The Regulation Framework for the Banking Sector: The EMU, European Banks and Rating Agencies before and during the Recent Financial and Debt Crisis

Eleftherios Thalassinos¹

Abstract: A regulation framework for the banking sector should be characterised by transparency, responsibility and performance in several important areas. These areas are the global and European framework for corporate financial reporting (CFR), risk management (RM), stockholder value creation (SVC), corporate governance (CG), corporate social responsibility (CSR) and sustainable development (SD). The regulation framework for the banking sector must also consider the fiscal and monetary environment in which a banking institution operates. The global rating system and the rating agencies will also have an important impact on any regulation framework for the banking sector. These two factors play a key role when a financial, credit or debt crisis occurs. In this article, a holistic regulation framework for the banking sector is presented. The article is based on European banks that are part of the European Monetary Union (EMU). Initially, it focuses on the timelines and review the integration of the European Monetary Union, relevant legislation and information on member countries’ banking sectors. This information creates the framework for the proposed model. The article considers all of the above factors in creating a holistic regulation framework for the banking sector to present in the context of the recent financial, credit and debt crises that have taken place in the EMU.

Keywords: Banking; Regulations; Financial Crisis; Debt Crisis; EMU

JEL Classification: G01; G21; G28; G30; H12;

1. Introduction

This current crisis is not under control yet and it may lead to a new global monetary system. The new system must be independent from the rating agencies, the speculators, the CDSs, the country deficits and the exchange rate fluctuations. Maybe this is a unique opportunity to redesign the global monetary system with one reserve currency, with an extended cooperation among the hard currency areas and a very sensitive and effective regulatory framework.

Unfortunately euro-currency failed to convince the international markets in its role as a reserve currency. Actually euro failed to follow the description given to reserve currencies in 1960 by the Belgian-American Professor Robert Triffin stating that “a reserve-currency nation must run a current-account deficit to provide liquidity for the international monetary system”. The reward of the nation for providing liquidity has been the modest returns of the seigniorage-equivalent to 2% of the amount that is lent for providing that liquidity to the monetary union. This is the Triffin Dilemma which nobody in the EU took it seriously.

The main aim of this paper is an attempt to examine and evaluate the role of the rating agencies before during and after the recent financial crisis. Which is the methodology used by the rating companies Moody’s, S&P, FITCH and others, in evaluating a bank’s financial health or a country’s economic performance? A question that has been arisen and it is still open refers to the methodology used by

¹ Professor, PhD, University of Piraeus, Greece. European Chair Jean Monnet and General Editor - European Research Studies Journal, Address: 80, Karaoli & Dimitriou St., 185 34 Piraeus, Greece, Tel: 30 1 4142000, Fax: 30 1 4142328, Corresponding author: thalassinos@ersj.eu
these rating companies in their attempt to evaluate banks or nations, the regulatory framework and the evaluation method used.

There are also other questions open regarding the role of the rating companies in the last period especially for their high interest to make evaluation reports almost every two to three weeks for selected countries, among them Portugal, Ireland, Italy, Greece and Spain, the so called PIIGS in the Eurozone.

2. The Methodology

The methodology is to demonstrate a holistic framework for measuring a bank’s financial health by classifying its main responsibilities between conformance and performance. This framework should be characterised by transparency, responsibility and performance in several important areas such as:

- Corporate financial reporting (CFR);
- Risk management (RM);
- Stockholder value creation (SVC);
- Corporate governance (CG);
- Corporate social responsibility (CSR);
- Sustainable development (SD).

The regulation framework for the banking sector must also consider the fiscal and monetary environment in which a banking institution operates, in addition to the Nationally Recognized Statistical Rating Organizations (NRSROs) which are the responsible bodies for the independent evaluation of all different kind of financial companies including state economies. Based on this framework, the research correlates all qualitative and quantitative components, with the banks’ ratings taking into consideration the macroeconomic environment as well.

