The Role of the Rating Companies in the Recent Financial Crisis in the Balkan and Black Sea Area

Eleftherios Thalassinos, Konstantinos Liapis, and John Thalassinos

Abstract The main aim of this article is to demonstrate a holistic framework for measuring a bank's financial health by classifying its main responsibilities between conformance and performance. Responsibilities are classified into five categories as follows: First, Corporate Financial Reporting (CFR) that integrates General Accepted Accounting Principles (GAAP), Generally Accepted Auditing Standards (GAAS), Securities Exchange Commission (SEC), Financial Services Authority (FSA), and International Accounting Standards (IAS). Second, Risk Management Procedures (RMP), that incorporates methods and directives which arise from Basel I, Basel II, Capital Adequacy frameworks or solvency ratio benchmarks. Third, Corporate Governance (CG), that integrates Sarbanes – Oxley Act, Audit Committees, and Internal Audit Mechanisms. Fourth, Corporate Social Responsibility (CSR), that consists of instructions and standards such as Global Reporting Initiative (GRI) – social and environmental, Social accountability (SA 8000) – working conditions, International Organization for Standardization (ISO 9000). Fifth, Stockholders Value Creation (SVC), that is a set of methodologies and ratios used in order to measure value creation for shareholders such as Strategic and Balanced scorecard, Economic Value Added EVA®, and other business performance management tools. On the other, the Rating Agencies (RA) applies various rating systems in different fields.

E. Thalassinos (✉)
Chair Jean Monnet, University of Piraeus, Piraeus, Greece
e-mail: thalassinos@ersj.eu

K. Liapis
Panteion University, Athens, Greece
e-mail: konstantinos.liapis@panteion.gr

J. Thalassinos
University of Illinois, Chicago, IL, USA

University of Piraeus, Piraeus, Greece

London Business School, London, England
e-mail: thalassinos@hotmail.com

Based on this framework, the article correlates all qualitative and quantitative components, with the banks' ratings. The dependent variable is the bank's financial health score, represented by a dummy variable based on the bank's rating by the rating agencies and from the relevant value of each bank that arises from its performance in the above mentioned framework of responsibilities. The independent quantitative variables belong to a set of financial, risk and market key ratios and the qualitative variables to a set of dummy variables which describe the above framework.

With the use of financial and other published data of the Greek banking sector the article proposes a new model and a procedure for the explanation, management and monitoring of a bank's financial health.

Keywords Banks • Financial risk • Corporate governance • Bank regulations

JEL Classification Codes G21 • G32 • G33 • M14 • M48

1 Introduction

After the recent financial crisis a new round of market turmoil on the occasion of the financial indebtedness of the Greek public sector has began. The rating agencies failed to provide helpful insights on the main causes of the crisis in an efficient way. On the contrary, they negatively reassessed their reviews (rating levels) regarding governments' debt and banks' financial strength.

This article starting from the above necessity constructs a framework for a new rating approach of the banking industry based on transparency and responsibility. The work is organized as follows: First, in Sect. 2 the major items for European Monetary Union, European legislation for the banking sector and the main financial figures of European banking industry are presented. European Banking Institutions operate in this financial, monetary, and economic environment since 2002, following the introduction of Euro. Then the construction of the framework for banks' rating follows according to the work by Bhimani and Soonawalla (2005) for corporate responsibilities continuum by changing and adding components suitable for the banking industry.

Section 3 presents the Corporate Financial Reporting (CFR) standards that banks follow globally. Section 4 presents the Risk Management Procedures (RMP) followed by banks focusing on solvency ratios according to Capital Adequacy (CAD), Basel I and Basel II procedures. Section 5 analyses Corporate Governance procedures, especially the index that presents the level of the Corporate Governance within a Bank (GOV-Index).

Section 6 discusses issues of Corporate Social Responsibility (CSR) and Sustainable Development (SD) of a bank in order to incorporate these items into the proposed framework as rating components. Section 7 examines Stockholders' Value Creation (SVC), mainly with Value Based Management (VBM) indexes.

Section 8 presents the global rating system and the rating agencies. Section 9 chooses from Macroeconomic and Monetary environment indexes that have an impact on the ratings of banks in order to integrate some external economic environment indexes in the banks' rating system.

Section 10 presents the proposed framework for rating of the banking industry, while Sect. 11 presents a simple model for measuring banks' financial health by using data of the Greek Banking Industry. Finally, Sect. 12 presents the conclusions and recommendations for the construction of a holistic – multivariate Rating System for the Banking Industry.

2   European Legislation for the European Banking Industry

Based on the works of John H. Rogers (2007), Barros et al. (2007), Jardet and Le Fol (2010), Savva et al. (2010), Davis (1999), and John Goddard et al. (2007) and by collecting data from various reports from the European Central Bank and the Central Bank of Greece the present study describes the environment established in the European Monetary Union (EMU). Then the legislation and directives that regulate the banking industry in EMU as well as the main accounting and other quantitative figures of the banking sector of EU as follows:

1. *European Monetary Union*
     European Monetary Union starts form 1957 and till has followed a certain economic integration timeline:

   - 1957 Treaty of Rome Established customs unions
   - 1970s Informal joint float of several European currencies versus dollar, which called the "snake"
   - 1979 European Monetary System Formal network of mutually pegged exchange rates (France, Germany, Italy, Denmark, Ireland, Luxemburg, Netherlands)
   - 1986 The Single European Act ("Europe 1992") Enabled eventual completion of the internal market; remove internal barriers to trade, capital, and labour
   - 1991 Maastricht Treaty meeting Envisioned economic and monetary union (EMU) to begin
   - 1991 Specified convergence criteria for EMU admission; call for harmonization of social policy "stage 2" to begin1/94
   - 1989–1992 EMS developments Spain ('89), Britain ('90), Portugal ('92) added; Italy and Britain leave after 9/92 crisis harmonization of the value-added tax (VAT); the internal market is realized
   - 1997 Stability and growth pact Specifies medium-term budgetary objectives for EMU

- 1998 EMU members decided Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain
- 1999 Euro launched single monetary policy for all EMU, set by ECB; all monetary policy actions and most large-denomination private payments conducted in euros; national currencies "irrevocably fixed", continue to circulate for 3-year transition period
- 2001 Expansion of EMU Greece joins (1/01); possible next-round entrants identified
- 2002 Euro circulates national currencies removed from circulation

2. *The Legislation in the EU banking and financial sectors summarized in the following timeline of European banking directives* (Pantos and Saidi, 2005):

- 1977 First Banking Directive, removed obstacles to the provision of services and establishment of branches across the borders of EU member states, harmonized rules for bank licensing, established EU-wide supervisory arrangements
- 1988 Basle Capital Adequacy Regulation (Basle I), minimum capital adequacy requirements for banks (8 % ratio), capital definitions, Tier 1 (equity), Tier 2 (near-equity), risk-weightings based on credit risk for bank business
- 1988 Directive on Liberalization of Capital Flows, free cross-border capital flows, with safeguards for countries with balance of payments problems
- 1989 Second Banking Directive, single EU banking license, principles of home country control (home regulators have ultimate supervisory authority for the foreign activity of their banks) and mutual recognition (EU bank regulators recognize equivalence of their regulations), passed in conjunction with the Own Funds and Solvency Directives, incorporating capital adequacy requirements similar to Basle I into EU law
- 1992 Large Exposures Directive, banks should not commit more than 25 % of their own funds to a single investment, total resources allocated to a single investment should not exceed 800 % of own funds
- 1993 Investment Services Directive, legislative framework for investment firms and securities markets, providing for a single passport for investment services
- 1994 Directive on Deposit Guarantee Schemes, minimum guaranteed investor protection in the event of bank failure
- 1999 Financial Services Action Plan (FSAP), legislative framework for the Single Market in financial services
- 2000 Consolidated Banking Directive, consolidation of previous banking regulation
- 2000 Directive on e-money, access by non-credit institutions to the business of e-money issuance, harmonized rules/standards relating to payments by mobile telephone, transport cards, and Basle payment facilities
- 2001 Directive on the Reorganization and Winding-Up of Credit Institutions, recognition throughout EU of reorganization measures/winding-up proceedings by the home state of an EU credit institution

- 2001 Regulation on the European Company Statute, standard rules for company formation throughout the EU
- 2002 Financial Conglomerates Directive, supervision framework for a group of financial entities engaged in cross-sectoral activities (banking, insurance, securities)
- 2004 New EU Takeover Directive, common framework for cross-border takeover bids
- 2005–2010 White paper on Financial Services Policy, plan to implement outstanding FSAP measures, consolidation/convergence of financial services regulation and supervision
- 2006–2008 Capital Requirements Directive, updates Basle I and incorporates the measures suggest in the International Convergence of Capital Measurement and Capital Standards (Basle II), improved consistency of international capital regulations, improved risk-sensitivity of regulatory capital, promotion of improved risk-management practices among international banks.

