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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