However it is interesting to see what and how the NRSROs perform their role in the world economy. Who is responsible for the licensing of these organizations? Who is responsible for controlling them? Who is responsible for the transparency in their reports? Actually no body was responsible until 2006.

Ten rating companies actually only three, all based in the USA, are responsible for all the reports made which are more than 2.8 million for the financial institutions and state economies with 2.2 million of them for government securities. The three organizations, S & P, Moody’s and Fitch amount to 2.7 million of the total, more that 96.43% of the market.

The 2011 report of the Securities and Exchange Commission (SEC) in the USA has imposed several measures for the effective control of the NRSROs far after the current financial crisis. As it is stated in the document: “In 2006, Congress passed the Credit Rating Agency Reform Act (the “Rating Agency Reform Act”) that provided the Commission with the authority to establish a registration and oversight program for credit rating agencies”

In 2007 the Commission adapted a measure for better control of the agencies and in July 2010 has imposed a law in order to evaluate the analysts and the methodology used.

3. The Rationale

In order to give a better understanding about the framework in the European banking industry it is necessary to mention all different developments starting from the period of the establishment of the first customs union in Europe in 1957 with the treaty of Rome until now. By going on through the years, we have seen a number of changes in the European Financial System, the Maastricht treaty in 1991, the establishment of the European Monetary Union with the common currency in circulation in 2002. Year after year Europe has been expanded with new members joining, Slovenia, Cyprus and Malta, Slovakia and Estonia.
At the same period a number of legislative changes have been taken place in Europe, first and second directive, Basel I establishes minimum capital adequacy requirements for banks (8% ratio), defines Tier 1 (equity) and Tier 2 (near-equity) capital and creates risk weightings based on credit risk for banks while Basel II creates a single EU banking license, introduces principles of home country control (home regulators had ultimate supervisory authority over foreign activity in their banks) and ensures mutual recognition. EU bank regulators recognise equivalent regulations. This Directive is passed in conjunction with the Own Funds and Solvency Directives, which incorporate capital adequacy requirements similar to those of Basel I into EU law. However both of them failed to protect the EU banking system during the recent crisis. Then the Financial Services Action Plan, the Directive on the Reorganization and Winding-Up of Credit Institutions, the White paper on Financial Services Policy, the Capital Requirements Directive updates Basel I and incorporates the measures suggest in the International Convergence of Capital Measurement and Capital Standards as it is stated in Basle II. Improved consistency of international capital regulations, improved risk-sensitivity of regulatory capital, and promotion of improved risk-management practices among international banks etc., even though they have also failed in an unforeseen crisis. Probably no body in the European organizational or political bodies was in a position to predict such a crisis or to propose a defensive measure to protect the system.

The European banking industry has been expanded seriously during the period 1985-2008. Table 1 shows the Time Line of Main Figures for the Banking Industry for the first 15 EU countries for the period 1985 to 2008. Number of banks, total assets in billions of euros, number of branches and total number of employees are presented in the table. The percentage change in total assets, given in the middle of the table, has great interest especially for the case of Greece Ireland and Spain with a total change of 101%, 96% and 123% respectively. It seems that there was an extensive bank expansion in these countries during the period 1985 to 2008 while all over figures remained unchanged.

Table 1. Time line of Main figures for the Banking Industry per (first 15) EU country (1985-2008)