3. *The financial figures of the European banking industry as presented in* Table 1. Some crucial observations from Table 1 which may be of great interest are:

- A serious expansion in assets of the European banking sector during the time is observed.
- In the period 2004–2008 a considerable expansion (figures have more than doubled) especially in the bank's assets of Spain (123 %), Greece (101 %) and Ireland (96 %) is also observed.
- For Greece, it should be noted that the increase in banks' assets is due mainly because of their expansion in Eastern Europe, Asia and Africa and for this reason the private debt remains significantly low.
- The number of Banks as well as the number of Branches has remained considerable stable.
- The total number of employees in the European banking sector has remained stable denoting a remarkable increase in productivity.

3 Corporate Financial Reporting (CFR)

Globally the Corporate Financial Reporting (CFR) is a widely used term for:

- Generally Accounting Accepted Principles (GAAP) as a term in practice of accounting, financial reporting, auditing, and business literature. In order to improve the legitimacy of accounting information and ensure its reliability and relevancy, accountants use a body of literature and/or a set of practices and "pronouncements with substantial authoritative support" which is called GAAP (Kieso and Weygandt 2001). GAAP, varies from country to country, often allows for alternative methods for treating the same set of transactions and is not static but change dynamically according to market conditions nationally or

Table 1 Time line of main figures for the banking industry per (first 15) EU country (1985–2008)

Country	Number of banks				Assets (billion euro)					Number of branches				Employees ('000s)			
	1985	1995	2004	2008	1985	1995	2004	2008	Δ%	1985	1995	2004	2008	1985	1995	2004	2008
EMU countries																	
Austria	1406	1041	796	803	–	–	635	1068	68 %	–	–	4360	4243	–	–	73	79
Belgium	120	143	104	105	286	589	914	1272	39 %	8207	7668	4837	4316	71	77	71	65
Denmark	259	202	202	171	96	126	607	1092	80 %	3411	2215	2021	2192	52	47	44	53
Finland	498	381	364	357	–	–	212	384	81 %	–	1612	1585	1672	–	31	25	26
France	1952	1469	897	728	1349	2514	4415	7225	64 %	25,782	26,606	26,370	39,634	449	408	425	492
Germany	4739	3785	2148	1989	1495	3584	6584	7875	20 %	39,925	44,012	45,505	39,531	591	724	712	686
Greece	41	53	62	66	69	94	230	462	101 %	1815	2417	3403	4095	27	54	59	66
Ireland	42	56	80	501	21	46	722	1412	96 %	–	808	909	895	–	–	36	41
Italy	1101	970	801	818	547	1070	2276	3628	59 %	13,033	20,839	30,946	34,139	319	337	337	340
Luxembourg	177	220	169	152	170	445	695	932	34 %	120	224	253	229	10	19	23	27
Netherlands	178	102	461	302	227	650	1678	2235	33 %	6868	6729	3649	3421	92	111	115	116
Portugal	226	233	200	175	38	116	345	482	40 %	1494	3401	5408	6391	59	60	53	62
Spain	364	506	346	362	311	696	1717	3831	123 %	32,503	36,405	40,621	46,065	244	249	246	276
Other EU countries																	
Sweden	598	249	222	182	–	–	583	900	54 %	–	–	2018	2025	–	–	39	50
UK	772	564	413	391	1294	2000	6970	8840	27 %	2,224	17,522	13,386	12,514	350	383	511	496

Sources: Central Bank Reports (various), ECB Structural indicators for the EU banking sector January 2010, Authors' Calculations

globally. Other terms alternatives to GAAP are known as Other Comprehensive Basis of Accounting (OCBOA) and Statutory Accounting Principles (STAT/ SSAP).
- Generally Accepted Auditing Standards (GAAS) that is parallel to GAAP in the accounting discipline.
- In the U.S. and U.K., IAS and GAAP and generally fundamental accounting concepts includes: historical cost, conservatism (prudence), consistency, matching (accruals), materiality (substance over form), dual aspect (double entry), recognition, and others (FASB 2003; IASB 2003).
- *The Statements of Financial Accounting Concepts* (*SFAC*) is the conceptual basis for U.S. GAAP whereas IAS-1, *Presentation of Financial Statements*, contains the IAS concepts. The statements also define and explain the elements of financial statements, characteristics of useful financial information (relevant and reliable), users of financial statements (internal and external) and identify the fundamental accounting concepts (FASB 2003; IASB 2001). In addition the conceptual frameworks define assets, liabilities, equity, revenues and expenses, realized gains, and realized losses, profits, losses as well as the relevance and reliability of financial information.

GAAP often comes in the form of *statements of financial accounting standards* (*SFAS*), *statement of financial accounting interpretation* (*SFIN*), *accounting opinions*, *statement of positions* (*SOP*), *accounting research bulletin* (*ARB*), *financial reporting standards* (*FRS*), *standard statement of accounting practice* (*SSAP*), or *simply international accounting statements*, depending on the country, jurisdiction, or body issuing the GAAP. GAAP varies from country to country in terms of its sources, level of authority, allowable alternatives, and the appropriate body issuing it. For example, a distinction is made between U.S. GAAP, U.K. GAAP, International GAAP (IAS), German GAAP, Chinese GAAP, Canadian GAAP, and Mexican GAAP.

The responsible authorities for setting GAAP are generally:

- The International Accounting Standards Board, (IASB)
- The Financial Accounting Standards Board in the U.S. (FASB)
- The Accounting Standards Board in the U.S. (ASB)
- Other professional accounting bodies like the American Institute of Certified Public Accountants (AICPA)
- The Consultative Committee of Accountancy Bodies (CCAB) in the U.K.
- The International Federation of Accountants (IFAC)
- The Australian Society of Certified Public Accountants (ASCPA) with the Australian Institute of Chartered Accountants in Australia (ICAA).

In addition there are other jurisdictional bodies or national accounting authorities which also contribute to setting accounting standards. The mainly accounting standards are:

- *IAS w*ith representatives from over 91 countries. The IASB sets Global GAAP/ IASs. The IASB is made up of trustees, the board, interpretations committes,

and advisory committees. As of today a total of 41 IAS statements have been issued. Underlying the IAS statements there are the fundamental accounting concepts and conventions enshrined in the IAS-1, *Presentation of Financial Statements*.

- *U.S. GAAP* currently the FASB is the primary body responsible for issuing U.S.' GAAP in the form of statements of financial accounting standards, FASB Interpretations (FIN), Staff Positions (FSP), AICPA statements of positions and interpretations, accounting research bulletins, and others.

Research by Street et al. (2000) found that the impact of accounting differences between IASs and US GAAP is narrowing suggesting that the SEC should consider accepting IASB standards without condition. The exact content of IASs may not be the same as U.S. GAAP, but in many ways the approach and the degree of detail are similar. IAS and U.S. GAAP are more similar than dissimilar and the movement toward harmonization is bringing them closer and closer.

Among the recommendations to attain the goals of international accounting harmonization according to a study contacted by Ampofo and Sellani (2005) is as follows:

- There should be collaborations and common project based initiatives by the major institutional forces to advance the goals set for the IASB. A good example is the FASB and IASB projects.
- IAS should be multi-lingual standards (not just English). This should allow researchers from other languages such as German, Dutch, French, and Russian to join the forces of harmonization.
- IAS must be given legal backing through national parliaments, and/or global agreements through say the Organization for Economic Cooperation and Development (OECD).
- Global accounting education should place a greater emphasis on producing global accountants and increase their mobility across the world of business.
- The idea of internationalization should allow for some national differences although these differences should be transparent and easily reconciled.
- The political economy perspective should be considered in the formation of standards as accounting reflects both social and transactional relationships. In this way, accounting standards may provide a means to overcome social and economic inequities.

For the framework of this study which considers banks it is important saying that:

1. *The European Union has already passed a law for publicly traded companies in member states to publish their financial statements using International Financial Reporting standards (IFRs) since January 2005.*
2. The establishment of the Public Company Accounting Oversight Board (PCAOB) proposed by the Sarbanes Oxley Act (2002) in the U.S. and its strategic accounting alliances with the U.S. Financial Accounting Standards Board and the International Accounting Standards Board toward convergence

of accounting standards, has given more teeth to the reality of harmonization and internationalization of accounting standards in the next decade.

For the banking industry the most common financial ratios arising from bank's financial statements, are:

1. *Size of firm-bank*. Total assets of the bank and sometimes the total amount of the bearing assets of a bank.
2. *Financial accounting variables of the bank*. Equity to total assets, Loan-loss reserves to total assets, Loans past-due 90 days to total assets, Nonaccrual loans to total assets, Loan-loss provisions to total assets, Charge-offs to total asset, Annual return-on-assets, Annual return-on-equity, Liquid assets to total assets, deposits to total assets, loan to deposits, spread or margin.

