

Does earnings transparency is relevant for the cost of debt such as for the cost of equity in a cross-country perspective?

Abstract: The aim of this study was to evaluate the effect of earnings transparency on the cost of debt (K_i). Previous literature has demonstrated that earnings transparency is able to reduce the cost of equity (K_e). However, our main hypothesis is that this finding not necessary remains the same when considered the cost of debt. Most specifically, because investors and creditors have different interests, concerns, and views about financial statements and accounting procedures. Our findings supported this conceptual argument indicating that while the increase in earnings transparency reduces the K_e , this trend there is no impact on K_i as previously supposed.

Key-words: Earnings Transparency; Cost of Debt; Cost of Equity.

1. Introduction

According to the International Accounting Standards Board (IASB):

The objective of general purpose financial reporting is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity. Those decisions involve buying, selling or holding equity and debt instruments, and providing or settling loans and other forms of credit (IASB, 2015, p. 22).

Despite the general purpose established by IASB, which financial reporting aims to provide useful information to the investors and creditors, it is relevant to evaluate that those stakeholders are concerned with different issues about companies' performance. Bodie, Kane, and Marcus (2011) argue that while investors are looking and waiting for earnings, cash flow and dividends, creditors, and lenders, in their turn, are assessing cash flows and guarantees given to ensure timely payments of interest and repayment of principal to the holders of a debt security. This point can be viewed by the risk exposure faced by each group. On the one hand, investors are exposed to the demand risk from reducing in sales and increases in costs and expenses, in overall mean, everything that will promote a reduction in earnings and affects dividends. On the other hand, creditors are exposed to the credit risk being related to the financial liabilities and loans (Vaughan & Vaughan, 2010).

Ball, Li, and Shivakumar (2015) investigated the mismatch between investors' and creditors' perspectives about the use of financial statements, through the IFRS adoption in some countries. They found a significant reduction in the use of balance sheet covenants for lenders, indicating that some accounting concepts are not equally seen as an increment in financial reporting usefulness for both groups, such as fair value measurement for instance. In the same way, Demerijan (2011) confirmed that in the United States, a country where the IFRS is not allowed for local companies, there was a reduction of approximately 50% in the use of such indicators based on equity balance sheet numbers in the period from 1996 to 2007.

The results presented by Ball, Li, and Shivakumar (2015) and Demerijan (2011), might be better understood as a reaction from creditors to the use of more discretionary accounting policies. Likewise, the aversion presented by this group of users in the financial statements is being reflected in the reduction of employment accounting numbers as a reference for verifying the fulfillment of contractual relations between the companies and their stakeholders.

Following this arguments, it is conceivable that different kinds of stakeholders can contrariwise perceive the quality of financial statements. Earnings transparency it is one topic that has been related to a quality of accounting

information, which reduce the cost of capital, more specifically, cost of equity (e.g., Beigi, Hosseini & Qodsi, 2015; Barth, Konchitchki & Landsman, 2013; Francis et al., 2005). However, there is no evidence that this possible feature produces the same impact on the cost of debt.

Beigi, Hosseini, and Qodsi (2015) stated that earnings transparency is a situation that information widely is accessible, relevant, reliable, comprehensive and timely. In this conjecture, earnings transparency could be seen as a derivation of timeliness and conservatism properties (Ball, Robin, and Wu, 1999). According to Barth, Konchitchki, and Landsman (2013), whether financial statements are more transparent than uncertainty regarding the value of its equity potentially will be lower, and therefore firms will enjoy a lower cost of capital increasing their values. For these reasons, reducing the cost of capital is a crucial issue for enterprises' success. Francis et al. (2005), for their turn established that lack of earnings transparency raises the information risks. As a result, investors will demand a higher return on investments and, consequently, the cost of shares will be uplift.

Barth, Konchitchki, and Landsman (2013), also argued that accounting standards could result in a variation in the explanatory power of the returns-earnings relation reflecting variation in earnings transparency as well as variation in firm fundamentals, such as the cost of capital. Kothari (2000) said that regulators and investors demand high-quality financial reporting because it affects directly financial markets. Once again, the findings of the Kothari's study indicated that earnings transparency is important for firms to reduce their cost of capital, but there are no comments about the cost of debt.

