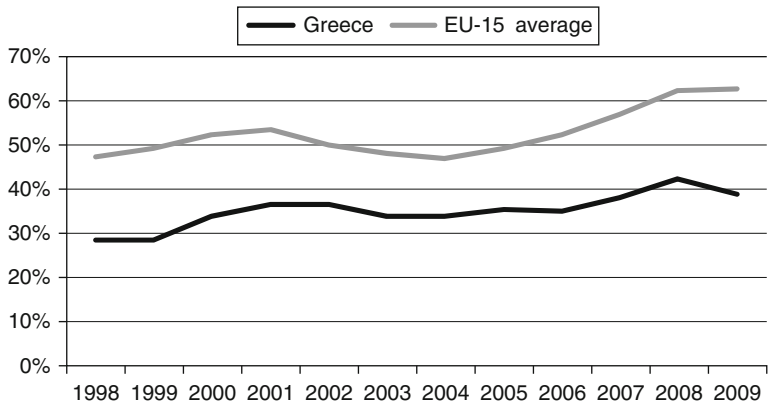

Figure 6.11 Loans to non-financial corporations (% GDP)
Notes: EU-15 average does not include Denmark during 1998–2002 and Sweden during 1998–2002.
Source: Based on data from various ECB reports on EU banking structure.

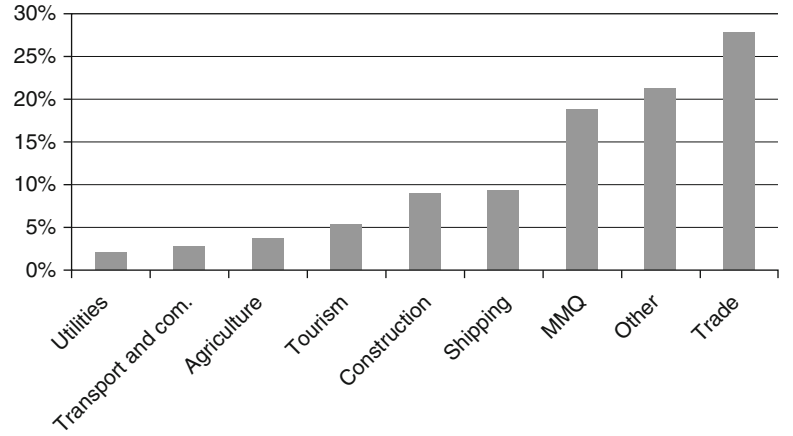

Figure 6.12 Loans to non-financial corporations in Greece by economic activity (% total loans to non-financial corporations), averages over 2007–9
Notes: Transport and com.: transport (other than shipping) and communications; Utilities: electricity, gas, and water supply; MMQ: manufacturing, mining and quarrying.
Source: Based on data from the Bank of Greece.

can be made in the case of other loans to households (e.g., consumer loans), as well as loans to corporations.

Second, the year 2009 saw a decline in lending rates across almost all the loan types. As a result, the weighted interest rates in the case of two main categories, namely loans to households and loans to non-financial corporations, fell by 0.67 per cent and 1.98 per cent, respectively. Despite this fall, further data from the Bank of Greece illustrate that the interest rate differential between Greece and the euro area remains positive across all loan type categories. For example, the interest rate for consumer loans with an initial rate fixation of over one and up to five years in Greece in December 2009 stood at 8.95 per cent, compared with a 6.26 per cent weighted average interest rate in the euro area. The lowest interest rate differential in December 2009 was recorded in the case of housing loans with a floating rate or an initial rate fixation of up to one year (0.37 per cent).

6.6 The deposits market

The deposits and repos by domestic non-financial corporations and households in Greece increased from 83.7 billion euros in 1998 to 232.7 billion euros in 2009, achieving an average annual change of

Table 6.6 Bank loan interest rates in Greece, 1999–2009

Panel A: 1999–2002	**1999**	**2000**	**2001**	**2002**
To corporations				
To corporations, short-term	15.00	12.32	8.58	7.41
To corporations, long-term	13.53	11.52	8.66	7.43
To households				
Housing loans				
Initial maturity < 5 years – fixed rate	8.37	7.59	6.66	5.99
Initial maturity < 5 years – floating rate	13.09	10.01	6.70	6.00
Initial maturity > 5 years – fixed rate	8.49	7.62	6.31	4.97
With initial maturity > 5 years – floating rate	12.62	9.76	6.45	5.70
Consumer loans				
Against supporting documents, maturity < 1 year	18.24	14.53	11.29	11.03
Against supporting documents, maturity > 1 year	18.35	15.08	11.69	10.44
Credit cards	22.30	19.37	16.07	15.82
Personal loans	20.63	16.83	12.50	11.37

Panel B: 2003–9	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
To non-financial corporations	5.36	5.14	5.10	5.68	6.43	6.68	4.70
Loans without a defined maturity (overdrafts)	6.86	7.01	6.90	7.18	7.54	7.61	6.07
Credit lines	6.78	6.90	6.77	7.04	7.36	7.45	5.89
Debit balances on sight deposits	8.58	8.56	8.46	8.46	9.13	9.04	7.65
Other loans up to an amount of 1 million euros							
Floating rate or maturity < 1 year rate fixation	5.29	4.98	5.08	5.76	6.57	6.82	4.62
1 < maturity < 5 years rate fixation	5.56	5.25	5.22	5.46	5.88	6.42	6.39
Maturity > 5 years rate fixation	5.75	5.40	6.24	6.03	6.52	6.59	5.58

(*continued*)

Table 6.6 Continued

Panel B: 2003–9	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Other loans over an amount of 1 million euros							
Floating rate or maturity < 1 year rate fixation	3.98	3.67	3.62	4.37	5.32	5.71	3.52
1 < maturity < 5 years rate fixation	3.49	3.50	3.57	4.22	5.37	6.15	n.a.
Maturity > 5 years rate fixation	4.35	4.52	n.a.	n.a.	n.a.	n.a.	n.a.
To households	7.30	7.03	6.72	6.61	6.67	6.96	6.29
Loans without a defined maturity (overdrafts)	14.41	13.81	13.35	13.45	14.09	14.80	14.39
Credit cards	15.09	14.73	14.07	14.25	14.76	15.76	15.42
Open account loans	12.53	11.73	12.14	12.40	13.20	12.99	12.33
Debit balances on current accounts	11.73	11.41	10.77	10.64	11.39	12.01	11.73
Consumer loans	10.47	9.86	9.09	8.58	8.46	8.96	9.33
Floating rate or maturity < 1 year rate fixation	10.57	9.55	8.47	7.89	7.70	8.65	8.59
1 < maturity < 5 years rate fixation	10.53	9.90	9.36	9.02	8.93	8.71	8.85
Maturity > 5 years rate fixation	9.28	10.62	9.84	9.49	9.25	9.36	10.34
Housing loans	4.78	4.52	4.15	4.30	4.45	4.81	3.94
Floating rate or maturity < 1 year rate fixation	4.51	4.30	4.06	4.24	4.57	5.10	3.52
1 < maturity < 5 years rate fixation	5.85	5.62	5.14	4.52	4.36	4.60	4.95
5 < maturity < 10 years rate fixation	6.52	6.08	5.91	5.24	4.89	5.22	4.84
Maturity > 10 years rate fixation	5.07	5.10	4.45	4.64	4.61	4.80	4.73
Loans for other purposes							
Floating rate or maturity < 1 year rate fixation	6.60	6.38	6.86	7.44	7.52	7.90	7.08

Notes: In some cases, the interest rates for loans over an amount of 1 million euros to non-financial corporations are averages over only two months per year due to non-publishable data for confidentiality reasons in the Bank of Greece database. Consumer loans against supporting document: loans for purchasing a specific good, proof of purchase is required; personal loans: loans without a specific purpose of purchasing a good.
Source: Based on monthly data from the Bank of Greece's Bank Deposit and Loan Interest Rates Series.

9.91 per cent. Figure 6.13 plots the ratio of these two main categories of deposits over GDP. Apparently, the deposits of non-financial corporations (percentage of GDP) experience small fluctuations over the years, reaching 15 per cent in 2009 compared with 11 per cent in 1998. By contrast, the deposits of households (percentage of GDP) follow a somewhat different trend. Starting from 66 per cent in 1998, this ratio increased to 78 per cent in 2001, before falling to 59 per cent in 2003. Then it started increasing again, reaching 82.89 per cent in 2009.[11]

Table 6.7 presents interest rates on various deposit categories over the period 1999–2009. As in the case of lending, interest rates on deposits also recorded a considerable decline over the years. For example, interest rates on saving accounts decreased from 8.03 per cent in 1999 to 1.51 per cent in 2002, whereas the corresponding figures for time deposits were 8.68 per cent and 2.76 per cent. This was the result of a number of developments, such as: a policy of gradual cuts in key interest rates by the Bank of Greece in the early years, and by the ECB in the years that followed (e.g., ECB cut of 1.5 per cent in 2001); the reduction of inflation; a convergence towards euro area rates; and a drop in the returns of alternative investments such as the ten-year Greek government bond yields. The downward trend in the rates continued until 2005, when the rates started increasing again in most cases. For example, the weighted interest rate on euro-denominated deposits to domestic credit institutions as a whole reached its minimum point of 1.19 per cent in 2005, before increasing gradually to 2.89 per cent in 2008.

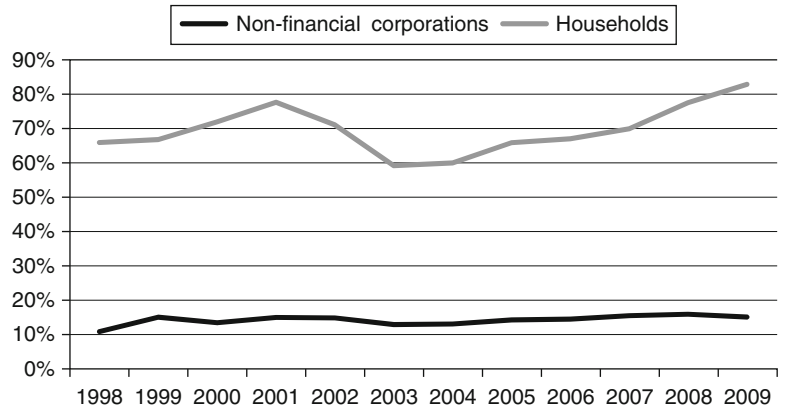

Figure 6.13 Deposits by domestic residents in Greece, end-year data (% GDP)
Source: Based on data from the Bank of Greece and the European Central Bank.

Table 6.7 Bank deposit interest rates in Greece, 1999–2009

Panel A: 1999–2002	**1999**	**2000**	**2001**	**2002**			
Time deposits (3–12 months)	8.68	6.13	3.32	2.76			
Saving deposits	8.03	5.70	2.40	1.51			
Other sight deposits	3.38	2.73	1.45	0.82			
Panel B: 2003–9	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Euro-denominated Deposits to domestic CIs	1.33	1.20	1.19	1.55	2.20	2.89	1.71
By households	1.33	1.22	1.21	1.57	2.22	2.94	1.79
Overnight	0.93	0.91	0.91	1.02	1.22	1.26	0.63
Current accounts	1.08	1.05	1.13	1.38	1.78	1.86	1.09
Savings deposits	0.92	0.90	0.88	0.98	1.14	1.18	0.56
Agreed maturity							
<1 year	2.48	2.29	2.23	2.86	3.95	4.87	2.74
1 year < maturity <2 years	2.65	2.15	2.42	3.30	4.19	4.97	2.75
>2 years	1.49	0.92	0.76	2.23	1.30	1.01	2.17
By non-financial corporations	1.34	1.10	1.08	1.44	2.06	2.56	1.09
Overnight	0.63	0.55	0.60	0.78	1.03	1.08	0.50
Agreed maturity							
<1 year	2.49	2.17	2.09	2.81	3.94	4.48	1.65
1 year < maturity <2 years	3.19	1.97	2.77	3.36	4.27	4.88	3.30
>2 years	0.67	0.42	0.64	0.91	0.75	0.56	n.a.
Repos	2.24	1.97	2.00	2.67	3.70	3.93	0.68

Notes: Due to missing data, the figures for the following categories do not always correspond to 12-month averages. Deposits with agreed maturity in the case of households and non-financial corporations, and deposits with agreed maturity between 1 and 2 years in the case of non-financial corporations.

Source: Based on monthly data from the Bank of Greece's Bank Deposit and Loan Interest Rates Series.

6.7 Conclusions

The key points that emerge from the discussion of various developments in the retail banking market segment in the present chapter can be summarized as follows. First, despite the expansion in the number of ATMs and customer point of sale terminals, the improvements in e-banking and phone services, as well as the cooperation with retail stores, these distribution channels are supplementary to branches, which retain their key role in the Greek banking industry. Second, the number of cashless payment transactions more than doubled over the period 2000–9; however, cash retains its position as the main means of payment in Greece. Third, credit cards constitute the favourite type of financial cards; however, the financial crisis appears to have had an adverse impact on their use. Fourth, all the segments of the loans market experienced considerable growth that exceeded the EU average; however, with the exception of loans for consumer credit, the balance of the various categories remains at levels lower than the EU corresponding figure. The two most important categories in terms of the value of the balance are loans for housing purchases and loans to non-financial corporations. Fifth, interest rates for both the loans and the deposits market decreased considerably over the last decade.

7
Performance of the Banking Sector in Greece

7.1 Introduction

The performance of banks is monitored by numerous stakeholders such as investors, regulators and depositors, and the success or otherwise of banking institutions in meeting their expectations is usually examined by careful study of their financial statements. Thus, this chapter provides a detailed look at the most widely used indicators of performance of commercial and cooperative banks, while comparing them with their counterparts in other countries. In addition, it discusses the findings of empirical studies on the efficiency and profitability of Greek banks.

7.2 Greek commercial banks versus banks in other countries

Table 7.1 presents averages of the main indicators of profitability and expenses management in comparison with the USA, four out of the five principal EU banking sectors (Germany, France, Italy, Spain), as well as the two other European countries which were bailed out by the IMF during the crisis (i.e., Portugal and Ireland). Data are averaged over the period 1996–2009 as well as the following three sub-periods: (i) before the entry of Greece into the euro area (1996–2000), (ii) after the entry of Greece into the euro area (2001–7) and (iii) during the financial crisis (2008–9).

The comparison of the average figures across the three sub-periods reveals that the performance of Greek banks has worsened considerably over time. For example, the return on equity (ROE) decreased from 16.90 per cent, in the first sub-period (1996–2000), to 10.96 per cent in the sub-second period (2001–7) and to 0.85 per cent in 2008–9.

The significant drop in profitability during the last two years is not surprising, and it could be attributed to the adverse macroeconomic conditions and the financial crisis. However, the explanation regarding what led to the drop in the average profitability over the second sub-period is not so straightforward. Furthermore, the direction of the change in the profitability indicators is not uniform across the years. As such, a more detailed investigation of the annual fluctuations is given in the next section. It should be mentioned at this point that, in most cases, banks in other countries (e.g., Ireland, Germany and Portugal) also experienced a gradual decrease in the majority of performance indicators from one sub-period to the other. In contrast, in a few countries, like France, Spain and Italy, banks experienced an improvement in various indicators of their performance during the second sub-period.

The cross-country comparison of the figures averaged over the entire period (1996–2009) shows that Greek banks perform better than their European counterparts. Nonetheless, Spanish and Irish banks appear to be more efficient in managing their expenses, with their average cost to income ratio being lower than the corresponding figure of Greek banks.[1]

Tables 7.2 and 7.3 present similar data while distinguishing between large commercial banks and foreign banks. Data for foreign banks are averaged over the periods 2004–7, 2008–9 and 2004–9.[2]

7.3 A more detailed look at the performance indicators of commercial banks in Greece

Figure 7.1 presents the net interest revenue and the net non-interest revenue as a percentage of the total net revenue. With the exception of a couple of years in the pre-euro period (i.e., 1996, 1999), the net interest revenue (percentage of total net revenue) is considerably higher than the net non-interest revenue (percentage of total net revenue). Especially in the post-euro period, the difference between the two figures ranges between 27.93 per cent (2001) and 66.24 per cent (2008).

In terms of absolute figures, the net interest revenue fell slightly in 2009 to 7,997 million euros, compared with 8,169 million euros in 2008. Yet, net interest revenue recorded a considerable increase, when compared with the 1,086 million euros in 1996, which is equal to 636 per cent. Over the same period, the net non-interest revenue increased by 122 per cent, reaching 2,693 million euros in 2009 compared with 1,214 million euros in 1996. The average annual percentage change equals 17 per cent in the case of the net interest revenue and 13.53 per cent in the case of the net non-interest revenue.

Table 7.1 Key indicators of performance of commercial banks in Greece compared with other countries, 1996–2009

(% average total assets, unless otherwise indicated)	Greece (commercial banks)				France (commercial banks)			
	1996–2000	2001–7	2008–9	1996–2009	1996–2000	2001–7	2008–9	1996–2009
Net interest revenue	2.47	2.67	2.02	2.51	0.59	0.47	0.44	0.51
Net non-interest revenue	2.49	1.03	0.53	1.48	1.14	1.17	0.56	1.07
Income before tax	1.61	1.01	0.15	1.10	0.28	0.44	–0.01	0.32
Income after tax	1.17	0.73	0.05	0.79	0.24	0.40	0.00	0.29
Income after tax (% average equity)	16.90	10.96	0.85	11.64	6.83	11.92	–0.32	8.35
Net interest revenue (% average earning assets)	3.13	2.96	2.30	2.92	0.73	0.56	0.58	0.62
Cost to income ratio (%)	57.11	59.23	58.71	58.40	73.06	68.05	88.33	72.74
(% average total assets, unless otherwise indicated)	**Spain (commercial banks)**				**Ireland (all banks)***			
	1996–2000	2001–7	2008–9	1996–2009	1996–2000	2001–7	2008–9	1996–2009
Net interest revenue	1.98	1.74	1.53	1.80	2.00	1.17	0.88	1.42
Net non-interest revenue	1.14	1.02	0.76	1.02	1.10	0.66	0.27	0.76
Income before tax	0.81	0.93	0.71	0.85	1.36	0.83	–0.78	0.79
Income after tax	0.66	0.77	0.62	0.71	1.01	0.68	–0.78	0.59
Income after tax (% average equity)	8.76	9.70	8.25	9.15	16.41	13.45	–19.61	9.78
Net interest revenue (% average earning assets)	2.18	1.90	1.73	1.97	2.20	1.34	1.11	1.61
Cost to income ratio (%)	62.96	48.02	37.80	51.90	53.93	49.90	43.13	50.37
(% average total assets, unless otherwise indicated)	**Germany (commercial banks)**				**Italy (all banks)***			
	1996–2000	2001–7	2008–9	1996–2009	1996–2000	2001–7	2008–9	1996–2009
Net interest revenue	1.51	1.27	1.21	1.35	2.43	2.11	1.60	2.15
Net non-interest revenue	0.80	0.62	0.11	0.61	1.15	1.01	0.70	1.02

Income before tax	0.53	0.24	–0.41	0.25	0.82	0.91	0.34	0.80
Income after tax	0.34	0.17	–0.39	0.15	0.44	0.64	0.27	0.51
Income after tax (% average equity)	7.60	4.86	–9.70	3.76	6.44	9.01	3.30	7.28
Net interest revenue (% average earning assets)	1.65	1.38	1.35	1.47	3.68	3.16	2.34	3.23
Cost to income ratio (%)	71.33	78.63	100.25	79.11	62.64	58.84	63.81	60.91

(% average total assets, unless otherwise indicated)	Portugal (commercial banks)				USA (commercial banks)			
	1996–2000	2001–7	2008–9	1996–2009	1996–2000	2001–7	2008–9	1996–2009
Net interest revenue	2.10	1.72	1.61	1.84	3.52	3.13	2.84	3.23
Net non-interest revenue	1.00	1.07	1.06	1.04	2.37	2.37	1.78	2.29
Income before tax	0.86	0.74	0.35	0.73	1.85	1.82	0.14	1.59
Income after tax	0.71	0.64	0.26	0.61	1.20	1.24	0.09	1.06
Income after tax (% average equity)	7.17	5.54	2.64	5.71	14.48	13.05	0.95	11.83
Net interest revenue (% average earning assets)	2.31	1.87	1.73	2.01	4.13	3.72	3.54	3.84
Cost to income ratio (%)	59.48	56.64	55.40	57.48	61.66	58.73	62.73	60.35

Notes: Net non-interest revenue = net revenue from fees and commissions + net revenue (loss) on financial operations + other net non-interest revenue; cost to income ratio = (staff costs + property costs + other operating expenses)/(net interest revenue + net non-interest revenue); earning assets = interbank deposits + securities + loans. *According to the OECD database, in the case of Ireland, data for 'all banks' and 'commercial banks' are identical. In the case of Italy, 'all banks' refers to limited company banks (including subsidiaries of foreign banks), cooperative banks, mutual banks, central credit institutions and branches of foreign banks – no further disaggregation is available in the database.
Source: Based on data from OECD Banking Statistics Database.

Table 7.2 Key indicators of performance of large commercial banks in Greece compared with other countries, 1996–2009

(% average total assets, unless otherwise indicated)	Greece				France			
	1996–2000	2001–7	2008–9	1996–2009	1996–2000	2001–7	2008–9	1996–2009
Net interest revenue	2.29	2.63	2.02	2.42	0.81	0.42	0.43	0.56
Net non-interest revenue	2.42	1.01	0.49	1.44	1.60	1.37	0.53	1.33
Income before tax	1.55	1.12	0.27	1.15	0.49	0.50	0.04	0.43
Income after tax	1.16	0.82	0.15	0.85	0.35	0.41	0.07	0.34
Income after tax (% average equity)	19.60	12.87	2.58	13.80	11.18	14.44	2.75	11.60
Net interest revenue (% average earning assets)	2.92	2.92	2.35	2.84	1.84	1.58	0.72	1.55
Cost to income ratio (%)	57.27	55.99	55.06	56.31	71.92	69.02	81.76	71.88

(% average total assets, unless otherwise indicated)	Germany				Ireland*		
	1996–2000	2001–7	2008–9	1996–2009	2006–7	2008–9	2006–9
Net interest revenue	1.32	1.00	1.04	1.12	1.03	0.83	0.93
Net non-interest revenue	0.81	0.60	–0.03	0.59	0.52	0.20	0.36
Income before tax	0.51	0.18	–0.58	0.19	0.75	–0.78	–0.02
Income after tax	0.33	0.14	–0.53	0.11	0.62	–0.77	–0.07
Income after tax (% average equity)	7.98	5.83	–14.75	3.66	17.18	–29.84	–6.33
Net interest revenue (% average earning assets)	1.48	1.11	1.19	1.26	1.30	1.21	1.26
Cost to income ratio (%)	76.34	82.65	124.60	86.39	48.60	42.84	45.72

(% average total assets, unless otherwise indicated)	UK*				USA			
	1996–2000	2001–7	2008	1996–2008	1996–2000	2001–7	2008–9	1996–2009
Net interest revenue	2.05	1.41	0.90	1.61	3.32	2.96	2.74	3.06
Net non-interest revenue	1.37	1.51	0.50	1.38	2.70	2.58	1.92	2.53
Income before tax	1.22	0.91	–0.69	0.91	1.87	1.86	0.19	1.63
Income after tax	0.84	0.65	–0.62	0.62	1.20	1.25	0.15	1.07
Income after tax (% average equity)	19.86	15.27	–13.20	14.84	15.53	13.61	1.48	12.56
Net interest revenue (% average earning assets)	2.40	1.81	1.35	2.00	3.96	3.59	3.50	3.71
Cost to income ratio (%)	57.91	59.78	109.37	62.88	61.93	57.64	60.15	59.53

Notes: Net non-interest revenue = net revenue from fees and commissions + net revenue (loss) on financial operations + other net non-interest revenue; cost to income ratio = (staff costs + property costs + other operating expenses)/(net interest revenue + net non-interest revenue); earning assets = interbank deposits + securities + loans. *Data for Ireland are from 2006 onwards. *Data for the UK end in 2008.
Source: Based on data from OECD Banking Statistics Database.

Table 7.3 Key indicators of performance of foreign commercial banks in Greece compared with other countries, 2004–9

(% average total assets, unless otherwise indicated)	Greece			France		
	2004–7	2008–9	2004–9	2004–7	2008–9	2004–9
Net interest revenue	2.90	1.53	2.44	0.51	0.25	0.42
Net non-interest revenue	0.87	0.48	0.74	1.23	0.41	0.96
Income before tax	0.88	–0.34	0.47	0.62	–0.12	0.38
Income after tax	0.62	–0.43	0.27	0.54	–0.10	0.32
Income after tax (% average equity)	10.96	–8.07	4.62	13.86	–3.44	8.10
Net interest revenue (% average earning assets)	3.15	1.69	2.66	0.64	0.37	0.55
Cost to income ratio (%)	54.25	70.70	59.73	63.49	145.38	90.79
	Germany			**Ireland**		
	2004–7	**2008–9**	**2004–9**	**2004–7**	**2008–9**	**2004–9**
Net interest revenue	1.28	1.42	1.33	0.60	0.44	0.52
Net non-interest revenue	0.34	0.21	0.30	0.36	0.11	0.23
Income before tax	0.54	–0.03	0.35	0.45	–0.27	0.09
Income after tax	0.43	–0.10	0.25	0.39	–0.28	0.05
Income after tax (% average equity)	3.83	1.20	2.95	7.79	–8.50	–0.35
Net interest revenue (% average earning assets)	1.94	1.62	1.83	0.81	0.54	0.68
Cost to income ratio (%)	68.62	76.84	71.36	49.92	54.46	52.19
	USA					
	2004–7	**2008–9**	**2004–9**			
Net interest revenue	2.68	2.76	2.70			
Net non-interest revenue	1.73	1.17	1.54			
Income before tax	1.51	–0.14	0.96			
Income after tax	0.97	–0.15	0.60			
Income after tax (% average equity)	7.88	–1.26	4.84			
Net interest revenue (% average earning assets)	3.17	3.45	3.27			
Cost to income ratio (%)	61.02	71.53	64.53			

Notes: Net non-interest revenue = net revenue from fees and commissions + net revenue (loss) on financial operations + other net non-interest revenue; cost to income ratio = (staff costs + property costs + other operating expenses)/(net interest revenue + net non-interest revenue); earning assets = interbank deposits + securities + loans. Data for Ireland are from 2006 onwards.
Source: Based on data from OECD Banking Statistics Database.

