



**LISBOA  
SCHOOL OF  
ECONOMICS &  
MANAGEMENT**

**MASTERS IN  
MONETARY AND FINANCIAL ECONOMICS**

**MASTERS FINAL WORK**  
Dissertation

THE IMPACT OF CREDIT RATINGS IN THE CAPITAL STRUCTURE  
CHOICE OF FIRMS

DÉBORA RAQUEL SOARES DA CRUZ DOS SANTOS MARTINS

OCTOBER – 2014



**LISBOA  
SCHOOL OF  
ECONOMICS &  
MANAGEMENT**

**MASTERS IN  
MONETARY AND FINANCIAL ECONOMICS**

**MASTERS FINAL WORK  
DISSERTATION**

**THE IMPACT OF CREDIT RATINGS IN THE CAPITAL STRUCTURE  
CHOICE OF FIRMS**

**DÉBORA RAQUEL SOARES DA CRUZ DOS SANTOS MARTINS**

**ADVISORS:**

Ph.D. Clara Raposo

Ph.D. Maria Rosa Borges

OCTOBER – 2014

# Index

	Page
<b>1. Introduction</b>	<b>4</b>
<b>2. Related Literature</b>	<b>7</b>
2.1 Capital Structure: a review	7
2.2 Credit Ratings and Capital Structure (CR-CS)	10
<b>3. Data</b>	<b>12</b>
3.1 Variables	12
3.2 Sample	14
3.3 Summary Statistics	15
<b>4. Methodology</b>	<b>18</b>
<b>5. Main Results</b>	<b>19</b>
<b>6. Conclusions</b>	<b>22</b>
<b>7. References</b>	<b>23</b>

## Appendices

Appendix A Sample Including Financial Institutions

Appendix B Sample Excluding Financial Institutions

# 1. Introduction

The objective of this work is to study whether the possibility of a downgrade or upgrade of a firm's credit rating has any significant impact in its capital structure choice. The base of this study is Kisgen's CR-CS Theory, presented in the 2006 paper entitled "Credit Ratings and Capital Structure", which focuses on USA firms while I will consider European firms that constitute the indexes of some selected countries.

Credit ratings have gained an increasingly relevant role in the past decades. In financial markets their importance has been acknowledged since their beginning in the 19<sup>th</sup> century, as the primary objective of credit ratings is to decrease information asymmetry by providing the issuer's creditworthiness to the investors. A credit rating agency publishes its opinion concerning the bond's quality or intrinsic value, i.e. if the issuer is able and willing to fully meet its financial obligations on time, so that investors have another factor to take into account when making an investment decision. It is important to emphasize that credit ratings are not intended to be investment recommendations and are not an absolute measure of risk; they simply reflect a relative opinion about it (strongest to weakest).

The first rating books were published in the second half of the 19<sup>th</sup> century, in New York, by mercantile credit agencies, showing the merchants' ability to pay their financial obligations. These agencies were rating businesses. In the beginning of the 20<sup>th</sup> century, the first securities' ratings were published, induced by the massive construction of railroads in the USA. John Moody, an US financial analyst and investor, started to rate these railroad bonds in 1909. Some years later, other companies were formed and provided ratings books as well: Poor's Publishing Company in 1916, Standard Statistics Company in 1922, Fitch Publishing Company in 1924. In 1941, Standard Statistics and Poor's Publishing merged forming the well-known Standard and Poor's Company. Credit rating agencies started to sell ratings books directly to investors – "investor pays" or subscription model<sup>1</sup>. In 1934, the Securities and Exchange Commission (SEC) was created in order to increase trust in

---

<sup>1</sup> The "investor pays" model is a model where the investors pay a subscription to have access to the ratings released by the agencies.

financial markets. This trust was to be established through the standardization of financial statements. In the same decade, bank regulators set a decree prohibiting the investment in bonds that did not have an investment grade. Thereby banks were forced to rely only on ratings from recognized rating manuals. The insurance and federal pension regulators adopted similar rules in the following decades.

In the 1970s, the SEC recognized as “official” the rating manuals of S&P, Fitch and Moody’s, as they were designated as “Nationally Recognized Statistical Ratings Organizations” (NRSRO). In this same decade, due to a number of factors, the payment model of the ratings business turned into an “issuer pays” model. This arose a possible conflict of interest; for instance, credit rating agencies could be tempted to rate upwards in order to keep their clients. On the other hand, credit rating agencies had to defend their long-term reputations, so as to not lose all credibility and, consequently, their clients. The possible conflicts of interest surrounding this topic have been discussed since then.

The first reputational blow for the credit rating agencies took place in 2001, with the bankruptcy of Enron. The three major NRSRO failed to update the firm’s rating in a timely manner – five days before the bankruptcy was announced, Moody’s, S&P and Fitch still rated Enron’s bonds as “investment grade”. The controversies surrounding the credit rating industry became even wider with the beginning of the subprime crisis in 2008. The role of credit rating agencies was highly criticized as defaults started to be observed in securities that were initially rated with a AAA score (more specifically, mortgage-backed securities and collateralized debt obligations). These securities had much more complexity than the credit rating agencies were used to, so they became involved in the securities design. Additionally, there were not many issuers of these types of securities, but they had high issuance volumes. This, perhaps, increased the pressure on credit rating agencies to be more optimistic in their assessments. By that time the issuers had the power to “go shopping” for ratings. A financial crisis burst when these securities lost most of their value. The Financial Crisis Inquiry Report, submitted by The Financial Crisis Inquiry Commission on January 2011, reported:

“We conclude the failures of credit rating agencies were essential cogs in the wheel of financial destruction. The three credit rating agencies were key enablers of

the financial meltdown. The mortgage-related securities at the heart of the crisis could not have been marketed and sold without their seal of approval. Investors relied on them, often blindly. In some cases, they were obligated to use them, or regulatory capital standards were hinged on them. This crisis could not have happened without the rating agencies. Their ratings helped the market soar and their downgrades through 2007 and 2008 wreaked havoc across markets and firms.”

In Europe, more specifically in the Euro Area, the financial crisis evolved to a banking crisis, a sovereign debt crisis, and a growth and competitiveness crisis altogether. Every update of a sovereign rating has impact on the ratings of firms in that country.

For this reason it is timely to study the impact of a change in rating in the financing choices of Euro Area firms. This is what this dissertation does: I examine the relationship between changes in the rating of a sample of listed European firms and the changes in those firms’ capital structure.

Although credit rating agencies played their role in the crisis, credit ratings continue to play a very important role in financial markets and many studies have been developed concerning this subject. Kisgen (2006) makes a series of empirical tests to prove that credit ratings are a concern to managers when they are deciding the firm’s capital structure – the Credit Ratings and Capital Structure hypothesis. The sample used by Kisgen only considered firms from the USA and a pre-crisis period. He was able to show that the Credit Rating – Capital Structure Hypothesis applies. This work will build on Kisgen’s 2006 study in the context of Euro Area, rather than the USA. For this effect I will consider firms of some Euro Area indexes (Portugal, Spain, Italy, Greece, France and Germany). The objective is to test if this hypothesis is also valid for the European context. I find that Portuguese firms tend to issue more net debt relative to equity when near a broad rating<sup>2</sup> change: approximately 1%, including financial institutions in the sample; approximately 2% and 5% for the time periods 1996-2011 and 1996-2006, respectively, excluding financial institutions. Italian firms, including financial institutions, tend to issue approximately 3% more net

---

<sup>2</sup>As defined in Kisgen (2006), “Broad Ratings” are ratings levels including the minus, middle, and plus specifications for a particular rating (i.e., a Broad Rating of BBB refers to ratings of BBB+, BBB, and BBB-).

debt relative to equity when near a broad rating change. As regards the other countries considered in this study, no statistically significant relationship was identified.

The remainder of this dissertation is organized as follows. In Section 2., a revision of the main capital structure theories is presented, together with some references regarding credit ratings. Section 3. describes the sample and methodology. Additionally, some descriptive statistics are presented in this section. The tests and results are described in Section 4., Section 5. presents additional analysis and robustness checks and Section 6. concludes.

## **2. Related Literature**

The capital structure choice is one of the central topics in finance and has been studied for decades. Many different theoretical models have been proposed as well as empirically tested, relating capital structure choices to a variety of possible determinants. This work focuses on one in particular – credit rating. Therefore, we now review the most important findings in this field, starting with more “standard” capital structure literature, and focusing next on its relation with credit ratings.

### **2.1 Capital Structure: a review**

Modigliani and Miller, in their 1958 seminal paper, presented the irrelevance theorem (Proposition I), which states that the capital structure choice of a firm does not influence its total value, when considering perfect capital markets. This theorem is acknowledged as the beginning of Modern Capital Structure Theory, assuming perfect capital markets and imposing various constraints - very far from the real world, which is full of imperfections. Therefore authors started to analyze the consequences of introducing imperfections into this framework.

The effects related to corporate income tax were addressed already in the above-mentioned paper, but in 1963 Modigliani and Miller published a correction, in which they showed that there is a tax advantage of debt financing. Consequently, when taking this imperfection into account, the capital structure choice is no longer irrelevant, as holding debt adds value to the firm. The authors pointed out the fact that this result does not imply that firms should use all the debt possible without taking into consideration other relevant factors, such as personal taxes and different kinds of costs. The discussion around the impact of these costs followed naturally, leading to what is often cited as the Static Tradeoff Theory of Capital Structure.

The Static Tradeoff Theory states that firms balance the benefits and costs of holding debt in order to determine a target debt-to-value ratio (which maximizes the firm's total value, i.e. leads to the optimal capital structure) and will then move gradually towards this ratio. The main issue is how to measure these costs and benefits.

Starting with the benefits of debt, in Modigliani and Miller (1963) only the marginal tax rate was considered – the gain is positively related to the tax rate. Other authors defended that, in order to be more accurate when valuing the benefits of debt, the effective marginal tax rate must be taken into account. In this way not only the corporate income taxes are considered, but also the personal income taxes paid by debt holders and equity holders. Miller (1977) showed that personal taxes on equityholders and debtholders may offset the savings generated by corporate taxes. Compromise theories between the extremes have also been proposed. Regarding the costs of holding debt, these are essentially financial distress costs, which include not only all the costs related to the event of bankruptcy, but also the agency costs associated with a default or even the probability of a default (so the value that *would be* lost in a default event must also be taken into account). An example of such an agency cost of debt would be the tendency for gambling, with asset substitution towards riskier assets in highly levered firms. Besides the favorable corporate tax treatment to debt, another advantage of this source of capital would be the so-called agency benefits of debt. An example of this would be debt playing a disciplinary role of managers in cash-cow firms, in what Jensen (1986) called the Free Cash Flow Problem.



The Tradeoff Theory constitutes one of the main capital structure theories, although other authors have viewed the capital structure decision from different perspectives. One of the best known such theories is the Pecking Order Theory, which was first presented by Donaldson (1961), but only gained true recognition after the modifications proposed by Myers and Majluf (1984).

The Pecking Order Theory's main implication is that firms choose to finance their projects preferably with internally generated funds, which has wide empirical support. According to this theory, if external funds are required, firms will prefer to issue secured debt first (default-free debt), followed by hybrid securities. The firm will only issue equity as a last resort. The reasoning for this order of choice was based on costs. Using internal funds only involves transaction costs, whereas new debt and equity require issuance costs that are higher than the transaction ones. Additionally, issuing equity would require higher costs than issuing low risk debt (and furthermore debt also contributes positively when taking into account its tax advantages), due to asymmetric information. In Myers and Majluf (1984), a signaling problem was introduced, inspired in the adverse selection argument proposed by Akerlof (1970). Assuming that managers have privileged information regarding the firm, they will avoid issuing equity when they know that the share price is undervalued. Investors are aware of this fact so, if a firm issues equity it is giving signs to the market that the share price should be lower. As regards the issuance of debt to moderate levels, the firm is signaling the market that its position is comfortable to the point that having debt is not a problem.