Nevertheless, considering the previous arguments, which stated that creditors and lenders are more interested in cash flows and real guarantees, there is no logical and empirical evidence that earnings transparency has the same power to reduce the cost of debt, such as on the cost of equity statistically. Therefore, the main question of the research follows: *Does the earnings transparency have the same relevance for the cost of debt (K_i) and cost of equity (K_e)?*

To answer this question was built a sample-data with 6,725 firms-observation collected in 32 different countries in America and Europe, which were combined in six regions and that they all adopt IFRSs. More details about sample-data filters are presented in Section 3 - Methodological approach. From this archival, was calculated the earnings transparency measure following the approach suggested by Barth, Konchitchki and Landsman (2013), further called Trans.

Our results indicated that while the earnings transparency affects negatively and statistically the cost of equity (K_e), in all regions characterized by sub-samples, there was no indication that this feature of accounting information is a matter issue for the cost of debt (K_i). These results can be seen from at least two perspectives, being: (i) an accounting procedure, such as fair value measurement that is one of the main attributes of IFRS, for instance, and that potentially provides an increase in earnings transparency, not necessarily is equally perceived by creditors such as investors, consecutively, do not affect lenders' judgment about the agreed interest rates in financial liabilities contracts; and (ii) maybe creditors are not able to understand and incorporate the specifications of accounting information quality in their credit risk models.

The main contribution of this manuscript to the literature still based on the difference conceptualization and relevance of accounting information for several groups such as investors and creditors. Investors are composed of heterogeneous individuals that interact in distinct ways with public and private companies. Creditors, lenders, and others financial resources allocators, as well as investors, also are composed of several categories. In this way, it is not

expected that accounting information it is also useful for both groups, once these stakeholders are not equal in their origin and concerns. For this reason, under our view, it is important to bring this discussion to be debated because of several jurisdictions, like Latin America emerging economies, have the financial markets prevalence and not necessary the capital markets. Thus, it is matter understand the creditors' view about financial statements and accounting treatments to also attended these financial statements users, aiming to provide information able to affects their decision.

The remainder of this paper is organized as follows. The next section introduces the literature relevant from the earnings transparency and after it how this feature of accounting information still related to the cost of debt and equity as well as in this section we develop our hypotheses. Section 3 provides the methodological details about econometric specifications and the composition of the sample data. Section 4 shows the descriptive statistics and the results found. Section 5 concludes our analysis and indicates some potential ways to futures studies.

2. Literature review and hypotheses development

This section reviews the most relevant literature on the earnings transparency. It also develops our hypotheses about the association between the cost of equity and earnings transparency, and in the backgrounds of the cost of debt.

2.1. Earnings transparency

According to Barth and Schipper (2008), earnings transparency can be defined as a magnitude to which financial statements disclose a firm's core economics in an approach that is readily comprehensible by those using these reports. Very relevant mention used the term Financial Reporting Transparency that is more comprehensively than earnings transparency. Bushman et al. (2004), for their turn, argue that transparency in accounting information refers to the pervasive disposal of relevant, trustworthy information about the timeliness performance, financial situation, investment opportunities among other issues. In synthesis, under theoretical approach earnings transparency can be seen as a specific feature of accounting reporting quality.

Several types of research have been found advantages on better disclosures and consecutively promoting some increments in financial reporting transparency. Kim and Verrechia (1994) verified that increased in transparency can successfully reduce information asymmetries and improve the liquidity of company's stock. Healy et al. (1999) confirmed that transparency is positively associated with share prices returns. Other authors (e.g., Lang et al., 2012; Diamond and Verrechia, 1991), confirmed that transparency increases stock liquidity, reducing the cost of capital and higher companies valuation.

Gaumer et al. (2009) suggest that high-quality earnings accurately reflect a company's current and past operating performance, are indicative of future operating performance, are reliable valuation measures for the enterprise and are backed up by strong cash flows, contain low levels of accruals, and have robust asset turnover and profit margins. These factors are crucial to an investment decision and company value.

