DISCLOSURE QUALITY OF THE FINANCIAL INSTRUMENTS AND THE COST OF DEBT ON PORTUGAL, IRELAND, GREECE AND SPAIN

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Abstract

A consequence of the 2008 financial crisis was the importance given to financial instruments, by virtue of having said that they were partly to blame the crisis. Also disclosures have been growing in importance and usefulness to stakeholders. Given the above, we study the relationship between the quality of mandatory disclosures about financial instruments and the cost of debt for countries most affected by the sovereign debt crisis, for the periods of 2011 and 2012. Our results lead us to conclude that there is evidence that increasing the quality of disclosures of financial instruments reduces the cost of debt.

Resumen

A consecuencia de la crisis financiera de 2008 fue la importancia dada a los instrumentos financieros, en virtud de haber dicho que eran parte de la culpa de la crisis. También divulgaciones han ido creciendo en importancia y utilidad para las partes interesadas. Teniendo en cuenta lo anterior, se ha estudiado la relación entre la calidad de la información obligatoria sobre los instrumentos financieros y el costo de la deuda para los países más afectados por la crisis de deuda soberana, los períodos de 2011 y 2012. Nuestros resultados nos llevan a concluir que hay evidencia de que aumentar la calidad de las divulgaciones de los instrumentos financieros reduce el costo de la deuda.
Introduction
We are trying to find whether there is any relationship between the quality of the disclosures under the International Financial Reporting Standard (IFRS) 7 Financial instruments: disclosures, and the cost of debt of those companies, and so, whether a better quality of financial instruments disclosures decreases the cost of debt. It is common in literature that disclosure level affects directly the cost of capital (Botosan, 1997). The disclosures are the mandatory and annual ones, and this could help us to evaluate the quality of the information disclosed. To explore that relationship, we study the most affected countries by the recent sovereign debt crises, which are: Portugal, Ireland, Greece and Spain, for the periods of 2011 and 2012.\footnote{In economics and finance it is usual to use the acronym PIGS, that was originated in the 1990s.} We believe that for these countries, that have faced the same problems of the 2008 financial crises, the demanding for good quality information is important, and they are not an exception to the influence of the level of disclosure on, in this case, the cost of debt. As expected we find after measuring the disclosures using an index, that the better is the quality of the disclosure of the financial instruments the less is the cost of the debt.

Financial disclosure can be defined as any deliberate release of financial information (Gibbins, Richardson and Waterhouse, 1990). There are different ways for companies to disclose information such as annual reports, conference calls, websites, analyst presentations, investor relations, interim reports, prospectuses, press releases and others (Hassan and Marston, 2010). It is possible to divide corporate disclosures into two categories, mandatory disclosures and voluntary disclosures (Hassan and Marston, 2010). The mandatory disclosures can be defined has information that has to be necessarily revealed in order to fulfill some disclosure requirements that may be in the form of laws, professional regulations in the form of standards and listing of rules of stock exchanges markets. On the other hand voluntary disclosure can be considered as any information revealed in excess of mandatory disclosure but it can also include recommendations by an authoritative code or body. In addition, disclosures can vary between firms with respect to timing, for example annual reports versus quarterly reports, items disclosed, for example quantitative versus qualitative information and types of news, for example good versus bad news disclosures (Hassan and Marston, 2010). In the current global context, the voluntary disclosure of information has become even more relevant. On one hand, it can be a way of differentiating companies since they provide greater amount of information to its stakeholders (FASB, 2001). There is also evidence that a policy of disclosing more information on annual reports reflects on having economic benefits to the company such as decreasing the cost of capital (Botosan and Plumlee, 2006).

This paper contributes to the literature, because relates the financial instruments disclosed by companies in the countries that were most affected by the sovereign debt crises.