The main implication of this theory is that firms are highly dependable on the funds they generate. If the investments they have to make require more funds than those generated by the firm, then debt will be the first option to finance the needed investments. Consequently, debt levels will increase when the firm's investment needs exceed the funds it generates and will decrease when the internally generated funds are sufficient to cover all the investments required. The Pecking Order Theory implies that a firm's debt will have a short-term response to sudden variations in investment and/or earnings.

Both theories, tradeoff and pecking order, try to explain the capital structure choice through a set of factors. Which factors are really relevant in a firm's funding choice is one key aspect for the topic. There are many papers that tackle this issue: what are the determinants of capital structure choice? The identification of these determinants may not be the most challenging part of the process, as many of them have an intuitive understanding. Many factors are difficult to define in an econometric model, so proxies must be used. If these proxy indicators are not constructed carefully then the results might turn out skewed. These determinants are i) the tax benefits, ii) bankruptcy and financial distress costs and iii) information asymmetry. Different empirical studies<sup>3</sup> address the relevance of the referred determinants, using a variety of measure indicators such as size, profitability, growth, industry classification, etc. These studies do not lead to the same unique conclusion as regards which capital structure theory is the most adaptable to the real world. That is, there is not yet a theory that explains fully the capital structure decisions of all firms.

## **2.2 Credit Ratings and Capital Structure (CR-CS)**

A different perspective from the two theories already mentioned was the one presented by Kisgen (2006), which leads to this dissertation's primary focus – credit ratings as a relevant capital structure choice determinant.

The main idea in this line of research is that each rating level leads to different costs or benefits, so the rating of the firm, as well as its possible downgrade or upgrade, should not be neglected when deciding on the type of financing. This fact implies that the amount of debt held by a firm holds a discontinuous relationship with its total value. The main implication of this argument is that a firm will tend to issue less net debt, relative to net equity, when its rating is near a change, and not only when it is near a downgrade, but also when it is near an upgrade. In comparison with the abovementioned more traditional capital structure theories, the main differences/adjustments to be considered are as follows.

---

<sup>3</sup> E.g. Titman and Wessels (1998), Rajan and Zingales (1995), Harris and Raviv (1991), Graham and Harvey (2000), Welch (2002)

The Tradeoff theory states that the costs and benefits of debt will be balanced until the firm reaches its maximum value. The CR-CS hypothesis implies that the firm will also balance these costs and benefits but, additionally, it will take into account the different levels of credit ratings. If a certain level of debt maximizes the firm value when taking into account the costs and benefits implied by the tradeoff theory, but on the other hand causes a deterioration of the credit rating, then the firm may choose a capital structure different from the tradeoff theory optimum. This way the firm will avoid additional costs related to a change in rating that were not being considered in the tradeoff theory.

From a different perspective, the pecking order theory states that the firm will decide to issue debt before equity. When considering a possible rating change, firms will not issue debt without taking into account the costs that a lower rating will involve. This means that, sometimes, firms may choose to issue equity before debt, so that they can avoid the costs originated by a rating downgrade, which is contrary to the main implications of the pecking order theory. This is also valid for firms with a middle credit rating that are considering large offerings of debt.

Kisgen (2007) has further developed this line of thought, as well as other authors, such as Michelsen and Klein (2011) who used rating outlooks to measure possible changes in the respective rating of a firm. Their results support the conclusion in Kisgen (2006) – firms near a rating change will issue less debt when compared with firms not near a rating change. Additionally, as they considered firms from Europe and the middle East and Africa besides the USA, they concluded that the effect is larger for US firms. These empirical studies focus on U.S. or worldwide data. So this dissertation will focus on the Euro Area only, in order to assess the response of these firms to a credit rating change and then compare with the US and worldwide results. Does a credit rating change influence Euro Area firms as much as in the USA, and in the same direction? This study is even more relevant in the presence of the recent long financial crisis in which the role of ratings has been central.

In the remainder of this dissertation I aim to shed some light on this timely topic, by building and examining an international sample from public listed Euro Area firms.

## 3. Data

### 3.1 Variables

The main capital structure variables I choose are:

- $D_{it}$  = total debt (Datastream item WC03255)<sup>4</sup>.
- $\Delta D_{it}$  = total debt  $t$  minus total debt  $t-1$  for firm  $i$ .
- $E_{it}$  = common equity (Datastream item WC03501)<sup>5</sup>.
- $\Delta E_{it}$  = common equity  $t$  minus common equity  $t-1$  for firm  $i$ .
- $A_{it}$  = total assets (Datastream item WC02999)<sup>6</sup>.
- $NetDiss_{it} = (\Delta D_{it} - \Delta E_{it})/A_{it}$ .

$NetDiss_{it}$  is the dependent variable of the regressions that constitute the model, which are described in the following section (4. Methodology). This variable will allow to measure a firm's actions (whether it issues debt or equity) when taking into account the beginning of year credit rating.

---

<sup>4</sup> As defined in Thomson Financial – Worldscope Database Datatype Definitions Guide (April 2006): for all Industries, total debt represents all interest bearing and capitalized lease obligations. It is the sum of long and short term debt.

<sup>5</sup> As defined in Thomson Financial - Datastream Global Equity Indices – Additional Index and Security Valuation Datatypes ( March 2008): common equity represents common shareholders' investment in a company.

<sup>6</sup> As defined in Thomson Financial - Datastream Global Equity Indices – Additional Index and Security Valuation Datatypes ( March 2008): for all Industries, total assets represent the sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets; for Banks, total assets represent the sum of cash & due from banks, total investments, net loans, customer liability on acceptances (if included in total assets), investment in unconsolidated subsidiaries, real estate assets, net property, plant and equipment and other assets; for Insurance Companies, total assets represent the sum of cash, total investments, premium balance receivables, investments in unconsolidated subsidiaries, net property, plant and equipment and other assets; and for Other Financial Companies, total assets represent the sum of cash & equivalents, receivables, securities inventory, custody securities, total investments, net loans, net property, plant and equipment, investments in unconsolidated subsidiaries and other assets.

We also collect information on observed ratings, using the following variables:

- $CR_{Plus}$  = dummy variable that equals 1 when a plus credit rating is observed.
- $CR_{Minus}$  = dummy variable that equals 1 when a minus credit rating is observed.
- $CR_{POM}$  = dummy variable that equals 1 whether a plus or minus credit rating is observed ( $CR_{Plus} + CR_{Minus}$ ).

The CS-CR hypothesis implies that firms near a credit rating change will issue less debt compared to equity than firms that are not near a rating change. Kisgen considered that the ratings followed by a minus or a plus sign are the ones near a rating change. The above-described dummy variables are used to identify these firms.

As control variables typically used in the capital structure literature and in the CS-CR literature we consider:

- $Profitability_{it} = EBITDA_{it-1}/A_{it-1}$  (EBITDA is Datastream item 1502).  
The expected sign for this variable's coefficient depends on the country being studied. Rajan and Zingales (1995) found that profitability is negatively correlated with leverage in the US, Japan, Italy and Canada; positively correlated in the UK; and no relationship was found in Germany and France.
- $Size_{it} = \ln(Sales_{it-1})$  (Sales is Datastream item 104).  
This variable's coefficient is expected to be positive as it is a measure of a firm's financial distress – considering that larger firms have a lower probability of default, the positive sign implies that larger firms issue more debt relative to equity.
- $Leverage_{it} = D_{it-1}/(D_{it-1} + E_{it-1})$ .  
A firm that already has a high leverage ratio will tend to issue less debt relative to equity, so the coefficient sign is expected to be negative.

### 3.2 Sample

This work will focus on the impact of a change in rating in the capital structure of firms in the Euro Area. Therefore the original sample consists of firms that constitute the following indexes and countries:

- PSI20 – Portugal
- IBEX35 – Spain
- FTSE MIB – Italy
- ATHEX20 – Greece
- CAC40 – France
- DAX – Germany

As the study necessarily involves credit ratings, all the firms from the original sample that do not feature S&P's long-term domestic issuer credit rating in Reuters were removed.

The sample period goes from 1996 to 2011, to avoid inconsistencies due to currency changes, as 1995 is the first year where most data is available in Euro. All other variables for which we require data were extracted from Datastream, in order to make my study comparable to Kisgen (2006). I used book values as well as Kisgen.

All the firm-years where some of the data was missing were excluded from the sample, in similarity to Kisgen's study. The final sample is constituted by 1202 firm-years, from 113 different firms in six countries, over 16 years (Table I).

**Table I**  
**Sample Distribution per Country – 1996 to 2011**

	Greece	Portugal	Spain	Italy	France	Germany	TOTAL
Number of Firms, of which:	<b>9</b>	<b>9</b>	<b>15</b>	<b>22</b>	<b>32</b>	<b>26</b>	<b>113</b>
are Financial Institutions	4	4	6	8	3	3	28
Number of Firm-Years, of which:	<b>81</b>	<b>89</b>	<b>156</b>	<b>207</b>	<b>388</b>	<b>281</b>	<b>1202</b>
are from Financial Institutions	36	39	63	96	47	36	317

The six indexes total 185 firms. Only 113 firms detain a S&P credit rating. The indexes consider the most important firms of each country's stock exchange.

The fact that only 61% of the most important firms quoted in the stock exchange of each country detain a S&P credit rating shows that the US debt market is very different from the debt markets in Europe – US firms use debt issuance to finance their needs more than the European firms (only firms that detain a credit rating are allowed to issue debt).

### **3.3 Summary Statistics**

In Table II, the summary statistics concerning leverage per credit rating are presented, as well as the number of firm-years that correspond to each credit rating level.

Kisgen's sample results showed a negative relationship between the debt to total capitalization ratio and the credit ratings. Leverage levels, when compared to the firm's total value, were expected to decrease with the quality of the credit rating. This negative relationship is not observable in the European sample.

**Table II**  
**Summary Statistics**

Means, medians, and standard deviations of debt/(debt+equity) by credit rating within the sample, and the number of firm-years that had the indicated rating at the beginning of the firm-year. The sample consist of firms from 1996 to 2011 from the indexes ATHEX20, PSI20, IBEX35, FTSE MIB, CAC40 and DAX, excluding firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. Debt/(debt + equity) is book total debt divided by book total debt plus book common equity.

	AAA	AA+	AA	AA-	A+	A
Number of Firm-Years	14	14	88	163	129	179
D/(D+E)						
Mean	46.9%	52.8%	61.4%	62.2%	61.7%	67.2%
Median	42.1%	47.4%	68.4%	60.0%	59.1%	73.0%
Standard Deviation	21.7%	26.0%	24.6%	25.0%	19.5%	22.4%
	A-	BBB+	BBB	BBB-	BB+	BB
Number of Firm-Years	199	169	119	45	36	32
D/(D+E)						
Mean	64.2%	58.2%	51.2%	47.5%	51.7%	57.8%
Median	66.9%	59.4%	50.6%	46.3%	50.9%	51.5%
Standard Deviation	22.6%	20.1%	16.4%	19.5%	17.3%	20.2%
	BB-	B+	B	B-	CCC+ OR BELOW	TOTAL
Number of Firm-Years	9	4	2	0	0	1202
D/(D+E)						
Mean	57.2%	62.8%	56.8%	0.0%	0.0%	60.2%
Median	55.4%	59.6%	56.8%	0.0%	0.0%	58.9%
Standard Deviation	15.7%	19.2%	4.1%	0.0%	0.0%	22.1%

The sample used in this study considers different countries and a period of severe financial crisis, which may explain why the referred relationship does not hold. For this reason I calculated the same statistics per country and for three periods of time: from 1996 to 2006 (before the crisis), from 2007 to 2011 (after the crisis) and from 1996 to 2011. These statistics are showed in Tables A1-A3 of the Appendix A.

When analyzing each country separately for each period of time, the expected negative relationship between the debt to total capitalization ratio and the credit ratings is still not observable for all the credit ratings per period and per country. However, it is interesting to observe the discrepancies in the distribution of firm-years by credit ratings between the different countries, e.g. peripheral countries such as Portugal, Greece, Spain and Italy have less firm-years with higher credit ratings when compared to France or Germany (the only countries in the sample with AAA credit ratings).