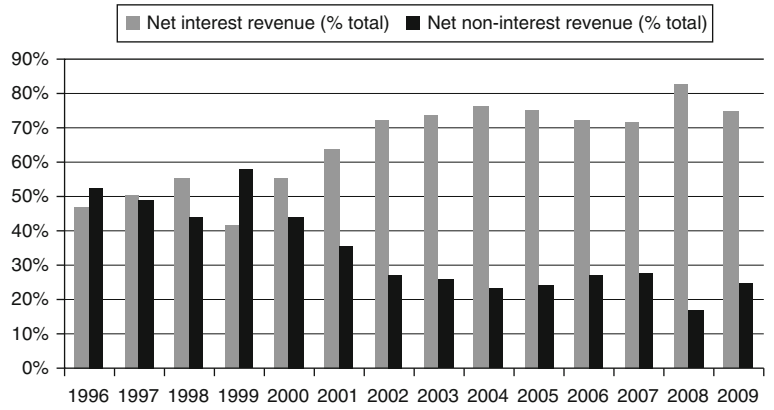

Figure 7.1 Net interest revenue and net non-interest revenue of commercial banks in Greece (% total net revenue)
Source: Based on data from OECD Banking Statistics Database.

The increase in the net interest revenue is the result of the significant expansion of the loan activities of Greek banks, in particular with respect to housing and consumer credit, which offset a small decrease in the interest rate spread.

Despite being lower than net interest revenue, the increase in non-interest revenue is an important development for Greek banks for at least three reasons: (i) it allows them to diversify their income and decrease their dependence on lending operations, (ii) non-interest income is considered a less volatile source of income than interest income, (iii) non-interest income does not entail credit risk.

Figure 7.2 disaggregates the net non-interest revenue into: (i) net fees and commission revenue (percentage of total net revenue), (ii) net revenue (loss) on financial operations (percentage of total net revenue) and (iii) other net non-interest revenue (percentage of total net revenue). The net revenue from fees and commission accounted, on average, for 17.02 per cent of total net revenue over the period 1996–2009, while the corresponding figures for net revenue on financial operations and other net non-interest revenue were 11.42 per cent and 6.20 per cent, respectively. Thus, with the exception of the period 1999–2001, net revenue from fees and commission exceeded the net revenue from financial operations.

In absolute terms, the net revenue from financial operations increased from 407 million euros in 1996 to 2,154 million euros in 1999, before decreasing to 989 million euros in 2009. The considerable increase in

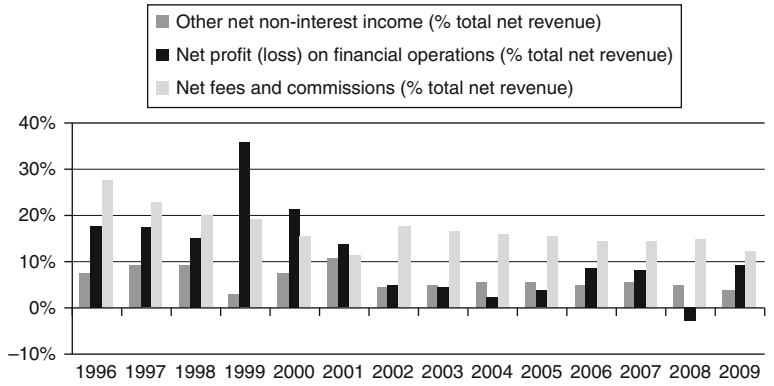

Figure 7.2 Categories of net non-interest income of commercial banks in Greece (% total net income)
Source: Based on data from OECD Banking Statistics Database.

the net revenue from financial operations during 1999–2000 has to do with the favourable conditions prevailing in the Athens stock exchange, which generated high profits from sales of securities and commissions from stock exchange transactions and management of bond issues (see the annual report of the Bank of Greece for 2000). Turning to net fees and commission revenue, these increased from 640 million euros in 1996 to 1,318 million euros in 2009. This improvement reflects the efforts of banks in Greece to expand their businesses in investment and personal banking (see the annual report of the Bank of Greece for 2004).

Between 1996 and 2009, the total net income (net interest income and net non-interest income) of banks in Greece increased by an average annual rate of 14.12 per cent. During the same period, operating expenses (staff costs, property costs, other operating expenses) increased with an average annual rate of 11.41 per cent. As a result the ratio of operating expenses to total net income, shown in Figure 7.3, improved from 68.22 per cent in 1996 to 57.44 per cent in 2009. Figure 7.3 also presents the components of operating expenses, namely staff costs, property costs and other operating expenses, as a percentage of the total net income. Clearly, the line of the total operating expenses with that of the staff costs move in parallel. This is not surprising, since staff costs constitute the majority of operating expenses, accounting for 61.14 per cent of operating expenses or 35.78 per cent of total net income, on average, over the period 1996–2009. As discussed in the annual

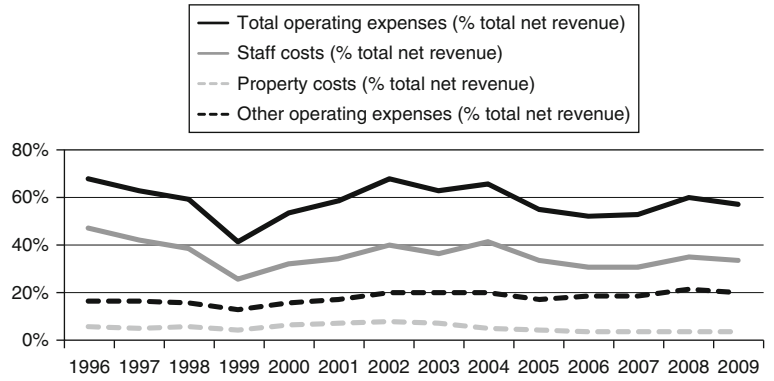

Figure 7.3 Total operating expenses and its components (% total net revenue), commercial banks in Greece
Source: Based on data from OECD Banking Statistics Database.

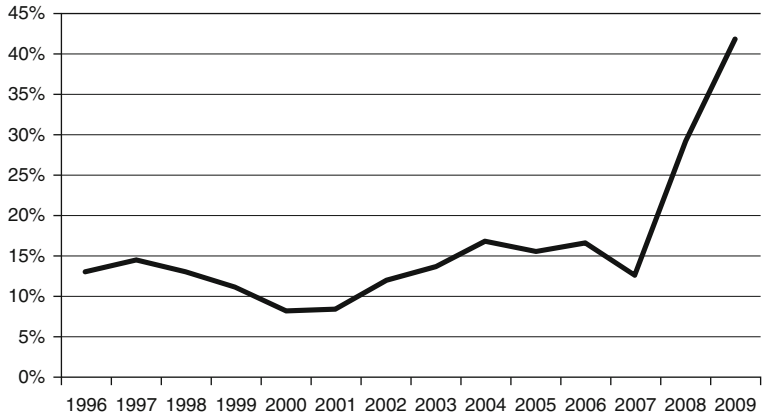

Figure 7.4 Net provisions (% total net revenue), commercial banks in Greece
Source: Based on data from OECD Banking Statistics Database.

report of the Bank of Greece for 2005, the decrease in operating costs is related to some extent to the continued rationalization of branch networks that resulted from mergers, and the downward effect on staff costs of certain banks from the implementation of voluntary retirement plans. Nonetheless, it is also worthwhile mentioning that several recent annual reports of the Bank of Greece highlight the fact that staff costs in Greece represent a considerably larger share of operating expenses

than in other European countries. Taken together with the lower average cost per employee in Greece, this confirms that the banking sector is overstaffed.

Another reason for the remarkable decrease of profitability in recent years has been the increase in loss provisioning to account for the worsening of the financial condition of households and firms. Banks adopted more conservative provisioning policies, taking into account portfolio quality indicators, but also the economic and credit outlook, as well as the adequacy of tier I capital for covering any unexpected losses (see the annual reports of the Bank of Greece for 2008 and 2009). Consequently, the ratio of provisions to total net revenue increased from 12.65 per cent in 2007 to 41.96 per cent in 2009 (Figure 7.4).

7.4 Greek cooperative banks versus banks in other countries

Cooperative banks have a long history in many European countries such as Germany and Austria. However, the Greek cooperative banking sector is considerably less developed, with the first cooperative banks starting their operations about 20 years ago.[3] Since then, the sector has grown considerably in terms of the number of banks and the size of its assets.[4] While cooperative banks in Greece cannot compete with the commercial banks, their specialization in the local markets allows them to focus on small and medium enterprises and private citizens,

Table 7.4 Key indicators of performance of cooperative banks in Greece compared with other countries, averages over 2004–8

(% average total assets, unless otherwise indicated)	**Greece**	**France**	**Spain**	**Germany**	**USA**
Net interest revenue	4.06	1.15	2.30	2.30	3.08
Net non-interest revenue	0.84	1.52	0.75	0.95	0.28
Income before tax	1.80	0.98	0.90	0.53	0.71
Income after tax	1.28	0.82	0.80	0.35	0.47
Income after tax (% average equity)	8.85	10.36	7.76	6.09	4.27
Net interest revenue (% average earning assets)	4.34	1.21	2.42	2.40	3.33
Cost to income ratio (%)	43.35	58.98	56.68	67.78	75.71

Notes: Net non-interest revenue = net revenue from fees and commissions + net revenue (loss) on financial operations + other net non-interest revenue; cost to income ratio = (staff costs + property costs + other operating expenses)/(net interest revenue + net non-interest revenue); earning assets = interbank deposits + securities + loans.
Source: Based on data from OECD Banking Statistics Database.

aiming to provide support and encourage the development of local enterprises.

Table 7.4 presents key indicators of performance for Greece and selected countries, averaged over the period 2004–8.[5] Greek banks are clearly in a better position, in terms of expense management, with the average cost to income ratio being equal to 43.35 per cent compared with ratios that range between 56.68 per cent (Spain) and 75.71 per cent (USA) for the other countries. They also have a considerably higher net interest revenue (percentage of average total assets), and they are doing relatively well in the case of non-interest revenue (percentage of average total assets). Thus, it is not surprising that they appear to be more profitable than their counterparts, with the only exception being the return on equity in comparison with that of French cooperative banks.

7.5 A more detailed look at the performance indicators of cooperative banks in Greece

Figure 7.5 presents the net interest revenue and the net non-interest revenue as percentage of the total net revenue. Clearly, as in the case of commercial banks, cooperative banks generate the bulk of their revenue from interest-generating activities. Figure 7.6 disaggregates further the net non-interest revenue into its various components, expressed as percentage of total net revenue. The net revenue from fees and commission reached 12.52 per cent of total net revenue, on average, over the period 2004–8. The corresponding figures for net revenue on financial operations and other net non-interest revenue were as low as 0.71 per cent and 4.06 per cent, respectively.

Figure 7.7 presents the ratio of operating expenses and its components (staff costs, property costs, other operating expenses) as a percentage of the net revenue (i.e., net interest income and net non-interest income). Personnel expenses account, on average, for around 22 per cent of net revenue, or, in other words, for around 50 per cent of the total operating expenses. Finally, Figure 7.8 shows the ratio of net provisions to total net revenue. Similarly to the case of commercial banks, this ratio follows an upward trend, increasing from 17 per cent in 2004 to 25 per cent in 2008.[6]

7.6 A brief review of empirical studies on the performance of Greek banks

Studies investigating the performance of Greek banks can be classified as two broad groups. The first consists of studies that attempt to

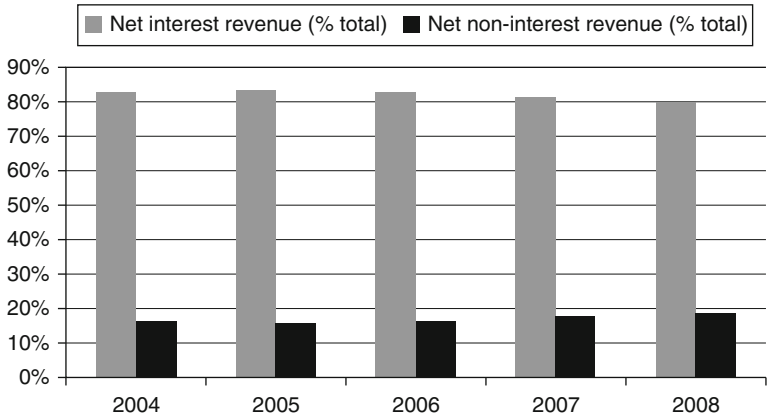

Figure 7.5 Net interest revenue and net non-interest revenue of cooperative banks in Greece (% total net revenue)
Source: Based on data from OECD Banking Statistics Database.

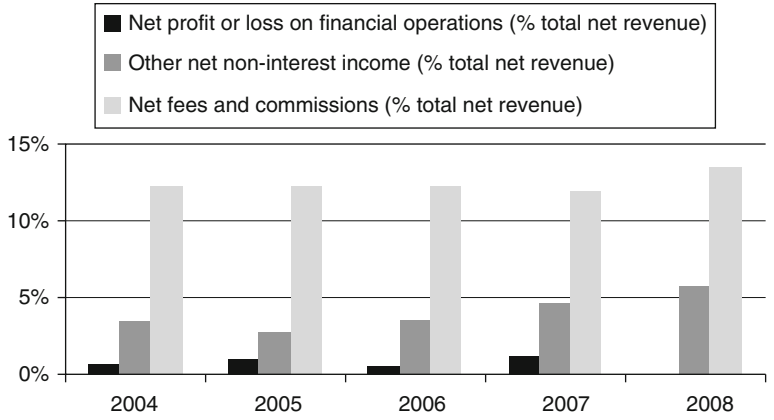

Figure 7.6 Categories of net non-interest income of cooperative banks in Greece (% total net income)
Source: Based on data from OECD Banking Statistics Database.

assess the performance of banks. Most of these studies use parametric and non-parametric frontier techniques to estimate the efficiency of banks. The second group includes studies that use regression techniques and attempt to explain the performance of banks on the basis of firm-specific and market-specific characteristics. The following two-subsections discuss briefly these two groups of studies, in turn.

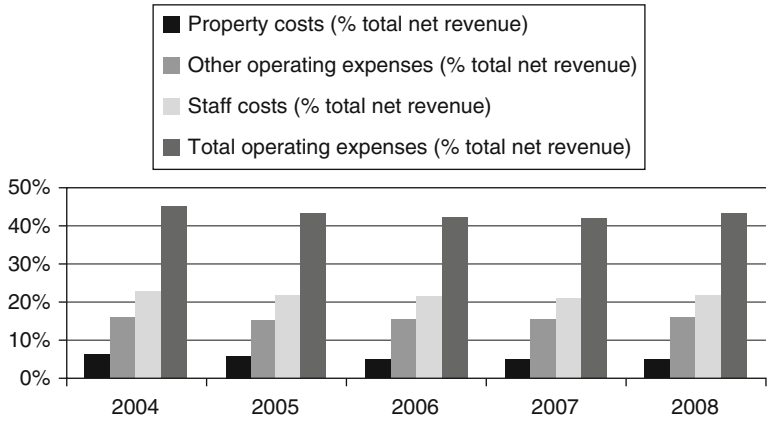

Figure 7.7 Total operating expenses and its components (% total net revenue), cooperative banks in Greece
Source: Based on data from OECD Banking Statistics Database.

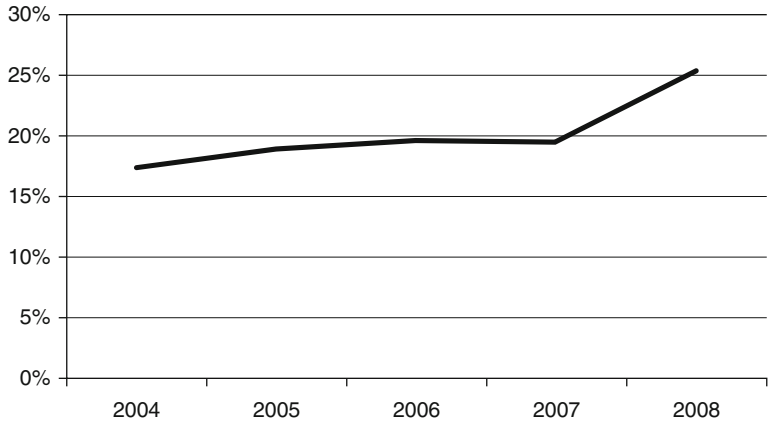

Figure 7.8 Net provisions (% total net revenue), cooperative banks in Greece
Source: Based on data from OECD Banking Statistics Database.

Assessing the performance of Greek banks

Studies on bank efficiency use either parametric (e.g., stochastic frontier analysis, SFA) or non-parametric (i.e., data envelopment analysis, DEA) frontier techniques to estimate various indicators of efficiency. For example, technical efficiency shows whether a bank uses

the minimum quantity of inputs to produce a given quantity of outputs or maximizes the output quantity given a certain quantity of inputs. When price data for the inputs and/or outputs are available, and under a minimization or maximization assumption, one can also estimate cost and profit efficiency measures, respectively. Berger and Humphrey (1997), Berger (2007) and Fethi and Pasiouras (2010) provide detailed discussions of the bank efficiency literature at an international level.

Karafolas and Mantakas (1996) use a translog function to estimate an econometric form of the costs in the Greek banking sector and investigate economies of scale. Using data from 11 banks from the period 1980–9, they found that although operating-cost scale economies do exist, total cost scale economies are not present. The results are robust to sub-samples across different bank size (i.e., large and small banks) and time periods (i.e., 1980–4, 1985–9). In a later study, Apergis and Rezitis (2004) also specify a translog cost function to analyse the cost structure of the Greek banking sector, the rate of technical change and the rate of growth in total factor productivity. They use both the intermediation and the production approach and a sample of six banks over the period 1982–97. Their models indicate significant economies of scale and negative annual rates of growth in technical change and in total factor productivity.

Noulas (1997) examines the impact of ownership on the productivity growth of Greek banks, using a sample of ten private and ten state banks operating in Greece during 1991 and 1992. His results can be summarized as follows: (i) productivity growth averaged around 8 per cent, (ii) state banks experienced higher growth than private ones and (iii) the sources of the growth differ across the two types of banks, with productivity growth of state banks being the result of technological progress, while that of private banks was the result of increased efficiency. In a later study, Noulas (2001) compares the technical efficiency of private and state-controlled banks over the period 1993–8, to conclude that there is no statistically significant difference between the two groups. Gaganis and Pasiouras (2009) also look at the impact of ownership; however, in their case they compare the technical efficiency of domestic and foreign banks operating in Greece between 1999 and 2004. Their results indicate that the banks in their sample could improve their efficiency by 26.75 per cent, on average. The comparison of the efficiency scores by group of ownership shows that domestic banks have higher pure technical efficiency and lower scale efficiency; however, the differences are not statistically significant.

Christopoulos and Tsionas (2001) estimate the efficiency in the Greek commercial banking sector over the period 1993–8 using homoscedastic and heteroscedastic frontiers. They find an average technical efficiency around 80 per cent, as well as that both technical and allocative inefficiencies decrease over time irrespective of bank size. In a later study, Christopoulos *et al*. (2002) use the same sample to conclude that larger banks are less efficient than smaller ones, and that economic performance, bank loans and investments are positively related to cost efficiency. Finally, Tsionas *et al*. (2003) use DEA and the Malmquist total factor productivity instead of parametric frontier techniques. The results indicate that most of the banks operate close to the best market practices, with overall efficiency levels over 95 per cent. Contrary to the study of Christopoulos *et al*. (2002), they find that larger banks are more efficient than smaller ones. Furthermore, allocative inefficiency costs seem to be more important than technical inefficiency costs. Finally, they also reveal a positive although not substantial technical efficiency change which is mainly due to improvements in efficiency for medium-sized banks and to technical change for large banks.

Pasiouras *et al*. (2008) examine, for the first time, the association between the efficiency of Greek banks and their share price performance. At the first stage of their analysis they calculate the annual share price returns of the banks over the period 2001–5. Then, they use DEA to estimate the efficiency of the banks. At the third stage, they regress the annual share price returns over the annual change of efficiency while controlling for changes in banks' size and risk. They find a positive and statistically significant relationship between annual changes in technical efficiency and stock returns, while changes in scale efficiency have no impact on stock returns.

Delis *et al*. (2009) estimate, for the first time, the profit efficiency of Greek banks. Using a sample of commercial banks over the period 1993–2005 and stochastic frontier analysis, they find that cost inefficiency is equal to 16.4 per cent while profit inefficiency is much higher at 55.3 per cent. Their results also show that large-sized banks are more cost efficient, but less profit efficient than small banks. Similarly, state-owned banks are more cost efficient and less profit efficient than private banks.

Instead of focusing on commercial banks, as the above studies, Pasiouras and Sifodaskalakis (2010) examine a sample of 13 Greek cooperative banks over the period 2000–5. The authors use the Malmquist index to estimate the total factor productivity (TFP) change and they define the bank inputs and outputs under two approaches, namely

the intermediation approach and the production approach. They also disaggregate TFP change into technical efficiency change, technological change, pure technical efficiency change and scale efficiency change. The results are mixed, and they depend upon the employed approach. Under the intermediation approach, the results indicate a small decrease of 3 per cent in TFP, whereas under the production approach they indicate an increase of 6.6 per cent. The authors also find some evidence that TFP growth is higher for smaller banks, on average, over the entire period of their analysis; however, this is not robust across the years, and the differences between the groups are not statistically significant.

A few studies deviate from those above by using multi-criteria decision aid models instead of frontier techniques. These studies provide rankings of the banks, on the basis of financial ratios rather than inputs and outputs. For example, Zopounidis *et al*. (1995) present the illustration of an ordinal utility model upon a sample of Greek commercial banks for the period 1989–92. Kosmidou and Zopounidis (2008) evaluate the performance of both commercial and cooperative banks over the period 2003–5 using another multi-criteria approach, namely Promethee. This method provides an overall score and a ranking of the banks in sample based on pairwise comparisons over a set of criteria (e.g., financial ratios). In a later study, Doumpos and Zopounidis (2010) use the same approach for the evaluation of a sample of investment and commercial banks.[7]

Determinants of Greek banks' performance

Studies that attempt to explain the performance of Greek banks use regression techniques where the dependent variable can be either an estimation of efficiency or traditional profitability ratios (e.g., ROA, ROE).

For example, in the first stage of his analysis Rezitis (2006) uses the Malmquist productivity index and DEA to measure and decompose productivity growth and technical efficiency, respectively. His sample includes six banks operating in Greece over the period 1982–97, while he also investigates two sub-periods, with 1992 being the cut-off point. The results show that productivity growth is higher in the second sub-period (i.e., 1993–97). Furthermore, growth in the second sub-period of the analysis is due to technical progress while until 1992 growth is mainly attributed to improvements in efficiency. Moreover, during the second sub-period pure efficiency is higher and scale efficiency is lower. At the second stage of his analysis, Rezitis employs Tobit regression to explain the differences in efficiency among banks. He concludes that size and specialization have a positive impact on both pure and scale efficiency.

Pasiouras (2008) also follows a two-stage analysis. First he uses DEA to estimate the technical efficiency of a sample of Greek commercial banks over the period 2000–4. The results show that banks that have expanded their operations abroad appear to be more technically efficient than those operating only at a national level. Then, as in Rezitis (2006), he uses Tobit regression analysis to conclude that higher capitalization, loan activity, market power and the number of branches increase the efficiency of banks. The number of ATMs is not an important determinant of efficiency, while the results are mixed with respect to variables indicating whether the banks are operating abroad through subsidiaries or branches.

Pasiouras *et al*. (2011) examine the cost efficiency of cooperative banks over the period 2000–5. They find that Greek cooperative banks could improve their cost efficiency by 18.4 per cent on average; they also find that the main source of cost inefficiency is allocative inefficiency rather than technical inefficiency. Then they use bootstrapped Tobit regression to investigate the impact of bank-specific and local market conditions on efficiency. Their results show that well-capitalized banks are more technically efficient; however, capitalization is not associated with allocative and cost efficiency. Bank size, in terms of total assets, is also positively related to allocative and cost efficiency; however, the size of the ATM network and the number of branches are not significant determinants of efficiency. Turning to the market conditions, the authors conclude that GDP per capita has a negative impact on allocative and cost efficiency, whereas the unemployment rate influences only technical efficiency. Other market factors such as the regional disposable income of households and the gross fixed capital formation appear to have no impact on efficiency.

The studies of Drakos (2002), Mamatzakis and Remoundos (2003), Athanasoglou *et al*. (2008) and Kosmidou (2008) use traditional indicators of performance instead of efficiency measures.

Drakos (2002) focuses on the determinants of net interest margins between 1992 and 1999, which was an important period of deregulation prior to the entry of Greece into the euro area. He concludes that default, interest rate and liquidity risks are significant determinants of net interest margins.

Mamatzakis and Remoundos (2003) examine the period 1989–2000 while focusing on the impact of a variety of internal and external factors on the two main profitability ratios, namely ROA and ROE. They conclude that personnel expenses, loans to assets ratio and equity to assets ratio are bank characteristics that explain profitability. They also

reveal the importance of economies of scale and that there is some persistency in profitability. With regard to the impact of the external factors considered in the study, they find that only the money supply has a robust impact on both profitability ratios.

In a more recent study, Kosmidou (2008) examines the determinants of return on average assets of a sample of Greek commercial banks over the period 1990–2002. Her findings confirm that capitalization and expenses are significant determinants of bank profitability, while she also finds that loan loss reserves are negatively associated with profitability. Nonetheless, the results are mixed, as for the impact of bank size. In contrast to the study of Mamatzakis and Remoundos (2003), she finds that money supply growth does not influence profitability. However, her results show that other market conditions matter for bank profits. Gross domestic product growth has a positive impact on profitability, while bank assets to GDP, stock market capitalization to bank assets, concentration and inflation exercise a negative impact on the profitability of Greek banks.