This paper is organized into five sections. After this introduction the remainder of this study is organized as follows. In section two is presented the literature review and where some concepts like financial disclosure, cost of debt and cost of capital are explained, what connection does this have with mandatory and voluntary disclosure of information, focusing on the IFRS 7. In the section 3 it is presented the hypothesis that are tested and how the research is designed. Afterwards, in the fourth section take into account the sample, the results obtained and what those results mean. Finally, the fifth section presents the conclusion of the results and also what limitations this research has and the recommendations that may be useful for future research.
**Literature review**

Financial disclosure is defined as the deliberate release of financial information which may be quantitative or qualitative, required or voluntary, via formal or informal channels according to Gibbins et al. (1990). The studies on the voluntary disclosure of information are based on several perspectives, including the kind of voluntary disclosures that companies perform, the characteristics that influence corporate disclosure and the role of mandatory disclosures on voluntary disclosure (Hassan and Marston, 2010). Regarding mandatory disclosures, the International Accounting Standards (IAS) 1 Presentation of financial statements, gives guidelines for the presentation of financial statements and sets minimum requirements of their content that are applicable to all general purpose financial statements based on the IFRS. The IAS 1 was an important step to the process of accounting harmonization, it was issued by International Accounting Standards Committee (IASC) in 1997 and it was the first comprehensive accounting standard to deal with the presentation of financial information. The importance of comprehensive financial information and disclosure has been an evolving process, due to an increasing need of stakeholders for corporate information and in 2005 IASB issued the IFRS 7, which specific function was to harmonize all disclosed financial information for the companies that would follow it normative.

The cost of capital is an issue that has always bothered companies and has been the subject of several research studies. Also, the disclosure of financial information by companies has become a common requirement for stock listed companies and has been growing in consensus of their importance both nationally and internationally (Wallace, 1988). Financial disclosure and information can be considered a product of accounting (Nobre, 2003). On another note, Gavin (2003) describes accounting as the blood of capital markets, due to the dependence of users of financial information by the existence of information financially transparent, credible and comparable. Some studies provide some evidence that the cost of debt can be directly related with the quality of corporate disclosures (Sengupta, 1998). Benau and Mayoral (1993), for example, argue that voluntary disclosure does not happen spontaneously and Nobre (2003) reinforces this idea stating that it is "a product of a reflected decision". Diamond (1985) and Rodrigues et al. (2005) state that the decision to voluntarily disclose information may arise from an attempt by the company to prevent investors or others to incur in information costs. Levinshon (2001) and Kang and Gray (2011) concluded that voluntary disclosure of various financial information can be a way for companies to differentiate themselves, since a great level of information can help users of financial information better understand the company. Additionally, Michels (2012) defends that even the information without any possibility of being confirmed produces changes in lenders' decisions. Moreover, the relationship between the cost of financing, either by debt capital or equity has been explored by several authors originating numerous studies in several countries (Lima, 2009; Botosan and Plumlee, 2002; Indjejikian, 2007).

Despite the globalization of markets promoting convergence of capital disclosure practices of companies, making them similar (Branco and Rodrigues, 2008), countries differ in many respects, including the culture or political regimes and legal (Villiers and Staden, 2008; Boesso and Kumar, 2007; Bouvain and Chen, 2009; Bushman and Landsman, 2010). These differences are evident in literature for a variety of countries studied, with a geographical spread which reaches the five continents. However, nowadays, the users of financial information want to know more about the companies than the data that is only on the financial disclosures (Chartered Institute of

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2 The IASC was restructured in 2001, the IASC remained as a monitoring body and the IASB was created and it assumed the technical responsibility that was held by IASC.
Management Accountants (CIMA), PwC and Tomorrow’s Company, 2011), assigning value to companies that disclose most reliable information that enables them to have more security in moments of decision-making (Rolim et al, 2010). Identifying and meeting these needs was recognized by Fremgen (1967) to define the utility as the objective of accounting. This utility is intertwined with the decision making on the part of stakeholders, who need useful information to help them make the best decisions as possible. Existing studies related both voluntary and mandatory disclosure with multiple company characteristics, such as capital structure, cost of capital, corporate governance, the degree of indebtedness, the size of the company, the relationship with stakeholders, the relevance of intangible assets and market complexity and that the company characteristics can influence its disclosure policy (Cohen et al. 2004; Bertomeu et al., 2006; Gillan, 2006; Boesso and Kumar, 2007). Bertomeu et al. (2011) developed a funding model that connects the capital structure, the policy of voluntary disclosure and the cost of capital of a company. Findings by Ng (2011) suggest that information negatively affects the liquidity risk, which, in turn, lowers the cost of capital. It is also suggested that in periods of greater uncertainty this cost and this evidence is stronger and easier to be observed. Additionally according to Armstrong et al. (2010) accounting information can play an important role in reducing agency costs that arise on debt-contracting process. If the firm’s financial reporting system provides unreliable asset values or supply information that is either incomplete or hard to assess and forecast either its cash-flows or its risks then the lenders will have difficulty assessing the firm’s credit quality. Also, findings from Segupta (1998) shows that firms with high disclosure quality ratings from financial analysts enjoy a lower interest rate on issuing debt. Similarly to other findings, Sengupta results indicate that the importance of disclosures is also greater when the market is going to an uncertainty period.