As a separate conclusion for this component, CFR is that the exact content of IASs may not be the same as U.S. GAAP, but in many ways the approach and degree of detail are similar. IAS and U.S. GAAP are more similar than dissimilar and the movement toward harmonization is bringing them closer and closer.

4   Risk Management Procedures (RMP)

The present section is based on studies contacted by Lastra (2004), Garside and Bech (2003), Bruggink and Buck (2002), Wilson (2004), Koutoupis and Tsamis (2009), and in the comment of Jaime Caruana, Governor of the Banco de Espania (2003).

The banking industry is a highly-regulated business for the following reasons:

- The monetary nature of bank liabilities
- The role of banks as payment intermediaries and providers of credit to the economy
- The information deficiencies that surround the business of banking as historical cost accounting, bank secrecy and confidentiality.

The structure of the bank's balance sheet is characterized by three features:

- Low cash to assets-fractional reserve banking
- Low capital to assets-high leverage
- Maturity mismatches, a combination of short-term liquid liabilities able to withdraw on demand on a first-come-first served basis and longer-term highly illiquid assets.

These three features which define the banking business are also the source of financial fragility and the cause of regulatory concern. Capital regulation has become the principal regulatory response to deal with the problems of the bank's balance sheet structure. The capital requirements is the widely spread regulatory tool but no panacea. According to the CAMEL procedure, which is used for supervisory purposes in the U.S., there are five crucial elements:

C: Capital
A: Asset quality
M: Management
E: Earnings
L: Liquidity

All these elements are also important that bank managers and their regulators need to take into account in order to preserve safe and sound banking. In recent years Risk-based capital requirements have become the only true internationally accepted standards of bank soundness. Capital adequacy is not only a core part of modern banking regulation. It has become one to which they devote an increasing amount of time and effort:

- Capital provides a fund against which to charge unexpected or temporary losses.
- Capital is considered by competitors, customers and rating agencies as a proxy for soundness. It has become an indication of shareholders' value.
- Capital is costly. Pressures to increase or maintain return on equity and profitability are always an important consideration for bank managers. More capital means less return on equity for banks. Leverage has an important competitive effect. More highly-leveraged institutions can charge lower prices through less of a required spread and earn the same return on capital as less highly-leveraged institutions. The right capital level is a fundamental strategic decision. Excess capital would not be good either, since there is a danger that capital would be under-utilized.
- 'Regulatory incentives' are provided to well-capitalized banks. There is a trend to link the intensity of supervision to the level of capitalization, with better capitalized banks receiving less attention and undercapitalized banks subject to increased supervision and the possibility of 'Structured Early Intervention and Resolution' (SEIR). These proposals known as Prompt Corrective Action (PCA) rules have become law in the U.S., through the enactment of the Federal Deposit Insurance Corporation Improvement Act (FDICIA) in 1991 and are likely to be implemented in Europe in the near future. It is important to point out that the academic debate in the U.S., has linked capital adequacy and deposit insurance, capital acts as a buffer for the insurance fund and reduces moral hazard incentives. This linkage, however, is not as strong in Europe, where banks typically enjoy 'minimalist' deposit insurance.
- Capital adequacy mirrors market and institutional developments. Increased risk sensitivity, use of internal models, reliance on market discipline is among some of the recent trends in finance which have influenced capital rules.

Basel I can be traced back to the aftermath of the debt crisis following Mexico's suspension of payments in 1982. In its 1988 Accord, the Basel Committee chose a capital to asset ratio, instead of a debt to equity ratio as a way of measuring capital. It also chose a risk-based capital ratio, taking into account credit risk, rather than a simple leverage ratio. The Accord, however has not considered other risks, such as market risk, interest rate risk, operational risk and liquidity risk. Basel I has been

amended five times the last amendment issued in January 1996 and it is published as 'Amendment to the Capital Accord to Incorporate Market Risks'.

Basel I is a ratio of capital to risk-weighted assets.

1. Capital, the numerator of the Basel formula is divided into:

    (a) Tier 1, equity capital plus disclosed reserves minus goodwill. Tier 1 capital ought to constitute at least 50 % of the total capital base.
    (b) Tier 2, asset revaluation reserves, undisclosed reserves, general loan loss reserves, hybrid capital instrument and subordinated term debt. Subordinated debt, with a minimum fixed term to maturity of 5 years, available in the event of liquidation but not available to participate in the losses of a bank which continues trading is limited to a maximum of 50 % of Tier 1.

2. Risk-adjusted assets plus off-balance sheet items adjusted to risk. There are five credit risk weights: 0 %, 10 %, 20 %, 50 % and 100 % and equivalent credit conversion factors for off-balance sheet items. Some of the risk weights are rather 'arbitrary', 0 % for Organization for Economic Cooperation and Development (OECD) government or central bank claims, 20 % for OECD interbank claims, 50 % for residential mortgages, 100 % for all commercial and consumer loans.
3. A ratio 8 % of capital (Tier 1 plus Tier 2) to risk adjusted assets plus off-balance sheet items began a regulation restriction for the Banking Industry following the median in existing good practice at the time (US/UK 1986 Accord).

In June 1999, the Basel Committee on Banking Supervision issued a proposal for a new capital adequacy accord, a first consultative paper. A second consultative paper providing detailed proposals was issued in January 2001 and a third and 'final' consultative paper was issued in April 2003. On 11th May, 2004, the Basel Committee announced that consensus had been reached on the New Basel Capital Accord – commonly referred to as Basel II – and that it expects to publish the text of the new framework at the end of June, with a view to implement the standardized and foundation approaches by 2006 and the advanced approach by the end of 2007. The Basel II 'package' comprises by three parts. Detailed proposals and supporting documents providing information and technical details. The proposals are very extensive, prescriptive and complex. The new Accord is to encourage the use of internal systems for measuring risks and allocating capital.

The new Accord also wishes to align regulatory capital more closely with economic capital. Banks may hold significant amounts of economic capital for a variety of strategic and reputational reasons, such as to finance mergers and acquisitions or future business expansions, or to satisfy rating agencies prior to expanding into other markets and to allow flexibility in decision making.

The new capital framework, Basel II, consists of three pillars:

Pillar I – Minimum capital requirements, sets minimum acceptable Capital level to cover:

(a) Credit risk. Enhanced approach for credit risk as public ratings, internal ratings, mitigation.
(b) Market risk Market risk framework, capital definition/ratios are unchanged.
(c) Operational risk. Explicit treatment of Operational Risk.

Basel II provides three approaches, of increasing sophistication, to calculate credit risk-based capital:

1. Standardized approach, which relies on external ratings. The standardized approach refines the risk categories of the Basel I formula. For instance, risk weights for corporate credits, 100 % under Basel I will range from 20 % to 150 % depending on their external rating. Sovereign debt risk weights will no longer be dependent upon whether a country is a member or not of the OECD, but rather on the external rating identified for the country.
2. Foundation, internal ratings-based approach, which allows banks to calculate their credit risk based capital on the basis of their internal assessment of the probability that the counterparty will default.
3. Advanced and most sophisticated approach, internal ratings-based (IRB) approach which allows banks to use their own internal assessment not only of the probability of default, but also the percentage loss suffered if the counterparty defaults and the quantification of the exposure to the counterparty.

The internal ratings-based approach, both foundation and advanced extends the use of internal models that was adopted in 1996 with regard to market risk to credit risk. The Committee sets out the criteria that institutions need to meet to be eligible to use the IRB approach and specifies the elements that ought to be taken into account in the models. There are four key inputs that are needed under the IRB approach, both foundation and advanced:

1. PD: Probability of Default of a borrower
2. LGD: Loss Given Default, the estimate of loss severity
3. EAD: Exposure At Default, the amount at risk in the event of default
4. M: The facility's remaining Maturity.

Pillar II – Supervisory review process of capital adequacy in order to ensure banks to have good monitoring and management of the risk processes. Pillar II deals with supervisory review, given that not even complex rules can capture the risk profile and business strategy that determine the soundness of a particular banking institution. The inclusion of Pillar II is that a capital charge does not address the most important element of a bank's balance sheet as the quality of the asset portfolio. The problem with Pillar II is that it will probably lead to a differential implementation across countries. Also, while in some countries there is a fluid dialogue between supervisors and bank managers, in other countries such a communication is less fluid.

Pillar III – Market discipline and disclosure. Requirements that allow capital adequacy to be compared across institutions Pillar III focuses on market discipline via disclosure. Market discipline can also, however, be fostered via other

mechanisms. Calomiris and other members of the U.S., Shadow Financial Regulatory Committee has advocated supplementing the Basel capital standards with an additional subordinated debt requirement to promote greater market discipline. This is because subordinated debt holders have an incentive to monitor the risks incurred by a bank, since they have a fixed income claim and are not entitled to share in upside gains by the bank in contrary to equity holders.