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of banks</th>
<th>Assets (billion euro)</th>
<th>Number of branches</th>
<th>Employees ('000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EMU countries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>1406</td>
<td>1041</td>
<td>796</td>
<td>803</td>
</tr>
<tr>
<td>Belgium</td>
<td>120</td>
<td>143</td>
<td>104</td>
<td>105</td>
</tr>
<tr>
<td>Denmark</td>
<td>259</td>
<td>202</td>
<td>202</td>
<td>171</td>
</tr>
<tr>
<td>Finland</td>
<td>498</td>
<td>381</td>
<td>364</td>
<td>357</td>
</tr>
<tr>
<td>France</td>
<td>1952</td>
<td>1469</td>
<td>897</td>
<td>728</td>
</tr>
<tr>
<td>Germany</td>
<td>4739</td>
<td>3785</td>
<td>2148</td>
<td>1989</td>
</tr>
<tr>
<td>Greece</td>
<td>41</td>
<td>53</td>
<td>62</td>
<td>66</td>
</tr>
<tr>
<td>Ireland</td>
<td>42</td>
<td>50</td>
<td>50</td>
<td>51</td>
</tr>
<tr>
<td>Italy</td>
<td>1101</td>
<td>970</td>
<td>801</td>
<td>818</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>177</td>
<td>220</td>
<td>169</td>
<td>152</td>
</tr>
<tr>
<td>Netherlands</td>
<td>178</td>
<td>102</td>
<td>461</td>
<td>302</td>
</tr>
<tr>
<td>Portugal</td>
<td>226</td>
<td>233</td>
<td>200</td>
<td>175</td>
</tr>
<tr>
<td>Spain</td>
<td>364</td>
<td>506</td>
<td>346</td>
<td>362</td>
</tr>
<tr>
<td><strong>Other EU countries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>598</td>
<td>249</td>
<td>222</td>
<td>182</td>
</tr>
<tr>
<td>UK</td>
<td>772</td>
<td>564</td>
<td>413</td>
<td>391</td>
</tr>
</tbody>
</table>

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

The data indicate the similarities between the banking sectors of several European countries based on hierarchical cluster analysis using all available methods, including Pearson correlation and Euclidian

Performance and Risks in the European Economy
distances. The main conclusions according to the resulting dendrogram (correlation method, between groups) are as shown in Table 2 below.

### Table 2

#### Dendrogram using Average Linkage (Between Groups)

![Dendrogram](image)

There are two large groups, one comprised of large countries like France, Germany, the UK, Italy, and Spain plus Luxembourg and another group comprised of all other countries, including Austria, Belgium, Denmark, Finland, Greece, the Netherlands, Portugal and Sweden. Ireland remains in an uncertain position; based on the within-group analysis, it belongs to the first group, but based on the between-groups analysis, it belongs to the second group. The subgroup within the first group includes France, the UK, Italy and Spain, whereas Luxembourg and Germany stand alone. There are three subgroups within the second group: the Netherlands, Belgium and Denmark; Austria and Sweden; and Greece and Portugal. Finland stands alone.

Table 1 show the Time Line of the Main Figures for the European Banking Industry and this is actually the first data set used for the empirical analysis below. The limitation of the proposed methodology is the fact that up to now the study has analyzed statistical data only from the Greek and the Spanish banking industries. In both cases the proposed model performs quite well.

The global rating system and the 3 main rating companies are presented in Table 3. All the 3 rating companies used an identical rating system with 21 different levels. The first 10 levels provide “Adequate credit quality” with positive investment grade, while the last 11 non investment grade. Levels below 10 represent junk situations or non – investment or speculative areas. On the other hand the credit ratings of Moody’s, Standard and Poor’s, and Fitch’s play a key role in pricing credit risk and on investment strategies.
Table 3. Rating Agencies – Rating Rank, Grade and Definitions

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

The future role of these rating agencies seems to be further expanded with and after implementation of Basel 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.

4. The Empirical Evidence

This problematic situation was clear in the case of Greece and very recently in Portugal and Spain. Table 4 represents the timeline of rating levels for the four biggest Greek banks and for the Greek...
economy as a whole according to rating agencies 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. In a very short period of time the 4 biggest Greek banks went down more than 10 rating
levels by the three rating companies almost simultaneously. By comparing the ratings, the level of
devaluation, the period of the rating and other details it is clear that rating companies have a common
strategy. To lead the international market against Greece, to make Greek financing very expensive, to
increase deficits etc., in an attempt to patronage the economy. Interest rates spreads went up to the sky
and the Greek economy started to shake.