In the period from 2007 to 2011 an overall downgrade of the ratings is observed, accompanied by a relevant increase of the average leverage ratio. This effect was expected as the financial crisis forced firms to increase their debt levels, leading to a rise in their probability of default and, consequently, the credit rating agencies



downgraded the firms credit ratings. This increase of the leverage ratio, during the referred period, is not only explained by the increase in debt levels, but also by a decrease in equity values. During this period many firms suffered multiple rating downgrades and many firms declared bankruptcy. These firms were not excluded from the sample.

Table A4 of the Appendix A shows the means, standard deviations and the number of observation of net debt minus net equity divided by beginning-of-year total assets (NetDIss) per country (Greece, Italy, Portugal, France, Spain, Germany) and for the full sample by firm-years with a minus credit rating, a plus credit rating, either (minus or plus) credit rating and with a credit rating that is neither plus or minus. NetDIss is the dependent variable of the regressions that constitute the model and is expected to be negative if a firm is near a broad rating change (in the case of a plus or minus credit rating) and is expected to be positive otherwise. This relationship is only observable for Italy for the period between 1996 and 2006, even though some negative values can be observed for firms near a broad rating change (e.g., negative values are observable for the three time periods of France).

Excluding financial institutions, the sample is reduced to 85 firms, corresponding to 885 firm-years. Summary statistics concerning leverage per credit rating are presented in Tables B1-B3 of Appendix B, including the number of firm-years that correspond to each credit rating level. The exclusion of financial institutions had no impact as regards the expected negative relationship between the debt to total capitalization ratio and the credit ratings, as this relationship is still not observable for each period of each country. Regarding the net debt issuance statistics presented in Table B4 of Appendix B, the expected negative value for this variable is observable in most countries for firms that are near a broad rating change. All in all, the average net debt issuance is positive only in the case of Greece, for the period from 1996 to 2011, for firms not near a broad rating change.

The analysis of sample statistics suggests that the results will not be consistent with Kisgen's findings since the expected relationships are mostly not observed in the descriptive statistics.

## 4. Methodology

A firm with a plus or a minus credit rating is closer to a Broad Rating change. The following regressions will be used to test the hypothesis that firms with a plus or minus credit rating will tend to issue less debt than those not so close from a broad rating change:

$$(1) \text{NetDiss}_{it} = \alpha + \beta_0 \text{CR}_{\text{POM}} + \phi_1 \text{Size}_{it} + \phi_2 \text{Leverage}_{it} + \phi_3 \text{Profitability}_{it} + \varepsilon_{it}$$

$$(2) \text{NetDiss}_{it} = \alpha + \beta_1 \text{CR}_{\text{Plus}} + \beta_2 \text{CR}_{\text{Minus}} + \phi_4 \text{Size}_{it} + \phi_5 \text{Leverage}_{it} + \phi_6 \text{Profitability}_{it} + \varepsilon_{it}$$

$$(3) \text{NetDiss}_{it} = \alpha + \beta_3 \text{CR}_{\text{POM}} + \varepsilon_{it}$$

The objective of these tests is to verify if firms near a credit rating downgrade or upgrade in the beginning of a year will show a different behavior in terms of debt issuance during that year. As in Kisgen (2006), the hypothesis is as follows:

$$H_0: \beta_i = 0 \quad i= 0, 1, 2, 3$$

$$H_1: \beta_i \neq 0 \quad i= 0, 1, 2, 3$$

The CR-CS Hypothesis states that firms near a broad rating change will tend to issue less debt, so the  $\beta$  coefficients are expected to be negative. The null hypothesis implies that credit ratings have no impact in credit rating decisions.

The model used for the test was the cross-section time-series random effects GLS regression with robust standard errors. A panel data econometric model was used in order to study the behavior of different firms across time. The random effects GLS was the chosen model because it deals well with unbalanced data and is ideal for micro panels (datasets where the time dimension is largely less important than the individual dimension, i.e., datasets with few years and a large number of cases), which is the case of the sample being studied. This model allows drawing inferences about the whole population in addition to the examined sample. For short panels cross-sectional dependence and serial correlation do not constitute a relevant problem. The use of robust standard errors provides heteroskedasticity-robust standard errors.

## 5. Main Results

The results of the CR-CS Hypothesis tests for the full sample, i.e. for all the countries from 1996 to 2011, are presented in Table III below.

The coefficients of the credit rating dummy variables  $CR_{POM}$ ,  $CR_{Plus}$  and  $CR_{Minus}$  are negative, as expected by the CR-CS Theory. However, the respective p-values are not below the 10% significance level, leading to the non-rejection of the null hypothesis. When analyzing the control variables, the respective coefficients are negative, which should not be expected for the leverage control variable.

**Table III**  
**Regressions of the Plus or Minus Tests**

Coefficients and standard errors from pooled time-series cross-section random-effects GLS regressions with robust errors of NetDlss on credit rating dummy variables and on the control variables leverage, size and profitability. NetDlss is net debt minus net equity divided by beginning-of-year total assets. The credit rating dummy variables are  $CR_{plus}$  (equals 1 when a plus credit rating is observed),  $CR_{minus}$  (equals 1 when a minus credit rating is observed) and  $CR_{pom}$  (equals 1 when either a plus or a minus credit rating is observed). Leverage is book total debt divided by book total debt plus book common equity. Size is given by the natural logarithm of total sales. Profitability is EBITDA divided by total assets (both from the previous year). The sample consists of firms from 1996 to 2011 from the indexes ATHEX20, PSI20, IBEX35, FTSE MIB, CAC40 and DAX, excluding firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

	1	2	3
Cons	0,1795*** (0,0519)	0,1770** (0,0529)	0,0093** (0,0046)
CRPOM	-0,0051 (0,0059)	-	-0,0058 (0,0061)
CRMinus	-	-0,0026 (0,0084)	-
CRPlus	-	-0,0080 (0,0061)	-
Leverage	-0,0260 (0,0205)	-0,0255 (0,0203)	-
Size	-0,0089*** (0,0028)	-0,0087*** (0,0028)	-
Profitability	-0,1145** (0,0579)	-0,1128** (0,0576)	-
Number of firm-years	1202	1202	1202

Differences in jurisdiction between the countries in the sample may lead to different results if the tests were to be performed by country. Additionally, and

mentioned above, it may be relevant to study three periods in time: from 1996 to 2006 (before the crisis), from 2007 to 2011 (after the crisis) and from 1996 to 2011. The results of these tests are presented in Tables A5-A7 of Appendix A.

The p-value of the dummy variable  $CR_{POM}$  is below the 10% significance level in the following cases: regression 1 in the case of Portugal from 1996 to 2011 and regression 3 in the case of Italy from 2007 to 2011. Regarding Portugal, the variable  $CR_{POM}$  is significant at the 5% level, while the control variables leverage and profitability are significant at the 1% level (the control variable size is not statistically significant). As regards Italy,  $CR_{POM}$  is significant at the 10% level. In both cases, the respective coefficient presents a positive value.

The p-values of the dummy variables  $CR_{Plus}$  and  $CR_{Minus}$  are below the 10% significance level in some cases, but never for both variables in the same regression. Therefore, the null hypothesis cannot be rejected.

The coefficients of all credit rating dummy variables for France and Germany are above the 10% significance level for the different time periods.

The regressions of the plus or minus tests, for the three time periods for each country, were also estimated excluding financial institutions from the sample. The results of these regressions are showed in Table IV below.

**Table IV****Regressions of the Plus or Minus Tests Excluding Financial Institutions from the Sample**

Coefficients and standard errors from pooled time-series cross-section random-effects GLS regressions with robust errors of NetDlss on credit rating dummy variables and on the control variables leverage, size and profitability. NetDlss is net debt minus net equity divided by beginning-of-year total assets. The credit rating dummy variables are CR<sub>plus</sub> (equals 1 when a plus credit rating is observed), CR<sub>minus</sub> (equals 1 when a minus credit rating is observed) and CR<sub>pom</sub> (equals 1 when either a plus or a minus credit rating is observed). Leverage is book total debt divided by book total debt plus book common equity. Size is given by the natural logarithm of total sales. Profitability is EBITDA divided by total assets (both from the previous year). The sample consists of firms from 1996 to 2011 from the indexes ATHEX20, PSI20, IBEX35, FTSE MIB, CAC40 and DAX, excluding financial institutions, firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

	1	2	3
Cons	0,1074*	0,1076*	-0,0006
	(0,0595)	(0,0607)	(0,0046)
CRPOM	-0,0039	-	-0,0054
	(0,0070)	-	(0,0066)
CRMinus	-	-0,0043	-
	-	(0,0110)	-
CRPlus	-	-0,0035	-
	-	(0,0072)	-
Leverage	-0,0827**	-0,0828**	-
	(0,0335)	(0,0347)	-
Size	-0,0044	-0,0044	-
	(0,0032)	(0,0033)	-
Profitability	0,0509	0,0511	-
	(0,0747)	(0,0756)	-
Number of firm-years	885	885	885

Considering the sample with all the countries for the time period from 1996 to 2011, the results lead to the same conclusion as if considering the full sample (including financial institutions): the coefficients of the credit rating dummy variables CR<sub>POM</sub>, CR<sub>Plus</sub> and CR<sub>Minus</sub> are also negative and the respective p-values are not below the 10% significance level, leading to the non-rejection of the null hypothesis.

The results of the test by country and for the already mentioned periods of time, excluding financial institutions from the sample, are showed in Tables B5-B7 of Appendix B.

The p-value of the dummy variable CR<sub>POM</sub> is below the 10% significance level in the following cases: regression 1 in the case of Portugal from 1996 to 2006 and also from 1996 to 2011. Considering the time period 1996-2006, the variable CR<sub>POM</sub> is

significant at the 10% level and the control variables leverage and profitability are significant at the 1% level (the control variable size is not statistically significant). As regards the time period 1996-2011, the variable  $CR_{POM}$  is significant at the 1% level, as well as the control variables leverage and profitability. The respective coefficient presents a positive value.

Regarding the dummy variables  $CR_{Plus}$  and  $CR_{Minus}$ , the respective p-values are below the 10% significance level for some time periods, but only in the case of Greece, Portugal and Spain. These two dummy variables are never significant for both variables in the same regression. Similar to the results incorporating financial institutions, the null hypothesis cannot be rejected.

The coefficients of all credit rating dummy variables for Italy, France and Germany are above the 10% significance level for the different time periods.

## 6. Conclusions

This work studies if a possibility of a downgrade or upgrade of a firm's credit rating has any significant impact in its capital structure choice, testing the CR-CS Hypothesis on a sample of European firms from six countries (Portugal, Spain, Italy, Greece, France and Germany) from 1996 to 2011.

I find that Portuguese firms tend to issue more net debt relative to equity and when near a broad rating change: approximately 1%, including financial institutions in the sample; approximately 2% and 5% for the time periods 1996-2011 and 1996-2006, respectively, excluding financial institutions. Italian firms, including financial institutions, tend to issue approximately 3% more net debt relative to equity when near a broad rating change. As regards the other countries considered in this study, no statistically significant relationship was identified, as well as when considering the sample of all six countries, whether including financial institutions or not.

Kisgen (2006) proved that credit ratings directly affect capital structure decisions, considering a sample of US firms. The plus or minus tests' results considering a

European sample do not deliver the same conclusion. This fact might be explained by the difference between the markets – The US market for equity and debt is more developed than the European markets (European firms tend to resort to bank loans in order to meet their funding needs more than to the equity or debt markets). Another relevant difference is the time period – this study considered a time period from 1996 to 2011, as data in euros was mostly available from 1995 onwards. This time period includes the launching of the euro on 1 January 1999 only for accounting purposes, and on 1 January 2002 in cash. The recent global financial crisis and the sovereign debt crisis also contributed for the shutting of European markets. These are only a few of the period-specific events that occurred and that created many limitations regarding the firms' financing choices.