European Commission has proposed a new capital directive, known as CAD III, whose contents are expected to be aligned with Basel II. There are, however, two fundamental differences between Basel and Brussels:

- Differential impact: 'Hard law' versus 'soft law'. The Basel proposals are 'soft law'. EC law is hard law and imposes a legal obligation on member states to modify their national legal systems. The Community timetables are important considerations for all EC countries. Thus, while a country may be reasonably relaxed with the Basel rules, regulatory convergence becomes a matter of critical importance at the EC level. Enforcement is the key element to distinguish between 'hard law' and 'soft law'. The work of the Basel Committee reflects a trend in banking and finance to develop international financial standards or codes of good practice.

- Scope of application: EC capital rules are designed to apply to credit institutions and investment firms, while the Basel rules target internationally active banks on a consolidated basis. The current EU rules on capital adequacy are the Own Funds and Solvency Ratio Directives, now incorporated into the Consolidated Banking Directive, CAD I and CAD II. In 1993, market risk was introduced in the first Capital Adequacy Directive (CAD I) but was later amended in 1998 (CAD II) to allow for the use of VAR models, which had been proposed in the Basel rules for market risk, the 1996 Amendment to the Basel Accord. This is an interesting example of what happens when the process in Basel and in Brussels do not go in parallel. Given the informal role of the Basel Committee as international bank regulator, any new EC Directive on capital needs to be aligned with the Basel proposals. Therefore, in terms of timetable for CAD III there will be no new Directive until Basel II is adopted. However there is a strong probability, in the light of the U.S., Congressional and regulatory debate on the subject that Basel II will be delayed again. Another issue to be considered in the EU is the possible adoption of the Lamfalussy process for CAD III so as to speed up the time it takes for the legislative proposal to be agreed. According to this so-called Lamfalussy process, framework principles are adopted via Directives while technical rules are adopted by Committee/Committees.

The appropriate indexes for RMP could be summarized from the above analysis at the following indexes:

1. Economic Capital to total assets
2. Regulatory Capital to total assets
3. Regulatory Capital to total Risk Weighted Assets
4. Risk Adjusted Return On Capital (RORAC) which is the Return On Capital index

5. Furthermore, consistent risk-adjusted performance measures based on RAROC or value added targets may subsequently play a role in the compensation process.

   As a separate conclusion for this component, RMP, is that the Basel I and II as well as CAD I, II and III are attempts to finalize a framework of regulation and supervision for the global banking system to be used as a managerial tool of risk for the Banking Industry.

5   Corporate Governance

Corporate governance is defined by the Public Oversight Board (POB 1993) as "those oversight activities undertaken by the board of directors and audit committees to ensure the integrity of the financial reporting process". One of the most important functions of corporate governance is to ensure the quality of the financial reporting process. The issue of corporate governance has become more important due to the highly publicized financial reporting frauds at Enron.

According to the works of Jiang et al. (2008) and Thalassinos et al. (2006) academic research has found an association between poor corporate governance and greater earnings management, implying lower quality. Prior studies have also found an association between poor corporate governance and weaker financial controls and higher levels of financial statement fraud (Ashbaugh-Skaife et al. 2006).

Overall, empirical research has documented a direct link between governance mechanisms and the reliability of financial reporting. The quality of corporate governance is represented by the level of a Gov-Index. These Indexes incorporates answers for the following questions which are referred to several governance positions of a Bank. These measures are:

Audit comprises measures such as:

- Does the audit committee consist solely of independent outside directors?
- Were auditors' ratified at the most recent annual general meeting?
- Are consulting fees paid to auditors less than audit fees?
- Does company have a formal policy on auditor rotation?

  Board of directors comprises measures among others includes:

- The size of the board
- Is the CEO and chairman the same or are duties separated?
- Is shareholders' approval required to change the board size?
- Is the board controlled by more than 50 % outside directors?
- Is the compensation committee comprised solely of independent outside directors?

  Charter/by laws comprise measures, among others includes:

- Is a simple or supermajority vote required to approve a merger?
- Are shareholders allowed to call special meetings?

- Can board amend bylaws without shareholder approval?

  Director education:

- Has at least one member of the board participated in an ISS accredited director education program?

  Executive and director compensation among others includes:

- Were stock incentive plans adopted with shareholder approval?
- Is option re-pricing prohibited?
- Do directors receive all or a portion of their compensation in stock?

  Ownership among others includes:

- Do directors with more than 1 year of service own stock?
- Are executives/directors subject to stock ownership guidelines?
- Extent of officers' and directors' ownership of stock (over 30 %)?

  Progressive practices among others include:

- Does mandatory retirement age for directors exist?
- Is performance on board reviewed regularly?
- Is a board-approved CEO succession in place?
- Do director term limits exist?

  State of incorporation among others includes:

- Is company incorporated in a state without any anti-takeover provisions?

Each of 51 factors is coded 1 if the firm's governance is considered to be minimally acceptable or 0 otherwise. Gov-Score is computed as the sum of the firm's binary variables as stated in the work by Jiang et al. (2008). Thus, higher values indicate stronger corporate governance. The proposed model uses Gov-Score over alternative measures of governance such as G-index (Gompers et al. 2003) or entrenchment index (Bebchuk et al. 2005) because Gov-Score is broader in scope with respect to measuring governance, covers more firms, is more dynamic and is more reflective of recent changes in the corporate governance environment.

The appropriate indexes for CG could be summarized from the above analysis at the following indexes:

- Experience of the management indexes
- Experience of internal audit indexes
- Historical indexes for anti- fraud policies
- Total quality indexes for corporate governance
- Gov-Score, G-index.

As a separate conclusion for this component, CG, is the quality of management that could be represented by indexes which are highly correlated with profitability in the banking industry.

6 Corporate Social Responsibility (CSR) and Sustainable Development (SD)

Corporate social responsibility (CSR) is a multi-faceted concept with many definitions and varied practice (D'Amato and Roome 2009; Prado et al. 2009; Markus 2008).

- First, CR in terms of the philanthropic activities for the community and public affairs. These activities can take place with no substantive impact on the core activities, technologies or business model of the company.
- Secondly, CR constitutes a set of practices developed in direct response to demands placed on society and the activities of the company by dynamic forces in the economy, society and environment. Probably the most strategic form of CR arises when companies set out to reorient the ways they create value because of the demands for less environmentally or socially damaging activities or more sustainable approaches to development.
- Thirdly, Sustainable Development (SD) is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are made consistent with future as well as present needs. SD is viewed as a societal project involving a lot of factors in the society as well as in the economy in the process of change (Christofakis et al. 2009).
- Finally, CR can be regarded as the set of ideas and practices by which business contributes to the societal project termed sustainable development. In this way CR involves a company in the co-creation of organizational and social change along with other actors.

According to the work of Aries Widiarto Sutantoputra (2009), CSR is represented in the financial statements with social disclosures and a budget from corporate or banking expenditure for any actions affecting the society, the community and the environment. Nowadays CSR is used by organizations to gain a competitive advantage because it portrays the company as behaving contrary to the common practices of business which tend to raid natural resources and exploit the societies, i.e. treating them as "externalities".

In line with the voluntary disclosure theory we have:

- An environmental disclosure rating based on a comprehensive CSR reporting framework, Global Reporting Initiatives (GRI) 2002 Guidelines, was developed by Clarkson et al. (2006) in which they argued that firms with good environmental performance would be more forthcoming with their identity as "Green Companies", thus, they would disclose information that were hard to be imitated by the bad environmental performers. The GRI 2002 Guidelines has shown its global acceptance as a standard for reporting CSR practices given the fact that it helps companies to decide on what to report and how to report the CSR information.
- Another leading standard for CSR reporting, AA1000, focuses on the process of reporting on how businesses must link the principles of accountability and

sustainability. It can be used to design a proper reporting mechanism since firms are guided to identify their goals and target, to monitor progress against targets, to audit and report the performance (Gobbels and Jonker 2003). However, firms may develop a vast range of goals/targets by themselves that lead to a vast range of measures of CSR practices which, in many cases, have caused the measurement and comparison of CSR practices across companies difficult if not impossible. Firms that are using AA1000 have the freedom to decide on issues that they want to include (Gobbels and Jonker 2003).

- The European Commission (2004) has issued CSR guidelines – ABC of the Main Instruments of Corporate Social Responsibility, European Communities, Luxembourg.

The social disclosure rating based on GRI 2002 Guidelines covers a wide range of firms' social impacts measures (Isaksson and Steimle 2009) and it can accommodate the users of firms' CSR reports to assess firms' social performance.

- *Hard disclosure items (max score is 67), Map to GRI.*

  - (A1) Governance structure and management systems (max score is 6).