Table 4. Biggest Greek banks’ ratings

<table>
<thead>
<tr>
<th>Moody's</th>
<th>S&amp;P's</th>
<th>FITCH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NBG</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 June '10</td>
<td>από Baa2 (On Review) / P- 2 σε Ba1 (Stable) / NP</td>
<td></td>
</tr>
<tr>
<td>30 Apr. '10</td>
<td>Downgraded to Baa2 (On review) from A3 (On review)</td>
<td></td>
</tr>
<tr>
<td>23 Apr. '10</td>
<td>Downgraded to A3 (On review) from A2 (Neg)</td>
<td></td>
</tr>
<tr>
<td>31 Mar. '10</td>
<td>Downgraded to A2 (Neg) from A1 (Neg)</td>
<td></td>
</tr>
<tr>
<td>31 Dec. '09</td>
<td>On Review for possible downgrade</td>
<td></td>
</tr>
<tr>
<td>8 June '03</td>
<td>A2 (Stable)</td>
<td></td>
</tr>
<tr>
<td><strong>ALPH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A 15 June '10</td>
<td>από Aaa3 (On Review) / P- 3 σε Ba1 (Stable) / NP</td>
<td></td>
</tr>
<tr>
<td>30 Apr. '10</td>
<td>Downgraded to Baa3 (On review) from A3 (On review)</td>
<td></td>
</tr>
<tr>
<td>23 Apr. '10</td>
<td>On review for possible downgrade</td>
<td></td>
</tr>
<tr>
<td>31 Mar. '10</td>
<td>Downgraded to A3 (Neg) from A2 (Neg)</td>
<td></td>
</tr>
<tr>
<td>31 Dec. '09</td>
<td>On Review for possible downgrade</td>
<td></td>
</tr>
<tr>
<td>9 Febr. '09</td>
<td>A2 (Negative)</td>
<td></td>
</tr>
<tr>
<td>8 Dec. '09</td>
<td>A1 (Negative)</td>
<td></td>
</tr>
<tr>
<td>7 April '07</td>
<td>A1 (Stable)</td>
<td></td>
</tr>
<tr>
<td><strong>EFG EUROBANK</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 June '10</td>
<td>από Aaa3 (On Review) / P- 3 σε Ba1 (Stable) / NP</td>
<td></td>
</tr>
</tbody>
</table>

400
Performance and Risks in the European Economy

With respect to the country itself the rating companies have followed the same path. Devaluation of the economy in a very short period of time following an identical policy, leading to devaluation of the economy eliminates credibility increasing the country risk. Rating companies have devaluated the Greek economy by 7 to 9 levels in an 11 month period. This development has damaged the economy to a great extend. Spreads went up and investment confidence disappeared.

The proposed model in this research consists of 6 different components each one taking into consideration certain variables with a strong rationale behind them. Starting from corporate financial reporting, which is actually the only component used by the rating companies, the model goes around and considers other components in an attempt to create an independent holistic framework able to evaluate to the greatest degree the financial health of a bank or a country from the start point of conformance to performance.

Therefore the corporate financial reporting consists of:

- International Accounting Standards
- Foundation- Structure (IASB, IASC, IFRIC);
- Implementation of IFRS for publicly traded companies in Europe;
- The impact of accounting differences between IASs and US GAAP is narrowing;
- SEC should consider accepting IASB standards without condition;

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- The impact of accounting differences between IASs and US GAAP is narrowing;
- 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 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.

Financial statements are also considered seriously by the rating companies:
• Balance sheet;
• Income statement or P&L Account;
• Performance key metrics indicators (profitability, liquidity, solvency).

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 mismatch (combination of short-term liquid liabilities withdraw able on demand on a first-come-first served basis and longer-term highly illiquid assets).