The study of Athanasoglou *et al*. (2008) covers a slightly lengthier period than the aforementioned studies, ranging between 1985 and 2001. One of the main differences with earlier studies is that the authors use the generalized methods of moments (GMM) approach in their estimations. In general their results support the findings of earlier studies as for the significant impact of capitalization, expenses management and credit risk on return on assets. As in Kosmidou (2008) and contrary to Mamatzakis and Remoundos (2003), they find that size is not an important determinant of profitability. However, consistent with Mamatzakis and Remoundos (2003), the authors find no evidence to support the structure-conduct-performance (SCP) hypothesis. Their results also reveal that bank-level labour productivity and country-level expected inflation and business cycle are significant drives of the returns on assets.

7.7 Conclusions

This chapter analyses the main indicators of performance of the commercial and cooperative banks in Greece over the period 1996–2009. The discussion started with a comparison with the performance of banks in other European countries and the USA, and it was followed with a more in-depth debate disaggregating various figures such as the total net revenue and operating expenses. The main results of this analysis can be summarized as follows. First, the cross-country comparison

of the figures averaged over the entire period (1996–2009) reveals that the Greek banks performed better than their European counterparts; however, banks in Spain and Ireland were more efficient in managing their expenses. Second, the net interest revenue (percentage of total net revenue) of both commercial and cooperative banks was considerably higher than the net non-interest revenue (percentage of total net revenue). Third, between 1996 and 2009, commercial banks improved their expenses management, as is evident from the decrease in the ratio of operating expenses to total net income. Fourth, staff costs constituted the majority of operating expenses. Fifth, over the last couple of years, commercial banks have increased considerably loss provisioning to account for the worsening of the financial condition of households and firms. Sixth, cooperative banks appear to have performed better, in terms of both profitability and expenses management, compared with their counterparts in selected EU countries and the USA.

8
Banking Risks

8.1 Introduction

Chapter 7 discussed the performance of banks, with a particular focus on profitability. However, the increase in profitability is usually associated with higher risk-taking. After all, risk is an integral part of the banking industry, which means that the managers of modern banking institutions must operate within certain levels of risk to achieve the best or more favourable risk-return outcome for their shareholders. Furthermore, the efficient management of risks in the Greek banking sector is becoming essential in the light of Basel II, adopted in 2007. Within this context, this chapter discusses the main types of risk faced by Greek banks, the trend in various indicators (e.g., non-performing loans), as well as the tools that are used to ensure bank soundness (e.g., credit risk modelling and value at risk models).

8.2 Credit risk

Over the last decade, Greek banks made important progress in managing credit risk, which is the main source of risk in the Greek banking sector. To illustrate the importance of credit risk, the financial stability report of the Bank of Greece for 2010 highlights that: (i) household and corporate loans account for 59 per cent and 67.7 per cent of total assets of Greek commercial banks and their groups, respectively, and (ii) capital requirements for credit risk represent almost 90 per cent of total capital requirements.

The establishment of an interbanking firm known as Tireasias SA in 1997 was one of the first steps in improving the efficiency of credit risk management. This firm, which was founded by Greek banks, led to

the creation of a Credit Profile Databank that allows the collection and exchange of information about the credit profile of firms and individuals consumers.[1]

Moreover, Greek banks increasingly use risk transfer instruments such as securitization and credit derivatives in order to reduce the relevant capital requirements (see the annual report of the BoG for 2003). The establishment of categories of acceptable collateral (e.g., bank letters of guarantee, guarantees by the credit guarantee fund for small and very small enterprises (TEMPTE), Greek government guarantees, residential real estate) and their incorporation into the credit policies of banks is another technique used by Greek banks in their effort to minimize credit risk and ensure the timely repayment of debt.

However, the most important development was probably the introduction of credit scoring models for the approval of consumer loans, and the development of default probability models for individual categories of borrowers, with the aim of using the internal ratings-based approach under the new regulatory framework (i.e., Basel II) that was adopted in 2007 (see the annual reports of the BoG for 2003 and 2005). As the adoption of the various approaches allowed under Basel II is still in its early stages, the pace of their adoption, the sophistication (e.g., standardized, Foundation RIB) and the characteristics of the models (e.g., number of rating scale grades) vary, not only among banks but also among the various categories of borrowings (e.g., corporate loans, retail loans), within individual institutions. Many banks also apply credit limits in order to manage and control their credit risk exposure and concentration, and they also conduct credit risk stress testing exercises to obtain estimates of the potential financial losses under extreme financial conditions. Table 8.1 presents the history of the adoption of various approaches in the case of Eurobank EFG as an illustrative example.[2]

There is no doubt that a sound credit risk management system is a prerequisite for a healthy loan portfolio; however, the operating and macroeconomic environment also plays a major role in maintaining the quality of the portfolio. Therefore, it is not surprising that the data in Table 8.2 show an increase in the ratio of non-performing loans to total loans during the crisis period. In 2009, the NPL ratio of the Greek banking sector reached 7.7 per cent, compared with 4.5 per cent in 2007. Further data from the Bank of Greece illustrate that the increase in NPL was recorded across all categories of loans (Figure 8.1). The NPL ratios per loan category in 2009 and 2007 were as follows: 13.4 per cent for consumer loans (2007: 6 per cent), 7.4 per cent for housing (2007: 3.6 per cent) and 6.7 per cent for corporate loans (2007: 4.6).[3]

Table 8.1 Implementation of credit risk management-related approaches under the Basel II framework at EFG Eurobank Group

Date	Approach	Segment
January 2007	Change from Basel I to standardized approach under Basel II	
June 2008	Received approval from BoG to use the IRB (with effect from 1 January 2008)	
	Foundation RIB	Corporate loans portfolio of EFT Eurobank Ergasias SA (the 'Bank') in Greece
	Advanced IRB	Majority of the retail loans portfolio of the Bank (e.g., mortgages, small business lending, credit cards)
September 2009	Foundation IRB approach	Corporate loans portfolio of EFG Leasing SA in Greece
March 2010	Advanced IRB approach	Bank's portfolio of personal and car loans

Source: Based on information from the EFG Eurobank Ergasias SA, Consolidated Pillar 3 Report for the Year ended 31 December 2010.

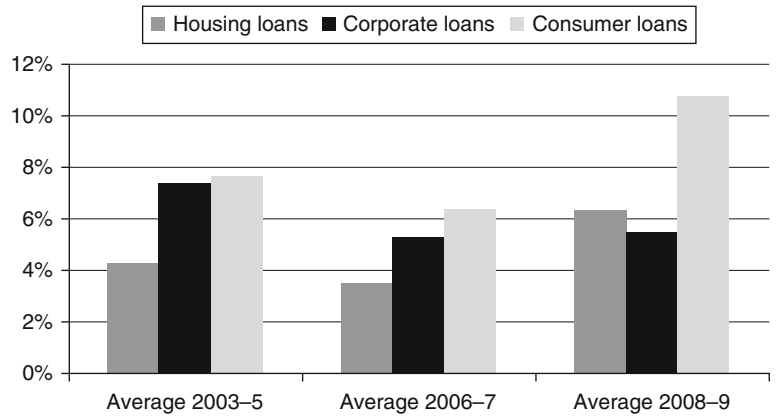

Figure 8.1 Greek commercial banks' NPL ratios by type of loans
Source: Based on data from the Bank of Greece.

Table 8.2 NPL ratio (%) of banks in Greece compared with other countries, 1998–2009

	1998–2000	2001–7	2008–9	1998–2009
Greece	13.80	5.90	6.35	7.95
Italy	8.47	5.90	5.95	6.55
France	5.67	3.91	3.20	4.23
Germany	4.60	4.24	3.05	4.13
Spain	1.57	0.89	4.25	1.62
Ireland	1.77	0.84	5.80	1.90
Portugal	2.63	1.87	2.60	2.18
USA	1.00	1.07	4.15	1.57
UK	2.90	1.77	2.55	2.18

Notes: NPL ratio (%) = Non-performing loans/Total loans
Source: Based on various IMF stability reports and the IMF Financial Soundness Indicators database.

There are two reasons for the increasing trend in NPL ratios. The first is the worsening in the financial condition of consumers and non-financial firms alike, posing difficulties in the repayment of their debt, and leading to the increase in NPLs. The second has to do with changes in the demand and supply of new credit. Higher taxes, lower government spending for social programmes, a decrease in salaries and increasing unemployment, together with uncertainty about future developments make customers sceptical about accumulating additional credit. At the same time, banks are also reluctant to provide new credit, adopting tighter credit standards, with an adverse impact on overall credit growth (i.e., denominator of the NPL ratio).

The average NPL ratio for Greece over the period 1998–2009 is 7.95 per cent which is the highest across the nine countries shown in Table 8.6. Italy (6.55 per cent) and France (4.23 per cent) rank second and third, respectively, while the lowest NPL ratio is recorded was that of the USA (1.57 per cent). However, cross-country comparisons should be treated with caution due to differences in the definitions of NPLs. For example, such data are often expressed net of collateral, which is not the case in Greece, where a significant portion of loans are in fact secured by guarantees and real estate collateral, hence limiting credit risk.[4] Therefore, it is more interesting to observe the change in this ratio over time within individual countries.[5] The average NPL ratio in Greece over the period 2001–7 was 5.90 per cent; it increased to 6.35 per cent during 2008–9. However, other countries experienced a significantly higher increase over a comparable time frame. For example, the average

Table 8.3 NPL coverage ratio (%) of banks in Greece compared with other countries, 1998–2009

	1998–2000	2001–7	2008–9	1998–2009
Greece	29.00	52.66	45.20	45.50
Germany	n.a.	50.13*	44.60	47.92
France	60.00	61.33	66.60	61.88
Spain	92.70	221.86	67.90	163.91
Ireland	82.70	83.54	45.85	77.05
Portugal	66.70	73.91	72.05	72.82
Italy	46.50	50.25*	43.15	47.94
USA	98.73	134.61	66.05	114.22
UK	64.07	65.45*	39.60	60.37

Notes: * Due to missing data, some years are not included in the calculations of the NPL coverage ratio for specific countries. These are as follows: Germany (1998–2004), Italy (2004), UK (2007). NPL coverage ratio (%) = bank accumulated loan loss provisions/non-performing loans.
Source: Based on various IMF stability reports and the IMF Financial Soundness Indicators database.

NPL ratio in Ireland increased by approximately seven times, reaching 5.80 per cent (2008–9) from 0.84 per cent (2001–7). Spain experienced a similar increase, with the NPL ratio being 5.1 per cent at the end of 2009 (2008–9 average: 4.25 per cent) compared with just 0.9 per cent at the end of 2007 (2001–7 average: 0.89 per cent).

Table 8.3 presents information on the NPL coverage ratio – that is, the accumulated loan-loss provisions (LLPs) as a percentage of NPLs. It should be noted that in the years prior to the crisis Greek banks improved this ratio significantly, reaching a peak of 61.9 per cent in 2005 from 24.1 per cent in 1998. However, since 2005 this ratio has been declining continuously, being 41.5 per cent in 2009. This is despite an increase in the LLPs in 2009, in response to the higher losses expected and the recommendations of the Bank of Greece. More specifically, the accumulated LLPs (i.e., loan-loss reserves) reached 9 billion euros in 2009 (2008: 6.6 billion euros) or 3.2 per cent when expressed relative to total loans (2008: 2.5 per cent). However, the rate of increase in NPLs was considerably higher than the rate of increase in the LLPs, leading to the decrease in the NPL coverage ratio.

8.3 Market risk

The exposure of Greek banks to market risk has been traditionally very low, with the total value of the trading book in 2009 being 13.5 billion euros (2008: 9.1 billion euros). As Figure 8.2 shows, the trading book

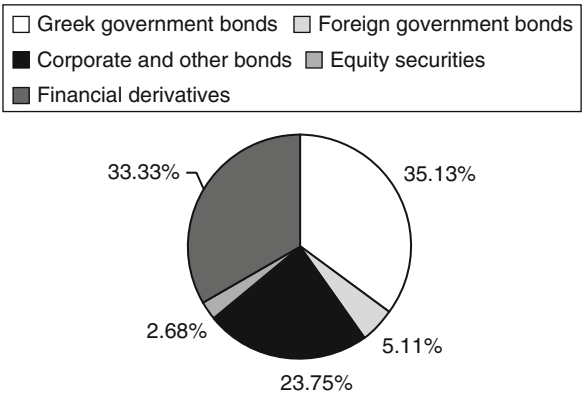

Figure 8.2 Composition of Greek commercial banks' trading book in 2009 (based on value and consolidated accounts)
Source: Based on data from the July 2010 Bank of Greece *Financial Stability Report*.

consists mainly of bonds (63.99 per cent) and, to a lesser extent, financial derivatives (33.33 per cent) and equity securities (2.68 per cent).[6] To illustrate further the small exposure to market risk one can express the value of the trading book in relation to banks' total assets, with the ratio being just 3 per cent (2008: 2.2 per cent). A similarly low ratio is observed in the case of capital requirements for market risk account as a proportion of total capital requirements (2009: 3.7 per cent, 2007: 3.8 per cent).

The small share of market risk in total bank risk does not eliminate the need for sound risk management. With this in mind, the Bank of Greece, in May 2002, gave an option to the credit institutions to use internal value at risk (VaR) models, as an alternative to the standard approach, for the calculation of capital requirements against market risks arising from trading portfolio positions, foreign exchange positions and positions in commodities. Despite the widespread use of VaR models by Greek banks, it was not until 2005 that they started using them for the calculation of regulatory capital requirements.

As it concerns the estimation of the VaR, all the banks use a confidence level of 99 per cent for a daily time horizon; however, the method varies among banks, with some of them using the historical simulation (Alpha Bank, Emporiki) and others the Monte Carlo method (e.g., ATE, Eurobank). The employment of the VaR models is complemented by back-testing processes to check on the validity of the assumptions and the parameters used in the VaR calculations, stress testing analysis and VaR limits. In addition to the VaR models, which are mainly used to estimate the risk of the trading book, Greek banks employ additional

Table 8.4 Value at risk (VaR) estimates for market risk of the largest Greek banks, 2007–9

Average daily value (annual), unless otherwise indicated	**Alpha Bank trading portfolio**			**EFG Eurobank Ergasias trading and investment portfolio**		
Value in million euros	2009	2008	2007	2009	2008	2007
Foreign currency risk	0.30	0.25	0.36	8	12	26
Interest rate risk	0.92	2.01	0.82	61	52	35
Price risk	1.70	0.30	0.56	12	14	28
Total	2.06	2.07	1.02	67	57	57
	ATE bank trading portfolio			**NBG trading and AFS portfolio**		
	2009	2008	2007	2009	2008	2007
Foreign currency risk	0.63	2.17	0.76	n.a.	n.a.	n.a.
Interest rate risk	1.46	1.64	0.01	n.a.	n.a.	n.a.
Price risk	0.56	1.57	2.81	n.a.	n.a.	n.a.
Total	2.40	3.68	2.67	16	9.8	3.3
	Emporiki Bank trading portfolio			**Piraeus Bank trading portfolio (end year)**		
	2009	2008	2007	2009	2008	2007
Foreign currency risk	0.06	0.04	0.03	3.3	2.64	0.18
Interest rate risk	0.83	1.23	0.48	6.4	2.09	1.08
Price risk	0.00	0.19	0.79	5.57	4.38	6.69
Total	0.84	1.29	0.93	9.22	5.46	6.49

Notes: ATE Bank: Agricultural Bank of Greece, NBG: National Bank of Greece. Price risk relates to positions in shares, index futures and options. The aggregate of the interest rate, foreign exchange and price VaR results does not constitute the banks' total VaR due to correlations and consequent diversification effects among risk factors. AFS: available for sale.
Source: Based on banks' annual reports.

techniques to monitor the various components of market risk arising from the banking book. These include the interest rate gap analysis to assess interest rate risk and limits on the level of exposure by currency and in total to assess the exchange risk.

Table 8.4 presents the estimates of the VaR models of the major banks in Greece over the period 2007–9. The comparison of the results should be treated with some caution, since some banks report the VaR

estimates only for the trading book (e.g., Alpha Bank), whereas others include both the trading and the investment portfolio or for specific geographical segments (e.g., EFG Eurobank Ergasias). The disaggregation of the total VaR figures illustrates that interest rate risk was, in most cases, the most important risk factor during 2009 (e.g., Agricultural Bank of Greece, EFG Eurobank Ergasias, National Bank of Greece).[7]

8.4 Operational risk

In recent years, Greek banks have adopted various procedures for the operational risk management in preparation for the implementation of Basel II. For example, they have prepared operational risk management manuals and reporting frameworks, set up operational risk management divisions and specialized committees, and they collect data for the calculation of operational risk capital requirements in accordance with Basel II and Bank of Greece requirements. With regard to the latter, most banks have adopted the standardized approach, whereas EFG Eurobank Ergasias uses a combination of the standardized approach and the basic indicator approach. Furthermore, some of them consider using the advanced measurement approach (e.g., National Bank of Greece) once they will fulfil the regulatory and other requirements (e.g., historical data). The calculation of capital requirements for operational risk using these methods illustrates that operational risk constitutes a small part of total risk, albeit a little higher than market risk, since capital requirements for the coverage of operational risk were around 8 per cent of total, in both 2008 and 2009.

Figure 8.3 presents a breakdown of gross loss from operational risk events of the largest banking group in Greece, namely the National Bank of Greece, averaged over the fiscal years 2009 and 2010.[8] External fraud (54 per cent) and execution delivery and management process (18 per cent) appear to be the two most important categories. However, it is interesting to highlight at this point that the adverse conditions of the fiscal crisis have increased the motives for external fraud, with this category accounting for 66 per cent in 2010, compared with 42 per cent in 2009. In contrast, there has been a significant decrease in execution delivery and management process, which accounted for 9 per cent in 2010 compared with 27 per cent in 2009.

8.5 Capital adequacy

Table 8.5 presents information about the capital adequacy ratio (CAR) (i.e., total regulatory capital/risk-weighted assets) and the equity to total

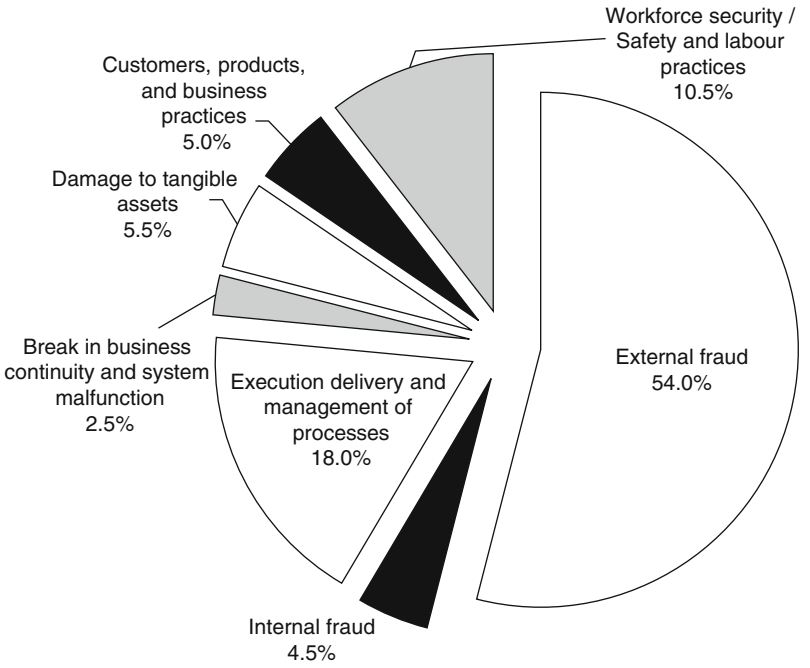

Figure 8.3 Gross loss from operational risk events by category (% total), National Bank of Greece Group, averages of fiscal years 2008–10
Source: Based on the NBG Group's annual reports.

assets (EQAS) ratio for the commercial banking sector in Greece and for selected countries, averaged over the pre-euro era (1996–2000), the pre-crisis period (2001–7) and the first years of the crisis (2008–9). The table also presents the average values of the tier 1 ratio (tier 1 capital/risk-weighted assets) over the periods 2004–7 and 2008–9.

Figure 8.4 presents further information about the capital adequacy ratio in the commercial banking sector in Greece by showing its trend over the entire period 1996–2009. The figure also presents information about large commercial Greek banks, as well as for foreign banks in Greece. Due to data unavailability, the latter are included only for the period 2004–9.

Clearly, regardless of the group under investigation, a positive development during 2009 was the improvement in capital adequacy of commercial banks in Greece. Actually, this was the first year since 2006 that the CAR ratio recorded an increase. Starting in 2007, the CAR ratio decreased to 12.67 per cent from 13.68 per cent in 2006. The main

Table 8.5 Capital ratios (%) of banks in Greece compared with other countries, 1996–2009

	Greece (commercial banks)				France (commercial banks)			
	1996–2000	**2001–7**	**2008–9**	**1996–2009**	**1996–2000**	**2001–7**	**2008–9**	**1996–2009**
CAR	13.17%	12.99%	11.95%	12.91%	12.30%	11.34%	11.45%	11.54%
EQAS ratio	6.88%	6.64%	5.89%	6.62%	3.53%	3.42%	2.91%	3.39%
Tier 1 ratio*	n.a.	9.30%	10.38%	9.66%	n.a.	n.a.	n.a.	n.a.
	Spain (commercial banks)				**Ireland (all banks)****			
	1996–2000	**2001–7**	**2008–9**	**1996–2009**	**1996–2000**	**2001–7**	**2008–9**	**1996–2009**
CAR	11.02%	11.60%	11.81%	11.53%	14.13%	14.20%	12.50%	13.93%
EQAS ratio	7.60%	8.00%	8.01%	7.86%	6.15%	4.98%	4.03%	5.26%
Tier 1 ratio*	n.a.	7.56%	8.99%	8.04%	n.a.	11.82%	10.74%	11.46%
	Germany (commercial banks)				**Italy (all banks)****			
	1996–2000	**2001–7**	**2008–9**	**1996–2009**	**1996–2000**	**2001–7**	**2008–9**	**1996–2009**
CAR	11.87%	12.97%	13.55%	12.79%	13.27%	14.90%	11.33%	13.81%
EQAS ratio	4.62%	4.01%	4.56%	4.31%	6.69%	7.04%	8.07%	7.06%
Tier 1 ratio*	n.a.	n.a.	n.a.	n.a.	n.a.	11.99%	8.23%	10.74%
	Portugal (commercial banks)				**USA (commercial banks)**			
	1996–2000	**2001–7**	**2008–9**	**1996–2009**	**1996–2000**	**2001–7**	**2008–9**	**1996–2009**
CAR	11.32%	11.70%	12.84%	11.73%	12.15%	12.51%	13.42%	12.54%
EQAS ratio	10.10%	11.51%	9.55%	10.73%	8.33%	9.64%	10.26%	9.26%
Tier 1 ratio*	n.a.	7.83%	8.11%	7.92%	n.a.	9.74%	10.54%	10.01%

Notes: * Tier 1 ratio is from 2004 onwards in all cases. ** According to the OECD database, in the case of Ireland, data for 'all banks' and 'commercial banks' are identical. In the case of Italy, 'all banks' refers to limited company banks (including subsidiaries of foreign banks), cooperative banks, mutual banks, central credit institutions and branches of foreign banks – no further disaggregation is available in the database. CAR = capital adequacy ratio, EQAS = equity to assets ratio. Data for CAR for Germany (France) are from 1998 (1999) onwards from the IMF; Data for CAR For Spain are from 1999 onwards; Data for CAR and tier 1 for the USA are from 1997 onwards.
Source: Based on various IMF stability reports, IMF Financial Soundness Indicators database and OECD Banking Statistics Database.

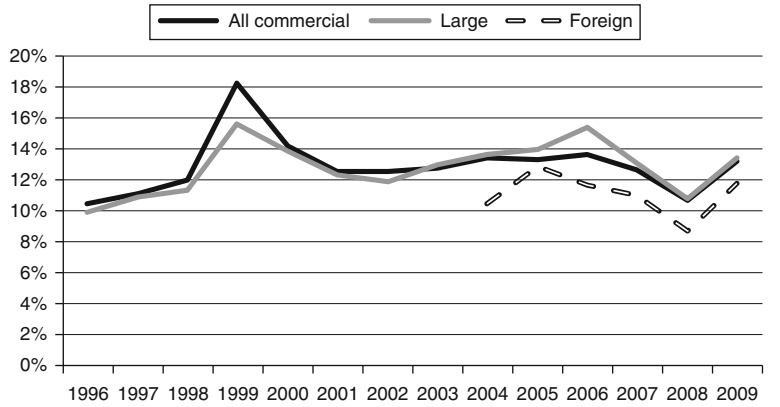

Figure 8.4 Capital adequacy ratio of the commercial banking sector in Greece, 1996–2009
Source: Based on data from OECD Banking Statistics Database.

reason was a considerable increase in risk-weighted assets for credit risk, which was not fully offset by the capital increases completed during 2007 and banks' retained earnings (see Figure 8.5).

The CAR ratio decreased further in 2008 to 10.66 per cent, which was attributed to: (i) valuation losses recognized in own funds, (ii) purchases of own shares by banks, (iii) write-downs on participations held by Greek banking groups due to foreign exchange valuation differences, (iv) the calculation for the first time – under the Basel II framework – of capital requirements for operational risk and an increase in credit risk-weighted assets, which more than offset a decline in market risk-weighted assets (see the annual report of the Bank of Greece for 2008).

Nonetheless, in 2009 the CAR ratio increased, returning to the 2006 level, standing at 13.24 per cent at the end of the year. As shown in Figure 8.5, this was mainly due to a large increased in regulatory capital and a very small increase in risk-weighted assets. As mentioned in the financial stability report of the Bank of Greece for 2010, the latter is attributable to a deceleration in credit growth, resulting in a slower increase in risk-weighted assets for credit risk, which account for about 90 per cent of total risk-weighted assets. The same report also points out that the most important factors underlying the increase in the regulatory capital of banks and their groups were: (i) capital increases in cash by some banks (3.8 billion euros) and sales of own shares by others, (ii) internal capital generation from retained 2009 profits and from the non-distribution to common shareholders of dividends in cash for

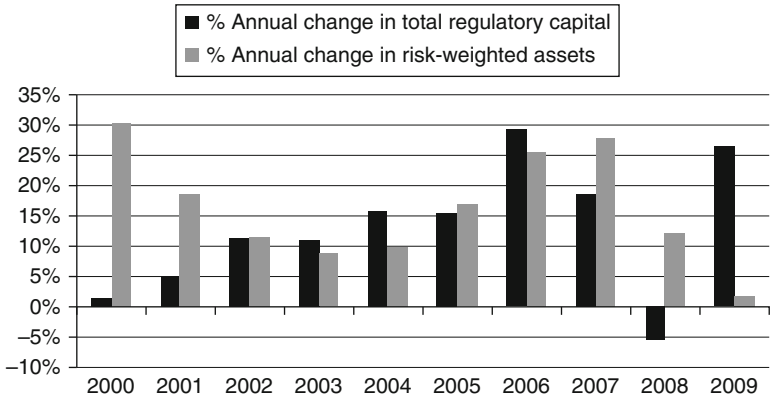

Figure 8.5 Annual percentage change in total regulatory capital and risk-weighted assets of the commercial banking sector in Greece, 2000–9
Source: Based on data from OECD Banking Statistics Database.

financial year 2008 and (iii) issuance of preference shares sold to the Greek state under Law 3723/2008 (3.83 billion euros in total).