    1. Existence of a department or management positions for addressing firm's social impacts (0–1) 3.1
    2. Existence of a social and/or a public issues committee in the board (0–1) 3.1, 3.6
    3. Existence of terms and conditions applicable to employees and customers regarding firms' social practices (0–1)
    4. Stakeholder involvement in setting corporate social policies (0–1) 1.1, 3.10
    5. Implementation of ILO standards and UN declaration of human rights (0–1) 3.14, 3.20
    6. Executive compensation is linked to social performance (0–1) 3.5

  - (A2) Credibility (max score is 10).

    1. Firm acknowledges the use of GRI sustainability reporting guidelines (0–1) 3.14
    2. Independent verification/assurance about social information disclosed in the sustainability report (0–1)
    3. Periodic independent verifications/audits on social performance and/or systems (0–1) 3.19, 2.20,21
    4. Certification of social (labour) programs by independent agencies (0–1) 3.2
    5. Product certification with respect to product safety (0–1) 3.16
    6. External labour performance awards (0–1)
    7. Stakeholder involvement in the Social disclosure process (0–1) 1.1, 3.10
    8. Participation in voluntary social initiatives endorsed by ILO or Department of Employment and Industrial Relations in respective country (0–1) 3.15
    9. Participation in industry specific associations/initiatives to improve labour management practices (0–1) 3.15

    10. Participation in other labour organizations/assoc. to improve labour practices (if not awarded under 8 or 9 above) (0–1) 3.15

– (A3) Social Performance Indicators (SPI) (max score is 48) a Labour practices and decent work.

    1. SPI on employment information (type, numbers of employees by region/country, employment creation and average turnover) (0–3) LA 1, 2
    2. SPI on labour/management relations (the presence of independent trade unions and companies' policies and procedures) (0–3) LA 3, 4
    3. SPI on health and safety (policies on occupational accidents and diseases, standard injury, lost day, and absentee rates and number of work-related fatalities) (0–3) LA 5, 6, 7, 8
    4. SPI on training and education (Average hours per year per employee by category of employee) (0–3) LA 9
    5. SPI on diversity and opportunity (description of equal opportunity policies, monitoring systems) (0–3) LA 10, 11
    6. Human rights SPI on strategy and management (description of firms policies related to the universal declaration and the fundamental human rights conventions of (ILO) (0–3) HR 1, 2, 3.)
    7. SPI on non-discrimination (policies/program/procedures preventing all forms of discriminations in firms' operations) (0–3) HR 4
    8. SPI on freedom of association and collective bargaining (firms' policies on acknowledging freedom of association and collective bargaining) (0–3) HR 5
    9. SPI on child labour (policies to exclude the use of child labour directly from firms' internal operations and indirectly from firms' suppliers) (0–3) HR 6
    10. SPI on forced and compulsory labour (policies addressing forced and compulsory labour) (0–3) HR 7
    11. Society SPI on community (policies to manage impacts on community in areas affected by firms' operations) (0–3) SO 1
    12. SPI on bribery and corruption (policies and mechanism for organization and employees in addressing bribery and corruptions) (0–3) SO 2
    13. SPI on political contributions (policies, management system and compliance mechanism for managing political lobbying and contributions) (0–3) SO 3
    14. Product responsibility SPI on customer health and safety (policy protecting customer health and safety during the use of firms' product and services) (0–3) PR1
    15. SPI on products and services (policy, management systems and compliance mechanism for product information and labeling) (0–3) PR2
    16. Compliance mechanism for consumer privacy (0–3) PR3

– (A4) Social spending (max score is 3).

    1. Summary of dollar savings arising from social initiatives to the company (0–1)

    2. Amount spent on community, political contributions to enhance social performance (0–1) SO 1, 3

    3. Amount spent on fines related to social litigation/issues (0–1) SO 2, PR 1, HR 4, 5, 6, 7

- *Soft disclosure items (max score is 16).*

  - (A5) Vision and strategy claims (max score is 6).

    1. CEO statement on social performance in letter to shareholders and/or stakeholders (0–1)
    2. A statement of corporate social policy, values and principles, codes of conduct (0–1) 1.1, 1.2, 3.7
    3. A statement about formal management systems regarding social risk and performance (0–1) 3.19
    4. A statement that the firm undertakes periodic reviews and evaluations of its social performance (0–1) 3.19
    5. A statement of measurable goals in terms of future social performance (0–1) 1.1
    6. A statement about specific social innovations and improvements (0–1) 1.1

  - (A6) Social profile (max score is 4).

    1. A statement about the firm's compliance (or lack thereof) with specific social standards (0–1) 1.2
    2. An overview of social impact of the industry (0–1) 1.2
    3. An overview of how the business operations and/or products and services impact the society, employees and customers. (0–1) 1.2, 3.17
    4. An overview of corporate social performance relative to industry peers (0–1) 1.2

  - (A7) Social initiatives (max score is 6).

    1. A substantive description of employee training in social management and operations (0–1) 3.19
    2. Existence of response plans in case of social incidents (0–1)
    3. Internal social (labour, employees and customers) awards (0–1)
    4. Internal social (labour, employees and customers) audits (0–1) 3.20
    5. Internal certification of employees programs (0–1) 3.19
    6. Community involvement and/or donations related to society (0–1).

Especially for the part of environmental corporation policies, which nowadays have major significance, there are the following councils that examines which are the suitable corporate policies for the environment.

1. CEP, Council on Economic Priorities Corporate Environmental Data Clearing House Reports
2. EPA, Environmental Protection Agency Online Databases
3. FEC, Federal Election Commission

4. IRRC, Investor Responsibility Research Center Corporate Environmental Pro®les.

The appropriate indexes for CSR and SD could be summarized from the above analysis at the following indexes:

- Indexes arising from corporate disclosures in Annual Reports
- Social rating indexes according to RDI as the index which mentioned above
- Social rating indexes according to AA1000
- Other indexes.

As a separate conclusion for this component, CSR and SD, are the activities *of the company that implies in the economy, the society and the environment while the social responsibility and the actions for sustainable development of a company depends on the corporate management.*

7 Stockholders' Value Creation (SVC)

In general Value Based Management models is a range of calculative techniques such as EVA, CVA, Cash Flow Return on Investment (CFRI), Liapis (2010), Total Business Return and Economic Value Management, which purport to enable decisions in companies to influence shareholders value, Thalassinos and Curtis (2005). These methods are advanced by major management consultancy firms, practitioners and academics. An application of VBM method, would create shareholders value, identify the value drivers, connect performance measurement, target setting and rewards to value creation or value drivers, connect decision making and action planning, both strategic and operational to value creation or value drivers while everyone expects all these features to appear in organizations claiming to use VBM. The most famous VBM system is the EVA® method created by Stewart (1991).

The accounting and finance sciences have created a large range of methods and models for performance measurement. Generally these models could be classified into three sets. The first set is based on income with representative ratios P/E (price per earnings), EPS (earning per share), and ROE (return on equity). The second set is based on discounted cash flows which are called and DCF methods with representative methods NPV (net present value), IRR (internal rate of return) and ARR (accounting rate of return). The third set is based on value added with famous models EVA, CVA, RI, and FCF.

The Residual Income Models (RIM) seems to be the most suitable model for this study. Especially for the banks the most famous profitability ratio is the Return on Risk Average Capital (RORAC) or from an equivalent way the Return on risk weighted assets of the bank which is applied in residual income models for banks. The residual income model according to the residual method is equivalent with historical profitability metric which is defined as the movements of equity accounts arising from operational activities.

- Residual Income = Equity Closing balance − Equity Opening balance ± Share capital increase, decrease or
- *Residual Income (RI) = Retain Earnings ± increases, decreases equity reserves.*

The appropriate indexes which are proposed for SVC interpretation based on the analysis above are:

- Residual Income Indexes – Income model – Historical Movements of equity capital
- Residual Income Indexes – Spread model
- EVA
- RI or EVA using RORAC
- Other indexes.

As a separate conclusion for the SVC component, besides the fact that SVC retains main instruments for corporate management with a traditional way, nowadays the indexes of SVC could be transposed with elements to manage totally risk and total performance of a Bank.

8 The Global Rating System and the Rating Agents

The financial health of a bank is represented by rating agencies in several financial strength levels. One practical issue is how to choose between the various ratings assigned to the same counterparty by different rating agencies. Table 2 represents rating degrees of each of the rating agencies with a common score index per level with the necessary definitions and grade positions.

In general according to the rating agencies definitions the above levels represents the financial health for the banking industry:

1. Banks with exceptional financial strength. Typically, they will be major institutions with highly valuable and defensible business franchises, strong financial fundamentals, and a very attractive and stable operating environment.
2. Intermediate rating level.
3. Banks with strong intrinsic financial strength. Typically, they will be important institutions with valuable and defensible business franchises, good financial fundamentals, and an attractive and stable operating environment.
4. Intermediate rating level.
5. Banks with good financial strength. Typically, they will be institutions with valuable and defensible business franchises. These banks will demonstrate either acceptable financial fundamentals within a stable operating environment or better than average financial fundamentals with an unstable operating environment.
6. Intermediate rating level.
7. Banks that possess adequate financial strength, but may be limited by one or more of the following factors. A vulnerable or developing business franchise, weak financial fundamentals, or an unstable operating environment.