As regards future research, a possible way forward is to study whether the influence of credit ratings in the capital structure choice of firms varies for different industries. Another possibility is to increase the number of firms in the sample, including firms from the countries in this sample that do not constitute the country's index and considering firms from Euro Area countries that were not considered in this study.

## **7. References**

Akerlof, George, 1970, "The Market for 'Lemons'": Quality Uncertainty and the Market Mechanism.", *Quarterly Journal of Economics* 84: 353–374.

Auerbach, A. J., 1985, "Real Determinants of Corporate Leverage," in Benjamin J. Friedman (ed.), *Corporate Capital Structures in the United States*, University of Chicago Press, Chicago.

Bancel, Franck and Mittoo, Usha R., *The Determinants of Capital Structure Choice: A Survey of European Firms*. AFA 2003 Washington, DC Meetings; EFMA 2002 London Meetings.

Bradley, Michael, Gregg Jarrell, and E. Han Kim, 1984, On the existence of an optimal capital structure: Theory and evidence, *Journal of Finance* 39, 857-878.

Cameron A. Colin, Trivedi Pravin K., *Microeconometrics using STATA*, 2010, Stata Press.

Cantor and Packer, 1994, *The Credit rating Industry*, Federal Reserve Bank of New York Quarterly Review 19, 1-26.

Fama, Eugene F., and Kenneth R. French, 2002, Testing tradeoff and pecking order predictions about dividends and debt, *Review of Financial Studies* 15, 1–33.

Frank, Murray Z. and Goyal, Vidhan K., 2007, *Capital Structure Decisions: Which Factors are Reliably Important?*.

Frydenberg, Stein, *Theory of Capital Structure - a Review* (January 26, 2011).

FRIHET OG MANGFOLD, FESTSSKRIFT TIL ODD, G. Arntzen. L. Fallan & O. Gustafsson, eds., Trondheim: Tapir/TØH, Tapir Academic Press, NO-7005 Trondheim, Norway.

Graham, John, and Campbell Harvey, 2001, The theory and practice of corporate finance: evidence from the field, *Journal of Financial Economics* 60, 187-243.

Harris, Milton and Raviv, Artur, 1991, The theory of optimal capital structure, *Journal of Finance* 46, 187-221.

Hodgman, Donald R., 1960, Credit Risk and Credit Rationing, *The Quarterly Journal of Economics* 74, 258-278.

Jensen, Michael C. and Meckling, William H., 1976, Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure, *Journal of Financial Economics*, Vol. 3, No. 4, 305-360.

Jensen, Michael C., Agency Cost Of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review*, Vol. 76, No. 2, May 1986.

Kisgen, Darren J., 2006, Credit Ratings and Capital Structure, *Journal of Finance*, Vol. LXI, NO. 3, pages 1035–1072.

Kisgen, Darren J., Do Firms Target Credit Ratings or Leverage Levels?. 2009, *Journal of Financial and Quantitative Analysis* 44, 1323-1344.

Michelsen, Marc and Klein, Christian, *The Relevance of External Credit Ratings in the Capital Structure Decision-Making Process* (November 16, 2011).

Miglo, Anton, 2010. "The Pecking Order, Trade-off, Signaling, and Market-Timing Theories of Capital Structure: a Review," MPRA Paper 46691.

Miller, Merton, 1977, Debt and taxes, *Journal of Finance* 32, 261-275.

Modigliani, Franco, and Merton Miller, 1958, The cost of capital, corporation finance and the theory of investment, *American Economic Review* 48, 261-297.



Modigliani, Franco, and Merton Miller, 1963, "Corporate Income Taxes and the Cost of Capital: A correction", *American Economic Review* 53, 433-443.

Myers, Stewart, 1977, "The determinants of corporate borrowing", *Journal of Financial Economics* 5, 147-175.

Myers, Stewart, 1984, "The capital structure puzzle", *Journal of Finance* 39, 575-592.

Myers, Stewart, and Nicholas Majluf, 1984, "Corporate financing and investment decisions when firms have information that investors do not have", *Journal of Financial Economics* 13, 187-221.

Rajan, Raghuram, and Luigi Zingales, 1995, "What do we know about capital structure? Some evidence from international data", *Journal of Finance* 50, 1421-1460.

Ross, Stephen A., 1977, "The determination of financial structure: the incentive signaling approach", *Bell Journal of Economics* 8, 1- 32.

Shyam-Sunder, Lakshmi, and Stewart Myers, 1999, "Testing static tradeoff against pecking order models of capital structure", *Journal of Financial Economics* 51, 219-244.

Titman, Sheridan, 2001, "The Modigliani and Miller Theorem and Market Efficiency", NBER working paper n°8641.

Titman, Sheridan, and Robert Wessels, 1988, "The determinants of capital structure choice", *Journal of Finance* 43, 1-19.

Welch, Ivo, 2002, "Columbus'egg: the real determinant of capital structure", NBER working paper n°8782.

White, Lawrence J., "Markets The Credit Rating Agencies", 2010, *Journal of economic Perspectives* 24, 211-226.

## **Appendix A**

### **Sample Including Financial Institutions**



Table A2

## Summary Statistics for Italy, France and Germany — Ratings and Leverage

Means, medians, and standard deviations of debt/(debt+equity) by credit rating within the sample, and the number of firm-years that had the indicated rating at the beginning of the firm-year. The sample consists of firms from 1996 to 2011 from the indexes FTSE MIB, CAC40 and DAX, excluding firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. Debt/(debt + equity) is book total debt divided by book total debt plus book common equity.

		AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+ OR BELOW	TOTAL
<b>IT</b>																			
	Number of Firm-Years	0	0	8	11	12	33	24	11	3	0	0	0	3	0	0	0	0	105
96-2006	Mean	-	-	31,9%	76,3%	69,9%	87,3%	69,0%	64,0%	49,6%	-	-	-	73,9%	-	-	-	-	71,8%
	D/(D+E) Median	-	-	32,9%	82,6%	71,6%	89,2%	85,2%	72,5%	38,9%	-	-	-	74,8%	-	-	-	-	85,2%
	Standard Deviation	-	-	5,3%	15,7%	20,4%	7,7%	28,6%	24,5%	20,0%	-	-	-	5,2%	-	-	-	-	23,6%
		Number of Firm-Years	0	0	5	15	9	14	24	12	11	7	4	1	0	0	0	0	0
2007-2011	Mean	-	-	47,2%	70,1%	75,4%	82,7%	73,9%	48,3%	52,9%	59,7%	72,2%	62,9%	-	-	-	-	-	67,0%
	D/(D+E) Median	-	-	53,5%	82,5%	84,4%	84,8%	82,7%	55,2%	51,6%	61,2%	71,4%	62,9%	-	-	-	-	-	72,4%
	Standard Deviation	-	-	13,8%	18,9%	17,2%	5,0%	21,1%	25,3%	9,6%	10,1%	7,8%	-	-	-	-	-	-	20,3%
		Number of Firm-Years	0	0	13	26	21	47	48	23	14	7	4	1	3	0	0	0	0
96-2011	Mean	-	-	37,8%	72,7%	72,3%	85,9%	71,4%	55,8%	52,2%	59,7%	72,2%	62,9%	73,9%	-	-	-	-	69,4%
	D/(D+E) Median	-	-	33,8%	82,6%	84,4%	87,5%	84,3%	62,1%	51,1%	61,2%	71,4%	62,9%	74,8%	-	-	-	-	79,8%
	Standard Deviation	-	-	11,8%	17,6%	18,8%	7,2%	25,0%	25,6%	11,6%	10,1%	7,8%	-	5,2%	-	-	-	-	22,1%
		Number of Firm-Years	9	2	21	36	30	23	30	33	29	10	2	7	0	2	0	0	0
96-2006	Mean	43,2%	47,4%	61,6%	63,4%	57,1%	36,3%	55,4%	58,7%	52,8%	39,3%	35,9%	54,7%	-	59,6%	-	-	-	54,3%
	D/(D+E) Median	43,5%	47,4%	66,2%	59,6%	51,3%	41,1%	58,3%	59,4%	51,7%	34,5%	35,9%	54,4%	-	59,6%	-	-	-	51,5%
	Standard Deviation	6,1%	0,4%	26,0%	26,2%	22,4%	17,1%	16,6%	20,8%	12,9%	21,5%	14,6%	25,2%	-	4,8%	-	-	-	21,7%
		Number of Firm-Years	0	2	10	13	7	18	23	31	22	12	10	1	3	0	2	0	0
2007-2011	Mean	-	87,2%	58,6%	80,2%	52,2%	44,3%	44,3%	52,9%	40,6%	37,3%	51,2%	57,8%	45,8%	-	56,8%	-	-	50,6%
	D/(D+E) Median	-	87,2%	57,6%	88,5%	45,9%	44,4%	46,3%	52,2%	37,6%	35,0%	53,6%	57,8%	51,7%	-	56,8%	-	-	47,4%
	Standard Deviation	-	3,1%	27,7%	21,4%	24,9%	7,7%	12,9%	16,9%	10,5%	10,0%	16,4%	-	13,5%	-	4,1%	-	-	19,2%
		Number of Firm-Years	9	4	31	49	37	41	53	64	51	22	12	8	3	2	2	0	0
96-2011	Mean	43,2%	67,3%	60,7%	67,8%	56,2%	39,8%	50,6%	55,9%	47,5%	38,2%	48,7%	55,0%	45,8%	59,6%	56,8%	-	-	52,8%
	D/(D+E) Median	43,5%	66,4%	66,2%	86,3%	51,2%	42,4%	54,7%	55,6%	48,7%	35,0%	51,8%	54,6%	51,7%	59,6%	56,8%	-	-	50,7%
	Standard Deviation	6,1%	23,0%	26,1%	25,9%	22,6%	14,2%	15,9%	19,1%	13,3%	15,8%	16,6%	23,4%	13,5%	4,8%	4,1%	-	-	20,8%
		Number of Firm-Years	5	8	12	34	24	10	13	17	13	1	13	6	0	0	0	0	0
96-2006	Mean	53,5%	47,6%	52,0%	48,5%	59,6%	69,5%	66,3%	51,8%	52,0%	30,9%	48,5%	48,2%	-	-	-	-	-	54,0%
	D/(D+E) Median	33,6%	45,6%	37,3%	39,6%	64,1%	70,9%	66,9%	55,9%	57,9%	30,9%	45,8%	48,4%	-	-	-	-	-	53,1%
	Standard Deviation	37,0%	29,3%	25,7%	27,2%	15,8%	18,2%	22,8%	13,6%	17,8%	-	11,6%	2,6%	-	-	-	-	-	21,9%
		Number of Firm-Years	0	0	10	14	10	16	23	18	13	6	2	10	2	1	0	0	0
2007-2011	Mean	-	-	65,6%	41,1%	62,9%	63,9%	49,8%	45,3%	44,2%	49,1%	44,6%	56,3%	45,5%	43,0%	-	-	-	52,0%
	D/(D+E) Median	-	-	75,7%	34,8%	60,2%	60,4%	40,2%	46,4%	48,7%	46,2%	44,6%	56,3%	45,5%	43,0%	-	-	-	47,7%
	Standard Deviation	-	-	20,9%	22,0%	21,4%	21,5%	18,6%	15,1%	14,3%	14,9%	2,9%	9,9%	2,6%	-	-	-	-	19,3%
		Number of Firm-Years	5	8	22	48	34	26	36	35	26	7	15	16	2	1	0	0	0
96-2011	Mean	53,5%	47,6%	58,2%	46,4%	60,6%	66,1%	55,8%	48,5%	48,1%	46,5%	48,0%	53,3%	45,5%	43,0%	-	-	-	53,1%
	D/(D+E) Median	33,6%	45,6%	46,5%	37,6%	64,1%	62,0%	49,9%	53,6%	52,3%	45,7%	45,8%	49,1%	45,5%	43,0%	-	-	-	49,2%
	Standard Deviation	37,0%	29,3%	24,1%	25,8%	17,4%	20,1%	21,4%	14,5%	16,3%	15,2%	10,9%	8,8%	2,6%	-	-	-	-	20,8%

Table A3

## Sample Summary Statistics — Ratings and Leverage

Means, medians, and standard deviations of debt/(debt+equity) by credit rating within the sample, and the number of firm-years that had the indicated rating at the beginning of the firm-year. The sample consists of firms from 1996 to 2011 from the indexes ATHEX20, PSI20, IBEX35, FTSE MIB, CAC40 and DAX, excluding firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. Debt/(debt + equity) is book total debt divided by book total debt plus book common equity.

		AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+ OR BELOW	TOTAL
<b>Full Sample</b>																			
	Number of Firm-Years	14	12	54	112	97	98	102	89	52	12	15	13	3	2	0	0	0	675
96-2006	Mean	46,9%	47,0%	58,2%	60,5%	60,7%	66,7%	67,7%	60,0%	53,6%	37,4%	46,8%	51,7%	73,9%	59,6%	-	-	-	60,4%
	D/(D+E) Median	42,1%	46,7%	59,9%	57,8%	58,3%	70,9%	69,7%	59,5%	51,7%	31,0%	45,8%	48,5%	74,8%	59,6%	-	-	-	58,6%
	Standard Deviation	21,7%	23,4%	25,1%	25,1%	18,9%	23,6%	23,3%	19,6%	16,4%	20,0%	12,3%	18,2%	5,2%	4,8%	-	-	-	22,6%
	Number of Firm-Years	0	2	34	51	32	81	97	80	67	33	21	19	6	2	2	0	0	527
2007-2011	Mean	-	87,2%	66,4%	65,9%	64,9%	67,8%	60,4%	56,1%	49,4%	51,1%	55,1%	62,0%	48,8%	65,9%	56,8%	-	-	59,9%
	D/(D+E) Median	-	87,2%	80,0%	72,6%	68,9%	74,1%	62,0%	58,2%	48,5%	48,7%	52,3%	58,8%	49,5%	65,9%	56,8%	-	-	58,9%
	Standard Deviation	-	3,1%	23,2%	24,7%	21,5%	21,0%	21,2%	20,6%	16,3%	18,3%	19,7%	21,0%	11,4%	32,4%	4,1%	-	-	21,5%
	Number of Firm-Years	14	14	88	163	129	179	199	169	119	45	36	32	9	4	2	0	0	1202
96-2011	Mean	46,9%	52,8%	61,4%	62,2%	61,7%	67,2%	64,2%	58,2%	51,2%	47,5%	51,7%	57,8%	57,2%	62,8%	56,8%	-	-	60,2%
	D/(D+E) Median	42,1%	47,4%	68,4%	60,0%	59,1%	73,0%	66,9%	59,4%	50,6%	46,3%	50,9%	51,5%	55,4%	59,6%	56,8%	-	-	58,9%
	Standard Deviation	21,7%	26,0%	24,6%	25,0%	19,5%	22,4%	22,6%	20,1%	16,4%	19,5%	17,3%	20,2%	15,7%	19,2%	4,1%	-	-	22,1%

Table A4

## Sample Summary Statistics — Net Debt Issuance

Means, standard deviations and the number of observation of NetDIss (net debt minus net equity divided by beginning-of-year total assets) per country (Greece, Italy, Portugal, France, Spain, Germany) and for the full sample by firm-years with a minus credit rating, a plus credit rating, either (minus or plus) credit rating and with a credit rating that is neither plus or minus. The sample consists of firms from 1996 to 2011 from the indexes ATHEX20, PSI20, IBEX35, FTSE MIB, CAC40 and DAX, excluding firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. NetDIss is  $(\Delta D_{it} - \Delta E_{it})/A_{it}$ .

GR					IT				
	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pom</sub>	none		CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pom</sub>	none
1996-2006					1996-2006				
Average	0.0249	0.0046	0.0093	0.0326	Average	-0.0219	-0.0186	-0.0206	0.0218
Standard Deviation	0.0611	0.1263	0.1138	0.0580	Standard Deviation	0.3402	0.0715	0.2707	0.1005
Number Obs	6	20	26	10	Number Obs	38	23	61	44
2007-2011					2007-2011				
Average	-0.0264	0.0416	0.0253	0.0539	Average	0.0326	0.0329	0.0327	0.0050
Standard Deviation	0.0516	0.0825	0.0809	0.1013	Standard Deviation	0.0605	0.1367	0.0936	0.0699
Number Obs	6	19	25	20	Number Obs	46	25	71	31
1996-2011					1996-2011				
Average	-0.0008	0.0226	0.0171	0.0468	Average	0.0080	0.0082	0.0081	0.0148
Standard Deviation	0.0602	0.1075	0.0984	0.0887	Standard Deviation	0.2331	0.1123	0.1973	0.0890
Number Obs	12	39	51	30	Number Obs	84	48	132	75
PT					FR				
	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pom</sub>	none		CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pom</sub>	none
1996-2006					1996-2006				
Average	0.0451	-0.0125	0.0277	0.0261	Average	-0.0137	-0.0107	-0.0123	-0.0087
Standard Deviation	0.0898	0.1110	0.0990	0.0627	Standard Deviation	0.0987	0.1183	0.1081	0.0860
Number Obs	30	13	43	9	Number Obs	76	69	145	89
2007-2011					2007-2011				
Average	0.0308	0.0164	0.0285	0.0197	Average	-0.0100	-0.0026	-0.0064	-0.0022
Standard Deviation	0.0615	0.0696	0.0610	0.1106	Standard Deviation	0.0815	0.0510	0.0679	0.0711
Number Obs	16	3	19	18	Number Obs	51	50	101	53
1996-2011					1996-2011				
Average	0.0401	-0.0071	0.0280	0.0218	Average	-0.0122	-0.0073	-0.0099	-0.0063
Standard Deviation	0.0806	0.1031	0.0886	0.0960	Standard Deviation	0.0918	0.0957	0.0936	0.0806
Number Obs	46	16	62	27	Number Obs	127	119	246	142
ES					DE				
	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pom</sub>	none		CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pom</sub>	none
1996-2006					1996-2006				
Average	0.0361	0.0082	0.0229	0.0579	Average	0.0135	-0.0034	0.0040	-0.0061
Standard Deviation	0.1204	0.0681	0.0993	0.0813	Standard Deviation	0.0952	0.0674	0.0808	0.0881
Number Obs	31	28	59	33	Number Obs	48	62	110	46
2007-2011					2007-2011				
Average	0.0281	0.0048	0.0215	0.0189	Average	-0.0113	-0.0188	-0.0144	-0.0105
Standard Deviation	0.0851	0.0457	0.0761	0.0798	Standard Deviation	0.1034	0.0885	0.0971	0.0799
Number Obs	23	9	32	32	Number Obs	45	31	76	49
1996-2011					1996-2011				
Average	0.0327	0.0074	0.0224	0.0387	Average	0.0015	-0.0085	-0.0035	-0.0083
Standard Deviation	0.1060	0.0628	0.0914	0.0823	Standard Deviation	0.0995	0.0750	0.0880	0.0836
Number Obs	54	37	91	65	Number Obs	93	93	186	95
Full Sample									
	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pom</sub>	none		CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pom</sub>	none
1996-2006									
Average	0.0061	-0.0057	0.0004	0.0103					
Standard Deviation	0.1658	0.0950	0.1361	0.0894					
Number Obs	229	215	444	231					
2007-2011									
Average	0.0078	0.0072	0.0076	0.0077					
Standard Deviation	0.0830	0.0868	0.0845	0.0829					
Number Obs	187	137	324	203					
1996-2011									
Average	0.0069	-0.0006	0.0034	0.0091					
Standard Deviation	0.1349	0.0920	0.1172	0.0863					
Number Obs	416	352	768	434					

Table A5

## Impact of a Plus or Minus Credit Rating on Capital Structure – Greece, Spain and Portugal

Coefficients and standard errors from pooled time-series cross-section random-effects GLS regressions with robust errors of NetDiss on credit rating dummy variables and on the control variables leverage, size and profitability. NetDiss is net debt minus net equity divided by beginning-of-year total assets. The credit rating dummy variables are CR<sub>plus</sub> (equals 1 when a plus credit rating is observed), CR<sub>minus</sub> (equals 1 when a minus credit rating is observed) and CR<sub>pom</sub> (equals 1 when either a plus or a minus credit rating is observed). Leverage is book total debt divided by book total debt plus book common equity. Size is given by the natural logarithm of total sales. Profitability is EBITDA divided by total assets (both from the previous year). The sample consists of firms from 1996 to 2011 from the indexes ATHEX20, PSI20 and IBEX35, excluding firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

		Cons	CRPOM	CRMinus	CRPlus	Leverage	Size	Profitability	Number of firm-years	
GR	1996-2006	1	0,4262 (0,4485)	-0,0125 (0,0278)					36	
		2	0,2952 (0,3493)		0,0059 (0,0232)	-0,0206 (0,0409)	-0,1244 (0,0955)	-0,0197 (0,0273)	-0,3577 (0,2454)	36
		3	0,0326*** (0,0109)	-0,0233 (0,0355)			-0,1139 (0,0732)	-0,0109 (0,0237)	-0,4245 (0,3319)	36
	2007-2011	1	-0,0394 (0,3143)	-0,0313 (0,0343)			0,0176 (0,0795)	0,0063 (0,0246)	-0,1731 (0,1262)	45
		2	-0,0155 (0,2545)		-0,0814*** (0,0257)	-0,0157 (0,0402)	0,0245 (0,0759)	0,0044 (0,0204)	-0,1544 (0,1210)	45
		3	0,0539** (0,0246)	-0,0286 (0,0346)						45
	1996-2011	1	-0,1390 (0,2811)	-0,0257 (0,0237)			-0,0596 (0,0548)	0,0161 (0,0204)	-0,2807*** (0,1074)	81
		2	-0,0676 (0,2505)		-0,0425* (0,0239)	-0,0216 (0,0289)	-0,0456 (0,0566)	0,0106 (0,0185)	-0,2476* (0,1324)	81
		3	0,0482** (0,0202)	-0,0308 (0,0240)						81
PT	1996-2006	1	0,2991*** (0,1091)	0,0305 (0,0210)			-0,3541** (0,1539)	0,0031 (0,0106)	-0,9711*** (0,3377)	52
		2	0,3340*** (0,1152)		0,0539 (0,0329)	-0,0105 (0,0201)	-0,3508* (0,1933)	-0,0011 (0,0083)	-0,7246* (0,3759)	52
		3	0,0261*** (0,0097)	0,0017 (0,0128)						52
	2007-2011	1	0,1999** (0,0967)	0,0084 (0,0177)			-0,2772** (0,1328)	0,0037 (0,0081)	-0,2997*** (0,0083)	37
		2	0,2380* (0,1238)		0,0129 (0,0222)	-0,0113 (0,0292)	-0,2749** (0,1359)	0,0011 (0,0078)	-0,3119*** (0,0921)	37
		3	0,01972** (0,0083)	0,0088 (0,0146)						37
	1996-2011	1	0,2357*** (0,0853)	0,0160** (0,0075)			-0,2540*** (0,0549)	0,0012 (0,0075)	-0,5854*** (0,0867)	89
		2	0,3257*** (0,0740)		0,0314** (0,0131)	-0,0311 (0,0219)	-0,2693*** (0,0907)	-0,0046 (0,0059)	-0,4878*** (0,0968)	89
		3	0,0218*** (0,0072)	0,0061 (0,0117)						89
ES	1996-2006	1	0,3882 (0,2907)	-0,0185 (0,1369)			0,0216 (0,1119)	-0,0243 (0,0187)	0,3878 (0,3037)	92
		2	0,3257 (0,2791)		-0,0057 (0,0148)	-0,0271* (0,0163)	0,0170 (0,1038)	-0,0201 (0,0175)	0,3459 (0,3097)	92
		3	0,0501*** (0,0176)	-0,0076 (0,0120)						92
	2007-2011	1	0,4942*** (0,1267)	-0,0011 (0,0220)			-0,1648*** (0,0440)	-0,0210*** (0,0065)	-0,1460 (0,1838)	64
		2	0,4974*** (0,1301)		0,0084 (0,0229)	-0,0216 (0,0247)	-0,1678*** (0,0476)	-0,0211*** (0,0065)	-0,1501 (0,1841)	64
		3	0,0253* (0,0153)	0,0013 (0,0213)						64
	1996-2011	1	0,4172*** (0,1378)	-0,0173 (0,0163)			-0,0646 (0,0650)	-0,0210*** (0,0077)	0,0626 (0,2926)	156
		2	0,4175*** (0,1439)		-0,0067 (0,0142)	-0,0320 (0,0233)	-0,0761 (0,0605)	-0,0205** (0,0082)	0,0578 (0,2838)	156
		3	0,0423*** (0,0100)	-0,0114 (0,0141)						156