Disclosures under IFRS 7
IFRS 7 requires the disclosure of information about the significance of financial instruments of an entity, and the nature and extent of risks arising from those financial instruments, both in qualitative and quantitative terms. Specific disclosures are required in relation to transferred financial assets and a number of other matters. The IFRS 7 was originally issued in August 2005 and applies to annual periods beginning on or after 1 January 2007. The IFRS 7 revises and enhances the disclosures required by IAS 30 Disclosures in the financial statements of banks and similar financial institutions and IAS 32 Financial instruments: presentation, and makes a number of important improvements to disclosures in financial statements. Another important point to mention is that IFRS 7 does not apply solely to financial institutions and companies with large portfolios of financial instruments. The standard applies to all entities irrespective of the size of financial instruments held as it focuses on the risks inherent in financial instruments it is only the extent of disclosure that changes. This standard can be divided in several subjects, the following tries to give a simplified view of the main points of the IFRS 7:

a. The objective is to provide disclosures in order for users to evaluate (i) the significance of financial instruments for the entity’s financial position and performance and (ii) the nature and extent of risk arising from financial instruments to which the entity is exposed.

b. Should be applied to all entities and all types of financial instruments except for investments in subsidiaries, associates and joint ventures, employee benefits, business combinations (on the acquirer), insurance contracts and share-based payments.

c. Requires the following main disclosures for the significance of financial instruments for financial position and performance:

i. The significance of financial instruments for financial position and performance which implies the disclosure of: (1) the carrying amount of each categories of financial assets and financial liabilities; (2) the credit risk and the change in the
fair value, of loans or receivable and financial liabilities classified as financial assets/liabilities through profit or loss; (3) of reclassified financial assets; (4) offsetting of financial assets and financial liabilities; (4) collateralization of financial assets; (5) the changes in the account allowance for credit losses; (6) features like multiple embedded derivatives; (8) the occurrence of defaults and breaches for loans payable.

ii. The significance of financial instruments for statement of profit or loss and other comprehensive income and in this case this implies the disclosure of: (1) the net gains or net losses on financial assets and financial liabilities at fair value through profit or loss, available-for-sale financial assets, held-to-maturity investments, loans and receivables and financial liabilities measured at amortised cost; (2) total interest income and total interest expense compounded by the effective interest method for financial assets and financial liabilities; (3) fee income and expense arising from financial assets and financial liabilities that are not at fair value and trust and other fiduciary activities that results from holding or investing on behalf of a third party; (4) Interest income on impaired financial assets; (5) the amount of any impairment loss for each class of financial asset.

iii. Accounting policies regarding the financial instruments.

iv. Description, fair value, risks of each type of hedge accounting.

v. Fair value of each class of financial assets and financial liabilities to permit the comparison with its carrying amount, unless for financial instruments that its carrying amount is an approximation of fair value (short-term trade receivables and payables), for equity instruments that do not have a quoted price in an active market and for a contract containing a discretionary participation feature if the fair value cannot be measured reasonably.

d. Requires the following main disclosures for the nature and extent of risks arising from financial instruments to which the entity is exposed at the end of the reporting period:

i. Quality disclosures for each type of risk (exposure and how to manage the risk (objectives, policies and processes, and changes in these from the previous period) arising from financial instruments.

ii. Quantitative disclosures for each type of risk arising from financial instruments such as:
   1. Summary of quantitative data.
   2. The amount that best represents its maximum exposure to credit risk by class of financial instruments; description and financial effect of collateral held as security and other credit enhancements; credit quality of financial assets that are neither past due nor impaired.
   3. Liquidity risk (maturity analysis for either, non-derivative and derivative financial liabilities).