8.6 Liquidity risk

Liquidity risk relates to the ability of the banks to maintain sufficient funds to cover their obligations. While it was not part of the Basel I and Basel II frameworks, the importance of liquidity has traditionally received increased attention from the Basel Committee, which has published numerous documents on sound practices for liquidity management.[9] However, despite the Basel recommendations, the financial crisis revealed that many banks around the world were not managing liquidity in an efficient way, leading to the liquidity problems in mid-2007. In response to this situation, liquidity eventually became part of the new supervisory framework that was issued in 2010, known as Basel III. Of course, in many countries, including Greece, regulators already request banks to maintain minimum liquidity ratios (see Chapter 5).

Therefore, to comply with the requirements of the Bank of Greece and at the same time manage their liquidity risk, Greek banks monitor regularly the minimum reserve balances, as well as the liquid asset ratio and the asset/liability maturity mismatch ratio, by using scenario analysis and stress testing techniques. They also rely on liquidity gap analysis, which provides an overview of the expected cash flows, once

assigned and aggregated into timebands according to the time of their occurrence.

Apparently, these initiatives in liquidity risk management were not enough to keep the Greek banks away from liquidity problems. The global problems in the interbank market and the securitization of loans were followed by the Greek fiscal crisis and the downgrades of the Greek government and banks, posing additional difficulties for Greek banks – eventually forcing them out of the international money and capital markets. At the same time there was a considerable decline in the growth of customer deposits. There are two reasons for this. First, there were fears over the potential loss of deposits in the case of a collapse of the Greek banking sector or exit from the euro. Second, the worsening economic environment forced many citizens to rely on deposits accumulated over previous years to cover day-to-day needs. Figure 8.6 presents the 12-month percentage changes in deposits and repos of non-monetary financial institutions (MFIs) in MFIs in Greece.[10]

As a result of the above developments, the liquidity position of Greek banks worsened, on average, during the first two years of the crisis. Figure 8.10 presents averages of the two supervisory liquidity ratios over the periods 2005–7 and 2008–9. The average liquid assets ratio fell to 21.45 per cent during 2008–9 from 23.50 per cent during 2005–7, whereas the average asset liability maturity mismatch ratio stood at

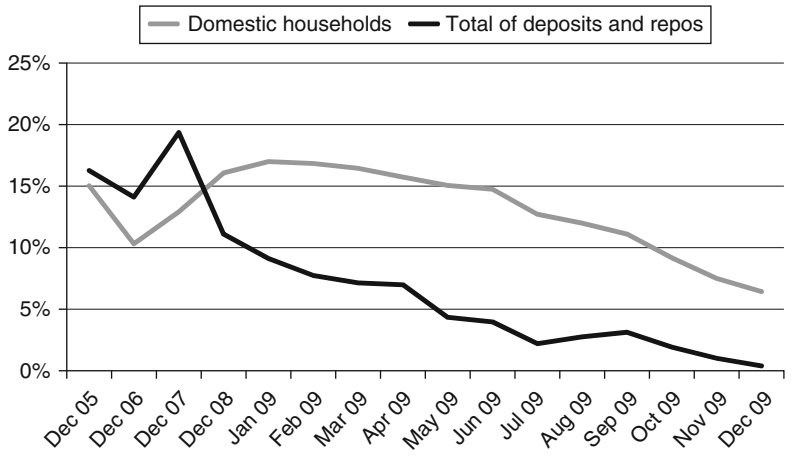

Figure 8.6 Twelve-month % change in deposits and repos of non-MFIs in MFIs in Greece (excluding the Bank of Greece)
Source: Based on information from the Bank of Greece database on deposits.

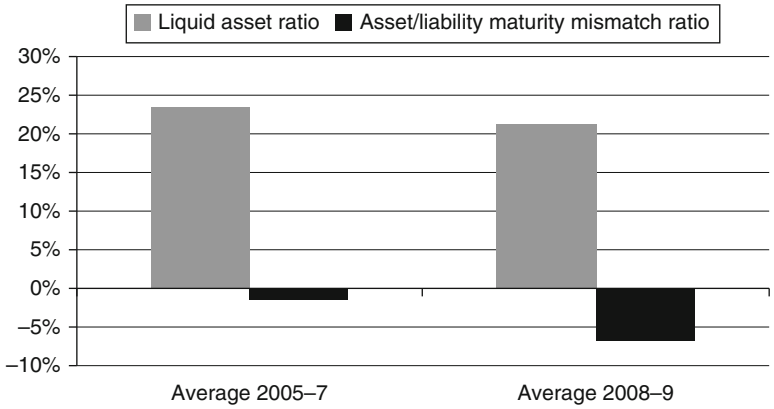

Figure 8.7 Supervisory liquidity ratios of Greek banks, 2005–9
Source: Based on data from various annual reports and *Financial Stability Reports* of the Bank of Greece.

–6.90 per cent during 2008–9 compared with –1.43 per cent during 2005–7.

However, it should be mentioned that: (i) both ratios remained at levels above the regulatory minima (20 per cent and –20 per cent, respectively) over both periods, with the liquid assets ratio in 2008 being the only exception, and (ii) by the end of 2009 both liquidity ratios improved compared with the end of 2008.[11] To a large extent this improvement in liquidity in 2009 (compared with 2008) came as a result of excessive use of the refinancing facilities offered by the Eurosystem. In this respect, Greek banks were favoured by the measures provided for in Law 3723/2008. As the annual report of the Bank of Greece for 2009 indicates, by the end of the year, Greek banks recapitalized 3.8 billion euros through the issuance of preference shares, drew 4.6 billion euros in liquidity using Greek government securities as collateral and obtained 1 billion euros in loans using state guarantees.

8.7 Cooperative banks

Credit risk

The weakening of the domestic macroeconomic environment in 2009 caused a considerable deterioration in the loan portfolio quality of the Greek cooperative banks, with the NPL ratio increasing to 10.7 per cent (2008: 6.7 per cent). As mentioned in the July's 2010 *Financial*

Stability Report of the Bank of Greece, the main reason was the significant increase in NPLs among business loans, which account for 80 per cent of the loan portfolio of cooperative banks. Regarding NPL ratios in the various loan categories in 2009, they were as follows: housing loans (9 per cent), consumer loans (19.5 per cent) and business loans (10 per cent). The corresponding figures in 2008 were: 5.6 per cent, 16.6 per cent and 5.8 per cent, respectively. In light of these developments, the July 2010 *Financial Stability Report* of the Bank of Greece recommends that cooperative banks should: (i) enhance their risk management systems, (ii) adapt their credit policies to the new conditions and (iii) increase their loan-loss provisions.

Capital adequacy

The capital adequacy ratio of the cooperative banks has also decreased significantly in recent years, reaching 15.1 per cent at end 2009, compared with 37.4 per cent in 2001 (see Figure 8.8). However, despite this drop, the CAR remains well above regulatory levels (10 per cent in the case of cooperative banks), while Greek banks appear to be in better position compared with cooperatives in other countries (see Table 8.6).

Not surprisingly, the equity to assets ratio has also followed a downward trend over the period 2001–9, which, as shown in Figure 8.9, is the result of a significant annual growth in total assets compared with a considerably lower increase in equity.[12]

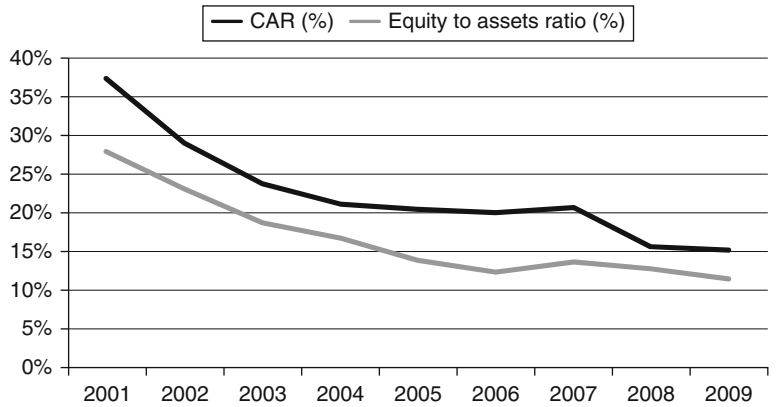

Figure 8.8 CAR and equity to assets ratio of Greek cooperative banks, 2001–9
Source: Based on data from OECD Banking Statistics Database and the Association of Cooperative Banks of Greece.

Table 8.6 Capital adequacy ratios of cooperative banks in Greece and other countries, 2001–9

	Greece			France		
	2001–7	**2008–9**	**2001–9**	**2001–7**	**2008–9**	**2001–9**
CAR	25%	15%	23%	n.a.	n.a.	n.a.
EQAS	18%	12%	17%	7.42%	8.12%	7.57%
	Spain			**Germany**		
	2001–7	**2008–9**	**2001–9**	**2001–7**	**2008–9**	**2001–9**
CAR	12.51%	12.89%	12.60%	n.a.	n.a.	n.a.
EQAS	10.49%	10.55%	10.51%	5.46%	5.77%	5.53%
	USA					
	2001–7	**2008–9**	**2001–9**			
CAR	18.37%	16.80%	18.02%			
EQAS	10.92%	10.40%	10.81%			

Notes: CAR = capital adequacy ratio; EQAS = equity to assets ratio.
Source: Based on data from OECD Banking Statistics Database and the Association of Cooperative Banks of Greece.

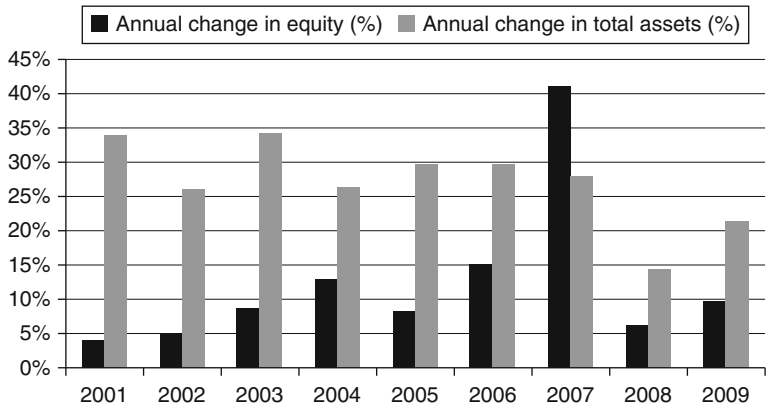

Figure 8.9 Annual % change in equity and total assets of cooperative banks in Greece, 2001–9
Source: Based on data from OECD Banking Statistics Database and the Association of Cooperative Banks of Greece.

Similarly to the case of the equity to assets ratio, the *Financial Stability Report* of the Bank of Greece (2010g) attributes the 2009 decrease in CAR to a relatively high growth of risk-weighted assets (13.3 per cent) that counterbalanced the increase in the regulatory capital (9.7 per cent); however, the report also highlights that the ownership structure of cooperative banks could complicate and delay an increase in capital, if needed, and that is why cooperative banks should: (i) strengthen their capital base and (ii) adopt a prudent dividend policy.

Liquidity risk

Despite the adverse economic conditions, cooperative banks managed to improve their liquidity during 2009. As highlighted in the *Financial Stability Report* of the Bank of Greece (2010g), the liquid asset ratio increased to 26.9 per cent in June 2009 compared with 18.2 per cent in December 2008, whereas the corresponding figures for the mismatch ratio were 12.2 per cent and 7.1 per cent, respectively. Thus both indicators were at levels above the regulatory minimums of 20 per cent and –20 per cent, respectively.

The improvement in the liquidity position of cooperative banks is also reflected in the fall of the loan to deposit ratio during 2009.[13] The main reason for this decrease was an increase in the deposits of 22.98 per cent in 2009 that was accompanied by a considerably lower

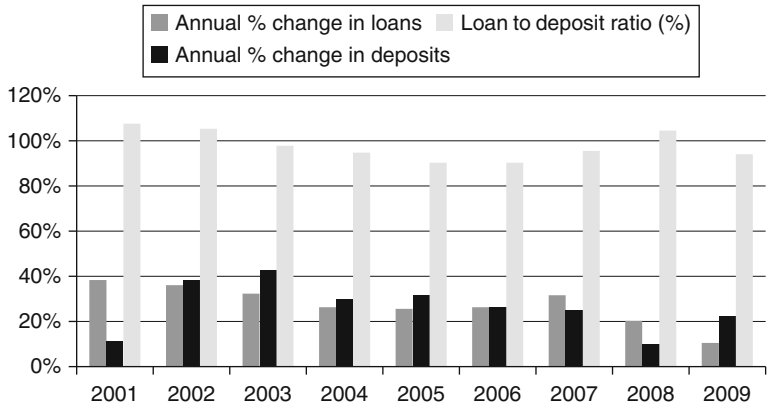

Figure 8.10 Loan to deposit ratio and annual percentage change in loans and deposits, cooperative banks in Greece, 2001–9
Source: Based on data from OECD Banking Statistics Database and the Association of Cooperative Banks of Greece.

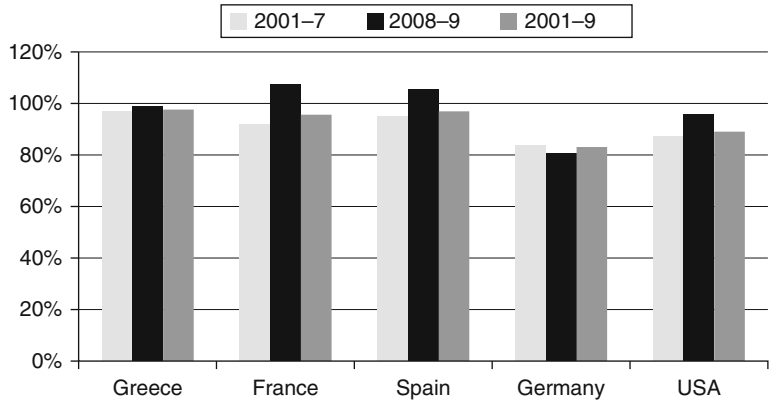

Figure 8.11 Loan to deposit ratio of cooperative banks in Greece and other countries, 2001–9
Source: Based on data from OECD Banking Statistics Database and the Association of Cooperative Banks of Greece.

growth in loans (10.45 per cent). Thus, the loan to deposit ratio stood at 94.10 per cent in 2009, compared with 104.77 per cent in 2008 (see Figure 8.10). Additionally, it appears that the liquidity of Greek cooperative banks, as measured with the loan to deposit ratio, is comparable to that of cooperative institutions in other countries (see Figure 8.11).

8.8 Conclusions

The present chapter reviews various aspects of risk management in the Greek banking sector, while focusing on the banking risk included in the calculation of regulatory capital in the Basel II accord (i.e., credit risk, market risk, operational risk), as well as the management of liquidity risk. In recent years, Greek banks have made significant progress in managing credit risk with the use of risk transfer instruments, the establishment of categories of acceptable collateral and their incorporation into the credit policies of banks and the development of credit scoring models.

The exposure of the Greek banking sector to market risk is, in general, relatively low, and it was not until 2005 that banks started using value at risk models for regulatory purposes. As discussed in Section 8.3, additional techniques used to monitor the various components of market risk include interest rate gap analysis and limits on the level of exposure to foreign currencies. In recent years, Greek banks also have made

significant progress in the adoption of various procedures relating to operational risk, including the preparation of risk management manuals and reporting frameworks, the establishment of operational risk management divisions and specialized committees and the collection of data for the calculation of operational risk capital requirements in accordance with Basel II and Bank of Greece requirements.

The present chapter also reviews various indicators that relate to banking risks. As shown in Section 8.2, Greek banks experienced an increase in the ratio of non-performing loans to total loans during the crisis period. However, both the capital adequacy ratios and the liquidity ratios, discussed in Sections 8.5 and 8.6, remain above the minimum regulatory requirements.

9
Corporate Governance

9.1 Introduction

Corporate governance, which refers to the process and structure for overseeing top managers so that they effectively fulfil the mandate of the firm, is not a new topic. Actually, the recognition of the incentive problems that arise when decisions are taken by managers who are not owners of the firm dates back to the work of Adam Smith (1776), while modern interest in the field is usually associated with the work of Berle and Means (1932). The studies of Jensen and Meckling (1976), Fama (1980) and Fama and Jensen (1983) are also considered classic in the field. While the board of directors is generally seen as the ultimate corporate control mechanism, recent reports on governance highlight the importance of board committees such as audit, remuneration and nomination committees, as well as additional monitoring controls. In any case, the accounting scandals in the early 2000s (e.g., Enron and Worldcom) and the recent financial crisis have generated a new round of discussions about the effectiveness of existing corporate governance mechanisms.

Adams and Mehran (2003) highlight that financial institutions are very different from firms in unregulated industries, wondering whether proposals and reforms designed for non-financial sectors can also be effective in enhancing the governance of financial institutions and, in particular, banking firms. For example, they mention that, in addition to investors, depositors and regulators have a direct interest in bank performance, complicating the governance structure of financial institutions. Furthermore, banks are highly leveraged institutions which may affect the ability of external governance mechanisms, such as takeovers, to mitigate governance problems. Levine (2004) indicates that greater

opaqueness is another special feature of banking; he argues that the greater informational asymmetries between insiders and outsiders in banking make it very difficult for diffuse equity and debt holders to monitor bank managers. Moreover, while controlling owners have incentives to increase the bank's risk profile, debt holders do not enjoy any upside potential from risk-taking. Levine (2004) offers one more example of how information asymmetries can impact corporate governance mechanisms. He mentions that information asymmetries make it more difficult to design contracts that align mangers' interest with bank equity holders. The reason is that outcomes are difficult to measure and easy to influence in the short-term, allowing managers to manipulate pay-offs from compensation. For instance, managers could increase their compensation in the short run by providing a high-interest loan to a borrower with low creditworthiness, increasing the bank's interest income in the short run, despite the likely problems associated with such a strategy in the long run. Further to the above, de Andres and Vallelado (2008) mention that the agenda of regulatory bodies, which aims to reduce systemic risk, may be in conflict with the value maximization interests of bank shareholders. In line with these arguments, the Walker (2009) report highlights that 'A critical balance has to be established between, on the one hand, policies and constraints necessarily required by financial regulation and, on the other, the ability of the board of an entity to take decisions on business strategy that board members consider to be in the best interests of their shareholders.' (p. 6).

However, designing optimal corporate governance mechanisms for banks is particularly important for a number of reasons. First of all, excessive risk-taking can lead to banking crises with adverse effects for the economy as a whole. Furthermore, Barth *et al.* (2006) and Caprio *et al.* (2007) argue that if bank managers face sound governance mechanisms and are well managed, it is likely that they will allocate capital and the society's savings more efficiently. Finally, Levine (2004) also mentions that bank managers facing sound governance mechanisms may also exert effective corporate governance over the firms they fund.[1]

Recommendations at an international level

The Walker report for the UK

The Walker (2009) report, commissioned by the UK government in the aftermath of the financial/banking crises in 2007, discusses a number of issues and makes 39 recommendations that relate to: (i) board size, composition and qualification, (ii) functioning of the board and evaluation

of performance, (iii) the role of institutional shareholders: communication and engagement, (iv) governance of risk and (v) remuneration. While a detailed discussion of all the recommendations falls outside the scope of this section, the main points can be summarized as follows:

- The report draws attention to board composition and the role of non-executive directors. First, it suggests that financial industry experience and independence of mind is more relevant than a combination of lesser experience and formal independence. Furthermore, it argues that the commitment of non-executive directors, in terms of time, should be greater than has been the norm in the past. Finally, non-executive directors (NEDs) should be in a position to challenge and test proposals on strategy put forward by the executives, when necessary.
- The chairman of a major bank should also be expected to commit a significant proportion of his or her time (the report suggests around two-thirds), to the business of the entity, with the chairmanship role having priority over any other business time commitment. Additionally, the chairman is expected to bring a combination of relevant financial industry experience and a track record of successful leadership capability in a significant board position.
- There should be a formal and rigorous evaluation of the performance of the board and its committees, with external assessment of the process every two or three years.
- With respect to risk management and governance, the report suggests the establishment of a risk committee and the appointment of a chief risk officer (CRO). The risk committee should assume responsibility for oversight and advice to the board on risk exposures and risk strategy, and the creation of a supportive culture in relation to risk management, in compliance with rules and procedures, throughout the entire organization. The CRO should participate in the risk management and oversight process at the highest level on a firm-wide basis, be independent from individual business units, have direct access to the chairman of the committee in the event of need, with his/her removal being possible only with the prior agreement of the board.
- The remuneration committee should have a broad role, with responsibility to cover the remuneration structure and levels for all senior employees who are in a position to shape the risk profile of the firm. In addition, the committee should disclose in bands the number of 'high-end' employees, including executive board members, whose total expected remuneration exceeds 1 million pounds sterling, and,

within each band, the main elements of remuneration (i.e., salary, cash bonus, deferred shares, etc.). Additionally, the remuneration committee should ensure the alignment of the remuneration structures with the medium- and longer-term risk appetite and strategy of the entity. The report recommends that incentives should be balanced so that at least half of variable remuneration offered in respect of a financial year is in the form of a long-term incentive scheme with vesting subject to a performance condition (with half of the award vesting after not less than three years and of the remainder after five years). It is also recommended that short-term bonus awards should be paid over a three-year period with not more than one third in the first year. Finally, clawback is suggested as the way to reclaim amounts in the events of mis-statement and misconduct.

- Executive board members and 'high-end' employees should be expected to maintain a shareholding or retain a portion of vested awards in an amount in line with their total compensation on a historic or expected basis, to be built up over a period at the discretion of the remuneration committee.

European Union directives and recommendations: general

At a European Union level, the need for appropriate corporate governance as a precondition for economic efficiency was first discussed at the Barcelona European Council of 15 and 16 March 2002. This was followed by the report from the High Level Group of Company Law Experts in November 2002, recommending that the priorities on the short run should be: (i) the enhancement of corporate governance disclosure requirements, (ii) improvements in the role of independent non-executive or supervisory directors, particularly in the areas of financial accounts auditing, nomination and remuneration of the directors, (iii) establishment of an appropriate regime for the remuneration of directors, (iv) the collective responsibility of directors for financial and key non-financial statements of the company, (v) an integrated legal framework to facilitate efficient shareholder information, communication and decision-making on a cross-border basis and (vi) creation of a structure to coordinate the efforts of member states.

In response, the European Commission issued, in May 2003, a communication titled 'Modernizing Company Law and Enhancing Corporate Governance in the European Union: A Plan to Move Forward'. The main objectives of the action plan were to: (i) strengthen shareholders' rights and protection for employees, creditors and the other parties with which companies deal, while adapting company law and corporate

governance rules appropriate for different categories of companies and (ii) foster the efficiency and competitiveness of business, with special attention to some specific cross-border issues.[2]

In 2004, the European Commission adopted a recommendation on directors' remuneration, inviting member states to adopt measures in the following four areas: (i) remuneration policy (e.g., release of a statement with the policy, information on the breakdown of fixed and variable remuneration, performance criteria), (ii) shareholders' meetings, (iii) disclosure of remuneration of individual directors (e.g., the remuneration and/or emoluments of individual directors, the shares or rights to share options granted to them, etc.), (iv) approval of the share and share option schemes (i.e., by the Annual General Meeting of Shareholders). Three years later, the Commission issued a report on the application of the recommendation by member states, concluding that transparency standards were widely followed, especially in the case of disclosure standards with regard to the remuneration of individual executives, with a significant number of member states making this a compulsory disclosure. However, the report also highlights that the recommendation on disclosure of the remuneration policy was not met with a high level of acceptance in member states; furthermore, only a few member states recommend that shareholders vote on the remuneration criteria of the board/management board.

In February 2005, the Commission invited member states, through the issuance of a Commission recommendation, to reinforce the presence and role of independent non-executive directors on listed companies' boards. This recommendation, which is non-binding, discusses, among others, issues related to the appointment and removal, qualifications, commitment, number and independence of non-executive or supervisory directors. Furthermore, it discusses the creation and composition, role and operation of the nomination committee, remuneration committee and auditing committee. As in the case of the remuneration of directors, the committee also published, in 2007, a report on the role of independent non-executive directors. The report concluded that there was real progress, with all member states requiring or recommending the presence of independent directors on (supervisory) boards; however, some of the recommended standards were not adopted in all countries. For example, in some member states a former chief executive officer (CEO) of a company could become its chairman without any cooling-off period. Additionally, at that time a significant number of member states did not recommend the presence of independent directors in all board committees.

A new Directive (2006/43/EC) on statutory audit of annual accounts and consolidated accounts was adopted in 2006.[3] Its association with corporate governance emerges through Article 41, which requires that each public-interest entity (i.e., listed companies, credit institutions, insurance companies) shall have audit committees. While the member state has some flexibility as to the composition of the committee, the Directive requires that at least one member must be independent and be competent in accounting and/or auditing.