Table A6

## Impact of a Plus or Minus Credit Rating on Capital Structure – Italy, France and Germany

Coefficients and standard errors from pooled time-series cross-section random-effects GLS regressions with robust errors of NetDiss on credit rating dummy variables and on the control variables leverage, size and profitability. NetDiss is net debt minus net equity divided by beginning-of-year total assets. The credit rating dummy variables are CR<sub>plus</sub> (equals 1 when a plus credit rating is observed), CR<sub>minus</sub> (equals 1 when a minus credit rating is observed) and CR<sub>pom</sub> (equals 1 when either a plus or a minus credit rating is observed). Leverage is book total debt divided by book total debt plus book common equity. Size is given by the natural logarithm of total sales. Profitability is EBITDA divided by total assets (both from the previous year). The sample consists of firms from 1996 to 2011 from the indexes FTSE MIB, CAC40 and DAX, excluding firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

		Cons	CRPOM	CRMinus	CRPlus	Leverage	Size	Profitability	Number of firm-years	
IT	1996-2006	1	0,9058** (0,4339)	-0,0478 (0,0481)			-0,0842 (0,1304)	-0,0516** (0,0257)	-0,0050 (0,3541)	105
		2	0,9701** (0,4742)		-0,0635 (0,0696)	-0,0209 (0,0225)	-0,0971 (0,1266)	-0,0550* (0,0290)	-0,0402 (0,3431)	105
		3	0,0228 (0,0183)	-0,0468 (0,0440)						105
	2007-2011	1	0,1272* (0,0761)	0,0244 (0,0158)			-0,0344 (0,0310)	-0,0059 (0,0045)	-0,0358 (0,1098)	102
		2	0,1274 (0,0760)		0,0243 (0,0171)	0,0246 (0,0242)	-0,0342 (0,0260)	-0,0059 (0,0043)	-0,0356 (0,1115)	102
		3	0,0050 (0,0128)	0,0278* (0,0152)						102
	1996-2011	1	0,4852** (0,2170)	-0,0150 (0,0224)			-0,0758 (0,0596)	-0,0252** (0,0118)	-0,1270 (0,0844)	207
		2	0,5003** (0,2322)		-0,0213 (0,0318)	-0,0042 (0,0146)	-0,0713 (0,0515)	-0,0264** (0,0133)	-0,1205 (0,0975)	207
		3	0,0148 (0,0115)	-0,0068 (0,0176)						207
FR	1996-2006	1	-0,1433 (0,1353)	-0,0072 (0,0161)			-0,1245** (0,0507)	0,0139 (0,0089)	-0,2763** (0,1366)	234
		2	-0,1346 (0,1452)		-0,0121 (0,0194)	-0,0034 (0,0195)	-0,1310** (0,0530)	0,0137 (0,0094)	-0,2884** (0,1332)	234
		3	-0,0035 (0,0112)	-0,0122 (0,0161)						234
	2007-2011	1	-0,0518 (0,0646)	-0,0071 (0,0110)			-0,0517 (0,0367)	0,0059 (0,0041)	-0,2544** (0,1224)	154
		2	-0,0548 (0,0685)		-0,0109 (0,0139)	-0,0029 (0,0109)	-0,0531 (0,0381)	0,0061 (0,0044)	-0,2539** (0,1267)	154
		3	-0,0022 (0,0081)	-0,0041 (0,0114)						154
	1996-2011	1	-0,1415* (0,0778)	-0,0019 (0,0096)			-0,0537* (0,0292)	0,0108** (0,0050)	-0,1959** (0,0973)	388
		2	-0,1399* (0,0810)		-0,0039 (0,0119)	0,0002 (0,0113)	-0,0538* (0,0295)	0,0107** (0,0052)	-0,1968** (0,0970)	388
		3	-0,0063 (0,0068)	-0,0036 (0,0101)						388
DE	1996-2006	1	-0,0309 (0,1320)	0,0138 (0,0171)			-0,0516 (0,0469)	0,0037 (0,0072)	-0,1286 (0,1488)	156
		2	-0,0110 (0,1386)		0,0278 (0,0253)	0,0047 (0,0154)	-0,0453 (0,0432)	0,0023 (0,0074)	-0,1253 (0,1582)	156
		3	-0,0085 (0,0142)	0,0133 (0,0160)						156
	2007-2011	1	-0,1316 (0,2035)	-0,0178 (0,0187)			-0,1113** (0,0515)	0,0103 (0,0115)	0,1099 (0,2099)	125
		2	-0,1317 (0,2061)		-0,0165 (0,0197)	-0,0199 (0,0244)	-0,1143** (0,0527)	0,0104 (0,0116)	0,1090 (0,2133)	125
		3	-0,0105 (0,0111)	-0,0039 (0,0150)						125
	1996-2011	1	-0,0657 (0,1093)	0,0026 (0,1093)			-0,0414 (0,0278)	0,0047 (0,0062)	0,0064 (0,1130)	281
		2	-0,0596 (0,1129)		0,0075 (0,0175)	-0,0018 (0,0106)	-0,0437 (0,0288)	0,0043 (0,0064)	0,0104 (0,1146)	281
		3	-0,0089 (0,0089)	0,0053 (0,0117)						281

Table A7



### Impact of a Plus or Minus Credit Rating on Capital Structure – Full Sample

Coefficients and standard errors from pooled time-series cross-section random-effects GLS regressions with robust errors of NetDiss on credit rating dummy variables and on the control variables leverage, size and profitability. NetDiss is net debt minus net equity divided by beginning-of-year total assets. The credit rating dummy variables are CR<sub>plus</sub> (equals 1 when a plus credit rating is observed), CR<sub>minus</sub> (equals 1 when a minus credit rating is observed) and CR<sub>pom</sub> (equals 1 when either a plus or a minus credit rating is observed). Leverage is book total debt divided by book total debt plus book common equity. Size is given by the natural logarithm of total sales. Profitability is EBITDA divided by total assets (both from the previous year). The sample consists of firms from 1996 to 2011 from the indexes ATHEX20, PSI20, IBEX35, FTSE MIB, CAC40 and DAX, excluding firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

		Cons	CRPOM	CRMinus	CRPlus	Leverage	Size	Profitability	Number of firm-years	
Full Sample	1996-2006	1	0,2460*** (0,0880)	-0,0108 (0,0110)		-0,0646* (0,0349)	-0,0111** (0,0048)	-0,1649* (0,0996)	675	
		2	0,2397* (0,0915)		-0,0061 (0,0162)	-0,0154* (0,0092)	-0,0633* (0,0347)	-0,0108** (0,0050)	-0,1590 (0,0982)	675
		3	0,0118* (0,0071)	-0,0122 (0,0108)						675
	2007-2011	1	0,1787*** (0,0411)	0,0004 (0,0071)			-0,0250 (0,0162)	-0,0091*** (0,0023)	-0,0842 (0,0638)	527
		2	0,1790*** (0,0412)		0,0006 (0,0080)	0,0002 (0,0094)	-0,0253 (0,0162)	-0,0091*** (0,0023)	-0,0845 (0,0646)	527
		3	0,0077 (0,0052)	-0,0001 (0,0072)						527
	1996-2011	1	0,1795*** (0,0519)	-0,0051 (0,0059)			-0,0260 (0,0205)	-0,0089*** (0,0028)	-0,1145** (0,0579)	1202
		2	0,1770** (0,0529)		-0,0026 (0,0084)	-0,0080 (0,0061)	-0,0255 (0,0203)	-0,0087*** (0,0028)	-0,1128** (0,0576)	1202
		3	0,0093** (0,0046)	-0,0058 (0,0061)						1202

## **Appendix B**

### **Sample Excluding Financial Institutions**



Table B2

## Summary Statistics Excluding Financial Institutions for Italy, France and Germany — Ratings and Leverage

Means, medians, and standard deviations of debt/(debt+equity) by credit rating within the sample, and the number of firm-years that had the indicated rating at the beginning of the firm-year. The sample consists of firms from 1996 to 2011 from the indexes FTSE MIB, CAC40 and DAX, excluding financial institutions, firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. Debt/(debt + equity) is book total debt divided by book total debt plus book common equity.

		AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+ OR BELOW	TOTAL
<b>IT</b>																			
96-2006	Number of Firm-Years	0	0	8	4	6	8	8	8	3	0	0	0	3	0	0	0	0	48
	Mean	-	-	31,9%	61,6%	51,1%	81,0%	34,2%	54,9%	49,6%	-	-	-	73,9%	-	-	-	-	52,9%
	D/(D+E) Median	-	-	32,9%	55,9%	54,4%	83,1%	28,7%	65,5%	38,9%	-	-	-	74,8%	-	-	-	-	53,4%
	Standard Deviation	-	-	5,3%	18,8%	7,4%	13,6%	24,2%	22,5%	20,0%	-	-	-	5,2%	-	-	-	-	23,4%
2007-2011	Number of Firm-Years	0	0	5	7	4	3	9	12	11	7	4	1	0	0	0	0	0	63
	Mean	-	-	47,2%	52,7%	61,8%	74,4%	54,5%	48,3%	52,9%	59,7%	72,2%	62,9%	-	-	-	-	-	55,5%
	D/(D+E) Median	-	-	53,5%	56,1%	68,5%	74,1%	62,7%	55,2%	51,6%	61,2%	71,4%	62,9%	-	-	-	-	-	60,8%
	Standard Deviation	-	-	13,8%	12,8%	18,4%	0,9%	24,3%	25,3%	9,6%	10,1%	7,8%	0,0%	-	-	-	-	-	17,9%
96-2011	Number of Firm-Years	0	0	13	11	10	11	17	20	14	7	4	1	3	0	0	0	0	111
	Mean	-	-	37,8%	55,9%	55,4%	79,2%	45,0%	50,9%	52,2%	59,7%	72,2%	62,9%	73,9%	-	-	-	-	54,4%
	D/(D+E) Median	-	-	33,8%	56,1%	56,0%	75,9%	32,3%	58,2%	51,1%	61,2%	71,4%	62,9%	74,8%	-	-	-	-	57,3%
	Standard Deviation	-	-	11,8%	15,0%	13,2%	11,8%	25,7%	23,8%	11,6%	10,1%	7,8%	-	5,2%	-	-	-	-	20,4%
<b>FR</b>																			
96-2006	Number of Firm-Years	9	2	11	20	24	23	30	33	29	10	2	7	0	2	0	0	0	202
	Mean	43,2%	47,4%	40,0%	42,3%	48,1%	36,3%	55,4%	58,7%	52,8%	39,3%	35,9%	54,7%	-	59,6%	-	-	-	48,8%
	D/(D+E) Median	43,5%	47,4%	32,2%	38,6%	48,8%	41,1%	58,3%	59,4%	51,7%	34,5%	35,9%	54,4%	-	59,6%	-	-	-	49,3%
	Standard Deviation	6,1%	0,4%	15,9%	14,3%	14,4%	17,1%	16,6%	20,8%	12,9%	21,5%	14,6%	25,2%	-	4,8%	-	-	-	18,0%
2007-2011	Number of Firm-Years	0	0	5	7	5	18	23	31	22	12	10	1	3	0	2	0	0	139
	Mean	-	-	32,4%	73,5%	39,0%	44,3%	44,3%	52,9%	40,6%	37,3%	51,2%	57,8%	45,8%	-	56,8%	-	-	46,7%
	D/(D+E) Median	-	-	32,8%	88,5%	35,9%	44,4%	46,3%	52,2%	37,6%	35,0%	53,6%	57,8%	51,7%	-	56,8%	-	-	44,7%
	Standard Deviation	-	-	1,3%	28,4%	12,8%	7,7%	12,9%	16,9%	10,5%	10,0%	16,4%	-	13,5%	-	4,1%	-	-	15,9%
96-2011	Number of Firm-Years	9	2	16	27	29	41	53	64	51	22	12	8	3	2	2	0	0	341
	Mean	43,2%	47,4%	37,6%	50,4%	46,5%	39,8%	50,6%	55,9%	47,5%	38,2%	48,7%	55,0%	45,8%	59,6%	56,8%	-	-	47,9%
	D/(D+E) Median	43,5%	47,4%	32,5%	40,2%	47,0%	42,4%	54,7%	55,6%	48,7%	35,0%	51,8%	54,6%	51,7%	59,6%	56,8%	-	-	47,3%
	Standard Deviation	6,1%	0,4%	13,5%	23,0%	14,4%	14,2%	15,9%	19,1%	13,3%	15,8%	16,6%	23,4%	13,5%	4,8%	4,1%	-	-	17,2%
<b>DE</b>																			
96-2006	Number of Firm-Years	3	4	8	28	24	9	9	17	13	1	13	6	0	0	0	0	0	135
	Mean	26,7%	21,7%	35,2%	39,2%	59,6%	66,6%	53,4%	51,8%	52,0%	30,9%	48,5%	48,2%	-	-	-	-	-	48,6%
	D/(D+E) Median	25,6%	22,3%	34,1%	35,8%	64,1%	70,0%	48,1%	55,9%	57,9%	30,9%	45,8%	48,4%	-	-	-	-	-	48,1%
	Standard Deviation	6,5%	4,5%	6,8%	19,7%	15,8%	16,6%	12,8%	13,6%	17,8%	-	11,6%	2,6%	-	-	-	-	-	18,0%
2007-2011	Number of Firm-Years	0	0	4	13	7	12	22	18	13	6	2	10	2	1	0	0	0	110
	Mean	-	-	42,0%	37,0%	51,8%	54,5%	47,8%	45,3%	44,2%	49,1%	44,6%	56,3%	45,5%	43,0%	-	-	-	47,2%
	D/(D+E) Median	-	-	42,3%	34,8%	48,5%	51,4%	40,0%	46,4%	48,7%	46,2%	44,6%	56,3%	45,5%	43,0%	-	-	-	45,5%
	Standard Deviation	-	-	1,7%	16,4%	14,2%	15,8%	16,0%	15,1%	14,3%	14,9%	2,9%	9,9%	2,6%	-	-	-	-	14,9%
96-2011	Number of Firm-Years	3	4	12	41	31	21	31	35	26	7	15	16	2	1	0	0	0	245
	Mean	26,7%	21,7%	37,5%	38,5%	57,9%	59,7%	49,4%	48,5%	48,1%	46,5%	48,0%	53,3%	45,5%	43,0%	-	-	-	48,0%
	D/(D+E) Median	25,6%	22,3%	37,3%	34,8%	62,0%	59,7%	47,6%	53,6%	52,3%	45,7%	45,8%	49,1%	45,5%	43,0%	-	-	-	46,7%
	Standard Deviation	6,5%	4,5%	6,4%	18,6%	15,6%	16,8%	15,1%	14,5%	16,3%	15,2%	10,9%	8,8%	2,6%	-	-	-	-	16,7%

Table B3

## Sample Summary Statistics Excluding Financial Institutions — Ratings and Leverage

Means, medians, and standard deviations of debt/(debt+equity) by credit rating within the sample, and the number of firm-years that had the indicated rating at the beginning of the firm-year. The sample consists of firms from 1996 to 2011 from the indexes ATHEX20, PSI20, IBEX35, FTSE MIB, CAC40 and DAX, excluding financial institutions, firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. Debt/(debt + equity) is book total debt divided by book total debt plus book common equity.

		AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+ OR BELOW	TOTAL
<b>TOTAL</b>																			
96-2006	Number of Firm-Years	12	8	31	74	79	60	59	74	48	11	15	13	3	2	0	0	0	489
	Mean	39,1%	33,8%	38,7%	45,7%	54,0%	54,1%	52,3%	56,1%	51,8%	38,5%	46,8%	51,7%	73,9%	59,6%	-	-	-	50,5%
	D/(D+E) Median	39,4%	34,5%	33,7%	43,0%	55,8%	53,9%	54,7%	55,8%	51,6%	31,2%	45,8%	48,5%	74,8%	59,6%	-	-	-	51,0%
	Standard Deviation	9,5%	13,4%	13,0%	17,2%	13,8%	21,5%	18,2%	18,6%	14,3%	20,5%	12,3%	18,2%	5,2%	4,8%	-	-	-	17,7%
2007-2011	Number of Firm-Years	0	0	14	32	20	45	73	69	64	33	20	16	6	2	2	0	0	396
	Mean	-	-	40,4%	53,2%	51,6%	52,6%	51,6%	51,8%	47,6%	51,1%	52,5%	54,2%	48,8%	65,9%	56,8%	-	-	51,0%
	D/(D+E) Median	-	-	36,7%	50,2%	47,8%	48,4%	52,5%	54,4%	47,0%	48,7%	51,8%	54,2%	49,5%	65,9%	56,8%	-	-	49,1%
	Standard Deviation	-	-	10,1%	23,1%	15,9%	14,3%	16,8%	18,7%	14,3%	18,3%	16,2%	10,5%	11,4%	32,4%	4,1%	-	-	16,8%
96-2011	Number of Firm-Years	12	8	45	106	99	105	132	143	112	44	35	29	9	4	2	0	0	885
	Mean	39,1%	33,8%	39,2%	47,9%	53,5%	53,5%	51,9%	54,0%	49,4%	48,0%	50,1%	53,1%	57,2%	62,8%	56,8%	-	-	50,7%
	D/(D+E) Median	39,4%	34,5%	33,7%	43,8%	55,7%	49,8%	53,5%	55,6%	49,5%	46,5%	50,6%	50,3%	55,4%	59,6%	56,8%	-	-	50,3%
	Standard Deviation	9,5%	13,4%	12,1%	19,3%	14,2%	18,7%	17,4%	18,7%	14,4%	19,4%	14,7%	14,3%	15,7%	19,2%	4,1%	-	-	17,3%

Table B4

## Sample Summary Statistics Excluding Financial Institutions — Net Debt Issuance

Means, standard deviations and the number of observation of NetDiss (net debt minus net equity divided by beginning-of-year total assets) per country (Greece, Italy, Portugal, France, Spain, Germany) and for the full sample by firm-years with a minus credit rating, a plus credit rating, either (minus or plus) credit rating and with a credit rating that is neither plus or minus. The sample consists of firms from 1996 to 2011 from the indexes ATHEX20, PSI20, IBEX35, FTSE MIB, CAC40 and DAX, excluding financial institutions, firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. NetDiss is  $(\Delta D_{it} - \Delta E_{it})/A_{it}$ .

	GR				IT			
	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pm</sub>	none	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pm</sub>	none
1996-2006					1996-2006			
Average	0,0313	-0,0496	-0,0247	0,0243	Average	-0,1034	-0,0332	-0,0695
Standard Deviation	0,0582	0,1215	0,1104	0,0656	Standard Deviation	0,5342	0,0869	0,3840
Number Obs	4	9	13	7	Number Obs	15	14	29
2007-2011					2007-2011			
Average	-0,0572	0,0413	0,0145	0,0309	Average	0,0153	0,0462	0,0297
Standard Deviation	0,0488	0,1041	0,1009	0,1067	Standard Deviation	0,0603	0,1495	0,1107
Number Obs	3	8	11	14	Number Obs	23	20	43
1996-2011					1996-2011			
Average	-0,0066	-0,0068	-0,0068	0,0287	Average	-0,0315	0,0135	-0,0103
Standard Deviation	0,0687	0,1196	0,1058	0,0933	Standard Deviation	0,3371	0,1320	0,2604
Number Obs	7	17	24	21	Number Obs	38	34	72
	PT				FR			
	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pm</sub>	none	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pm</sub>	none
1996-2006					1996-2006			
Average	0,0622	-0,0166	0,0149	0,0277	Average	-0,0200	-0,0172	-0,0186
Standard Deviation	0,1339	0,1149	0,1258	0,0669	Standard Deviation	0,1074	0,1177	0,1123
Number Obs	8	12	20	8	Number Obs	60	63	123
2007-2011					2007-2011			
Average	0,0413	0,0484	0,0424	0,0270	Average	-0,0153	-0,0060	-0,0106
Standard Deviation	0,0626	0,0594	0,0598	0,1492	Standard Deviation	0,0843	0,0490	0,0685
Number Obs	11	2	13	9	Number Obs	45	46	91
1996-2011					1996-2011			
Average	0,0501	-0,0073	0,0258	0,0273	Average	-0,0180	-0,0125	-0,0152
Standard Deviation	0,0963	0,1095	0,1045	0,1144	Standard Deviation	0,0977	0,0948	0,0961
Number Obs	19	14	33	17	Number Obs	105	109	214
	ES				DE			
	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pm</sub>	none	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pm</sub>	none
1996-2006					1996-2006			
Average	0,0399	-0,0055	0,0172	0,0254	Average	0,0030	-0,0065	-0,0027
Standard Deviation	0,1390	0,0573	0,1076	0,1078	Standard Deviation	0,0978	0,0683	0,0809
Number Obs	22	22	44	12	Number Obs	38	58	96
2007-2011					2007-2011			
Average	0,0252	0,0067	0,0202	0,0293	Average	-0,0139	-0,0213	-0,0168
Standard Deviation	0,0928	0,0526	0,0833	0,1043	Standard Deviation	0,1034	0,0923	0,0986
Number Obs	19	7	26	11	Number Obs	43	28	71
1996-2011					1996-2011			
Average	0,0331	-0,0026	0,0183	0,0273	Average	-0,0060	-0,0113	-0,0087
Standard Deviation	0,1187	0,0555	0,0986	0,1037	Standard Deviation	0,1006	0,0767	0,0889
Number Obs	41	29	70	23	Number Obs	81	86	167
	Full Sample							
	CR <sub>minus</sub>	CR <sub>plus</sub>	CR <sub>pm</sub>	none				
1996-2006								
Average	-0,0077	-0,0151	-0,0118	-0,0047				
Standard Deviation	0,1996	0,0944	0,1511	0,0871				
Number Obs	147	178	325	164				
2007-2011								
Average	-0,0012	0,0047	0,0014	0,0043				
Standard Deviation	0,0879	0,0921	0,0896	0,0889				
Number Obs	144	111	255	141				
1996-2011								
Average	-0,0045	-0,0075	-0,0060	-0,0006				
Standard Deviation	0,1545	0,0939	0,1279	0,0879				
Number Obs	291	289	580	305				

Table B5

## Impact of a Plus or Minus Credit Rating on Capital Structure Excluding Financial Institutions – Greece, Spain and Portugal

Coefficients and standard errors from pooled time-series cross-section random-effects GLS regressions with robust errors of NetDiss on credit rating dummy variables and on the control variables leverage, size and profitability. NetDiss is net debt minus net equity divided by beginning-of-year total assets. The credit rating dummy variables are CR<sub>plus</sub> (equals 1 when a plus credit rating is observed), CR<sub>minus</sub> (equals 1 when a minus credit rating is observed) and CR<sub>pom</sub> (equals 1 when either a plus or a minus credit rating is observed). Leverage is book total debt divided by book total debt plus book common equity. Size is given by the natural logarithm of total sales. Profitability is EBITDA divided by total assets (both from the previous year). The sample consists of firms from 1996 to 2011 from the indexes ATHEX20, PSI20 and IBEX35, excluding financial institutions, firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