Barth, Konchitchki and Landsman (2013, pp. 209) "[...] operationalize earnings transparency by developing a measure based on the explanatory power of the returns-earnings relation, i.e., the extent to which earnings and change in earnings covary contemporaneously with stock returns". This statement is not necessarily a new concept in Market-Based Accounting Research. Easton and Harris (1991) and Bushman et al., (2004), can be considered examples of

previous studies taking into consideration those earnings transparency is a relation between earnings and change in earnings and contemporaneous stock returns.

The earnings transparency measure (TRANS), designed by Barth, Konchitchki, and Landsman (2013) take into consideration a two-step estimation procedure developed to capture an intertemporal and cross-sectional effect on accounting information quality. Basically, TRANS is a sum of R2 as follows in Equation (1) for the firm i in year t :

$$TRANS_{i,t} \equiv TRANSI_{j,t} + TRANSIN_{p,t} \quad (1)$$

where: TRANSI is representing the annual returns-earnings relations estimated by industry j in year t . According to the authors: “There is a strong industry component to the returns-earnings relation as a result of accounting practices likely being similar within industries.” (Barth, Konchitchki & Landsman, 2013, pp. 210). This element might be understood as the effect of earnings transparency on stock returns in a cross-sectional timing perspective, and it is calculated according to the Equation (2) as follows.

$$RET_{i,j,t} = \alpha_0^I + \frac{\alpha_1^I E_{i,j,t}}{P_{i,j,t-1}} + \frac{\alpha_2^I \Delta E_{i,j,t}}{P_{i,j,t-1}} + \varepsilon_{i,j,t} = TRANSI \quad (2)$$

According to the original calculation provided by Barth, Konchitchki & Landsman (2013), RET is annual return measured beginning three months after the firm’s fiscal year end, E_t / P_{t-1} is earnings before extraordinary items and discontinued operations deflated by beginnings of year price, and ΔE is changed in earnings from year $t-1$ to year t .

The second term TRANSIN is that from the annual returns-earnings relation estimated by portfolio based on the residuals from the industry regressions (Equation 3). In general terms, this item is calculated to express the longitudinal effect of earnings quality on stock returns, as expressed in Equation (3).

$$RET_{i,p,t} = \alpha_0^I + \frac{\alpha_1^I E_{i,p,t}}{P_{i,p,t-1}} + \frac{\alpha_2^I \Delta E_{i,p,t}}{P_{i,p,t-1}} + \varepsilon_{i,p,t} = TRANSIN \quad (3)$$

Barth, Konchitchki & Landsman (2013) highlights that to estimate Equation (3) it is necessary to replace observations from each industry-year regression, obtained in Equation (2), into one of four portfolios (p) based on a number of their association residuals from each annual regression for that industry.

It is imperative to mention that investors can achieve information about modifications in firms’ value from earnings or other sources, TRANS reflects only the extent to which earnings and change in earnings, and data associated with earnings and change in earnings, explain returns.

2.2. Earnings transparency and cost of equity

The quality of accounting information is essential to investors, which have to use these data to make decisions about companies’ value. Healy and Palepu (2001) argue that demand for financial reporting, disclosure arises from the information asymmetry and agency conflicts between managers, and outside investors and that, the credibility of management disclosures is enhanced by regulators, standard setters, auditors and other capital market intermediaries.

Using a model consistent with Capital Asset Pricing Model (CAPM), Lambert, Leuz, and Verrecchia (2007) examined whether and how financial statements and disclosures affect firms cost of equity capital in the presence of diversification and demonstrate that the quality of accounting information has a direct effect on cash flows assessment,

suggesting that earnings quality can affect cost of capital (Johnstone, 2015). This find indicates that earnings transparency decreases the cost of equity-decreasing beta's variance.

Francis, Nanda, and Olsson (2008) found that firms with higher earnings transparency have more voluntary disclosures than firms with lower earnings transparency. They also verified that more voluntary disclosure is associated with a lower cost of capital and demonstrate the importance of viewing voluntary disclosure as a response to earnings transparency when analyzing the cost of capital consequences of such disclosures.

Bhattacharya, Desai, and Venkataraman (2013) revealed an association between lower earnings transparency and higher information asymmetry and that low earnings quality exacerbates information asymmetry during earnings announcements period.