These three features which define the business of banking are also the source of financial fragility and the cause of regulatory practices. For the banking industry the most common financial ratios used, arising from a bank’s financial statements, are:
• Size of the firm. Total assets of the bank and sometimes the total amount of the interest bearing assets of a bank.
• Financial accounting variables. Equity to total assets, Loan-loss reserves to total assets, Loans past-due 90 days to total assets, Non-accrual loans to total assets, Loan-loss provisions to total assets, Charge-offs to total asset, Annual return-on-assets, Annual return-on-equity, Historic and Current Profitability, Liquid assets to total assets, deposits to total assets, loan to deposits, spread or margin.

Risk Policy in Europe consisting of:
• Basel Committee on Banking Supervision;
• Basel I;
• Basel II.

The capital requirements is the widely spread regulatory tool but no panacea. According to the CAMEL procedure, which used for supervisory purposes in the USA, there are five elements; Capital, Asset quality, Management, Earnings and Liquidity.

The new capital framework (Basel II) consists of three pillars:
• Pillar I - Minimum capital requirements (sets minimum acceptable Capital level) to cover: Credit risk. Market risk. Operational risk;
• Pillar II – Supervisory review process of capital adequacy In order to ensure banks have good monitoring and management of risk processes;
• Pillar III - Market discipline and disclosure.

Basel II provides three approaches of increasing sophistication, to calculate credit risk-based capital:
• Standardized approach, which relies on external ratings;
• 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;
• Advanced and most sophisticated approach, internal ratings-based (IRB) approach which allows banks to use their own internal assessment.

The appropriate indexes for RMP could be summarized from the above analysis at the following indexes:
• Economic Capital to total assets;
• Regulatory Capital to total assets;
• Regulatory Capital to total Risk Weighted Assets;
• Risk Adjusted Return On Capital (RORAC) which is the Return On Capital index.
• Furthermore, consistent risk-adjusted performance measures based on RAROC or value added targets may subsequently play a role in the compensation process.

Corporate Governance in Europe is a new development which must be taken into account seriously. Some of its components are:
• Internal audit;
• Audit committees;
The quality of corporate governance is represented by the level of a Governance Index. These Indexes incorporates answers for the following questions which are referred to several governance positions of a Bank.

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 including, among others:
- Size of board
- Is the CEO and chairman the same or are their duties separated?
- Is shareholder approval required to change board size?
- Is board controlled by more than 50% outside directors?
- Is the compensation committee comprised solely of independent outside directors?

Charter/by laws comprise measures, including among others:
- 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?

Executive and director compensation, including among others:
- Were stock incentive plans adopted with shareholder approval?
- Is option reprising prohibited?
- Do directors receive all or a portion of their compensation in stock?

Ownership, including among others:
- Do directors with more than one year of service own stock?
- Are executives/directors subject to stock ownership guidelines?
- Extent of officers' and directors' ownership of stock to a level over 30%?

Progressive practices, including among others:
- 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:
- Is company incorporated in a state without any anti-takeover provisions?

Corporate Social Responsibility and Sustainable Development in Europe:
- Global Reporting Initiatives (GRI) Directives;
- Economical;
- Environmental;
- ISO;
- Social Accountability International (SAI) - SA 8000;
- Accountability AA 1000 Series.

Especially for the part of environmental corporation policies there are the following councils:
- CEP, Council on Economic Priorities Corporate Environmental Data Clearing House Reports;
- EPA, Environmental Protection Agency Online Databases;
The social disclosure rating based on Global Reporting Initiatives GRI 2002 Guidelines is presented here. The rating covers wide range of firms’ social impacts measures and it can accommodate the users of firms’ CSR reports to assess firms’ social performance both in hard and soft disclosure items.