Table 2 Rating agencies – rating rank, grade and definitions

Index-score – rank	Moody's	Long term ratings – definitions	S&P's – FITCH	Long term ratings – definitions	Grade
1	Aaa	Exceptional credit quality	AAA	Highest credit quality	Investment grade
2	Aa1	Excellent credit quality	AA+	High credit quality. Very strong capacity to meet financial commitments	
3	Aa2		AA		
4	Aa3		AA−		
5	A1	Good credit quality	A+	Good credit quality. Strong capacity to meet financial commitments	
6	A2		A		
7	A3		A−		
8	Baa1	Adequate credit quality	BBB+	Weakened capacity to meet financial commitments	
9	Baa2		BBB		
10	Baa3		BBB−		
11	Ba1	Questionable credit quality	BB+	Inadequate capacity to meet financial commitments	Non-investment grade or
12	Ba2		BB		Speculative grade
13	Ba3		BB−		
14	B1	Generally poor credit quality	B+	Limited capacity to meet financial commitments	
15	B2		B		
16	B3		B−		
17	Caa1	Extremely poor credit quality	CCC+	Vulnerability to nonpayment	
18	Caa2		CCC−		
19	Caa3		CC	High vulnerability to nonpayment	
20	Ca	In default	C	Bankruptcy or similar action	
21	C	In default, low recovery value	SD/D	Debt in selective default/default	

8. Intermediate rating level
9. Banks with very weak intrinsic financial strength, requiring periodic outside support or suggesting an eventual need for outside assistance. Such institutions may be limited by one or more of the following factors. A business franchise of questionable value, financial fundamentals that are seriously deficient in one or more respects or a highly unstable operating environment.
10. Intermediate rating level

Levels below 10 represent junk situations or non – investments or speculative areas. On the other hand the credit ratings of Moody's, Standard and Poor's, and Fitch play a key role in pricing of credit risk and in the delineation of investment strategies. *The future role of these rating agencies seems to be further expanded with and after implementation of Basle II but nowadays there is, especially from the side of Europe, a critical position against these agencies for non transparency in methodologies that they use (nobody knows the rating method) and for not consistent rating which they give before and after a financial crisis.*

This problematic situation easily arises in case of Greece. Table 3 represents the timeline of rating levels for the four biggest Greek banks. Table 4 presents the timeline of rating levels for the Greek economy as a whole per rating agency before and after the financial and the Government debt crisis. The correlation between the levels of Greek Bank's ratings and the country's rating is obvious.

9 Macroeconomic Environment, Monetary Environment and the Rating System

The banking industry is strongly affected and strongly affects the external economic environment. Generally, the main characteristics of the banking industry are:

1. Banks have dominant position in the economic financial system of a country and they are the most important engines of economic growth.
2. Banks are typically the most important source of finance for the firms in a country and with this way affect the macroeconomic figures.
3. Banks are usually the main depository for the economy's savings.
4. Economies have recently liberalized their banking systems through privatization/disinvestments and reducing the role of economic regulation.

According to the work of Goddard et al. (2007) in recent years and in most countries, monetary policy has replaced fiscal policy as the principal tool of macroeconomic policy for the stabilization of output and inflation. However, precise identification of the ways in which monetary policy influences the economy has proven to be a difficult task. The monetary policy operates on the 'external finance premium', the difference between the cost of raising finance externally through equity or debt, or internally through retained profits. This premium exists due to information asymmetries in credit markets, giving rise to adverse selection and moral hazard effects raising evaluation and monitoring costs for lenders. A tightening of monetary policy raises the external finance premium and may affect bank lending through either a demand-side (balance sheet channel) or a supply-side (bank lending channel) effect. On the demand side, borrowers' interest expenses are increased and the value of their collateral is reduced, making external finance more costly. On the supply side, as liquidity is drained from the banking system through open market operations by the central bank, banks are forced to reduce their lending because they are starved of funds.

Table 3 Biggest Greek banks' ratings

	Moody's		S&P's		FITCH
NBG		**NBG**		**NBG**	
15 June '10	από Baa2 (on review)/P − 2 σε Ba1 (Stable)/NP	–	–	–	–
30 Apr. '10	Downgraded to Baa2 (on review) from A3 (on review)	27 April '10	Downgraded by three notches from BBB + (Neg.)/A − 2 to BB+ (Neg.)/B	9 Apr. '10	Downgrade to BBB− (Rating Watch Negative) from BBB(Neg.)
23 Apr. '10:	Downgraded to A3 (on review) from A2 (Neg.)	16 Mar.'10	Removes Credit Watch Negative – Affirms Negative Outlook	23 Feb. '10	BBB (Neg.)
31 Mar. '10:	Downgraded to A2 (Neg.) from A1 (Neg.)	Dec. '09	Credit Watch Negative	Dec. '09	BBB+ (St.), following downgrade of Greek Sovereign Rating
3 Mar. '10	On review for possible downgrade	May '09	BBB+ (Negative)	March '09	A− (Negative)
Dec. '09	A1 (Negative)	Dec. '08	BBB+ (Stable)		
Dec.'08	Aa3 (Negative)				
June '03	A2 (Stable)				
ALPHA		**ALPHA**		**ALPHA**	
15 June '10	από Baa3 (on review)/P − 3 σε Ba1 (Stable)/NP	–	–	–	–
30 Apr. '10	Downgraded to Baa3 (on review) from A3 (on review)	27 April '10	Downgraded by three notches from BBB (Neg.)/A − 2 to BB (Neg.)/B	9 Apr. '10	Downgrade to BBB− (Rating Watch Negative) from BBB (Neg.)
23 Apr. '10:	On review for possible downgrade	16 Mar.'10	Removes Credit Watch Negative – Affirms Negative Outlook	23 Feb. '10	BBB (Neg.)
31 Mar. '10:	Downgraded to A3 (Neg.) from A2 (Neg.)	Dec. '09	Downgrade to BBB with Credit Watch Negative	Dec. '09	BBB+ (Negative), following down-grade of Greek Sovereign Rating
3 Mar. '10	On review for possible downgrade	May '09	BBB+ (Negative)	March '09	A− (Negative)
Feb. '09	A2 (Negative)	Dec. '08	BBB+ (Stable)		
Dec.'08	A1 (Negative)				
April '07	A1 (Stable)				

EFG EUROBANK

15 June '10	από Baa3 (on review)/P – 3 σε Ba1 (Stable)/NP
30 Apr. '10	Downgraded to Baa3(on review) from A3 (on review)
23 Apr. '10:	On review for possible downgrade
31 Mar. '10	Downgraded to A3 (Neg.) from A2 (Neg.)
3 Mar. '10	On review for possible downgrade
Feb. '09	A1 (Negative)

PIRAEUS BANK

15 June '10	από Ba1 (on review)/NP σε Ba1 (Negative)/NP
30 Apr. '10	Downgrade to Ba1 (on review)/ST: NP/SenD: Ba1/SubD: Ba2
23 Apr. '10	Baa1 on review for possible downgrade
31 Mar. '10	Baa1 (Neg.) from A2 (Neg.)/ST: P – 2/SenD:Baa1/SubD: Baa2
3 Mar. '10:	On Review for possible downgrade
Jan. '10	LT: A2/ST: P – 1/Senior debt: A2/Sub Debt: A3
Feb '09	A2 (Negative)
Dec.'08	A1 (Negative)
April '07	A1 (Stable)
June '04	Baa1 (Stable)

EFG EUROBANK

–	–
27 April '10	Downgraded by three notches from BBB (Neg.)/A – 2 to BB (Neg.)/B
16 Mar. '10	Removes Credit Watch Negative – Affirms Negative Outlook
Dec.'09	Downgrade to BBB with Credit Watch Negative
May '09	BBB+ (Negative)
Dec. '08	A– (Negative)

PIRAEUS BANK

–	–
27 Apr. '10	Downgraded by three notches from BBB (Neg.)/A – 2 to BB (Neg.)/B
16 Mar. '10	Removal of CW Negative – Ratings Affirmation – Negative Outlook
Dec. '09	LT: BBB/ST:A – 2/Senior debt: BBB/ Sub Debt: BBB – (CW-Neg.)
May '09	BBB (Stable)
Dec. '08	BBB+ (Negative)
Oct. '08	BBB+ (Stable)
Feb '08	BBB+ (Positive)
Oct. '06	BBB+ (Stable)

EFG EUROBANK

–	–
9 Apr. '10	Downgrade to BBB – (Rating Watch Negative) from BBB (Neg.)
23 Feb. '10	BBB (Neg.)
Dec '09	BBB+ (Negative), following downgrade of Greek Sovereign Rating
March '09	A– (Negative)