Hypothesis and research design
Since, some studies has provided some evidence that there is a relationship between the cost of debt and the quality of firms disclosures, we want to seek if that relationships still exist for part of the total disclosures that are required for companies under IASB standards. So, our goal is to find evidence if there is any relationship between the disclosures of financial instruments and the cost of debt for the most European countries affect by the sovereign crisis and there is our hypothesis:

H1: The higher the quality of the disclosure of the financial instruments (measured using a disclosure index) under the provisions of the IFRS 7, the lower is the cost of the debt/interest rate of the PIGS companies.
To test the hypothesis above we use the regression below (1), relating the cost of debt with the quality of the financial instruments disclosures and some usual control variables.

\[
IR_{jt} = \alpha_0 + \alpha_1 DI_{jt} + \alpha_2 SIZE_{jt} + \alpha_3 SG_{jt} + \alpha_4 VOL_{jt} + \alpha_5 PERF_{jt} + \alpha_6 RISK_{jt} + \alpha_7 BIG4_{jt} + \alpha_8 Y_{jt}
\]

Where:
- \( IR \): Interest rate (the cost of debt).
- \( t \): Period.
- \( j \): Company.
- \( DI \): Disclosure index.
- \( SIZE \): Log of total assets.
- \( SG \): Sales growth measured by the quotient between the difference of the net sales of the current period and the previous one and the net sales of the previous year.
- \( VOL \): Volatility measured by the stock’s average annual price movement to a high and low.
- \( PERF \): Performance measured by the return on equity, calculated by the quotient between net income before dividends and the average of the last year’s and current year’s common equity.
- \( RISK \): Market risk measured by the market beta.
- \( BIG4 \): Dummy variable that equals 1 for Big 4 auditors and 0 otherwise.
- \( Y \): Dummy variable that equals 1 if the year is 2012 and 0 if the year is 2011.

In the equation, \( IR \) is the dependent variable and \( DI \) is our variable of interest. All the other variables are control variables (\( SIZE, SG, VOL, PERF, RISK, BIG4 \) and \( Y \)). \( IR \) represents the retribution a borrower has to pay as compensation for the use of money owned by a third party. It is given by the quotient between the interest expense on debt and the average of the total debt of the current and previous year. The disclosure index refers to the degree or level of disclosure by each of the sampled companies, being calculated by dividing the number of items disclosed and the required items that should be disclosed (Mutawaa and Hewaidy, 1990). The DI used in this research was based on some considerations of the IFRS 7 and was grouped into four different categories:

a. Classes of financial instruments and level of disclosure.
b. Significance of financial instruments for financial position and performance.
c. Risk information.
d. Non-covering operations.

In each category there are different items which are awarded by a binary value of 1 or 0 accordingly if the analyzed company meets the requirement in a satisfactory way or not. In other way, if the item is disclosed it is scored with a one (1) and if not, it is scored with a zero (0). The Appendix 1 lists all the items of each category used in order to reach a final disclosure index regarding the IFRS 7. This disclosure index results by dividing the total score regarding each company by the total of possible applicable items, the construction of a disclosure index was done in a similar way as it was on studies such as Peterson (2006) and Mutawaa (2010). The final score, per category, is shown in the Table 1. The table shows that the results obtained regarding the disclosure index are all consistently around 60 percent which means that only 60 percent of the items selected are being complied.