During the same year, the European Parliament and the Council adopted Directive 2006/46/EC, requiring listed companies to disclose an annual corporate governance statement as a specific and clearly identifiable section of the annual report. At the very least, this statement must disclosure information about the corporate governance practices actually applied, including a description of the main features of any existing risk management systems and internal controls in relation to the financial reporting process. Moreover, it should make clear whether the company applies any provisions on corporate governance other than those provided for in the national law.[4]

To improve shareholders' rights in listed companies, as well as to improve problems relating to cross-border voting, the European Parliament and the Council adopted, in 2007, Directive 2007/36/EC. This Directive deals with issues relating to the: equal treatment of shareholders (Article 4), information prior to the general meeting (Article 5), right to put items on the agenda of the general meeting and to table draft resolutions (Article 6), requirements for participation and voting in the general meeting (Article 7), participation in the general meeting by electronic means (Article 8), the right to ask questions (Article 9), proxy voting (Article 10), formalities for proxy holder appointment and notification (Article 11), voting by correspondence (Article 12), removal of certain impediments to the effective exercise of voting rights (Article 13) and voting results (Article 14).

The most recent initiative of the Commission was the issuance of a Green Paper, in April 2011, inviting public consultation on possible ways forward to improve the corporate governance framework in Europe. This paper focuses on issues related to the board of directors (e.g., effective function, diversity, professional background, time commitment, directors' remuneration, etc.) and enhancement of shareholders' involvement (e.g., their ability to take an interest in sustainable returns and longer-term performance, enhance the protection of minority shareholders, access the need for shareholder identification) aiming to improve monitoring and enforcement of the existing national corporate governance codes.[5]

European Union directives and recommendations: financial institutions

In response to the financial crisis, the Commission (2009d) committed itself, in its communication on 'Driving European Recovery' (March 2009), to improve corporate governance in financial institutions. As a next step, in April 2009, the Commission adopted the Recommendation 2009/384/EC with principles on the remuneration of risk-taking staff in financial institutions, arguing in favour of a better alignment between effective risk management and remuneration policies. The recommendation sets out guidelines in the areas of:

- **Structure of payment.** This includes guidelines on the balance of fixed and random components, the deferral of bonuses with a minimum deferment period and the option to claim back already-paid bonuses in the case of mis-statements, etc.
- **Performance measurement.** This includes guidelines on the consideration of long-term performance, assessing the performance of the individual along with the business unit concerned and the overall results of the firm, and adjusting measures of performance for current and future risk-taking, the cost of capital employed and liquidity required, etc.
- **Corporate governance.** This includes guidelines on the use of clear, documented and internally transparent procedures in setting the remuneration policy. It also asserts that the board is responsible for determining the remuneration of directors, establishing the general principles of remuneration policies and overseeing their implementation. In addition, those responsible for remuneration policy (i.e., the board) or control procedures should be independent and have sufficient experience.
- **Disclosure.** The committee recommends that adequate disclosures should be made available to the stakeholders, including: (i) information concerning the decision-making process used for determining the remuneration policy, (ii) information on the linkage between pay and performance, (iii) information on the criteria used for performance measurement and risk adjustment, (iv) information on the performance criteria on which the entitlement to shares, options or variable components of remuneration is based and (v) the main parameters and the rationale for any annual bonus scheme and any other non-cash benefits.
- **Supervision.** The guidelines that relate to supervision mention that the authorities of the member states must have access to all the information that they need to assess the extent of implementation

of the aforementioned corporate governance guidelines. Moreover, in assessing compliance with the principles, supervisors themselves should take into account the nature, scale and complexity of the financial institutions.

Approximately one year later, in June 2010, the Commission published a report on the implementation of Recommendation 2009/384/EC, in the various member states. The main findings of the report were summarized as follows:

- Sixteen member states adopted national measures in accordance with the Commission recommendation, and another six indicated that they were in the process of preparing or adopting relevant national measures in this field.
- Six member states applied the principles of sound remuneration policies as of the 2009 bonuses, with the remaining planning to apply them in the course of 2010.
- All 16 member states adopted national measures to risk-adjust the remuneration policies and align them with the long-term interests of the financial institutions.
- A limited number of member states fully implemented the key recommendations on governance (e.g., role of boards, qualification and expertise of members of remuneration committees, etc.).
- There was a large diversity with regards to the structure of the remuneration policy and the disclosure requirements among member states.

Basel Committee on Banking Supervision

In 1999, the Basel Committee on Banking Supervision published a guidance paper to assist supervisors in promoting the adoption of sound corporate governance practices by banking institutions in their countries. This paper was first revised in 2006, and it was further revised in 2010 to address shortcomings in bank corporate governance that became apparent during the financial crisis. The committee describes corporate governance in banking as the allocation of authorities and responsibilities, meaning the way in which the business and affairs of a bank are governed by its board and senior management, including how they: (i) set the bank's strategy and objectives, (ii) determine the bank's risk tolerance/appetite, (iii) operate the bank's business on a day-to-day basis, (iv) protect the interests of depositors, meet shareholder obligations and take into account the interests of other recognized stakeholders and (v) align corporate activities and behaviour with the

expectation that the bank will operate in a safe and sound manner, with integrity and in compliance with applicable laws and regulations.

The report that was published in 2010 discusses a total of 14 principles, classified under the following headings: (i) Board practices (Principles: 1, 2, 3, 4), (ii) Senior management (Principle 5), (iii) Risk management and internal controls (Principles: 6, 7, 8, 9), (iv) Compensation (Principles: 10, 11), (v) Complex or opaque corporate structures (Principles: 12, 13) and (vi) Disclosure and transparency (Principle 14). These principles are as follows:

1. The board has overall responsibility for the bank, including approving and overseeing the implementation of the bank's strategic objectives, risk strategy, corporate governance and corporate values. The board is also responsible for providing oversight of senior management.
2. Board members should be and remain qualified, including through training, for their positions. They should have a clear understanding of their role in corporate governance and be able to exercise sound and objective judgement about the affairs of the bank.
3. The board should define appropriate governance practices for its own work and have in place the means to ensure that such practices are followed and periodically reviewed for ongoing improvement.
4. In a group structure, the board of the parent company has the overall responsibility for adequate corporate governance across the group and ensuring that there are governance policies and mechanisms appropriate to the structure, business and risks of the group and its entities.
5. Under the direction of the board, senior management should ensure that the bank's activities are consistent with the business strategy, risk tolerance/appetite and policies approved by the board.
6. Banks should have an effective internal controls system and a risk management function (including a chief risk officer or equivalent) with sufficient authority, stature, independence, resources and access to the board.
7. Risks should be identified and monitored on an ongoing firm-wide and individual entity basis, and the sophistication of the bank's risk management and internal control infrastructures should keep pace with any changes to the bank's risk profile (including its growth) and to the external risk landscape.
8. Effective risk management requires robust internal communication within the bank about risk, both across the organization and through reporting to the board and senior management.

9. The board and senior management should effectively utilize the work conducted by internal audit functions, external auditors and internal control functions.
10. The board should actively oversee the compensation system's design and operation, and should monitor and review the compensation system to ensure that it operates as intended.
11. An employee's compensation should be effectively aligned with prudent risk-taking: compensation should be adjusted for all types of risk; compensation outcomes should be symmetric with risk outcomes; compensation payout schedules should be sensitive to the time horizon of risks; and the mix of cash, equity and other forms of compensation should be consistent with risk alignment.
12. The board and senior management should know and understand the bank's operational structure and the risks that it poses (i.e., 'know your structure').
13. Where a bank operates through special-purpose or related structures or in jurisdictions that impede transparency or do not meet international banking standards, its board and senior management should understand the purpose, structure and unique risks of these operations. They should also seek to mitigate the risks identified (i.e., 'understand your structure').
14. The governance of the bank should be adequately transparent to its shareholders, depositors, other relevant stakeholders and market participants.

Additionally, there are five principles highlighting the role of supervisors in relation to corporate governance such as: (i) providing guidance to banks, (ii) performing a regular evaluation of bank corporate governance practices, (iii) monitoring a combination of internal reports and prudential reports, (iv) requiring effective and timely remedial action by a bank (when necessary) and (v) cooperating with other relevant supervisors in other jurisdictions. The report also highlights the role of the operating environment and, in particular, the potential contribution of other groups such as: shareholders, depositors and other customers, external auditors, banking industry associations, professional risk advisory firms and consultancies, governments, credit rating agencies, securities regulators, stock exchanges and other self-regulatory organizations and employees.

Finally, it should be mentioned that the Basel Committee emphasizes the critical role of the board of directors in several recent documents, such as those discussing the principles for liquidity risk management

(September 2008), stress testing (May 2009), compensation (January 2010) and operational risk (June 2011).

9.3 Corporate governance in Greece

Act 2577/2006 of the Governor of the BoG

As discussed in Staikouras (2007), the issue of the corporate governance of banks in Greece drew attention for the first time in 1998, with the provisions of Bank of Greece Governor's Act 2438/6.8.1998 concerning the establishment of internal control systems within credit institutions. This Act reached its final version in 2006, and it came into force as Act 2577/2006 of the Governor of the BoG, under the title 'Framework of Operational Principles and Criteria for the Evaluation of the Organization and Internal Control Systems of Credit and Financial Institutions and Relevant Powers of their Management Bodies'.

This Act applies to all the credit institutions established in Greece (including their foreign branches), as well as to all the financial institutions authorized and supervised by the BoG. However, the branches of credit institutions established in another member state of the European Economic Area (EEA) do not fall within the scope of this Act. The same applies to the branches of credit institutions established in non-EEA countries, as long as the Bank of Greece has accepted that they are subject to an equivalent supervisory regime, in accordance with the provisions of BoG Governor's Act 2461/2000. This exception is not applicable to provisions relating to the procedures for: (i) the prevention and suppression of money laundering and financing of terrorism, (ii) ensuring transactions' transparency and the adequacy of customer information and (iii) any other requirement reserved for the authorities of the host country under the legislation in force.

The provisions of the Act discuss a variety of issues, which are classified under the headings of: (i) general provisions, (ii) organizational structure – procedures, (iii) personnel, segregation of duties and conflicts of interests, (iv) transactions with persons specially related to the credit institution, (v) services provided to customers, (vi) prevention and suppression of money laundering and financing of terrorism, (vii) risk management, (viii) accounting systems, (ix) information systems and (x) compliance function.

The Act also refers to the management bodies of the internal control system (e.g., powers and committees of the board of directors and senior management), internal operational units, data reporting requirements (e.g., submission of reports and the respective assessments by

the competent committees to the BoG), authorizations to the Bank of Greece Department for the Supervision of Credit and Financial Institutions in relation to the Act and sanctions that can be imposed by the BoG for violations of the Act.

Consistently with other frameworks (e.g., the one of the Basel Committee), the board of directors has a very central role in the Act of the BoG, with the main points being as follows: (i) the board, as a whole, shall have adequate knowledge and experience in at least the most important activities of the credit institution, (ii) the board should include at least one, or, in the case of credit institutions whose total size (i.e., on- and off-balance sheet assets) exceeds the amount of 10 billion euros, two non-executive and independent members and (iii) the board shall be generally responsible for the application of the provisions of the Act by: providing strategic orientation, ensuring that there is an appropriate risk management policy, establishing an appropriate environment to understand and address effectively the risk at all the hierarchical levels, adopting a code of ethics, providing the senior management and the operational units with all the means required for the performance of their tasks, ensuring the accuracy of disclosures to the public and the supervisory authorities, ensuring compliance with the regulatory framework and ensuring the existence of document procedures to ensure the management of emergency situations and recovery of disaster.

The Act also makes particular reference to the establishment of specific board committees, with the appointment of the chairman of the committees (among its members) and the rotation frequency of the committee membership left at the discretion of the board. The two committees that are compulsory for credit institutions that meet specific criteria, discussed below, are the audit committee (AC) and the risk management committee (RMC). In the case of credit institutions that do not meet the criteria of the Act, it is at their discretion to decide whether or not they will establish similar bodies according to the cost/benefit analysis and efficiency principle, which shall be notified to the Bank of Greece.

The establishment of an AC is compulsory for credit institutions that meet one of following conditions: (i) their shares are listed in an organized market, (ii) they have subsidiaries or branches abroad or (iii) they have assets in excess of 100 million euros. The AC is appointed by the board of directors and consists of at least three non-executive members, one of which is independent with adequate knowledge and experience in accounting and auditing issues.[6] Issues such as the term, membership, rotation frequency, decision-making procedure and main duties of

the AC are set down in an internal regulation. With regard to the main duties, these should include, among others: (i) monitoring and evaluating on an annual basis the adequacy and effectiveness of the internal control system, (ii) overseeing and evaluating the procedures for preparing the published financial statements in accordance with the applicable accounting standards, (iii) cooperating with the external auditors (i.e., statutory certified public accountants) and overseeing the audit of the credit institution's annual financial statements, (iv) recommending the appointment, replacement and rotation of external auditors to the board of directors, (v) ensuring the independence of the certified public accountants,[7] (vi) recommending actions with the aim of addressing identified weaknesses, (vii) making recommendations on specific areas where additional audits should be carried out by internal or external auditors and (viii) evaluating the work of the internal auditing unit.

Furthermore, the establishment of an RMC is compulsory for credit institutions whose total size (i.e. on- and off-balance sheet assets) exceeds the amount of 10 billion euros, provided that their shares are listed in an organized market or they have subsidiaries or branches abroad. The RMC consists of members of the board of directors with adequate knowledge and experience in risk management, at least one of whom shall be executive and one non-executive director. As in the case of the AC, the term, membership, rotation frequency, decision-making procedure and main duties of the RMC are set down in an internal regulation. The responsibilities of the committee include, among others: (i) the formulation of a risk assumption and asset management policy, (ii) the development of an internal environment conducive to risk, (iii) the evaluation of the quarterly reports of the Risk Management Unit, (iv) notification of the most important risks assumed by the credit institution to the board of directors, (v) communication of proposals and recommendations related to the implementation of the risk management strategy of correct actions to the board of directors and (vi) formulation of the principles governing risk management with respect to risk identification, forecasting, measurement, etc. Additionally, the RMC shall evaluate, on an annual basis: (i) the adequacy and effectiveness of the risk management policy and (ii) the appropriateness of limits, the adequacy of provisioning and capital adequacy in general, in relation to the size and form of undertaken risks.[8] Additionally, the RMC shall carry out, at least on an annual basis, stress tests of market, credit and liquidity risk and use similar techniques for operational risk. Finally, the RMC shall meet in regular session at least once per quarter, or in *ad hoc* session, and shall invite any members of the senior management or

any officer the presence whereof is required in its opinion. In closing, it should be mentioned that the board may transfer the powers of the RMC to at least one executive and one non-executive member of the board of directors with adequate knowledge and experience in risk management issues. This decision should be communicated and justified to the Bank of Greece. Furthermore, credit institutions do not have to set up such a committee when the relevant duties are performed at group level, also covering the credit institution.

The Act also mentions that credit institutions may establish additional committees, executive committee(s) at the senior management level, delegate further powers to the RMC or special powers to the asset and liability committee (ALCO), a remuneration committee etc. It also discusses the establishment of an information technology (IT) steering committee consisting of executives of the credit institution and headed by a member of senior management with knowledge in the field of IT. As before, the mandate, tasks and composition of the committee must be laid down in an official regulation. The tasks of the committee shall include, among others, the following: evaluation of short- and long-term IT planning against the overall business plans, evaluation of IT risk analysis and management, evaluation and approval of large-scale procurement contracts for hardware and/or software, approval of policies, standards and procedures, etc. The decision to entrust the power of the assessment, analysis and management of IT-related risk to the IT committee or the RMC, if any, is at the discretion of the board of directors.

In addition to the above committees, all credit institutions shall establish an Internal Audit Unit (IAU) and a Risk Management Unit (RMU). Moreover, credit institutions with a total size (i.e., on- and off-balance sheet assets) exceeding the amount of 10 billion euros, those listed and those with subsidiaries or branches abroad, shall establish a Compliance Unit (CU). With respect to the latter, the Act allows the credit institutions to delegate the relevant duties to authorized employees; however, this is subject to approval by the Bank of Greece, which evaluates this possibility in the light of the complexity of the operations and the risks undertaken by the credit institution.

The Act also sets out the data reporting requirements, according to which the credit institutions shall submit to the Department for the Supervision of Credit and Financial Institutions) of the BoG no later than the end of the first six months of each year (and three-year period in the case of (iv)), the reports, as well as the respective assessments by the competent committees: (i) on the ICS by the IAU, including an assessment of IT systems, (ii) on risk management by the head of the

RMU, (iii) on matters within the tasks of the CU and (iv) on the ICS by the external auditors.

Other corporate governance frameworks and laws

The Acts of the Governor of the BoG mentioned above (2438/6.8.1998 and 2577/2006) are not the only initiatives on the corporate governance of firms operating in Greece. In 1999, the Hellenic Capital Markets Committee (HCMC) published a White Paper under the title 'Principles on Corporate Governance in Greece: Recommendations for its Competitive Transformation', also known as the *Blue Book*, which was closely modelled on the OECD Principles. In 2001, the Hellenic Federation of Enterprises (SEV) also published a corporate governance framework known as 'Principles of Corporate Governance by the Federation of Greek Industries'. This was updated and extended in March 2011 with the 'SEV Corporate Governance Code for Listed Companies'.

However, the most important initiative was most likely the adoption of Law 3016/2002 'On corporate governance, board remuneration and other issues', which applies to all firms which have their shares listed on the Athens Stock Exchange, including credit institutions. This Law mandates that the number of non-executive board members should not be lower than one third of the total number of board members, and at least two independent non-executive board members should exist on the board of directors.[9] It also introduces the requirements of having a set of internal regulations and an audit department for firms wishing to get approval of an application for initial public offering. However, it is worth mentioning here that, after a comparison of Law 3016/2002 and the BoG Governor's Act 2577/2006, Staikouras (2007) concludes his work as follows: 'The paper concludes inter alia that the new regulatory framework does not always seem to sit comfortably within the corporate governance regime already in force under the Corporate Governance Act; despite the benevolent intentions of the legislator and unless immediate remedial action is taken, the inconsistencies and contradictions identified may create confusion and legal uncertainty, thus constraining the efficiency of the new corporate governance framework for Greek banks while at the same time increasing the cost of banking business' (p. 224).

Additionally, in recent years, the incorporation of European Directives into the Greek legal framework resulted in new corporate governance related rules. For example, Greek Law 3693/2008 'Regarding the harmonization of Greek Legislation to EU Directive 2006/43/EC, for the

compulsory audit of the annual and consolidated financial statements and amendment of Directives 78/660/EEC and 83/349/EEC of the Council, as well as the abolition of Directive 84/253/EEC of the Council and other provisions' adopted EC Directive 2006/43/EC. This Law mandates the creation of audit committees, which shall be appointed by the General Assembly and shall comprise of at least two non-executive members and one independent non-executive member of the board of directors. In addition, Law 3884/2010 on the rights of shareholders introduces further obligations with regards to the disclosure of information to shareholders prior to general meetings, and incorporates into Greek legislation EU Directive 2006/46/EC4. Under this Law, Greek listed firms are requested to disclose a corporate governance statement as part of the report of the board of directors.

An overview of the corporate governance of the major Greek banks

Table 9.1 presents some basic futures of the board of directors of six major banks, in terms of total assets at the end of 2010. The size of the board of directors in the six large banks ranges from 14 (ATE) to 20 (Emporiki Bank), with an average of 17 members. The number of non-executive directors (inclusive of the state's representative) is between 11 (Alpha Bank) and 14 (Emporiki Bank), accounting, on average, for 72.79 per cent of the total number of directors. Neither the size nor the board composition vary much from the figures reported in recent studies focusing on bank corporate governance in Europe, the USA and OECD countries.[10] The percentage of independent non-executive directors (without considering the state's representative) in the board varies between 10 per cent (Emporiki Bank) and 43.75 per cent (NBG), with an average of 24.29 per cent. In the case of three banks the chairman is an executive director. Nonetheless, only ATE has a chairman who is also the chief executive officer (CEO).

All six banks have at least one or two women in the board; however, only in the cases of EFG and ATE do they hold a senior position (vice chairman). Moreover, only the position in ATE is considered an executive one. Foreign directors are present only in the case of Piraeus and Emporiki Bank. In the latter case, they represent more than 50 per cent of the board; however, this is not surprising since the direct equity share of Crédit Agricole SA in Emporiki Bank is currently around 95 per cent.[11]

The education and age of board of directors are other factors that may have an impact on the decision-making process and strategic guidance,

Table 9.1 Board of directors and committees of six major Greek banks

	Executive directors	Non-executive directors	Greek state's representative (non-executive)	Total	Out of which:			Chairman also CEO?	Is the chairman executive director?	Average age exec.	Average age non-exec.
					Independent non-executive*	Women	Foreign				
NBG	4	11	1	16	7	2	0	No	No	55	59
Alpha Bank	5	10	1	16	6	2	0	No	Yes	59	64
EFG	5	11	1	17	4	1	0	No	No	60	63
Piraeus Bank	6	11	1	18	3	2	2	No	Yes	57**	53**
Emporiki Bank	6	14	0	20	2	2	11	No	No	54**	52**
ATE	2	11	1	14	2	1	0	Yes	Yes	55	n.a.**
Average	5	11	1	17	4	2	2	n.a.	n.a.	57	59

Notes: NBG: National Bank of Greece, EFG: EFG Eurobank Ergasias, ATE: Agricultural Bank of Greece. Information retrieved on 12 September 2011. * Not considering the state's representative appointed under Law 3723/2008. ** In the case of Piraeus Bank, the average figures are calculated without considering one executive director, one non-executive director and the state's representative, due to missing data. In the case of Emporiki Bank we consider five out of the six executive directors, and nine out of the 14 non-executive directors, due to missing data. No information was available for the age of the non-executive directors of ATE. The data were retrieved on 12 September 2011.
Source: Based on information from the banks' official websites, annual reports and corporate governance reports.

influencing, among other things, bank risk-taking and performance. While there is no evidence from Greece, a study on the impact of managerial characteristics on the cost efficiency of Finish banks by Kauko (2009) shows that the influence of education depends on the age of the managers, the type of degree and the size of the bank. Kauko finds that in very small banks a vocational level qualification in business administration seems to be the best education, while in larger banks a university degree is preferable. Moreover, there appears to be a non-linear relationship between managers' age and cost efficiency. Among the youngest managers, efficiency improves as a function of age but among the oldest ones the opposite may be true, depending on education. As Kauko (2009) mentions, the optimal age for very small banks is around 60, while in large banks the optimal manager should be around 55–60 years old.

Concerning the education of the directors of the six large Greek banks, the vast majority of the executive members has relevant undergraduate degrees (e.g., economics, business, law, etc.) and most of them hold master degrees from foreign universities, including top schools like INSEAD, LSE, Harvard, Columbia, etc. The non-executive directors are also very well educated. In several cases, the board members have also PhD degrees. In this respect, the most notable example is EFG, with eight out of the 17 directors (executives and non-executives) having a PhD degree. Turning to age, executive and non-executive directors have an average age of 57 years and 59 years, respectively.

To compare the overall corporate governance mechanisms of the six large Greek banks with those of banks from other EU countries, we rely on information from RiskMetrics, by considering the corporate governance quotient (CGQ)-Industry indicator and the CGQ-Index indicator. The first indicator is a relative score for each firm within its industry (four-digit GICs code). The second indicator is a score relative to a benchmark index, in this case the FTSE ISS Developed CGI, which covers large and medium capitalization stocks.

According to RiskMetrics, the CGQ scores are calculated as follows. First a raw score is generated for each firm, considering about 60 indicators that relate to the (i) board (e.g., composition, nominating committee, structure, chairman/CEO separation, board attendance, etc.), (ii) audit (e.g., audit committee, audit fees, audit rotation), (iii) charter/bylaws (e.g., poison pills, vote requirements, written consent, etc.), (iv) anti-takeover provisions, (v) executive and director compensation (cost of option plans, shareholder approval of option plans, corporate loans, etc.), (vi) progressive practices (e.g., retirement age

Table 9.2 RiskMetrics's corporate governance quotient (CGQ) indicators

	2007	2008	2009
Panel A: CGQ-Index			
6 major Greek banks, average	11.17	19.88	19.62
Sample of EU banks, average	60.17	53.36	54.13
Panel B: CGQ-Industry			
6 major Greek banks, average	13.28	24.02	23.18
Sample of EU banks, average	67.04	59.87	59.65

Notes: The six Greek banks are: Alpha Bank, Piraeus Bank, Emporiki Bank, National Bank of Greece, EFG Eurobank Ergasias, Agricultural Bank of Greece. The EU banks' average is calculated on the basis of all EU banks that are available in the RiskMetrics database. There are 63 EU banks from 12 countries in 2007 (EU-15, excluding Finland and Luxembourg due to missing data, as well as Greece), and 59 banks from 11 countries in 2008 and 2009 (the Netherlands is also not considered in this case due to missing data).
Source: Based on data from RiskMetrics.

for directors, board performance reviews, CEO succession plan, etc.), (vii) ownership (e.g., director ownership, executive stock ownership guidelines, etc.) and (viii) director education. Then, the raw scores are used to compute relative scores for each firm within its industry and primary index.

To illustrate the interpretation of these indices, take, as an example, the National Bank of Greece (NBG), which has the highest score among the six major Greek banks. The 2009 CGQ-Index equals 67.6, indicating that NBG's raw score is higher than 67.6 per cent of the raw scores of other companies in the FTSE ISS Developed CGI. The 2009 CGQ-Industry equals 77.5, indicating that the same raw score is higher than the raw scores of 77.5 per cent of other firms making up the banking sector. The 2009 scores for the remaining Greek banks range between 0.7 and 22.7 in the case of the CGQ-Index (Agricultural Bank of Greece: 0.7, Emporiki Bank of Greece: 2.8, Piraeus Bank: 8.9, Alpha Bank: 15, EFG Eurobank Ergasias: 22.7), and between 0.7 and 25.4 in the case of the CGQ-Industry (Agricultural Bank of Greece: 0.7, Emporiki Bank of Greece: 5.8, Piraeus Bank: 11.6, Alpha Bank: 18.1, EFG Eurobank Ergasias: 25.4).

Table 9.2 presents averages of the two CGQ indicators for the six major Greek banks and a sample of around 60 large EU (non-Greek) banks, for the years 2007–9.[12] While it may not be entirely appropriate to compare the indicators over time due to potential changes in the methodology or changes in the number of banks in the worldwide sample of RiskMetrics, it is clear that the corporate governance of the

six large Greek banks is, on average, inferior to their European counterparts, as well as to other firms belonging to the FTSE ISS Developed CGI, in all three years.