PIRAEUS BANK

–	–
9 Apr. '10	LT: BBB– (RWN)/ST: F3 (RWN)/ Senior debt: BBB–/Sub Debt: BB+
23 Feb. '10	LT: BBB (Neg.)/ST: F3/Senior debt: BBB/Sub Debt: BBB–
Dec '09	BBB+ (Negative), following downgrade of Greek Sovereign Rating
March '09	A– (Negative)
July '07	A– (Positive)
Aug. '06	BBB+ (Positive)
Dec. '03	BBB+ (Stable)

Table 4 Greece rating

Moody's		S&P's		FITCH	
GREECE		**GREECE**		**GREECE**	
14 Jun '10	Ba1 Not Prime (Stable)	27 April '10	Downgraded by three notches from BBB + (Neg.) to BB + (Neg.)	9 Apr. '10	Downgrade to BBB– (Negative) from BBB + (Neg.)
22 Apr. '10:	Downgraded to A3 (on review) from A2 (Neg.)	16 Mar.'10	Removes Credit Watch Negative – Affirms Negative Outlook	19 Dec '09	BBB+ (Negative)
22 Dec. '09	Downgraded to A2 (Neg.)	Dec. '09 BBB +	(Credit Watch – Negative)	Dec '09	BBB+ (Negative)
Oct.'09	A1 (on review for downgrade)	Dec. '09	A– (Credit Watch – Negative)	Oct '09	A– (Negative)
Febr.'09	A1 (Stable)	Jan.'09	A– (Stable)	May '09	A (Negative)
Jan. '07	A1 (Positive)				

Although the importance of the supply-side (bank lending channel) effect may have diminished over time due to developments such as deregulation and financial innovation, which have reduced banks' dependence on deposits as a source of finance, quantification of the relative importance of the balance sheet channel and the bank lending channel is a difficult empirical task. So it is a direct measurement of the external finance premium. Even the progress of the general process of EU economic integration affects the individual sectors like the banking sector and also, the present spatial and economic inequalities between the member-states should not be ignored. The perfect spatial economic integration is the perfect incorporation into a dynamic development area (Papadaskalopoulos et al. 2005).

Following the literature Dinger and von Hagen (2009) the present study measures the size of the banking industry as:

1. The aggregate volume of bank assets in the country relative to gross domestic product (GDP).
2. The ratio of deposits to GDP, which measures the deposit-gathering function of banks.
3. The ratio of domestic bank credit to GDP, which measures the loan supply function of the banking sector.

The indicators for financial structure of a country which may have influence in bank's rating system generally are:

1. Equities as % of GDP.
2. Government bonds or Government Debt as % of GDP.
3. Private bonds as % of GDP.
4. Private bonds plus banking loans and credit allowances as % of GDP or Private Debt.
5. Bank assets as % of GDP.
6. Total (the sum of Equities, Government bonds, Privet bonds and Bank Assets) as % of GDP.
7. Rating of Country or Governance.
8. Financial and Capital Market indexes.

*As a separate conclusion for this component, macroeconomic environment and monetary environment remain as ma*in *means for* the rating of the Banking Industry. *This is because the banking industry influence directly the macroeconomic environment while at the same time is influenced by it.*

10 The Proposed Rating Framework for the Banking Industry

The proposed rating framework requests to take into account all the components which have been mentioned above, CFR, RMP, CSR&SD, SVA and, MACRO-ECONOMIC by using the appropriate ratios into a holistic model. Table 5 represents the structure of the model.

Table 5 The framework of transparency and responsibility as a framework for rating purposes in the banking industry
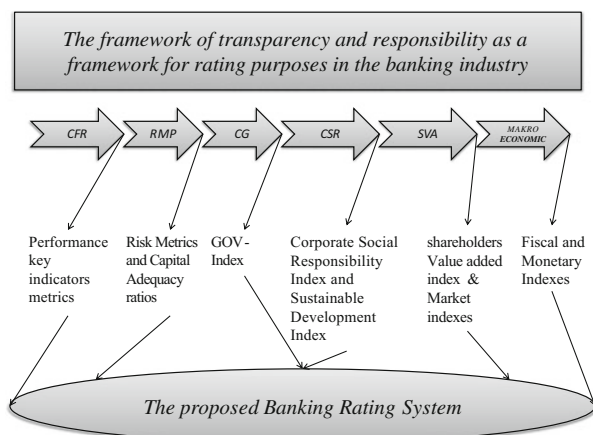
11 The Empirical Evidence

A model for measuring banks financial health have to fulfill the European Central Bank's (2006) Acceptance criteria for third-party rating tools within the Euro system, Credit Assessment Framework and the proposed banking rating system. The study constructs a model using all the above mentioned components using data from the Greek banking industry. In fact 11 biggest Greek banks for the period 2005–2009 have been used. Besides the fact that there are limitations regarding sufficient ratios and data for all factors as they are described above, such as CAD ratio, social rating indexes, CG indexes, alternative ratios are used in order to solve partially the problem.

The dependent variable which is used is:

$SCORE_{jt}$: rating of financial strength;

– Taking values from 1 (very good strength) to 21 (bad strength), according to Table 2.
– For $j = 1 \ldots m$: for $m = 11$ Greek Banks and
– For $t = 2005S1 \ldots 2009S2$ (semi-annual), 10 time series data per bank.
– The source of data is the demonstrated Rating Agencies Reports and in the case that different rating agencies give different rating level the proposed model takes the arithmetic mean.

Table 6 The model factors, variables, definitions, anticipated sign and sources

Factors independent variables	Ratio – factors description	Ratio and independent variables definitions	Anticipated sign per variable	Sources of using data
CFR – Leverage	Leverage - deposits to total assets	$\frac{Deposits}{Total\,Assets}$	(−)Negative relationship between score and ratio, has as impact stronger bank's financial strength	Published Banks Financial Statements
Variable LEV		Deposits = Sight, saving, time deposits or due to customers LEV = DEP/AS		Authors Calculations
CFR – Liquidity	Liquidity metric	$\frac{Liquid\,assets}{Total\,Assets}$	(−)Negative relationship between score and ratio, has as impact stronger bank's financial strength	Published Banks Financial Statements
Variable LM		Liquid assets = (Cash and balances with central banks + treasury bills and other eligible bills + loans and advances to credit institutions + trading securities + financial instruments at fair value through profit or loss + derivative assets)−(Due to credit institutions − derivative liabilities) LM = LIQ/AS		Authors Calculations
CFR – Published Banks Financial Statements	Profitability	Current profitability metric	$\frac{Profit\,after\,taxes}{Total\,Assets}$	
Variable CPMR	A time-lack at the annual data is more suitable for the estimation purposes CPMR = CPM/AS		Authors Calculations	(−)Negative relationship between score and ratio, has as impact stronger bank's financial strength

Table 6 (continued)

Factors independent variables	Ratio – factors description	Ratio and independent variables definitions	Anticipated sign per variable	Sources of using data
CFR – Size	Asset turnover metric	Natural logarithm of total assets of the bank	(−)Negative relationship between score and ratio, has as impact stronger bank's financial strength	Published Banks Financial Statements
Variable ASLN		$ASLN = Log(AS)$		Authors Calculations
CG	Historical CG-Index	Historical Indexes for anti-fraud policies and governance quality. Index that is calculated from corporate disclosure in bank annual report and take prices from a rage 1 high CG to 15 low CG	(+)Positive relationship between score and ratio, decreases bank's financial strength	Published Banks Ann. Report and Fin. St.
Variable CG				Authors Calculations
CSR & SD	Index CSR & SD	Index that is calculated from corporate disclosure in bank annual reports and take prices from a rage 1 high CSR & SD to 15 low CSR & SD	(+)Positive relationship between score and ratio, decreases bank's financial strength	Published Banks Ann. Report and Fin. St.
Variable CSR				Authors Calculations
Macro – Capital Markets	Capital Market index	The Athens stock exchange index (ASE)	(−)Negative relationship between score and ratio, has as impact stronger bank's financial strength	Athens Stock Exchange
Variable ASE				
Macro – CR	Country rating	Country rating of Greece	(+)Positive relationship between score and ratio, decreases bank's financial strength	Rating. Agencies Reports
Variable CR				Authors Collection and Calculation
Macro – GD	Government -debt	GDI = Government Debt GD/GDP	(+)Positive relationship between score and ratio, decreases bank's financial strength	Eurostat and Central Bank of Europe
Variable GDI		GDI = GD/GDP		
Macro –Financial Market	Total assets of the banking industry	Total assets of banking sector in Greece	(−)Negative relationship between score and ratio, has as impact stronger bank's financial strength	Central Bank of Greece
Variable TASLN		$TASLN = Log(AS)$		

RMP – CAD	Solvency metric	Capital adequacy ratio according to Central Bank Instructions	(−)Negative relationship between score and ratio, has as impact stronger bank's financial strength	Central Bank of Greece
Variable SM				Authors Calculation
SVA – Stock Value	Capital market variable	$\frac{BV}{P} = \frac{book\,Value}{Capital\,Market\,Value}$	(+)Positive relationship between score and ratio, decreases bank's financial strength	Published Banks Financial Statements
Variable BVP		BVP = EQ/CV		Athens Stock Exchange
SVA – Published Banks Financial Statements	profitability	Historical profitability metric	$\frac{Residual\,Income}{Total\,Assets}$	(+)Positive relationship between score and ratio, decreases bank's financial strength
Variable HPMR	Residual income = Equity closing balance – Equity opening balance ± Share capital increase / decrease HPMR = HPM/ AS	Historical profitability metric	Authors Calculations	

The independent variables are presented in Table 6.