| Table 1 |
| Score of the disclosure index per category |

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As we have said the control variables are: size of the company (SIZE), sales growth (SG), volatility (VOL), performance (PERF), market risk (RISK), dimension of the audit company (BIG4). Using these controls, we aim to prevent their effects on the outcome of the regression, on in other way, on the cost of debt, just like is done for instance, by Kaplan and Urwitz (1979) and Campbell and Taksler (2003), because they have identified that they were related to the cost of debt. For controlling the issues arising for each year, we use a dummy variable year (fixed effects). In several studies, size is one of the factors associated with the use of financial instruments (Hassan and Marston, 2010), and considering that the companies under analysis are some of the largest of each country it is pretended to control this effect. It is also associated that a larger company have less associated risks (Chan, K. 1985) since they have the assets that should be able to cover any unpredicted events and due to this it in this study it is predicted that the larger the company is the lower will be the interest rate. The variable size (SIZE) is used and measured by the natural logarithm of total assets (Huldah, 1996). As mentioned by Brealey and Myers (1998) a good sales growth is a good indicator of financial sustainability of an entity, so in this research the variable sales growth (SG) is given by the difference in percentage of the net sales of one year with the prior year and it is an important in measuring the risk, or possible future risk of the companies (Hribar and Jenkins, 2004) and it is expected that a higher sales growth will produce a lower interest rate. Other researches considered volatility of future cash flows has an important variable to control when exploring the impact of the cost of debt (Minton and Schrand, 1999). In this research it was also assumed has one of the variables whose effect should be controlled, because highly volatile companies are usually looked at with some mistrust by the lenders and underwriters (Gu and Zhao, 2006) so it is predicted that a high volatility will be associated with high interest rates. In this research, volatility (VOL) is measured by the degree of fluctuation in the share prices during the previous year. According to some literature, companies with high performance usually disclose more willingly its information, both in terms of quality and quantity, than a company that has lower performance (Muhammad et al., 2004). The measure chosen for performance is the return on equity (ROE) which evaluates the ability of a company to create earnings and can be defined by the relation between the amount that can be distributed by the company to its shareholders and the amount invested by its shareholders (Mota, 2007; Brealey and Myers, 1998). It is expected that a higher ROE will give a lower interest rate. The market risk is directly linked to cost of capital through the capital asset pricing model (Brealey and Myers, 2007) and, hence, expected to be positively associated to the disclosure index and to the interest rate and so a higher risk is expected to show a higher interest rate. The market risk in this research will be measured based on beta (RISK) that is included in the model to control for systematic risk (Brealey and Myers, 1998). According to some studies the audit company has a significant impact regarding the quality of disclosures (Al Mutawaa and Hewaidy, 2010). The audit company (BIG4) is intended to test if the size of the audit company, that is linked to being a Big 4 company, has any influence on the perception of the stakeholders on the value of the information that the entities analyze report and disclose. Since the Big 4 audit firms are usually associated with the largest companies

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3 The Big 4 are the four largest international professional services networks, offering audit, assurance, tax, consulting, advisory, actuarial, corporate finance, and legal services. They
it is also assumed that the presence of a Big 4 firm will be present in companies with also lower interest rate.

Sample and results
The markets explored in this research are the capitalized companies of PIGS which is composed of the Portuguese Stock Index (PSI-20), Irish Stock Exchange Quotient (ISEQ-20), Athens Stock Exchange (ATHEX-20) and Indices Bursatil Español (IBEX-35). These markets together represents a total of 95 stock listed companies and 190 observations if considering the years of 2011 and 2012. The market analyzed is composed by a variety of industries, the most significant in weight are the industrial, the financial and finally the consumer services industry, as presented in Figure 1 and these three industries represent approximately 63 percent of the companies given.

![Figure 1](image)

Population of the stock listed companies by type of Industry 2011 and 2012

It is important to take into account that in 2011 and 2012 there exists some difference on the companies, this happens because these indexes are composed by the largest companies at one given time and so each year it is subject to changes. The type of industry is classified based on the classification of the Industry Classification Benchmark (ICB) standards. Regarding the data that is being analyzed, in order to achieve a more veritable result there are some companies, out of the 190 observations that compose the general population, which are excluded. The withdrawal of some of the companies from this study sample is done taking into consideration two main characteristics. Firstly, the companies from the bank sector have a completely different reporting procedure, accounting and their results may make the current study return with odd results and secondly, the companies with negative common equity also are excluded, since this companies can distort some variables such as profitability and volatility. Additionally, it was also withdrawn five observations which had an abnormal interest rate in a particular year since it could be the result of an undetermined error. After all these exclusions it was finally reached the study sample that was composed of 146 observations that are distributed by industry as illustrated by Figure 2. As it is possible to see in figure 4, most of the company observations from financial industry have been withdrawn from the sample, leaving the financial industry with only two observations. This happens because most companies of the financial industry are handle the vast majority of audits for publicly traded companies as well as many private companies, creating an oligopoly in auditing large companies. The companies are: Deloitte Touche Tohmatsu, Pricewaterhouse Coopers, Ernst & Young and KPMG.
either banks or insurance companies. This sample shows a great concentration on two main industries that are the consumer Services and the Industrial industries both represent around 53 percent of the total.