A number of methods are available for Stockholders’ Value Creation (SVC) as:

- Strategic Balanced Scorecard;
- Balanced Scorecard;
- EVA, Residual Income (RI);
- Other Business Performance Management Tools (ROI, Residual Income)

For our analysis it seems to be suitable the usage of a Residual Income Models. Especially for the banks the most famous profitability ratio is Return on Risk Average Capital (RORAC) or from an equivalent way Return on risk weighted assets of the bank which is applied in residual income models for banks. The residual income according to the residual method is equivalent with historical profitability metric which is defined as the movements of equity accounts arising from operational activities of the bank. The banking industry is strongly affected and affects in the external economic environment. Generally, the main characteristics of the banking industry are:

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

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

- Equities % GDP;
- Government bonds or Government Debt % GDP;
- Private bonds % GDP;
- Private bonds plus banking loans and credit allowances % GDP or Private Debt;
- Bank assets % GDP;
- Total (the sum of Equities, Government bonds, Privet bonds and Bank Assets) % GDP.

5. The Model

The proposed rating framework requests to take into account all the components which have been mentioned above, CFR, RMP, CSR&SD, SVA and, MACROECONOMIC by using the appropriate ratios into a holistic model. Table 5 represents the structure of the model.
A model for measuring banks financial health has 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 to 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:

\[ \text{SCORE}_{jt} = \text{rating of financial strength}, \]

- 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.

The independent variables are presented in Table 6.

(please insert Table 6 here)

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

\[ \text{SCORE}_{jt} = b_0 + b_1 \text{LEV}_{jt} + b_2 \text{LM}_{jt} + b_3 \text{CPMR}_{jt} + b_4 \text{ASLN}_{jt} + b_5 \text{CG}_{jt} + b_6 \text{CSR}_{jt} + b_7 \text{ASE}_{t} + b_8 \text{CR}_{t} + b_9 \text{GDI}_{t} + b_{10} \text{TASLN}_{t} + b_{11} \text{SM}_{jt} + b_{12} \text{BVP}_{jt} + b_{13} \text{HPMR}_{jt} + u_t \]

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

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>25.03542</td>
<td>2.631235</td>
<td>9.514701</td>
<td>0.0000</td>
</tr>
<tr>
<td>LEV</td>
<td>-2.436842</td>
<td>0.862338</td>
<td>-2.825855</td>
<td>0.0057</td>
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<tr>
<td>LM</td>
<td>1.209894</td>
<td>0.796271</td>
<td>1.519449</td>
<td>0.1319</td>
</tr>
<tr>
<td>CPMR</td>
<td>-77.74614</td>
<td>18.47378</td>
<td>-4.208458</td>
<td>0.0001</td>
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<tr>
<td>ASLN</td>
<td>-0.555242</td>
<td>0.124110</td>
<td>-4.473774</td>
<td>0.0000</td>
</tr>
<tr>
<td>CG</td>
<td>0.328670</td>
<td>0.112096</td>
<td>2.932049</td>
<td>0.0042</td>
</tr>
<tr>
<td>CSR</td>
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<td>-1.807566</td>
<td>0.0737</td>
</tr>
<tr>
<td>SM</td>
<td>-35.60282</td>
<td>4.900772</td>
<td>-7.264738</td>
<td>0.0000</td>
</tr>
<tr>
<td>BVP</td>
<td>0.556057</td>
<td>0.222915</td>
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<tr>
<td>HPMR</td>
<td>15.99010</td>
<td>5.865622</td>
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<td>0.0076</td>
</tr>
<tr>
<td>GDP</td>
<td>-1.84E-05</td>
<td>6.95E-06</td>
<td>-2.645714</td>
<td>0.0095</td>
</tr>
<tr>
<td>GDP</td>
<td>-1.84E-05</td>
<td>6.95E-06</td>
<td>-2.645714</td>
<td>0.0095</td>
</tr>
</tbody>
</table>

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
6. 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 article 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.

7. References


ECB (2010). Structural Indicators for the EU Banking Sector. Frankfurt, Germany.