9.4 Conclusions

The financial crisis triggered a new round of discussions as to the effectiveness of existing corporate governance mechanisms in the banking industry; this was followed by the publication of various recommendations such as the Walker report in the UK, EU Directives and recommendations, and the revised recommendations of the Basel Committee on Banking Supervision. In Greece, the issue of the corporate governance of banks drew attention for the first time in 1998 with the provisions of Bank of Greece Governor's Act 2438/6.8.1998, which reached its final version in 2006, and it came into force as Act 2577/2006.

A closer look at six major Greek banks indicates that they all have various committees; the Act makes particular reference to the establishment of specific board committees, such as the audit committee and the risk management committee. In terms of diversity in the board, they all have women on the board while some of them have also foreign directors. Furthermore, the presence of independent directors on their board is comparable to that in other European banks. Finally, both the executive and non-executive directors appear to be well educated.

10
Recent Developments and Future Challenges

10.1 Introduction

The last chapter of this book discusses a number of recent events that affected the Greek banks during 2011 and posed great challenges for the future. Within this context, Section 10.2 provides an overview of the financial results and stock performance during the first months of 2011. This is followed by discussions of the downgrade of the banks' credit ratings (Section 10.3), the results of the EU-wide stress testing exercise (Section 10.4) and the restructuring of the banking sector (Sections 10.5 and 10.6). Finally, Section 10.7 provides an overview of the future challenges that arise from the exposure of banks to Greek government bonds, the developments in the business and macroeconomic environment, the exposure to South-eastern European countries and the forthcoming changes in the regulatory framework.

10.2 Financial results and stock performance

The quarterly financial statements indicate that the year 2011 was characterized by a worsening in almost all the indicators of the financial position of the Greek banking institutions. The adverse macroeconomic conditions affected further the quality of the credit portfolio of banking institutions, with the non-performing loans to total gross loans increasing at a rapid pace, reaching 12.8 per cent in 2011Q2, compared with 10.4 per cent in 2010Q4 and 9 per cent a few months earlier (2010Q2).[1] With regards to capital adequacy, banks recorded a decrease in both the total capital ratio and the tier 1 capital ratio during 2011Q2. However, the improvements in regulatory own funds that were achieved in the previous years, and especially during 2009,

through the issuance of preference shares under Law 3723/2008, capital increases in cash, the issuance of hybrid securities and internal financing from undistributed profits allowed the Greek banks to keep their capital ratios above the regulatory thresholds (total capital ratio 2011Q2: 10.6 per cent, tier 1 capital ratio 2011Q2: 9.6 per cent). The decrease in non-interest expenses was not enough to offset the higher credit provisions and the write-downs in the value of Greek government bonds held by the banks.[2] As such, profitability deteriorated significantly with the after tax return on assets being –1.7 per cent (after tax return on equity, ROE: –27.3 per cent) at 2011Q2, compared with –0.6 per cent (ROE: –8.7 per cent) in 2010Q4 (2010Q2 ROA: –0.6 per cent; 2010Q2 ROE: –9.7 per cent). Liquidity also declined compared with one year earlier; however, it stood at levels that were not significantly different from the pre-crisis ones. For example, the liquid assets to total assets ratio stood at 35.2 per cent in 2011Q2 (2010Q2: 39.6 per cent, 2007: 35.1 per cent), and the liquid assets to short-term liabilities ratio stood at 48.2 per cent (2010Q2: 55 per cent, 2007: 48 per cent).

Table 10.1 presents more recent financial data for the four largest banking groups on a consolidated basis. Table 10.2 presents the data on a solo basis. Some interesting observations are as follows:

- At group level, Alpha Bank and Piraeus Bank managed to increase their total net income, whereas, at a solo level, only EFG Eurobank Ergasias experienced a decrease in its income during a nine-months period of 2011.
- All the banking groups decreased their operating expenses by an average of approximately 5 per cent (6 per cent at solo level).
- All the banking groups recorded a significant decrease in their customer deposits (i.e., due to customers), ranging from 13.5 per cent (National Bank of Greece Group) to 22.32 per cent. At the same time, loans to customers decreased in all cases, by an average of approximately 6 per cent. Consequently, the average ratio of customer loans to customer deposits increased to 141 per cent (September 2010: 122 per cent).
- The after tax return on assets was negative in all four cases, with an average of –1.20 per cent at group level (September 2010: 0.11 per cent) and –1.46 per cent on a solo basis (September 2010: –0.10 per cent).
- The capital adequacy ratios of all the banks decreased, but they remain at satisfactory levels. Among the four groups, Alpha Bank appears as the better-capitalized one.

The above financial results and uncertainty about the future developments in the banking sector resulted in a considerable loss in the stock market capitalization of Greek banks. As shown in Figure 10.1, the Bank Index in the ASE decreased by approximately 80 per cent, falling to 262.86 units at the end of 2011 (end 2010: 1,250.99 units).

Table 10.1 Selected financial data from September interim financial statements: four major Greek banking groups

	National Bank of Greece		**EFG Eurobank Ergasias**	
	09/2011	**09/2010**	**09/2011**	**09/2010**
Total net income	3,116	3,334	1,767	2,067
Operating expenses	1,743	1,845	892	948
Impairment losses and provisions to cover credit risk	1,443	1,005	986	950
Impairment losses on Greek government bonds	1,645	0	830	0
Profit/(loss) after income tax	–1,325	291	–566	72
Loans and advances to customers	74,718	77,202	49,327	55,583
Due to customers	60,668	70,134	33,861	43,590
Total assets	115,499	123,517	81,628	86,490
Total equity	8,420	9,307	5,360	6,082
Tier 1 ratio	10.7%	11.0%	10.0%	10.7%
Capital adequacy ratio	10.9%	11.3%	10.4%	11.9%
	Alpha Bank		**Piraeus Bank**	
	09/2011	**09/2010**	**09/2011**	**09/2010**
Total net income	1,729	1,691	1,202	1,071
Operating expenses	832	854	576	603
Impairment losses and provisions to cover credit risk	827	644	909	402
Impairment losses on Greek government bonds	608	0	1,080	0
Profit/(loss) after income tax	–566	76	–1,182	14
Loans and advances to customers	47,222	49,943	35,545	37,144
Due to customers	31,682	39,856	24,173	29,475*
Total assets	62,702	67,728	56,929	57,559
Total equity	5,201	5,771	2,922	3,362
Tier 1 ratio	11.1%	11.5%	7.8%	8.8%
Capital adequacy ratio	12.3%	13.1%	8.8%	9.7%

Notes: Consolidated data in million euros. The balance sheet items correspond to 30 September. The profit and loss items correspond to the period 1 January–30 September. The figure 'Due to customers', in the case of Piraeus Bank, for 2010 corresponds to 31 December.
Source: Based on data from banks' interim statements.

Table 10.2 Selected financial data from September interim financial statements: four major Greek banks

	National Bank of Greece		EFG Eurobank Ergasias	
	09/2011	**09/2010**	**09/ 2011**	**09/2010**
Total net income	1,501	1,412	1,010	1,287
Operating expenses	967	1,035	502	553
Impairment losses and provisions to cover credit risk	1,144	723	803	741
Impairment losses on Greek government bonds	1,427	0	830	0
Profit/(loss) after income tax	–1,543	–380	–723	–45
Loans and advances to customers	56,027	58,008	37,420	42,706
Due to customers	45,447	55,789	28,392	40,188
Total assets	93,178	99,453	79,605	93,151
Total equity	7,711	7,114	4,175	5,196
Tier 1 ratio	15.6%	14.9%	n.a.	n.a.
Capital adequacy ratio	15.6%	15.4%	n.a.	n.a.
	Alpha Bank		**Piraeus Bank**	
	09/2011	**09/2010**	**09/2011**	**09/2010**
Total net income	1,292	1,240	787	650
Operating expenses	620	637	354	377
Impairment losses and provisions to cover credit risk	654	523	768	252
Impairment losses on Greek government bonds	607	0	1,044	0
Profit/(loss) after income tax	–606	–9	–1,152	14
Loans and advances to customers	38,316	40,594	30,012	31,485
Due to customers	25,544	32,525	20,278	24,311
Total assets	58,631	65,005	51,201	51,815
Total equity	3,871	4,571	2,641	3,010
Tier 1 ratio	11.3%	11.5%	n.a.	n.a.
Capital adequacy ratio	12.5%	13.1%	n.a.	n.a.

Notes: Unconsolidated data in million euros. The balance sheet items correspond to 30 September. The profit and loss items correspond to the period 1 January–30 September.
Source: Based on data from banks' interim statements.

10.3 Credit ratings

During 2011 the rating firms proceeded to the downgrade of the credit rating of Greek banking groups. For example, on 23 September 2011, Moody's downgraded the long-term deposit and senior debt ratings of eight Greek banks by two notches. National Bank of Greece, EFG

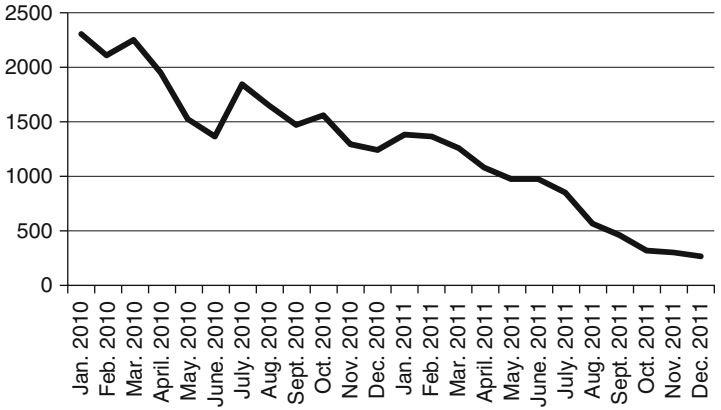

Figure 10.1 Athex banks index (end-month units)
Source: Based on data from the Athens Stock Exchange.

Eurobank Ergasias, Alpha Bank, Piraeus Bank, Agricultural Bank of Greece and Attica Bank downgraded to Caa2 from B3, while the ratings of the two foreign-owned banks, namely Emporiki Bank of Greece (majority owned by Credit Agricole SA) and General Bank of Greece (majority owned by Société Générale) downgraded to B3 from B1. However, these downgrades are not surprising, considering the financial results discussed in 10.1, the macroeconomic conditions and the downgrade of the sovereign ratings of Greece by all the rating agencies.

Table 10.3 presents the recent history of the downgrade and upgrade actions of Moody's and Fitch with regards to the Bank Financial Strength Ratings (BFSRs), and the Bank Individual Ratings (BIRs), respectively, of eight major Greek banks. These ratings reveal the agencies' view on the likelihood that a bank would run into significant financial difficulties and it would require support.[3] As shown in the table, the downgrades of mid-2011 resulted in all the banks carrying the lowest available rating (E in the case of Moody's and F in the case of Fitch) at the end of 2011.

10.4 Stress testing results

The 2011 EU-wide stress testing exercise of European banks was coordinated by the European Banking Authority (EBA) in cooperation with national supervisory authorities, the European Central Bank (ECB), the European Commission and the European Systemic Risk Board (ESRB). The scenarios were specified by the ECB and cover a time horizon of

Table 10.3 Recent history of the downgrades and upgrades in BFSRs and BIRs of banks in Greece

Panel A: BFSRs since 2007	
NBG	Upgrade to C+ from C on 24.04.2007; downgrade to C on 22.12.2009; downgrade to C– on 31.03.2010; downgrade to D+ on 30.04.2010; downgrade to D– on 09.03.2011; downgrade to E on 03.06.2011
Alpha Bank	Downgrade to C– from C on 03.02.2009; downgrade to D on 30.04.2010; downgrade to D– on 09.03.2011; downgrade to E on 03.06.2011
EFG Eurobank Ergasias	Downgrade to C from C+ on 03.02.2009; downgrade to C– on 22.12.2009; downgrade to D on 30.04.2010; downgrade to E+ on 09.03.2011; downgrade to E on 03.06.2011
Piraeus Bank	Upgrade to C from C– on 24.04.2007; downgrade to C– on 03.02.2009; downgrade to D+ on 31.03.2010; downgrade to E+ on 30.04.2010; downgrade to E on 03.06.2011
Emporiki Bank of Bank	Upgrade to C– from D+ on 07.08.2007; downgrade to D+ on 20.03.2009; downgrade to D on 22.12.2009; downgrade to E+ on 30.04.2010; downgrade to E on 03.06.2011
ATE	Upgrade to D from D– on 24.04.2007; downgrade to E+ on 30.04.2010; downgrade to E on 03.06.2011
Attica Bank	Downgrade to E+ from D on 30.04.2010; downgrade to E on 03.06.2011
General Bank of Greece	Downgrade to D from D+ on 15.12.2009; downgrade to E+ on 30.04.2010; downgrade to E on 03.06.2011
Panel B: BIRs since 2010	
NBG, Alpha Bank, EFG Eurobank Ergasias, Piraeus Bank	Downgrade to C from B/C on 23.02.2010; downgrade to C/D on 09.04.2010; downgrade to D on 16.07.2010; downgrade to D/E on 23.04.2011; downgrade to E on 14.07.2011; downgrade to F on 26.07.2011
ATE	Downgrade to D/E from C/D on 16.07.2010; downgrade to E on 14.07.2011; downgrade to F on 26.07.2011

Notes: NBG: National Bank of Greece. BIRs: Bank Individual Ratings (Fitch). These range between A and F. Gradations may be used among the ratings A to E (i.e., A/B, B/C, C/D and D/E). BFSRs: Bank Financial Strength Ratings (Moody's). These range between A and E. A '+' or '–' modifier may be used to distinguish those banks that fall in the higher and lower ends, respectively, of the rating category.
Source: Based on information from various announcements and the websites of the rating agencies.

two years (2011–12), using the balance sheet data as of 31 December 2010 as the starting point of the exercise. A total of 90 banks from 21 countries were considered in the stress testing, including the following six large Greek banking groups: National Bank, EFG Eurobank, Alpha Bank, Piraeus Bank, ATE and Hellenic Postbank.

A summary of the results of the exercise is presented in Table 10.4. In Panels A and B, the Core Tier 1 ratio is calculated based on end-2010 information only. The results in Panel A do not consider any mitigating actions, mandatory restructuring or capital increases post-31 December 2010, whereas the calculations in Panel B account for such plans as long as they were publicly announced and fully committed before 31 December 2010. The results in Panel B indicate that, under the adverse scenario, the Core Tier 1 ratio of EFG Eurobank for 2012 falls marginally below the 5 per cent threshold, while that of ATE is significantly lower at –6 per cent.

The calculations in Panels C and D may be more realistic ones. The reason is that the EBA allowed specific capital actions in the first four months of 2011, giving banks the opportunity to strengthen their capital positions ahead of the stress test. The calculations in Panel C account for capital issuance and mandatory restructuring plans publicly announced and fully committed before 30 April 2011. In this case, both EFG Eurobank and ATE show an improved Core Tier 1 ratio that is equal to 4.9 per cent and 0.8 per cent, respectively. The results in Panel D recognize additional mitigating measures taken or planned (e.g., sales of subsidiaries, issuance of convertible bonds, etc.) and generic provisions already accumulated to cover future losses. These various measures increase the Core Tier 1 ratios further, so that all the banks have now ratios in excess of the 5 per cent threshold.

10.5 Resolution of Greek credit institutions

On October 2011, following the recommendation of the Bank of Greece, the Ministry of Finance proceeded to the resolution of Proton Bank. Based on the provisions of Law 4021/2011, a 'good bank' was established, acquiring the deposits and sound assets of the former bank. The newly established 'good bank', which maintains the trade mark 'Proton', was granted a licence by the Bank of Greece. It was funded by the Resolution Fund of the HDIGF, with the Financial Stability Fund as its sole shareholder. The licence of the old Proton Bank was withdrawn and the bank was put into liquidation, while the proceeds of the liquidation will be used to cover the claims of third parties, in accordance with the Law.

The fifth IMF Review of December 2011 highlights that, beyond Proton Bank, there are two other small banks that are not in compliance with regulatory requirements and are attempting to address their issues. However, at the time of writing of the IMF report in end-November, their efforts were unsuccessful.

Table 10.4 Results of the 2011 EBA EU-wide stress test on Greek banks

	Actual results 31.12.2010	Baseline scenario 2011	Baseline scenario 2012	Adverse scenario 2011	Adverse scenario 2012
Panel A: Results without any mitigating actions, mandatory restructuring or capital raisings post-31 December 2010* – Core Tier 1 Capital Ratio					
NBG	11.9%	12.6%	13.6%	10.1%	7.7%
Alpha Bank	10.8%	10.3%	9.8%	9.2%	7.2%
Hellenic Postbank	18.5%	18.6%	18.7%	12.2%	5.5%
Piraeus Bank	8.0%	7.6%	7.2%	5.8%	3.3%
EFG Eurobank	9.0%	8.4%	7.9%	7.1%	4.6%
ATE	6.3%	1.1%	0.7%	–4.5%	–6.0%
Panel B: Results recognizing capital issuance and mandatory restructuring plans publicly announced and fully committed before 31 December 2010 – Core Tier 1 Capital Ratio					
NBG	11.9%	12.6%	13.6%	10.1%	7.7%
Alpha Bank	10.8%	10.3%	9.8%	9.2%	7.2%
Hellenic Postbank	18.5%	18.6%	18.7%	12.2%	5.5%
Piraeus Bank	8.0%	9.6%	9.1%	7.9%	5.3%
EFG Eurobank	9.0%	8.4%	7.9%	7.1%	4.6%
ATE	6.3%	1.1%	0.7%	–4.5%	–6.0%
Panel C: Results recognizing capital issuance and mandatory restructuring plans publicly announced and fully committed before 30 April 2011 – Core Tier 1 Capital Ratio					
NBG	11.9%	12.6%	13.6%	10.1%	7.7%
Alpha Bank	10.8%	10.5%	10.0%	9.4%	7.4%
Hellenic Postbank	18.5%	18.6%	18.7%	12.2%	5.5%
Piraeus Bank	8.0%	9.6%	9.1%	7.9%	5.3%
EFG Eurobank	9.0%	8.7%	8.3%	7.4%	4.9%
ATE	6.3%	7.5%	9.1%	2.9%	–0.8%
Panel D: Results recognizing other mitigating measures – Supervisory Recognized Capital Ratio					
NBG		14.6%	15.7%	12.1%	9.7%
Alpha Bank		10.5%	10.0%	9.4%	8.2%
Hellenic Postbank		18.6%	18.7%	12.2%	7.1%
Piraeus Bank		10.9%	10.4%	9.1%	6.3%
EFG Eurobank		10.9%	11.4%	9.4%	7.6%
ATE		12.2%	15.8%	7.6%	6.0%

Note: In Panel A, all government support measures fully paid in before 31 December 2010 are included. NBG: National Bank of Greece.
Source: Based on information from the European Banking Authority.

While the IMF does not name these two banks, in mid-December the Bank of Greece decided to revoke the licence of the TBank and to put the bank into liquidation, due to its inability to restore its capital adequacy. As a result of this process, the full amounts of all of the deposits, employment contracts and assets of TBank were transferred to the Hellenic Postbank. As prescribed by Law, the funding gap between the transferred assets and liabilities was covered by the HDIGF.

10.6 M&A deals, restructurings and privatizations

The year started with a submission of a proposal on 18 January 2011, by the National Bank of Greece to buy Alpha Bank for 2.8 billion euros. NBG and Alpha entered into a non-disclosure, exclusivity and standstill agreement on 3 February 2011 and their respective management teams held talks to discuss the terms of the proposal. Based on the proposed exchange ratio, the relative ownership in the combined entity of NBG and Alpha shareholders would be approximately 71 per cent and 29 per cent, respectively. This proposal, which came to the attention of the public on 18 February 2011, was eventually rejected by the Alpha board, which voted unanimously, characterizing the offer as inadequate.

Eventually, Alpha Bank came into agreement with another major bank, EFG Eurobank Ergasias, on 29 August 2011. The new group is expected to be one of the 25 largest banking groups in the euro-zone and play a significant role in Greece and South-eastern Europe. According to the initial timetable, the completion of the merger and the commencement of trading of the shares of the new entity were expected in mid-December 2012. However, the Competition Commission recently decided to postpone discussions on this matter until 23 January 2012, in light of the ongoing negotiations for the PSI and the accompanying uncertainty in the market.

Further to the above, a number of Greek banks announced recently their intention to sell their subsidiaries in the Balkans and other countries. For example, the Agricultural Bank of Greece plans to sell off its majority stake in its Romanian subsidiary, while Eurobank EFG sold its Polish subsidiary Polbank to Raiffeisen Bank and announced its intention to sell its holding in Eurobank Tefken in Turkey. Piraeus Bank announced, on 15 July 2011, the receipt of an indication of interest from Standard Chartered PLC in respect of the potential acquisition of Piraeus Bank Egypt. However, the UK bank withdrew its interest on 28 November 2011 due to the deteriorating global macroeconomic environment. At the end of December 2011, Piraeus Bank announced that

it mandated Barclays Capital as sole financial advisor to assist in the sale of its Egyptian subsidiary.

Finally, the government plans the privatization of the Agricultural Bank of Greece and the Hellenic Postbank during 2012, by selling at least 38.6 per cent and 34 per cent of its participation, respectively.[4]

10.7 Challenges for Greek banks

Exposure to Greek government bonds (GGB)

In June 2011, Barclays Capital circulated a report with estimates of exposure to Greek debt (bonds, bills and loans) according to which public institutions held more than half of Greek sovereign debt at that time. These include the Eurosystem securities market programme (49 billion euros or 13.6 per cent of debt), EU loans (38 billion euros or 10.6 per cent), Greek public sector funds (30 billion euros or 8.3 per cent), governments from the rest of the world (25 billion euros or 6.9 per cent), the IMF (15 billion euros or 4.2 per cent), European Central Banks (13.1 billion euros or 3.6 per cent) and the Bank of Greece (6 billion euros or 1.7 per cent).

The same estimations reveal that the Greek banks are heavily exposed to the Greek sovereign debt, with their positions in terms of the summation of bonds, bills and loans being around 51.1 billion euros (14.2 per cent of total Greek debt) or 45.7 billion euros when looking at bonds and bills alone (16 per cent of GGBs' value).[5] Data from the December 2011 IMF report on Greece confirm these estimations, showing that Greek banks own GGBs with a nominal value of around 45 billion euros, with a 39 billion book value after the June 2011 impairment. The aggregate core capital of Greek banks amounts to 22 billion euros, which means that their recapitalization requirements will depend heavily on the cuts finally agreed in the PSI deal. The IMF report discusses a few additional points that could be summarized as follows:

- The six largest Greek banks hold around 97 per cent of GGBs. Thus, the recapitalization needs for these banks (relative to a minimum 10 per cent core tier 1 ratio and including impairment of CGBs held in foreign and insurance subsidiaries) could reach 17 billion euros, in the case of a 50 per cent cut.
- Capital could be wiped out for some banks, with some other banks ending up undercapitalized. However, based on a wider information set (i.e., risk management capacity, business model and plans, etc.),

the report reveals that a core of banks can be deemed viable after the PSI deal.
- Despite the public recapitalization support, which will most likely be necessary, the report suggests that part of the core banking system should be kept in private hands due to the poor track record of the government in managing state-owned banks.

As shown in Tables 10.1 and 10.2, Greek banks recognized, in their September 2011 interim statements, an impairment loss relating to the value of GGBs. This impairment loss was calculated using appropriate assumptions at the time, which were derived from the description of the GGBs' exchange programme (i.e., PSI), based on the decisions of the European Summit of 21 July 2011 and the projections regarding interest rates. However, the adoption of the PSI plus instead of the PSI means that the final impact on the value of the bonds may differ from the impairment recognized in the interim financial statements of 2011.

Tables 10.5 and 10.6 present detailed information on the exposure of the six major banking groups on GGBs, by type and maturity, as of 30 September 2011. The comparisons between the groups should be made with some caution, since the information shown in the tables is as reported in the latest interim statements, and it does not follow a uniform presentation. For example, the total amount in the case of Alpha Bank Group does not include securities amounting to 2.9 billion euros which relate to treasury bills (T-bills) and to the bond received by the bank in exchange for the preference shares it issued in favour of the Greek state in the context of Law 3723/2008. Furthermore, the group's exposure to Greek government risk from financial instruments other than securities includes: derivative financial instruments-assets (227.8 million euros), derivative financial instruments-liabilities (135.2 million euros) and off-balance sheet items in the form of bonds accepted as guarantees for funding purposes (nominal value: 123.3 million euros, fair value: 84.3 million euros). The figures for the National Bank of Greece also do not include information on T-bills. In contrast, the Agricultural Bank of Greece (ATE) includes T-bills (trading portfolio: nominal value of 19.99 million euros and fair value of 19.64 million euros; available for sale portfolio: nominal value of 272.87 million euros and fair value of 268.24 million euros), as well as the bond received by ATE in exchange for the preference shares it had issued in favour of the Greek state in the context of Law 3723/2008 (held to maturity portfolio: nominal value of 675 million euros). Piraeus Bank and Postbank also include the T-bills in their totals; however, the disaggregation of the amounts is made available.

At this point, it should be mentioned that the banks with the highest exposure to GGBs are not necessarily those with the most invested. The question is whether the banks have sufficient reserves, in terms of equity, to handle a default of the Greek debt. For example, looking at the interim statements of the 30 September 2011, the National Bank of Greece had the highest exposure to GGBs (nominal value: 14,165 million euros) but it had also the highest equity base, with total equity amounting to 8,420 million euros. At the same time, Postbank had a considerably lower exposure to GGBs (nominal value: 4,338 million euros), but its total equity amounted to just 514 million euros. Thus, the exposure of the National Bank of Greece relative to its total equity stood at 168 per cent, whereas the corresponding figure for Postbank was much higher at 844 per cent.

Developments in the business and macroeconomic environment

The December 2011 IMF report highlights that the Greek economy turned sharply downwards in 2011. This is evident by looking at various indicators like GDP growth, unemployment rate, debt, etc. As mentioned earlier, the increase in unemployment, the decrease in public sector salaries and the considerable increase in direct and indirect taxation have resulted in a significant drop in the income of households with two important implications. First, there has been an increase in non-performing loans. Second, consumer confidence is currently at historically low levels, reducing domestic consumption on a daily basis. In turn, inevitably, this has hurt the sales and the profitability of non-financial firms, increasing the non-performing loans of the business sector. As a result, banks have introduced tighter credit screening, while at the same time bank customers (corporations and individuals) are reluctant to take new loans (Figure 10.2).