The descriptive statistic of the sample of this research is present in the Table 2 and suggests that on average the interest rate (dependent variable) of the analyzed companies are around 4.86 percent. Considering the fact that these companies are all in countries on the center of the European sovereign debt crisis, this value is not that high if we consider that this companies are under stress due to the sovereign debt crisis that is affecting their countries. Regarding the disclosure index the data shows that there is an average disclosure value of 60%, this may mean that only half of the items used in this study are being complied in a clear and sufficient manner.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR</td>
<td>4.86%</td>
<td>2.10%</td>
<td>141</td>
</tr>
<tr>
<td>DI</td>
<td>0.60</td>
<td>0.10</td>
<td>141</td>
</tr>
<tr>
<td>SIZE</td>
<td>6.52</td>
<td>0.73</td>
<td>141</td>
</tr>
<tr>
<td>SG</td>
<td>5.80%</td>
<td>51.33%</td>
<td>141</td>
</tr>
<tr>
<td>VOL</td>
<td>6.42</td>
<td>3.58</td>
<td>141</td>
</tr>
<tr>
<td>RISK</td>
<td>0.89</td>
<td>0.32</td>
<td>141</td>
</tr>
<tr>
<td>PERF</td>
<td>10.25%</td>
<td>36.30%</td>
<td>141</td>
</tr>
<tr>
<td>BIG4</td>
<td>0.82</td>
<td>0.39</td>
<td>141</td>
</tr>
</tbody>
</table>

The descriptive statistics displayed in table 3 suggest that on average the interest rate (dependent variable) of the analyzed companies are around 4.86%. Considering the fact that these companies are all in countries in the center of the European sovereign debt crisis, this value is not that high if we consider that this companies are under stress due to the sovereign debt crisis that is affecting their countries. Regarding the disclosure index the data shows that there is an average disclosure value of 60%.
percent, this may mean that only half of the items used in this study are being complied in a clear and sufficient manner.

In Table 3 it is presented the Pearson correlation coefficients for the dependent and independent variables. The correlation matrix gives the relation between the interest rate and all the independent variables and also the relation between the various independent variables with each other. These correlations permits understand if there is a statistical relationship between the dependent variable and all the other independent variables. Additionally, the VIF value test was run in order to check for multicollinearity issues. Multicollinearity exists when two or more of the independent variables used in regression are correlated” (Sincich, 1996) and this check allow us to make sure that none of the variables are highly correlated with another. There is no VIF value above 5, which should indicate that there is no significant multicollinearity issue.

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Pearson correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IR</td>
</tr>
<tr>
<td>IR</td>
<td>1</td>
</tr>
<tr>
<td>DI</td>
<td>-0.369**</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.186</td>
</tr>
<tr>
<td>SG</td>
<td>0.294**</td>
</tr>
<tr>
<td>VOL</td>
<td>0.189</td>
</tr>
<tr>
<td>RISK</td>
<td>0.178</td>
</tr>
<tr>
<td>PERF</td>
<td>-0.204**</td>
</tr>
<tr>
<td>BF</td>
<td>-0.033</td>
</tr>
</tbody>
</table>