Thus, the proposed model is represented by the following equation:

$$SCORE_{jt} = b_0 + b_1 LEV_{jt} + b_2 LM_{jt} + b_3 CPMR_{jt} + b_4 ASLN_{jt} + b_5 CG_{jt} + b_6 CSR_{jt}$$
$$+ b_7 ASE_t + b_8 CR_t + b_9 GDI_t + b_{10} TASLN_t + b_{11} SM_{jt} + b_{12} BVP_{jt}$$
$$+ b_{13} HPMR_{jt} + u_t$$

Where all variables as defined in the text and u the stochastic term.

Because of cross sectional data the most suitable estimation method is the Panel Least Squares. Also because of multicolinearity among the independent variables GDP has been selected as a proxy variable for ASE, CR, GDI and TASLN variables.
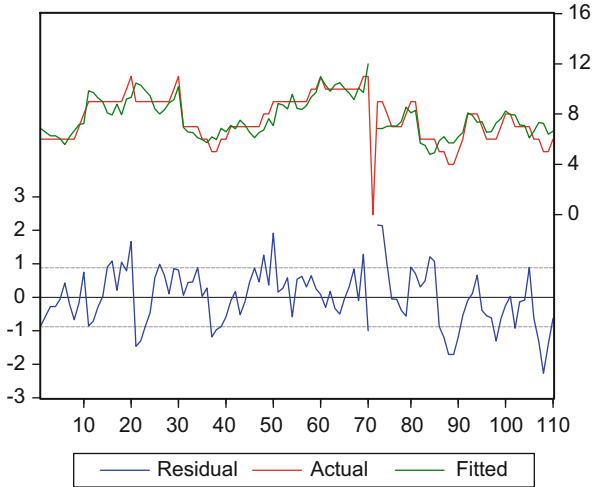
Dependent Variable: SCORE
Method: Panel Least Squares
Date: 06/27/10 Time: 18:22
Sample: 2005S1 2009S2
Cross-sections included: 11
Total panel (unbalanced) observations: 109

Variable	Coefficient	Std. error	t-statistic	Prob.
C	25.03542	2.631235	9.514701	0.0000
LEV	−2.436842	0.862338	−2.825855	0.0057
LM	1.209894	0.796271	1.519449	0.1319
CPMR	−77.74614	18.47378	−4.208458	0.0001
ASLN	−0.555242	0.124110	−4.473774	0.0000
CG	0.328670	0.112096	2.932049	0.0042
CSR	−0.137698	0.076179	−1.807566	0.0737
SM	−35.60282	4.900772	−7.264738	0.0000
BVP	0.556057	0.222915	2.494477	0.0143
HPMR	15.99010	5.865622	2.726070	0.0076
GDP	−1.84E-05	6.95E-06	−2.645714	0.0095
R-squared	0.763872	Mean dependent var		7.724771
Adjusted R-squared	0.739777	S.D. dependent var		1.726008
S.E. of regression	0.880471	Akaike info criterion		2.678736
Sum squared resid	75.97251	Schwarz criterion		2.950340
Log likelihood	−134.9911	F-statistic		31.70294
Durbin-Watson stat	0.703800	Prob (F-statistic)		0.000000

We estimate also the following model which provide more accurate estimations (without significant multicolinearity problem)

Panel Data Fixed effects, 88 observations
Including 11 stratified units
Lag Length = 8
Dependant Variable: SCORE
Reliable (HAC) Standard Error

	Coefficient	Standard error	t-ratio	p-value	
const	−14,7227	6,71705	−2,1918	0,03172	**
CSR	0,356063	0,0996625	3,5727	0,00064	***
lev	0,989345	0,174116	5,6821	<0,00001	***
CG	0,117763	0,0194581	6,0521	<0,00001	***
bvp	0,252887	0,139125	1,8177	0,07339	*
cpmr	−23,2225	9,28487	−2,5011	0,01472	**
asln	1,75659	0,891498	1,9704	0,05275	*
SCORE_1	0,713692	0,063261	11,2817	<0,00001	***

Dependent variable mean	7,693182	Standard deviation dependent variable	1,809032
Residuals sum of squares	11,98737	Standard error of regression	0,413821
R-square	0,957897	Adjusted R-sq.	0,947672
F statistic(17, 70)	93,68191	P-value (F statistic)	3,28e-41
Log likelihood	−37,15334	Akaike criterion	110,3067
Schwarz criterion	154,8987	Hannan-Quinn	128,2717
Rho	−0,228360	Durbin-Watson	2,107735

Test for different constant per group
Null hypothesis: The groups have a common intercept
Statistical test: $F(10, 70) = 3,69132$
p-value = $P(F(10, 70) > 3,69132) = 0,000531824$
Based on the results CSR, Lev, CG and Score t-statistic indicates the coefficient are strongly significant for 0.01 % level of significance (***). Cpmr variable and the constant term t-statistic suggest that the coefficients are significant for 95 % confidence interval (**). Bvp and asln coefficient are significant but for lower confidence interval of 90 % (*)

12   Summary, Conclusions and Recommendations

A holistic framework for measuring a bank's financial health by classifying its main responsibilities between conformance and performance has been proposed using well known measures related to European legislation of the banking sector such as corporate financial reporting (CFR), risk management procedures (RMP), corporate governance (CG), corporate social responsibility and sustainable development (CSR and SD), stockholders' value creation (SVC) and macroeconomic environment.

The main conclusions for each of the above components have been summarized as follows:

For the CFR component: It remains important especially for the financial ratios, categories and amounts. The framework in which these ratios are produced, in fact, the exact content of IASs may not be the same as U.S., GAAP, but in many ways the approach and the degree of detail are similar. IAS and U.S. GAAP are more similar than dissimilar, especially for the quality of financial ratios which are used in the proposed model. Many movements toward harmonization have already occurred, bringing them closer and closer.

For the RMP component: It is clear that this component is required in a rating model. Quantitative approaches like CAMEL, Basel I and II as well as CAD I, II and III are serious attempts to finalize the framework of regulation and supervision for the global banking system to be used as a managerial tool of risk in the banking industry and thus a financial health model has to take these ratios into account.

For the CG component: The quality of management could be represented by quantitative indexes, which are highly correlated with profitability and financial health in the banking industry. For these reasons the proposed model of banks' financial health has to take into account CG indexes.

For the CSR and the SD components: through these procedures a company can affect the economy, the society and the environment. Corporate social responsibility and actions for sustainable development depend on management's initiatives. Quantitative indexes which describe CSR and SD in a bank rating model of financial health, have to be intergraded especially those according to Global Reporting Initiatives (GRI) 2002 or to AA1000.

For the SVC component: Besides the fact that SVC retains main instruments for corporate management with a traditional way the indexes of SVC could be transposed with elements to manage totally risk and total performance of a bank and for this reason it has been included in the proposed framework of the model.

For the macroeconomic environment component: this remains a main feature of the rating system of the banking industry. This is because the banking industry has a direct influence on the macroeconomic environment, while at the same time it is influenced by it.

According to this survey a holistic framework for measuring a bank's financial health have to incorporate all the above mentioned factors. The future role of rating agencies seems to be further expanded with and after the implementation of Basle II. Nowadays

there is, especially from the side of Europe, a critical position against these agencies mainly because lack of transparency in methodologies (nobody knows the rating method) and for not consistent ratings, especially before and after a financial crisis or a debt crisis with no any forecasting ability.

With respect to the empirical evidence and with the use of data from the Greek banking sector for the period 2005–2009, it is concluded that the financial rating scores as proposed by the rating houses are of limited reliability since they fail to support funding with real market data.

There is no visibility in the variables used and there is no comparison among them. On the contrary the proposed model takes into account not only financial variables but also the macroeconomic environment of the country where the bank operates as well as the monetary environment. The existing rating system has arrived in a clear conclusion. Rates proposed by rating companies need improvement. The proposed model takes ten independent variables and by using the Panel Least Squared method it has calculated the coefficients of the model with quite good results.

In the future the use of all the components mentioned above will permit more accurate estimations and an opportunity to construct a holistic way for global banks' rating.

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