As these trends are expected to continue, at least in the medium term, Greek banks will have to consider seriously the unprecedented economic conditions and the forthcoming changes in consumer attitudes and behaviour, and appropriately adjust to the new environment. For example, banks may have to streamline headquarters, calibrate the size of their branch networks and consider strategic alliances and/or mergers. Moreover, considering that banks have been frequently blamed for the crisis and their reluctance to help SMEs and households, there is a need to justify their role in society and fulfil their intermediation role, while not only preserving, but also improving the quality of their loan portfolio. Within this context, banks may have to launch new products giving particular emphasis to ways to retain and attract the most creditworthy customers. At the same time, it is important for banks

Table 10.5 Exposure of major Greek banking groups to Greek government bonds, 30 September 2011

National Bank of Greece Group	**NV**	**CV**	**FV**
July PSI eligible GGBS			
Trading securities	3.3	2.1	2.1
HTM and LAR investment securities	9,017.1	7,647.4	4,869.1
Securities included in loans and advances to customers	791.8	775.9	550.3
July PSI non-eligible GGBs	0.0	0.0	0.0
Trading securities	7.1	1.8	1.8
HTM and LAR investment securities	4,345.6	3,910.3	2,236.8
Total GGBs	**14,165.0**	**12,337.4**	**7,660.1**
EFG-Eurobank Ergasias Group	**FV**	**CV after impairment**	
PSI+ eligible	7,316.0	6,944.0	
PSI eligible	4,982.0		
Carrying value after impairment – including T-bills			
Debt securities lending		9,056.0	
HTM		798.0	
AFS		348.0	
Total		**10,202.0**	
Alpha Bank Group	**AC before impairment**	**BV before impairment/FV**	**BV after impairment/FV**
AFS	206.2	164.6	164.6
HTM	3,678.3	3,678.3	2,955.8
Trading	8.5	7.3	7.3
Total	**3,892.9**	**3,850.1**	**3,127.7**
Piraeus Bank Group	**NV**	**BV**	
Bonds	7,601.2	7,291.6	
GGBs related to state preference shares	370.0	374.1	
Treasury bills	1,795.7	1,754.8	
Loans	513.0	513.8	
Total	**10,279.8**	**9,934.3**	

(*continued*)

Table 10.5 Continued

Postbank Group	**NV**	**BV after impairment**	
GGBs			
HTM	640.0	574.8	
Debt securities of loan portfolio	3,698.1	3,250.7	
Greek T-bill securities – HTM	1,427.2	1,411.1	
Greek government guaranteed loans – loans and advances due from customers	224.1	223.2	
Total	**5,989.3**	**5,459.9**	
Agricultural Bank of Greece Group	**NV**	**CV**	**FV**
Eligible GGBs (based on the assumption for the 'new' bonds)			
HTM	2,399.7	2,341.3	1,408.8
LAR	2,382.6	2,442.7	2,023.9
AFS	94.6	56.8	56.8
FVTPL	73.9	45.3	45.3
Non-eligible GGBs (including T-bills)			
HTM	1,026.0	973.0	529.6
	Amounts in million euros by maturity		
LAR	11.7	11.7	6.5
AFS	440.1	349.5	349.5
FVTPL	28.7	23.8	23.8
Total	**6,457.2**	**6,244.1**	**4,444.3**

Notes: Amounts in million euros. NV: nominal value; BV: book value; CV: carrying value, AC: amortization cost; HTM: held to maturity; LAR: loans and receivables; AFS: available for sale: FVTPL: fair value with movements reported in the income statement; T-bills: Treasury bills; PSI: private sector involvement bond exchange programme. The classification of PSI+ eligible in the case of EFG Eurobank is based on the assumption that the PSI+ perimeter is a simple extension of the 21 July PSI perimeter to all bond maturities.
Source: Based on information reported in the banks' interim financial statements.

to treat customers fairly and provide detailed information about the banking products. This could be an important step towards enhanced customer satisfaction. For example, the National Bank of Greece Group mentions, in its annual report for 2010, the adoption of new standards of transactional behaviour. Within this context, the bank rephrased, in plainer language, the terms of its contracts, deleted certain obscure

Table 10.6 Exposure of major Greek banking groups to Greek government bonds by maturity, 30 September 2011

National Bank of Greece Group	**<07.2020**	**>07.2020**		**Total**
July PSI eligible GGBs				
Trading securities	2.1	0.0		2.1
HTM and LAR investment securities	7,647.4	0.0		7,647.4
Securities included in loans and advances to customers	775.9	0.0		775.9
July PSI non-eligible GGBs				
Trading securities	1.4	0.4		1.8
HTM and LAR investment securities	445.3	3,465.0		3,910.3
Total GGBs	8,872.0	3,465.5		**12,337.4**
Alpha Bank Group	**<1 year**	**1–5 years**	**>5 years**	**Total**
AFS	37.4	98.2	29.0	164.6
HTM	79.1	2,127.1	749.5	2,955.8
Trading	4.7	1.7	0.9	7.3
Total	121.2	2,227.0	779.4	**3,127.7**
Piraeus Bank Group	**<1 year**	**1–5 years**	**>5 years**	**Total**
Bonds	1,511.2	2,508.4	3,272.0	7,291.6
GGBs related to state preference shares	0.0	374.1	0.0	374.1
Treasury bills	1,754.8	0.0	0.0	1,754.8
Loans	204.3	157.6	151.8	513.8
Total	3,470.4	3,040.1	3,423.8	**9,934.3**
Postbank Group	**<1 year**	**1–5 years**	**>5 years**	**Total**
GGBs				
HTM	600.0	40.0	0.0	640.0
Debt securities of loan portfolio	200.0	1,245.9	2,252.2	3,698.1
Greek Treasury bill securities (HTM)	1,427.2	0.0	0.0	1,427.2
Greek government guaranteed loans – loans and advances due from customers	16.5	195.8	11.7	224.1
Total	2,243.7	1,481.7	2,264.0	**5,989.3**

(*continued*)

Table 10.6 Continued

Agricultural Bank Of Greece Group	**2011–14**	**2015–20**	**>2021**	**Total**
Eligible GGBs (based on the assumption for the 182 'new' bonds)				
HTM	1,490.1	909.6	0.0	2,399.7
LAR	1,491.1	891.5	0.0	2,382.6
AFS	51.5	43.1	0.0	94.6
FVTPL	62.4	11.4	0.0	73.9
Non-eligible GGBs (including T-bills)				
HTM	675.0	0.0	351.0	1,026.0
LAR	11.7	0.0	0.0	11.7
AFS	272.9	0.0	167.2	440.1
FVTPL	20.0	0.0	8.7	28.7
Total	4,074.6	1,855.6	527.0	**6,457.2**

Notes: National Bank of Greece: carrying value, Alpha Bank: book value after impairment/face value, Piraeus Bank: book value, Postbank: nominal value, Agricultural Bank of Greece: nominal value; HTM: held to maturity, LAR: loans and receivables, AFS: available for sale, FVTPL: fair value with movements reported in the income statement; T-bills: Treasury bills; PSI: private sector involvement bond exchange programme; EFG Eurobank Ergasias is not included in this table due to data unavailability.
Source: Based on information reported in the banks' interim financial statements.

terms and eliminated various charges in loan contracts, accounts and transactions, etc.

Figure 10.2 also reveals that Greek banks witnessed an important decrease in deposits by corporations and households, with the outstanding amount at the end of November 2011 being 173 billion euros compared with 210 billion euros at the end of December 2010. This outflow could be attributed to the need of the private sector to cover its daily needs using savings accumulated in earlier years, as well as to concerns about the solvency of Greek banks. Taken together with the difficulties in obtaining funding from the wholesale market, this meant that Greek banks found themselves heavily dependent for liquidity on the Eurosystem. Data from the December 2011 IMF report show that ECB liquidity support was forecasted at around 94.1 billion euros or 43.2 per cent of GDP in 2011. The same source also indicates that the Bank of Greece offered emergency liquidity assistance to credit institutions, with the government approving 60 billion euros in guarantees to facilitate it. Therefore, another challenge for Greek banks is to find ways to retain their deposit base.

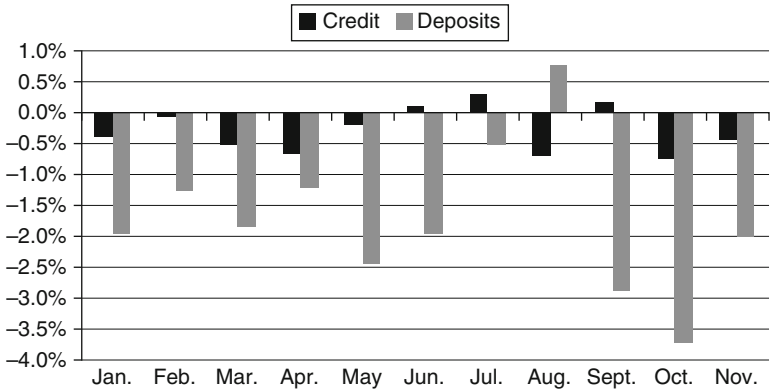

Figure 10.2 Monthly percentage change in credit and deposits to the private sector (corporations and households) during 2011
Note: This figure presents the percentage change in the outstanding amount at the end of a given month compared with the previous month.
Source: Based on data from the Bank of Greece.

Exposures to the South-east European countries

As discussed in Chapter 1, the presence of Greek banks in South-east European countries increased significantly over the last decade. While the financial crisis reached this region with a delay, it was eventually felt by the fourth quarter of 2008, and most of the countries witnessed a dramatic drop in GDP growth, increasing fiscal deficits, etc. The IMF, the World Bank, the European Commission and other institutions and bodies provided significant financial support, which proved helpful, not only in avoiding the collapse of the markets, but also in stabilizing the economic situation as of 2010.[6] However, there are still concerns as to future developments, due to the high dependence of these countries on the economic situation of advanced Europe, the decrease in domestic demand and the ongoing deleveraging of the banking system.[7] Within this context, Greek banks may have to reconsider their strategy in the region so that their subsidiaries will not become a liability.

Basel III and CRD IV

The new regulatory framework (i.e., Basel III and CRD IV), discussed in Chapter 4, provides an opportunity to strengthen the banking sector, but at the same time it introduces various challenges for banks in terms of capital requirements, liquidity requirements and technical implementation.

For example, the European quantitative impact study (EU-QIS) of the Committee of European Banking Supervisors (CEBS) shows that the capital shortfall for Group 1 banks (i.e., tier 1 capital in excess of 3 billion euros, well diversified, internationally active) in the EU-QIS sample would be between 53 billion euros for the Common Equity Tier 1 (CET1) capital minimum requirement of 4.5 per cent, and 263 billion euros for a CET1 target level of 7.0 per cent (including the capital conservation buffer).[8] The corresponding figures for the rest of the banks (Group 2) are 9 billion euros and 28 billion euros. The results also reveal that the tier 1 capital ratio of Group 1 (Group 2) banks would decline from 10.3 per cent (Group 2: 10.3 per cent) to 5.6 per cent (Group 2: 7.6 per cent), while the total capital ratio would decrease from 14.0 per cent (Group 2: 13.1 per cent) to 8.1 per cent (Group 2: 10.3 per cent). In terms of liquidity, the average liquidity coverage ratio (LCR) was estimated to be 67 per cent for Group 1 banks and 87 per cent for Group 2 banks, against a 100 per cent required minimum, resulting in a shortfall of liquid assets of 1 trillion euros.[9] The corresponding figures for the net stable funding ratio (NSFR) are 91 per cent (Group 1), 94 per cent (Group 2) and 1.8 trillion euros (shortfall). As mentioned earlier, the capital regulatory ratios of most Greek banks are currently adequate; however, the Bank of Greece has already urged financial institutions to maintain capital ratios well above the minimum as a precaution. Given the calculations in the EU-QIS, this is definitely a prudent decision, although it appears that Greek banks will still have to find ways to enhance their capital base or decrease the risk of their assets. Liquidity requirements have also been put in place by the Bank of Greece; however, it is expected that the new framework will introduce a further challenge for Greek banks, adding to the liquidity problems that they experience due to the crisis.

Apart from capital and liquidity needs, numerous reports highlight other challenges that arise from the implementation of Basel III. For example, Auer *et al*. (2011) identify the following three types of challenges: (i) functional challenges, that include the development of specifications for the new regulatory requirements (e.g., stress testing, limit system, risk quantification) and the integration of the new regulatory requirements into existing capital and risk management, (ii) technical challenges that include the implementation of the new regulatory requirements, data availability and quality, and technical integration into existing risk management systems and (iii) organizational challenges such as the coordination of different units, the responsibilities within implementation and the availability of resources. Further to the above, a White Paper from Moody's Analytics, by Chabanel (2011)

highlights the necessity of a new risk and management culture that will probably result in the convergence of responsibilities of CFOs and CROs in delivering the strategic objectives of the business. Chabanel (2011) argues that Basel III provides a framework for enterprise risk management, which is consistent with the view of Stewart (2011). Another White Paper by McKinsey & Company (Härle *et al.*, 2010) quantifies the additional burden of Basel III, estimating that, for an average mid-size bank, the technical implementation alone will add about 30–50 per cent to the significant outlay already incurred for Basel II. The same report argues that implementing the new rules will require three distinct initiatives: strategic planning for the Basel III world, capital and risk strategy, and implementation management.

A natural question that emerges from the above is: how will banks respond to these challenges? Auer *et al.* (2011) classify the potential responses in the following three categories: (i) operational responses, that refer to processes, methods and data (e.g., stricter credit approval process, improved liquidity risk management, integration of subsidiaries, etc.), (ii) tactical responses in terms of pricing, funding and asset restructuring (e.g., risk-sensitive pricing and performance measurement, a shift to higher-value clients with regards to profitability, a shift to less risky segments in the portfolio, a change in the mix of funding and liquidity reserves to longer-term funding) and (iii) strategic responses, including, among others, an engagement in more active client management, a change in business models (e.g., selling high-risk business units, entering into new product segments, etc.) and a change in group structure (e.g., selling off minority interests in financial institutions).

However, the response to these challenges is expected to differ across geographical regions and individual institutions. For example, Cosimano and Hakura (2011) show that responses will vary considerably from one advanced economy to another, reflecting cross-country variations in the tightness of capital constraints, banks' net cost of raising equity and elasticity of loan demand with respect to changes in loan rates. The impact of the new framework and the responses of banks are also expected to vary from one institution to another, depending upon the lines of business. For example, the results of the EU-QIS show that overall risk-weighted assets would increase by 24.5 per cent for Group 1 banks, since these banks have significant exposure in the areas of counterparty credit risk and securitizations. In contrast, the risk-weighted assets of Group 2 banks would increase by an average of just 4.1 per cent, since these banks are less affected by the revised counterparty credit risk and trading book rules.

10.8 Conclusions

The continuous worsening in the macroeconomic conditions during 2011 had an adverse effect on the financial performance of Greek banks, most of which witnessed a large increase in non-performing loans and a significant fall in their profits. Other negative developments during the year were a significant drop in the stock market capitalization of banking institutions and a downgrade of their credit ratings to the lowest possible level. Nonetheless, the improvements in regulatory own funds that were achieved in previous years allowed Greek banks to maintain capital ratios above the regulatory thresholds, and most of them managed to pass the EU-wide stress testing exercise of European banks. In an attempt to respond to the changes in the banking environment, policy-makers and banking institutions announced the resolution of troubled banks, mergers and acquisitions, privatizations and organizational restructurings.

As discussed above, one of the largest challenges for Greek banks is their exposure to Greek government bonds. While they have already recognized some losses in their accounts, it appears that they will have to take additional losses, and the final outcome will depend on the PSI plus agreement. Furthermore, Greek banks will have to adjust their strategy, taking into account the changes in consumer attitudes and behaviour and the less encouraging forecasts for the macroeconomic conditions. Additionally, while the ECB and the Bank of Greece are currently providing liquidity support, Greek banks will have to find ways to retain their deposit base. Finally, they will have to reconsider their exposures to the South-east European countries, and plan ahead for a smooth and efficient implementation of the new regulatory framework (i.e., Basel III/ CRD IV).

Notes

1 Overview of the Greek Banking Sector

1. See the annual report of the Bank of Greece for 1998.
2. See the European Central Bank, *EU Banking Structures* report of September 2010a.
3. It should be mentioned at this point, that the international literature has not reached a conclusion regarding the impact of the degree of concentration on a country's banking system. First, the empirical results do not always confirm the theoretical models. Second, the impact of competition may differ, having the opposite effects on different dimensions of the banking system, such as efficiency and stability. Northcott (2004) and Claessens (2009) provide interesting discussions of the literature.
4. At the end of 1998 there were 200,310 branches (in total) in the EU-15, compared with 201,226 in 2008. The aggregate figures for 1997 and 2009 are 194,416 branches and 193,437 branches, respectively; however, these figures do not include Belgium and Luxembourg, due to missing values (Belgium – 1998: 7,129 branches, Belgium – 2008: 4,316 branches, Luxembourg – 1998: 324 branches, Luxembourg – 2008: 229).
5. See the annual reports of the Bank of Greece for 2001 and 2002.

2 Macroeconomic and Institutional Environment

1. See the annual report of the Bank of Greece for 2006.
2. The discussion in this section is based on the annual reports of the Bank of Greece for the years 1997 to 2010.
3. The OECD projected that the annual change in GDP (in real terms) will equal –3.5 per cent in 2011 and 0.6 per cent in 2012 (August 2011). The corresponding forecasts of Eurostat were –3.5 per cent and 1.1 per cent. The IMF predicted –3.8 per cent and 0.6 per cent, while the expected average annual real GDP growth rate over the period 2013–20 is 2.75 per cent.
4. GDP per capita reached its peak of 21,100 euros in 2008.
5. These figures are from Eurostat. The volume index of GDP per capita in purchasing power standards (PPS) is expressed in relation to the European Union (EU-27) average set to equal 100. If the index of a country is higher than 100, this country's level of GDP per head is higher than the EU average and vice versa. Basic figures are expressed in PPS (i.e., a common currency that eliminates the differences in price levels between countries allowing meaningful volume comparisons of GDP between countries). As this figure is intended for cross-country comparisons rather than for temporal comparisons, Figure 2.2 presents the GDP per capita in euros.
6. According to Eurostat, the harmonized index of consumer prices (HICP) is suitable for international comparison of consumer price inflation.

Furthermore, HICP is used, for example, by the European Central Bank for monitoring inflation in the Economic and Monetary Union and for the assessment of inflation convergence as required under Article 121 of the Treaty of Amsterdam.

7. See the annual report of the Bank of Greece for 2010.
8. These legislative measures were adopted in the form of laws and presidential decrees in various years, starting in 1998. For more information see the annual reports of the Bank of Greece for the years 1998, 1999, 2003 and 2004.
9. See, for example, the annual reports for 2003 and 2007.
10. Self-employment of people with a 0–2 level of education accounts for 40.4 per cent of total employment in that group, for people with a 3–4 level of education for the figure is 23 per cent and for people with a 5–6 level of education accounts it is 21.9 per cent.
11. As mentioned in the annual report of the Bank of Greece for 2009, the general government deficit was 3.6 per cent of GDP in 2007, 7.7 per cent in 2008 and 12.9 per cent in 2009, according to the EDP notification to Eurostat on 21 October 2009. However, according to revised data currently available by Eurostat (30 September 2011), the deficit came to 6.7 per cent in 2007, 9.8 per cent in 2008 and 15.6 per cent in 2009.
12. See the annual reports of the Bank of Greece for 1998 and 1999.
13. This index takes values between 0 and 100, with higher values indicating higher freedom in trade. The trade freedom score is calculated on the basis of the following two inputs: (i) the trade-weighted average tariff rate and (ii) non-tariff barriers. See Section 2.2 for further information on the indices of the Heritage Foundation (www.heritage.org).
14. These indicators take values from –2.5 to +2.5, with higher figures indicating better governance performance. The WGI complies and summarizes information from: (i) surveys of households and firms (nine data sources, including the Afrobarometer surveys, Gallup World Poll and Global Competitiveness Report survey), (ii) commercial business information providers (four data sources, including the Economist Intelligence Unit, Global Insight, Political Risk Services), (iii) non-governmental organizations (nine data sources, including Global Integrity, Freedom House, Reporters Without Borders) and (iv) public sector organizations (eight data sources, including the CPIA assessments of World Bank and regional development banks, the EBRD Transition Report, French Ministry of Finance Institutional Profiles Database). Further information is available in Kaufmann *et al*. (2010).
15. Each one of the ten components of economic freedom takes a value on a scale from zero to 100, with 100 representing the maximum freedom. The ten component scores are then averaged to give an overall economic freedom score for each country.
16. As mentioned earlier, the index takes values between zero and 100, with higher values indicating lower government influence. For example, a score around 90 indicates minimal government influence where regulation of financial institutions is minimal but may extend beyond enforcing contractual obligations and preventing fraud. A score close to zero shows that supervision and regulation are designed to prevent private financial institutions or that private financial institutions are prohibited.

17. The score is based on ten factors, all weighted equally, using data from the World Bank's *Doing Business* study: starting a business – procedures (number), starting a business – time (days), starting a business – cost (percentage of income per capita), starting a business – minimum capital (percentage of income per capita), obtaining a licence – procedures (number), obtaining a licence – time (days), obtaining a licence – cost (percentage of income per capita), closing a business – time (years), closing a business – cost (percentage of estate) and closing a business – recovery rate (cents in the dollar).

3 Non-Banking Financial Institutions and Capital Markets

1. The PISC, a legal entity in public law subordinated to the Ministry of Finance, used to supervise insurance firms based in Greece, mutual insurance cooperatives and branches of firms based outside the EU and the EEA. Under Law 3867/2010, the supervision of insurance firms has been transferred to the Bank of Greece, which is to take over most of the responsibilities of the PISC. The organizational unit at the Bank of Greece entrusted with the financial supervision of insurance firms is the Department of Private Insurance Supervision (DOPIS).
2. The 2009 figures do not include the premium turnover of five firms whose authorization was withdrawn in September 2009. The PISC decided to withdraw the authorization of these firms following their failure to raise their assets free of any foreseeable liabilities, less any intangible items (solvency margin requirements), in line with their total activities.
3. Luxembourg is not included in the calculations of the EU average due to an extremely high ratio with an average of 3,766.91 per cent over the period 1997–2009. The corresponding figure for Ireland is 184.62 per cent. The inclusion of Ireland in the calculations results in an EU-14 average of 39.40 per cent, while the corresponding figure with the inclusion of Luxembourg becomes 291.81 per cent (i.e., EU-15 average).
4. Mutual funds include bond mutual funds, equity mutual funds and mixed mutual funds. In accordance with the reporting policy of the Bank of Greece, mutual funds data of the Social Insurance Mutual Fund Management Company are not included in the grand total of all mutual funds as shares of these funds can only be purchased by social security organizations and not by the public.
5. The corresponding figures for ROE are as follows: 7.1 per cent (2008) and 12.1 per cent (2007).
6. The corresponding figures for ROE are as follows: 14.5 per cent (2008) and 13.2 per cent (2007).
7. The annual percentage changes in 2001 were –23.53 per cent for the composite index and –34.47 per cent for the banking index, whereas the corresponding figures for 2002 were –32.53 per cent and –43.86 per cent.
8. See the annual reports of the Bank of Greece for 2002, 2003, 2004.
9. Data from the same source indicate that the weighted average cost of annual funding in other years was as follows: 6.2 per cent (2000), 5 per cent (2001), 4.7 per cent (2002), 3.4 per cent (2003), 3.4 per cent (2004), 3.7 per cent (2006), 4.4 per cent (2007), 4.6 per cent (2008) and 4.3 per cent (2010).

10. HDAT is a quote-driven market where assets are traded at 'bid' and 'ask' prices quoted by participants/dealers. Bonds or other fixed-income debt securities issued by corporations and other entities are also traded in the HDAT, while its technical platform is used for auctioning Greek government securities in the primary market. See Box VI.1 in the Annual Report of the Bank of Greece for 1998, and the 'Operating Regulations of HDAT', available at the website (www.bankofgreece.org) of the Bank of Greece, for further details.
11. As mentioned in the monetary policy report of the Bank of Greece (2010h), these measures include: (i) higher VAT rates, (ii) a further increase in excise duties and the introduction of new excise duties on luxury items, (iii) larger cuts to civil service benefits – including Christmas, Easter and holiday benefits, (iv) lower earnings for a large part of the rest of the public sector, (v) different regulatory provisions for the rationalization of expenditure for compensation, (vi) freezing of pensions, (vii) cutting back expenditure under the Public Investment Budget and (viii) imposition of an extraordinary one-off financial contribution for high personal income.

4 Central Banking and Policy Responses to the Crisis

1. See for example: Franck and Krausz (2008), Barth *et al.* (2002), Arnone *et al.* (2007), Gabillon and Martimort (2004), Ioannidou (2005), Klomp and de Haan (2009) and Demaestri and Guerrero (2005).
2. This part is based to a large extent on information from the following sources: Bank of Greece (1978), Lykogiannis (2003) and the 2000 Statute of the Bank of Greece.
3. The Pronomiouchos Trapeza Epirothessalias and the Bank of Crete were acquired by the National Bank of Greece in 1900 and 1919, respectively.
4. The independence of the central banks is a topic that has attracted a lot of attention. Quintyn and Taylor (2002) highlight the following four necessary dimensions of independence: (i) regulatory independence, (ii) supervisory independence, (iii) institutional independence and (iv) budgetary independence.
5. Subsequent minor amendments that were made at the 9th edition (2000) of the Statute of the BoG are summarized at: http://www.bankofgreece.gr/BogDocumentEn/statute_amendments20080707.pdf
6. The ESCB comprises the ECB and the national central banks (NCBs) of all EU member states (Article 107.1 of the Treaty) whether they have adopted the euro or not. The Eurosystem comprises the ECB and the NCBs of those countries that have adopted the euro. The Eurosystem and the ESCB will co-exist as long as there are EU member states outside the euro area. The euro area consists of the EU countries that have adopted the euro. Initially, it consisted of the following 11 member states: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. Greece joined in 2001, Slovenia in 2007, Cyprus and Malta in 2008, Slovakia in 2009 and Estonia in 2011.
7. The NCBs from the ten non-euro area members of the EU are required to contribute to the operational costs incurred by the ECB in relation to their participation in the ESCB by paying a minimal percentage of their subscribed

capital. On 29 December 2010, these contributions were reduced from 7.00 per cent to 3.75 per cent of their subscribed capital, amounting to a total of 121,176,379.25 euros.