*** Significant at a 0.01 level; ** Significant at a 0.05 level; significant at a 0.10 level.

Additional to this and in order to guarantee and improve the consistency of the analysis two steps were considered before running the Pearson correlation (outliers elimination): In order to make sure the consistency of the equation is preserved it is also run a studentized residual check. This consists on a method that excludes from the observations the values that have studentized residual (SRE) higher than 1.96 for standards errors of 0.05 (Pestana et. al). In order to guarantee that only the observations regarding the observations which cause more impact in the equation were being used, it was used the Cook’s distance measure which permits the selection and subsequent exclusion of the observations which make the equation giving it more consistency (Pestana et. al). The Pearson correlation between the interest rate and the independent variables shows that there is no statistical significance between them. However, these results still suggest some interesting results regarding other variables. The $\text{SIZE}$ variable seems to be significant to variables such as $\text{SG}$, $\text{VOL}$ and $\text{BIG4}$. The $\text{SG}$ variable is also significant with variables of volatility and $\text{BIG4}$, which makes sense, since there is a higher VIF with this variable and also on variable $\text{SIZE}$, so it should have similar results. The $\text{VOL}$ is only non-significant with the variables $\text{IR}$ and $\text{DI}$, having some level of significance with all other variables. The $\text{PERF}$ has a significant correlation with $\text{VOL}$, $\text{RISK}$ and $\text{BIG4}$. Regarding the $\text{RISK}$ variable it is only significant with $\text{VOL}$ and $\text{PERF}$. Finally the $\text{BIG4}$ variable is significant at some level with all variables besides $\text{IR}$, $\text{DI}$ and $\text{RISK}$.

In the following Table 4 it is presented the results of the linear regression model, where we relate the cost of the debt of the largest companies of the PIGS and the quality of the financial instruments disclosures. The regression is run based on variance
regression coefficients that are valid even if there exist heterocedasticity, meaning that we used a robust test in that the degree of significance for the test White for heterocedasticity was less than 10 percent (Johnston and DiNardo, 1997). This procedure was used in all cases which is found heterocedasticity according to the White test.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Prediction</th>
<th>Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>4,468</td>
<td>2,810</td>
<td>0,006 ***</td>
</tr>
<tr>
<td>DI</td>
<td>-4,850</td>
<td>-3,708</td>
<td>0,000 ***</td>
</tr>
<tr>
<td>SIZE</td>
<td>0,386</td>
<td>2,044</td>
<td>0,043 ***</td>
</tr>
<tr>
<td>SG</td>
<td>0,016</td>
<td>3,323</td>
<td>0,001 ***</td>
</tr>
<tr>
<td>VOL</td>
<td>0,062</td>
<td>1,405</td>
<td>0,163</td>
</tr>
<tr>
<td>RISK</td>
<td>0,303</td>
<td>0,680</td>
<td>0,498</td>
</tr>
<tr>
<td>PERF</td>
<td>-0,010</td>
<td>-1,753</td>
<td>0,082 *</td>
</tr>
<tr>
<td>BIG4</td>
<td>0,018</td>
<td>0,044</td>
<td>0,965</td>
</tr>
<tr>
<td>N</td>
<td>141</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0,289</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-value</td>
<td>5,957***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** Significant at a 0,01 level; ** Significant at a 0,05 level; significant at a 0,10 level.

Regarding the disclosure index variable, that is the main focus of this research, the results shows that the variable is statistically significant at a 1 percent level, and that indicates that, the higher is the quality of the disclosure index (DI) the lower is the interest rate which follow the predicted value. Additionally, VOL and RISK are positive has predicted at first, meaning that in theory, the higher the volatility and market risk the higher is the interest rate paid by the entity. However, these results are not statistically significant at 10 percent level, which mean we cannot reject the null hypothesis that the coefficient could be zero. Regarding the variables, SIZE, SG and PERF, they are all statistically significant, at least at a 10 percent level, however the signs of the SIZE and SG coefficients are not the predicted ones, unless the PERF variable coefficient that has the predicted sign. The sign of the BIG4 coefficient should be negative but instead is positive, meaning that we cannot reject the null hypothesis that the coefficient could be zero. The results shows an F-statistic of 5,957 (significant at a 1 percent level), supporting the statistical significance of the linear model. The regression also shows an adjusted R² of 28.9 percent which means that the variables included in the model explains up to 28,9 percent of the variation of the interest rate. This means that the disclosure Index regarding IFRS 7 have a statistically significant impact in the observed samples. This means that the variable interest rate can be at least partly explain with this model, at least taking into account the observed samples on the years at hand, meaning that the research hypothesis is supported by this research.