		Cons	CRPOM	CRMinus	CRPlus	Leverage	Size	Profitability	Number of firm-years	
GR	1996-2006	1	-0,0841 (1,9506)	-0,0191 (0,0312)			-0,2128** (0,0839)	0,0123 (0,1258)	0,0760 (0,3207)	20
		2	-0,3239 (1,4915)		0,0095 (0,0457)	-0,0314 (0,0529)	-0,1935** (0,0838)	0,0297 (0,0924)	-0,1614 (0,6446)	20
		3	0,0081 (0,0163)	-0,0261 (0,0325)						20
	2007-2011	1	-0,1851 (0,3267)	-0,0127 (0,0544)			-0,0976 (0,0725)	0,0181 (0,0256)	-0,0929 (0,3103)	25
		2	-0,1000 (0,2671)		-0,0818** (0,0412)	0,0119 (0,0717)	-0,0822 (0,0658)	0,0118 (0,0212)	-0,0724 (0,2857)	25
		3	0,0309 (0,0322)	-0,0164 (0,0573)						25
	1996-2011	1	-0,2306 (0,2993)	-0,0218 (0,0341)			-0,1831*** (0,0139)	0,0232 (0,0217)	-0,0645 (0,3021)	45
		2	-0,2100 (0,2760)		-0,0405* (0,0226)	-0,0141 (0,0430)	-0,1967*** (0,0062)	0,0221 (0,0204)	-0,0343 (0,3347)	45
		3	0,0283 (0,0242)	-0,0335 (0,0423)						45
PT	1996-2006	1	0,3547 (0,2470)	0,0453* (0,0247)			-0,7104*** (0,1461)	0,0100 (0,0188)	-0,7061*** (0,2151)	28
		2	0,3996* (0,2154)		0,0917* (0,0205)	0,0000 (0,0448)	-0,7542*** (0,2557)	0,0067 (0,0140)	-0,4584** (0,2306)	28
		3	0,0277** (0,0110)	-0,0127 (0,0196)						28
	2007-2011	1	0,1991 (0,1747)	0,0269 (0,0328)			-0,2808 (0,2224)	0,0032 (0,0112)	-0,2967 (0,3657)	22
		2	0,2041 (0,2305)		0,0275 (0,0425)	0,0246* (0,0148)	-0,2802 (0,2212)	0,0028 (0,0118)	-0,2986 (0,3686)	22
		3	0,0270* (0,0149)	0,0154 (0,0256)						22
	1996-2011	1	0,2091 (0,1349)	0,0189*** (0,0073)			-3,4442*** (0,0365)	0,0060 (0,0094)	-0,5140*** (0,0812)	50
		2	0,3513*** (0,1126)		0,0497*** (0,0125)	-0,0314 (0,0333)	-0,4073*** (0,1153)	-0,0027 (0,0060)	-0,3160** (0,1383)	50
		3	0,0273*** (0,0097)	-0,0016 (0,0179)						50
ES	1996-2006	1	0,5616 (0,5631)	-0,0230 (0,0204)			-0,1304 (0,1837)	-0,0324 (0,0401)	0,5249** (0,2174)	56
		2	0,3914 (0,5097)		-0,0003 (0,0198)	-0,0307 (0,0199)	-0,1660 (0,1482)	-0,0205 (0,0352)	0,4938** (0,2062)	56
		3	0,0319 (0,0342)	0,0083 (0,0128)						56
	2007-2011	1	0,7931*** (0,2711)	-0,0258 (0,0437)			-0,2490** (0,1135)	-0,0367*** (0,0115)	0,0069 (0,4511)	37
		2	0,7269*** (0,2598)		-0,0155 (0,0428)	-0,0357 (0,0424)	-0,2039** (0,1034)	-0,0355*** (0,0116)	0,1081 (0,3911)	37
		3	0,0439 (0,0309)	-0,0197 (0,0347)						37
	1996-2011	1	0,5744** (0,2514)	-0,0376 (0,0247)			-0,1487* (0,0792)	-0,0301* (0,0154)	0,3550 (0,2896)	93
		2	0,5558** (0,2564)		-0,0240 (0,0226)	-0,0549* (0,0291)	-0,1546** (0,0704)	-0,0286* (0,0157)	0,3396 (0,2696)	93
		3	0,0397** (0,0169)	-0,0153 (0,0192)						93

Table B6

## Impact of a Plus or Minus Credit Rating on Capital Structure Excluding Financial Institutions – Italy, France and Germany

Coefficients and standard errors from pooled time-series cross-section random-effects GLS regressions with robust errors of NetDlss on credit rating dummy variables and on the control variables leverage, size and profitability. NetDlss is net debt minus net equity divided by beginning-of-year total assets. The credit rating dummy variables are CR<sub>plus</sub> (equals 1 when a plus credit rating is observed), CR<sub>minus</sub> (equals 1 when a minus credit rating is observed) and CR<sub>pom</sub> (equals 1 when either a plus or a minus credit rating is observed). Leverage is book total debt divided by book total debt plus book common equity. Size is given by the natural logarithm of total sales. Profitability is EBITDA divided by total assets (both from the previous year). The sample consists of firms from 1996 to 2011 from the indexes FTSE MIB, CAC40 and DAX, excluding financial institutions, firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

		Cons	CRPOM	CRMinus	CRPlus	Leverage	Size	Profitability	Number of firm-years	
IT	1996-2006	1	0,9115** (0,4267)	-0,0553 (0,1079)					48	
		2	1,0657** (0,5078)		-0,1185 (0,1676)	0,0063 (0,0596)	-0,1382 (0,1665)	-0,0570** (0,0229)	0,5959 (0,4010)	48
		3	-0,0242 (0,0174)	-0,0453 (0,0776)			-0,1519 (0,1166)	-0,0654** (0,0298)	0,5492 (0,3884)	48
	2007-2011	1	0,0644 (0,1073)	0,0335 (0,0255)			-0,0990* (0,0525)	-0,0014 (0,0065)	0,0665 (0,1516)	63
		2	0,0672 (0,1077)		0,0204 (0,0246)	0,0489 (0,0344)	-0,0905** (0,0456)	-0,0020 (0,0064)	0,0941 (0,1576)	63
		3	-0,0058 (0,0192)	0,0354 (0,0245)						63
	1996-2011	1	0,4727* (0,2532)	-0,0093 (0,0434)			-0,1977* (0,1129)	-0,0235* (0,0137)	0,1081 (0,2102)	111
		2	0,5024* (0,2609)		-0,0352 (0,0661)	0,0192 (0,0278)	-0,1891** (0,0911)	-0,0258* (0,0153)	0,1381 (0,2593)	111
		3	-0,0148** (0,0071)	0,0045 (0,0265)						111
FR	1996-2006	1	-0,1233 (0,1572)	-0,0094 (0,0176)			-0,1678*** (0,0593)	0,0135 (0,0099)	-0,2255 (0,1430)	202
		2	-0,1107 (0,1726)		-0,0150 (0,0230)	-0,0058 (0,0211)	-0,1764*** (0,0639)	0,0131 (0,0106)	-0,2380* (0,1398)	202
		3	-0,0056 (0,0122)	-0,0161 (0,0173)						202
	2007-2011	1	-0,0307 (0,0585)	-0,0121 (0,0121)			-0,0624 (0,0417)	0,0049 (0,0038)	-0,2371* (0,1334)	139
		2	-0,0336 (0,0638)		-0,0170 (0,0152)	-0,0065 (0,0121)	-0,0659 (0,0437)	0,0052 (0,0041)	-0,2344* (0,1404)	139
		3	-0,0004 (0,0088)	-0,0102 (0,0119)						139
	1996-2011	1	-0,1221 (0,0877)	-0,0034 (0,0105)			-0,0866** (0,0391)	0,0101* (0,0054)	-0,1451 (0,1125)	341
		2	-0,1185 (0,0932)		-0,0063 (0,0134)	-0,0004 (0,0123)	-0,0879** (0,0397)	0,0099* (0,0057)	-0,1444 (0,1141)	341
		3	-0,0073 (0,0072)	-0,0079 (0,0104)						341
DE	1996-2006	1	-0,2305 (0,1769)	-0,0016 (0,0153)			-0,1238** (0,0585)	0,0181* (0,0099)	-0,0298 (0,1545)	135
		2	-0,1840 (0,1544)		0,0057 (0,0240)	-0,0033 (0,0154)	-0,0780 (0,0476)	0,0130 (0,0083)	-0,0369 (0,1706)	135
		3	-0,0036 (0,0156)	0,0012 (0,0151)						135
	2007-2011	1	-0,4992*** (0,1725)	-0,0223 (0,0172)			-0,2059*** (0,0630)	0,0319*** (0,0097)	0,4594* (0,2606)	110
		2	-0,5011*** (0,1745)		-0,0212 (0,0180)	-0,0241 (0,0237)	-0,2083*** (0,0634)	0,0321*** (0,0098)	0,4596* (0,2630)	110
		3	-0,0067 (0,0125)	-0,0101 (0,0159)						110
	1996-2011	1	-0,2482** (0,1159)	-0,0093 (0,0106)			-0,0947*** (0,0310)	0,0159** (0,0066)	0,1675 (0,1244)	245
		2	-0,2551** (0,1176)		-0,0114 (0,0148)	-0,0077 (0,0098)	-0,1031*** (0,0302)	0,0166** (0,0066)	0,1673 (0,1267)	245
		3	-0,0048 (0,0090)	-0,0042 (0,0106)						245



**Table B7**

**Impact of a Plus or Minus Credit Rating on Capital Structure Excluding Financial Institutions – Full Sample**

Coefficients and standard errors from pooled time-series cross-section random-effects GLS regressions with robust errors of NetDiss on credit rating dummy variables and on the control variables leverage, size and profitability. NetDiss is net debt minus net equity divided by beginning-of-year total assets. The credit rating dummy variables are CR<sub>plus</sub> (equals 1 when a plus credit rating is observed), CR<sub>minus</sub> (equals 1 when a minus credit rating is observed) and CR<sub>pom</sub> (equals 1 when either a plus or a minus credit rating is observed). Leverage is book total debt divided by book total debt plus book common equity. Size is given by the natural logarithm of total sales. Profitability is EBITDA divided by total assets (both from the previous year). The sample consists of firms from 1996 to 2011 from the indexes ATHEX20, PSI20, IBEX35, FTSE MIB, CAC40 and DAX, excluding financial institutions, firms with no S&P long-term domestic issuer credit rating in Reuters or where the value of any relevant variable (total debt, common equity, total assets, EBITDA and sales) is missing from Datastream. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

		Cons	CRPOM	CRMinus	CRPlus	Leverage	Size	Profitability	Number of firm-years	
Full Sample	1996-2006	1	0,1659 (0,1061)	-0,0121 (0,0148)			-0,1752*** (0,0478)	-0,0045 (0,0057)	-0,0212 (0,1126)	489
		2	0,1612 (0,1108)		-0,0105 (0,0246)	-0,0129 (0,0108)	-0,1714*** (0,0509)	-0,0043 (0,0059)	-0,0167 (0,1118)	489
		3	-0,0007 (0,0076)	-0,0123 (0,0133)						489
	2007-2011	1	0,1529*** (0,0507)	-0,0009 (0,0095)			-0,0607** (0,0266)	-0,0073** (0,0029)	0,0140 (0,0941)	396
		2	0,1531*** (0,0517)		-0,0036 (0,0104)	0,0028 (0,0123)	-0,0614*** (0,0267)	-0,0073** (0,0029)	0,0171 (0,0964)	396
		3	0,0043 (0,0065)	-0,0029 (0,0089)						396
	1996-2011	1	0,1074* (0,0595)	-0,0039 (0,0070)			-0,0827** (0,0335)	-0,0044 (0,0032)	0,0509 (0,0747)	885
		2	0,1076* (0,0607)		-0,0043 (0,0110)	-0,0035 (0,0072)	-0,0828** (0,0347)	-0,0044 (0,0033)	0,0511 (0,0756)	885
		3	-0,0006 (0,0046)	-0,0054 (0,0066)						885