8. The shares are adjusted by the ECB every five years and whenever a new country joins the EU. Thus, since the start of Stage Three of Economic and Monetary Union on 1 January 1999, there have been two updates, one on 1 January 2004 and again on 1 January 2009. Additional changes were made on 1 May 2004 with the accession of the ten new EU members and on 1 January 2007, when Bulgaria and Romania entered the EU. As it concerns the increase of the 29 December 2010, it resulted from an assessment of the adequacy of statutory capital in 2009, and it was the first general change in 12 years. To smooth the transfer of capital to the ECB, the Governing Council decided that the euro area national NCBs should pay their additional capital contribution in three equal annual instalments, on 29 December 2010 and at the end of 2011 and 2012.
9. This Council is a transitional body, accounting for the fact that not all EU member states have adopted the single currency; it will be dissolved at the point that all the states have introduced the euro.
10. It should be noted here that, while the Maastricht Treaty states that the primary objective of monetary policy is price stability, it does not give a precise, quantitative definition of this objective. Therefore, the Governing Council adopted a quantitative definition of price stability in 1998, stating that 'price stability shall be defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%. Price stability is to be maintained over the medium term.' Furthermore, after an evaluation of the monetary policy strategy in 2003, the Governing Council clarified that, within this definition, it aims to keep HICP inflation 'below, but close to, 2%'. As mentioned in ECB (2008), such an approach is considered sufficient to hedge against the risks of both very low inflation and deflation.
11. To signal its commitment to monetary analysis in the context of its strategy and to provide a benchmark for the assessment of monetary developments, the ECB announced a reference value of 4.5 per cent for the annual growth rate of the broad monetary aggregate M3 in December 1998.
12. Trichet (2010) characterizes this movement, both exceptional and historic in nature.
13. The interest rate on the main refinancing operations (MRO) provides the bulk of liquidity to the banking system. The rate on the deposit facility may be used by banks to make overnight deposits with the Eurosystem. The rate on the marginal lending facility offers overnight credit to banks from the Eurosystem.
14. As mentioned in Trichet (2010), such covered bonds – known as 'Pfandbriefe' in Germany, 'obligations foncières' in France and 'cedulas' in Spain – are long-term bonds that are issued by banks to refinance loans to the public and private sectors. The pool of eligible covered bonds is subject to compliance with the restrictions stipulated in Article 101 of the Treaty establishing the European Community. As mentioned in the June 2009 *Monthly Bulletin* of the ECB, the minimum size of eligible covered bonds was set at around 500 million euros, with the minimum amount being 100 million euros. Additionally, bonds had to satisfy certain requirements with regards to their ratings, with the minimum rating being AA or equivalent, as given by at least

one of the major rating agencies and, in any case, not lower than BBB-/Baa3 for covered bonds issued in the euro area by euro area institutions.
15. See 'Chronology of Monetary Policy Measures of the Eurosystem', in the November 2011 *Monthly Bulletin* of the European Central Bank.
16. This amount applies irrespective of the number of accounts, the currency or location of the deposit.
17. The Hellenic Deposit and Investment Guarantee Fund is discussed in more detail in Chapter 5.
18. For a chronology of the events of the sovereign debt crisis in Greece, see 'The Economic Adjustment Programme for Greece', European Commission (2010b).
19. The total net contribution of the private sector involvement over the period 2011–19 was estimated at 106 billion euros.
20. For further details see Council Regulation (EU) No 407/2010 of 11 May 2010 'establishing a European financial stabilisation mechanism' (*Official Journal of the European Union*, L 118/1–4), the EFSF Framework Agreement and the EFSF Articles of Incorporation. Both the EFSM and the EFSF are of a temporary nature, and it is anticipated that a new permanent crisis mechanism, the European Stability Mechanism (ESM), will be set up in the euro area in mid-2013.

5 Supervisory Framework

1. The same article mentions that a credit cooperative authorized as a credit institution may do business with: (i) its members, (ii) other credit institutions and (iii) the Greek government. Nonetheless, the credit cooperative may also carry out banking transactions with non-members up to an overall ceiling of 50 per cent of its total loan or deposit business, subject to prior approval by the Bank of Greece, and to any specific terms and conditions laid down in such approval. Similarly, with the approval of the Bank of Greece, the aforementioned restriction shall not apply to transactions: (i) of any nature where a member of the cooperative is a party to the transaction and (ii) related to ancillary banking services.
2. These thresholds may be adjusted by decision of the Bank of Greece to amounts of not less than 5 million euros.
3. Credit institutions that intend to offer investment services must fulfil the requirements which, in accordance with the legislation in force, apply to the provision of investment services by credit institutions.
4. This Act also lays down the requirements for the calculation of tier 1 when adopting the International Financial Reporting Standards.
5. Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events, including legal risk.
6. Bank of Greece Governor's Act 2645/9.9.2011 replaced Act 2633/29.10.2010 to incorporate the provisions of Directive 2010/76/EC of the European Parliament and Council relating to capital requirements for positions in resecuritization (CRD III).
7. The Law also specifies that these explanations shall be provided in writing by credit institutions when asked, according to the Code of Conduct of the Hellenic Bank Association enacted for this purpose. When credit institutions

fail to adopt, within a reasonable time period, the relevant Code of Conduct or its implementation proves inadequate, the Bank of Greece is responsible for taking appropriate measures.

8. Other general principles laid out in the same Act are as follows. Credit institutions shall: (i) respond, in due time, to customers' requests for the provision of information and clarifications regarding the application of contractual terms, (ii) have a special unit for reviewing customer complaints, (iii) ensure the proper training of their employees involved in the provision of specific information to customers, (iv) formulate the content of their promotional materials and advertisements and (v) determine interest rates in the context of the open market and free competition principles.
9. The imposed fines, by credit institution, were as follows: Agricultural Bank of Greece (15,000 euros), Alpha Bank (75,000 euros), Attica Bank (220,000 euros), BNP Paribas (20,000 euros), Geniki Bank (35,000 euros), Citibank International (35,000 euros), Emporiki Credicom Bank (15,000 euros), Emporiki Bank (45,000 euros), National Bank of Greece (70,000 euros), Hellenic Bank Public Company Ltd (10,000 euros), HSBC Bank (10,000 euros), Margin Egnatia Bank (20,000 euros), Proton Bank (10,000 euros), T-Bank (a warning), Hellenic Postbank (5,000 euros), EFG Eurobank Ergasias (160,000 euros), Bank of Cyprus (20,000 euros), Millennium Bank (70,000 euros), Piraeus Bank (40,000 euros) and UniCredit Bank (10,000 euros).
10. These fines were as follows: Alpha Bank (140,000 euros), Attica Bank (50,000 euros), National Bank of Greece (70,000 euros), Emporiki Bank (160,000 euros), Marfin Egnatia Bank (150,000 euros), Millennium Bank (140,000 euros), Piraeus Bank (170,000 euros), Probank (30,000 euros), Achaiki Cooperative Bank (10,000 euros) and Cooperative Bank of Peloponnesus (10,000 euros).
11. Covered investment services include the receipt, transmission and execution of orders, underwriting of financial instruments, safekeeping and administrative management of financial instruments for the customer's account, negotiation for own account of one or more financial instruments, management of customers' portfolios etc.
12. Credit institutions providing, on the basis of the Investment Cover Scheme, investment guarantees for the first time shall pay a one-off initial contribution of 500,000 euros.

6 Retail Banking

1. See the annual report of the Bank of Greece for 2005.
2. The number of the interbanking transactions through the DIAS ATM system increased by 28 per cent between 2002 and 2008, from 16,620,477 to 21,221,292.
3. These figures refer to cards issued in Greece and used in Greece. The yearly figures in the case of ATMs are as follows: 16.97 (2009), 14.69 (2008), 18.00 (2007), 18.22 (2006), 19.21 (2005), 19.73 (2004), 19.47 (2003), 19.05 (2002), 20.51 (2001), 19.47 (2000). The corresponding figures in the case of POS are the following: 4.61, 4.34, 4.42, 4.90, 5.48, 4.31, 4.06, 3.30, 4.03, 4.30. Thus, in the case of the ATMs (POS), the highest number of transactions per card was recorded in 2001 (2005) and the lowest in 2008 (2002).

4. See the reports of the Hellenic Bank Association (2010, 2011) for the Greek banking system in 2009 and 2010.
5. According to data from the Global Market Information Database, the banked population in Greece was 8,158,400 in 2004, 8,366,000 in 2009 and 8,467,000 in 2010. Over the same years, the entire population was slightly higher than 11,000,000.
6. In the case of credit transfers, the average value per transaction over the period 2001–9 is considerably lower, at 49,087.93 euros. The reason for this difference is a record value of transactions recorded in 2000 that was equal to 2,621,172.54 compared with 765,337.98 over the period 2001–9. This resulted in a relatively high value per transaction in 2000 that was equal to 397,750 euros.
7. According to data from the same source, the 2009 market shares, in terms of issuance of credit cards, were as follows: National Bank of Greece (26.95 per cent), EFG Eurobank Ergasias SA (25.56 per cent), Alpha Bank SA (21.14 per cent), Piraeus Bank SA (7.84 per cent), Emporiki Bank SA (6.08 per cent), other banks (12.43 per cent). The corresponding figures in the case of the transaction values were: National Bank of Greece (26.29 per cent), EFG Eurobank Ergasias SA (23.41 per cent), Alpha Bank SA (16.32 per cent), Piraeus Bank SA (8.89 per cent), Emporiki Bank SA (6.08 per cent), other banks (12.43 per cent).
8. According to data from the same source, the 2009 market shares, in term of issuance of debit cards, were as follows: National Bank of Greece (29.03 per cent), EFG Eurobank Ergasias SA (28.49 per cent), Alpha Bank SA (20 per cent), Piraeus Bank SA (11 per cent), Emporiki Bank SA (9.68 per cent), other banks (1.80 per cent). The corresponding figures in the case of the transaction values were: National Bank of Greece (26.61 per cent), EFG Eurobank Ergasias SA (24.96 per cent), Alpha Bank SA (18.41 per cent), Piraeus Bank SA (7.57 per cent), Emporiki Bank SA (10.89 per cent), other banks (11.57 per cent).
9. See the *Financial Stability Reports* of the Bank of Greece for 2009 and 2010.
10. The Bank of Greece (BoG) started collecting data on interest rates of bank deposits and loans on a new basis in September 2002, in accordance with Governor's Act 2496/28.5.2002 and the Regulation of the European Central Bank ECB/2001/18. In addition to the data shown in Table 6.7, the BoG also reports theoretical interest rates, representing statistical estimates of the European Central Bank and the BoG for the pre-2002 period. Further information about the Bank Deposit and Loan Interest Rates Series is available at the website of the BoG.
11. Deposits by euro area residents constitute a very small proportion of deposits in Greek banks. Deposits by non-financial corporations (percentage GDP) and by households (percentage GDP) at the end of 2009, stood at 0.33 per cent and 0.24 per cent, respectively.

7 Performance of the Banking Sector in Greece

1. Cross-country comparisons should be treated with some caution as there are some differences in the definitions of bank types across countries. The UK was not included in this table due to data unavailability.

2. The period is restricted to 2004–9 due to lack of data for Greece prior to this period. Some countries included in Table 7.1 are missing from Tables 7.2 and 7.3 due to data availability. The UK has been included at this stage in the case of large commercial banks.
3. While a few institutions were established earlier, they were operating as credit cooperatives until the early 1990s when they obtained a licence to operate as cooperative banks. For example, the Cooperative Bank of Lamia launched its activities as the credit cooperative of 'Technicians of Lamia' in 1900, which makes it the oldest existing cooperative in Greece. It evolved into a credit institution in 1993. The Cooperative Bank of Ioannina was initially founded in 1978 as a credit cooperative under the name of 'Development Cooperation of the Prefecture of Ioannina'. It evolved into a credit institution in 1993.
4. For example, total assets increased from 440.86 million euros in 1999 to 3,751.83 million euros in 2008. Personnel increased from 328 staff members in 1999 to 1,238 staff members in 2008, and branches increased from 39 to 177 over the same years.
5. The period was restricted to 2004–8 due to data availability for Greek cooperative banks in the OECD. For the same reason some of the countries included in Table 7.1 are not shown in Table 7.4 (i.e., Italy, Ireland, Portugal, UK).
6. The corresponding figures for commercial banks are 17 per cent (2004) and 29 per cent (2008).
7. See Behzadian *et al*. (2010) for a review on methodologies and applications of the Promethee method.

8 Banking Risks

1. In 2003, Tiresias SA introduced a risk consolidation system (RCS), a 'white list' credit registry service with a focus on the financing of households, providing each borrower's full credit history. The RCS has been collecting data on new credit extended to individuals, subject to the borrower's prior consent.
2. Detailed information on the main features of the credit risk management systems is available in the annual reports of the banks.
3. See the *Financial Stability Report* of the Bank of Greece published in July 2010.
4. See the annual report of the Bank of Greece for 2002 and its *Financial Stability Report* of July 2010.
5. Apparently, in this case, there can also be differences in the definition of NPL across time due to changes in the regulations.
6. Market risk is related to interest rate and equity price changes (influencing items included in Greek banks' trading portfolios) and changes in the euro exchange rates (influencing assets and liabilities in foreign currency).
7. The aggregate of the interest rate, foreign exchange and equities/commodities VaR results does not constitute the banks' total VaR due to correlations and consequent diversification effects among risk factors.
8. NBG is the only group that provides such detailed information in its annual reports. Thus, it was not possible to provide comparisons with other Greek banking groups.
9. See, for example, *A Framework for Measuring and Managing Liquidity* (September 1992), *Sound Practices for Managing Liquidity in Banking Organisations* (February

2000), *The Management of Liquidity Risk in Financial Groups* (May 2006) and *Principles for Sound Liquidity Risk Management and Supervision* (September 2008).

10. According to the Bank of Greece, these figures are derived from changes in outstanding amounts corrected for foreign exchange valuations and reclassifications adjustments (i.e. from the sums of flows during the 12 months ending in the period indicated).
11. The liquid asset ratio was 23.90 per cent in 2009 compared with 19 per cent in 2008, and 23.20 per cent in 2007. The corresponding figures for the asset liability maturity mismatch ratio were –2.80 per cent, –7.30 per cent and –6.50 per cent.
12. Total assets reached 4,725.8 million euros in end-2009 from 548.4 million euros in end-2000. The corresponding figures for equity were 196.7 million euros and 542.5 million euros, respectively. The average annual increase in total assets over 2001–9 was 27 per cent, while that of equity was 12 per cent.
13. The loan to deposit ratio indicates what percentage of the deposits of the bank are tied up in loans. Thus, higher values indicate lower liquidity.

9 Corporate Governance

1. Studies on the impact of corporate governance on banking have examined various issues, such as: (i) performance and value, (ii) risk-taking and (iii) earnings management, among others. Studies falling into the first group examine various performance indicators such as ROA, ROE, Tobin's Q ratio and efficiency. Some of these studies examine the impact of board size and composition (e.g., Staikouras *et al*., 2007; de Andres and Vallelado, 2008; Tanna *et al*., 2011). In general the findings are mixed, and they vary among different indicators of performance (e.g. Tobin's Q, ROA, efficiency) and geographical regions (e.g., the USA, Europe, etc.). One potential explanation is that there is a non-linear relation between performance and board size or composition, as documented in de Andres and Vallelado (2008). A few other studies examine additional indicators such as CEO tenure (e.g., Sierra *et al*., 2006), executive compensation (e.g., Sierra *et al*., 2006), CEO duality (e.g. ,Griffith *et al*., 2002), CEO ownership (e.g., Griffith *et al*., 2002), the presence of directors from foreign countries in the board (e.g., Choi and Hasan, 2005) and the number of committees (Adams and Mehran, 2012), etc. Furthermore, more recent evidence put forward by Aebi *et al*. (2012) highlights the importance of risk management-related corporate governance mechanisms. Their results show that standard corporate governance variables (e.g., CEO ownership, board independence) are mostly insignificantly or even negatively related to the banks' performance; however, the presence of a chief risk officer (CRO) in a bank's executive board and reporting of the CRO to the CEO or directly to the board of directors are associated with a better bank performance during the financial crisis of 2007–8. Studies falling in the second group focus on issues such as the structure of compensation (e.g., Chen *et al*., 2006), attributes of the board (e.g., Akhigbe and Martin, 2008; Pathan, 2009) and ownership concentration or structure (e.g., Saunders *et al*., 1990;

Laeven and Levine, 2009; Nguyen, 2011). In several cases, these studies find evidence that these characteristics influence risk-taking. Finally, Cornett *et al*. (2009) examine the relationship between bank governance mechanisms and earnings management of large US bank holding companies, to conclude that mechanisms like CEO pay for performance increase earnings management, whereas board independence decreases it.

2. In its resolution of 21 April 2004, the European Parliament welcomed the action plan and expressed strong support for most of the initiatives announced. Since that time various initiatives have been introduced in the form of recommendations or Directives of the Commission. In the light of the financial crisis, specific initiatives were taken regarding financial institutions. These are discussed in the next section. However, earlier Directives and recommendations are also applicable to financial institutions.
3. Directive 2006/43/EC amended Council Directives 78/660/EEC and 83/349/EEC and repealed Council Directive 84/253/EEC. It was amended by Directive 2008/30/EC.
4. Directive 2006/46/EC of the European Parliament and of the Council of 14 June 2006 amended Council Directives 78/660/EEC on the annual accounts of certain types of companies, 83/349/EEC on consolidated accounts, 86/635/EEC on the annual accounts and consolidated accounts of banks and other financial institutions and 91/674/EEC on the annual accounts and consolidated accounts of insurance undertakings.
5. The consultation was open until 22 July 2011. The next step is the examination of the replies by the Commission and the issuance of a feedback statement summarizing the results of the consultation in autumn. This will form the basis for legislative proposals, if necessary.
6. The Act also discusses issues such as conflicts of interest, participation of the AC's members in other committees, the knowledge and experience of the chairman and the members of the AC.
7. According to the legislation in force, currently Article 12 of Law 3148/2003.
8. This is, at least, on the basis of the annual report of the head of the Risk Management Unit and the relevant section of the Internal Audit Unit report.
9. According to Article 4 of Law 3016/2002, during their tenure, the independent non-executive board members are not allowed to own more than 0.5 per cent of the company's share capital and to have a relation of dependence with the corporation or persons associated with it. Article 4 clarifies that a relation of dependence exists if a board member: (a) maintains a corporate or other professional relation with the company or its subsidiaries (as defined by the Article 42e §5 of Inc. Law No. 2190/1920), which by nature affects the corporation's activity, particularly if (s)he is an important supplier or client of the corporation, (b) is president of the board of directors or manager of the corporation, as well as if he has the above-mentioned status or is executive member of the board of directors in a subsidiary (as defined by Article 42e §5 of Inc. Law No. 2190/1920) or holds a contractual employment relation with the corporation or its subsidiaries, (c) has a second-degree kinship with or is the spouse of an executive board member, manager or shareholder controlling the majority of shares of the corporation or one of its subsidiaries (as defined in Article 42e §5 of Inc. Law No. 2190/1920) or (d) has been appointed according to Article 18 §3 of Inc. Law No. 2190/1920.

10. The reported figures for the board size of banks are as follows: 12.1 in the UK (Tanna *et al*., 2011), 17.97 in the USA (Adams and Mehran, 2012), 17.11 in selected European countries (Staikouras *et al*., 2007), 15.78 in selected OECD countries (de Andres and Vallelado, 2008). As for the proportion of non-executives (or outside directors) in the board, the figures are as follows: 56.3 per cent (Tanna *et al*., 2011), 69 per cent (Adams and Mehran (2012), 64.4 per cent (Staikouras *et al*., 2007) and 79.13 per cent (de Andres and Vallelado, 2008). However, it should be emphasized that the comparison between these figures and those in Table 9.1 should be treated with extreme caution, due to differences (i) in the operating environment, such as regulations, market discipline, etc., and (ii) the number and size of the banks that are considered in the calculations.
11. On 24 May 2011, Crédit Agricole SA announced the launch of a voluntary public offer to acquire all ordinary registered shares with voting rights of Emporiki Bank not held by Crédit Agricole SA and Sacam International SAS. On 9 September 2011, Crédit Agricole SA announced the squeeze out of Emporiki. According to the announcement Crédit Agricole SA held directly, on that day, 486,615,790 shares of Emporiki in total, representing a percentage of approximately 95 per cent of the fully paid-up share capital and the voting rights of Emporiki. Furthermore, Sacam International SAS, acting in concert with the Crédit Agricole SA from 23 May 2011 for the purposes of the tender offer, held directly the remaining 5 per cent of the fully paid-up share capital and the voting rights of Emporiki Bank.
12. The six Greek banks are: Alpha Bank, Piraeus Bank, Emporiki Bank, National Bank of Greece, EFG Eurobank Ergasias and Agricultural Bank of Greece. The EU banks average is calculated on the basis of all EU banks that are available in the RiskMetrics database. There were 63 EU banks from 12 countries in 2007 (EU-15 excluding Finland and Luxembourg, due to missing data, as well as Greece), and 59 banks from 11 countries in 2008 and 2009 (the Netherlands is also not considered in this case due to missing data). Examples of non-Greek EU banks in the sample are: Bank Austria Creditanstalt, Dexia SA, BNP Paribas, Société Générale, Landesbank Berlin Holding AG, Commerzbank AG, Bank of Ireland Group, Intesa SanPaolo SPA, Banco Espirito Santo SA, Banco Bilbao Vizcaya Argentaria, Nordea Bank AB, Barclays plc and others.

10 Recent Developments and Future Challenges

1. The data for 2011Q2, discussed in this section, are from the fifth IMF review (December 2011).
2. The non-interest expenses to gross income ratio decreased to 56.9 per cent in 2011Q2, compared with 62.4 per cent in 2010Q4 and 66 per cent in 2010Q2.
3. The rating scale of the BIRs is as follows: A (a very strong bank), B (a strong bank), C (an adequate bank; however, it has one or more troublesome aspects), D (a bank that has weaknesses of internal and/or external origin), E (a bank with very serious problems, which either requires or is likely to require external support) and F (a bank that has defaulted or would have defaulted

if it had not received external support). Gradations may be used among the ratings A to E (i.e., A/B, B/C, C/D and D/E). According to Fitch, examples of external support include state or local government support, (deposit) insurance funds, acquisition by some other corporate entity or an injection of new funds from its shareholders or equivalent. The rating scale of the BFSRs is as follows: A (a bank with superior intrinsic financial strength), B (a bank with strong intrinsic financial strength), C (a bank with adequate intrinsic financial strength), D (a bank with modest intrinsic financial strength, potentially requiring some outside support at times) and E (very modest intrinsic financial strength, with a higher likelihood of periodic outside support or an eventual need for outside assistance). Where appropriate, a '+' or '–' modifier is used to distinguish those banks that fall in the higher and lower ends, respectively, of the rating category. Moody's defines as support any assistance from third parties such as the bank's owners, industry group, or official institutions. According to Moody's, factors considered in the assignment of BFSRs include bank-specific elements such as financial fundamentals, franchise value and business and asset diversification. Although BFSRs exclude the external factors specified above, they do take into account other risk factors in the bank's operating environment, including the strength and prospective performance of the economy, as well as the structure and relative fragility of the financial system and the quality of banking regulation and supervision.

4. See 'Annex II. Greece: Privatization Schedule' in the December 2011 IMF Country Report No. 11/351.
5. These calculations include the Bank of Cyprus. While this institution could be classified as a Cypriot one, it is also listed in the Athens Stock Exchange, accounting for an important proportion of its market capitalization (i.e., included in top 20 firms). However, the calculations do not include other Greek banks that potentially own small proportions of the GGBs, and are classified by Barclays Capital under the heading 'Others'. According to the estimations of Barclays Capital, the exposure of Greek bank in bonds and bills was as follows: National Bank of Greece: 13.2 billion euros; EFG Eurobank Ergasias: 9 billion euros; Piraeus Bank: 8 billion euros; Agricultural Bank of Greece: 4.6 billion euros; Alpha Bank: 3.7 billion euros; Hellenic Postbank: 3.1 billion euros; Marfin: 2.3 billion euros; Bank of Cyprus: 1.8 billion euros. The National Bank of Greece has an additional exposure of 5.4 billion euros in the form of loans.
6. Estimates by Bastian (2010) show that eight Central Eastern European countries received 110.4 billion dollars of external support from international institutions between October 2008 and March 2009.
7. See the July 2010 *Financial Stability Report* of the Bank of Greece.
8. These estimations are based on consolidated data as of 31 December 2009, under the assumption that Basel III were in place at that time. Data were submitted by the participating banks to national supervisors in the QIS workbooks and in accordance with the instructions prepared by CEBS in cooperation with the BCBS in February 2010. A total of 246 banks from 21 CEBS member jurisdictions participated in the study. Of these banks, 48 Group 1 banks and 182 Group 2 banks participated in the follow-up data collection exercise. Group 1 banks are those that have tier 1 capital in excess of 3 billion euros, are well diversified and are internationally active. All other banks are

considered to be Group 2 banks. These banks come from 19 CEBS member jurisdictions, as follows: Austria (18), Belgium (4), Denmark (4), Finland (14), France (11), Germany (68), Greece (4), Hungary (3), Ireland (9), Italy (22), Luxembourg (1), the Netherlands (18), Norway (8), Poland (5), Portugal (7), Slovenia (2), Spain (7), Sweden (6) and the United Kingdom (12).

9. This number is reflective only of the aggregate shortfall for banks that are below the 100 per cent requirement and does not reflect surplus liquid assets at banks above the 100 per cent requirement. It has also been estimated under the assumption that banks were to make no changes whatsoever to their current liquidity risk profile. However, banks that are below the 100 per cent required minimum have until 2015 to meet the standard, by: (i) scaling back business, (ii) lengthening the term of their funding and (iii) increasing their holdings of liquid assets. These assumptions also apply to the NSFR, with the difference that banks have until 2018 to meet this standard.

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