Conclusion
The purpose of this research is to explore whether the disclosures regarding the IFRS 7 supplied by PIGS stock listed companies significantly affect directly debt indicators and has economic consequences. It is common knowledge that the information disclosed to the diverse stakeholders has an important impact on the cost of debt and cost of capital. In this research we test if the interest rate could be related to disclosure index, which is focused on the IFRS 7, on sensitive stock markets such has as Portugal, Greece, Ireland and Spain, which have been on the spotlight recently due to the sovereign debt crisis.
As mentioned on some studies the disclosure level can have impact on the cost of capital of companies, which means that a higher disclosure should lead to a lower uncertainty and a lower risk which would subsequently lower the cost of capital. On the same manner has the disclosure index can be related to the cost of capital it was expected that the disclosure index on such a sensitive issue like financial instruments, specially taking into account that the companies analyzed are selected from countries that are considered to have a high sovereign debt risk of failure, this fact alone should make them more sensitive to interest rate variations. The results have indicated that there exists an association between the disclosure index based on the IFRS 7 and the cost of debt, which means that the increasing on the quality of the financial instruments disclosures decreases the cost of the debt.

There are some limitations on this research, firstly, the focus of the research is limited to the countries mainly affected by the sovereign debt crisis and this fact may bias the end results regarding the debt variable, which is the interest rate. Secondly, the research only has stock listed companies because they are the only ones that guarantee public information due to mandatory disclosure of the stock markets. Although the mandatory disclosure gives important information and data to research, it is important to always keep in mind that only a limited number of companies have the size, structure and strategy to be stock listed, so this research does not try to illustrate each countries business environment based only on these observations, which are just a limited part of the countries business environment. Also there is a limitation due to the fact that the study was limited to only two years and 141 observations which may be considered a limited scope. Finally, the fact that the variable disclosure Index is a qualitative variable and can be highly subjective, this fact can make the study more bias and more prone to mistakes.

Bibliography
Chartered Institute of Management Accountants (CIMA), PwC and Tomorrow’s Company. 2011. Tomorrow’s corporate reporting - a critical system at risk.


Peterson, C and Plenborg, T., 2006. Voluntary disclosure and information asymmetry in Denmark. *Journal of International Accounting, Auditing and Taxation*, 15: 127-149


## Appendix 1
### Disclosure index items

<table>
<thead>
<tr>
<th>Classes of financial instruments and level of disclosure:</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the entity disclose in an appropriate way categories of financial assets and financial liabilities?</td>
<td>1</td>
</tr>
<tr>
<td><strong>Significance of financial instruments for financial position and performance:</strong></td>
<td></td>
</tr>
<tr>
<td>Does the entity disclose in an appropriate way categories of financial assets and financial liabilities?</td>
<td>1</td>
</tr>
<tr>
<td>Does the entity clearly disclose the information regarding financial instruments at fair value through profit or loss?</td>
<td>1</td>
</tr>
<tr>
<td>In case it is applicable does the entity disclose clearly information regarding reclassifications of financial assets and derecognitions?</td>
<td>1</td>
</tr>
<tr>
<td>Does the entity, if applicable, did a reconciliation between separated allowance accounts regarding credit losses?</td>
<td>1</td>
</tr>
<tr>
<td>Does the entity clearly provide information regarding the occurrence of defaults and breaches regarding financial instruments?</td>
<td>1</td>
</tr>
<tr>
<td>Does the entity clearly show the net losses and gains on its financial assets and liabilities at fair value, its available-for-sale financial assets, held-to-maturity investments, loans and receivables and financial liabilities measured at amortized cost?</td>
<td>1</td>
</tr>
<tr>
<td><strong>Risk Policies:</strong></td>
<td></td>
</tr>
<tr>
<td>Does the entity clearly define the Risk Categories</td>
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</tr>
<tr>
<td>Does the entity disclose qualitative information regarding risk</td>
<td>1</td>
</tr>
<tr>
<td>Does the entity measure Risk in a clear and simple manner?</td>
<td>1</td>
</tr>
<tr>
<td>Does the entity elaborate a sensitive analysis for each type of risk</td>
<td>1</td>
</tr>
<tr>
<td>Does the entity make a Maturity Analysis clear?</td>
<td>1</td>
</tr>
<tr>
<td><strong>Non-coverage operations:</strong></td>
<td></td>
</tr>
<tr>
<td>Does the entity clearly defines and disclose Gains and losses reported on non-coverage operations</td>
<td>1</td>
</tr>
</tbody>
</table>