Barth et al. (2015) conclude that uncertainty at earnings announcements and higher asymmetric timeliness are associated. This study indicates that the higher asymmetric the earnings are, slower the resolution of equity investor disagreement which is a problem for equity holders'.

This is just a sample to express how earnings transparency have been researched and correlated with cost of capital, more specifically cost of equity. The main idea behind this studies shows that investors are exposed to the risk-return relation. Hence, they have to forecast earnings, cash flow, and, dividends to discount it at a rate which represents the trade-off to make or not an investment. In this way, it is possible to establish that a stock price is determined by a sum of several dividends discounted by a rate (Penman, 2013).

These projections are due using historical values added forecast information. For example, if an analyst has to estimate EBITDA, he will start it calculating this term, using financial statements from past years and compute the mean value. After this, using estimated information, i.e., inflation rate, currency, prices and others, it will be possible to conclude this assessment. Thus, higher earnings transparency increase the quality of financial reporting, allowing investors to obtain forecasts that are more reliable and reduce informational asymmetry, and therefore impacting the cost of equity. Following this line, we built the Hypothesis (1) as follows:

Hypothesis (1) – Earnings transparency is negatively associated with the cost of equity, and this relationship is statistically significant.

2.3. Earnings transparency and cost of debt

Straight debt is a relevant funding source for companies. For this reason, indebtedness has been studied for more than five decades as a device, which optimizes companies' value (e.g., Modigliani and Miller, 1958). Several researchers have dedicated efforts to understand better how debt bonds can be used to improve firms' returns. Kraus and Litzenberger (1973) formulated the classic version of the trade-off theory, considering that the organizations seek equilibrium between debt and equity, thus promoting a balance of costs and benefits of both origins of resources. Additionally, the authors highlight that tax and credit orders affect the corporate decisions with obtaining values. Myers and Majluf (1984) distinguished themselves by the ample dissemination of the pecking-order theory concept, which would become an intuitive counter-example of trade-off theory since it preconizes the existence of a hierarchic sequence in relation to the best alternatives to sources of financing for an entity's projects. According to Lee and gentry (1995, p. 397), "for financial managers, the hypothesis of pecking order implies that private financing is preferable to

external funding. When external financing is inevitable, direct debt are preferable to convertible securities, and the latter are preferable to common stock”.

According to Uyemura and Deventer (1993), the interest rate is the main component of debts’ cost. In a raising fund situation, interest rate becomes from the creditors and lenders assessment, taking into consideration the relationship between credit risk and the returns expectation (Duffie and Singleton, 2013). Assenmacher-Wesche and Gerlach (2008) explain that interest rate is formed by the Term Structure of Interest (TSI), also known as the yield curve that take into consideration macroeconomic factors such as the currency depreciation, exchange parity for foreign investors, fiscal policies, and other, as well as microeconomic-factor like debtors’ industry, cash-flow and credit risk, for instance.

In a few decades, several approaches were developed to modeling credit risk and come up with an interest rate which produces a balance between risks and returns trade-off, examples of these techniques are Five C’s of credit, Rating model, Credit Scoring, Pricing modeling due to credit risk (Chaia, 2003).

Although these developments in credit risk measurement, there is a lack in the literature field relating accounting information quality and cost of debt. Few examples of studies, which were conducted, focused on this question are Sengupta (1998), Mazumdar, Sengupta (2005), Francis et al. (2005), Shi, and Zhang (2007). However, there is no consensus about the effect of the accounting information to lenders and this previous literature seemingly did not consider that to compute an interest rate, creditors take into consideration not only public information available about the companies. Universal banks, for instance, request private data to borrowers aiming to reduce informational asymmetry and in some situations, banks provide funds for their clients due to the real guarantees presented. Calcagnini, Farabullini and Giombini (2014, pp. 3) argue that: “economists’ instinct and conventional wisdom in the banking community would support the idea that secured loans are less risky and, therefore, should carry lower interest rates.”

In this context, the main criteria used to reduce interest rates, the cost of debt, it is not the quality of accounting information, but the real guarantees gave in order to mitigate the credit risk and, consecutively, improve the repayments of interests and principal amount. Through these arguments, it is possible to weight those investors and creditors have different informational needs from companies. While investors are concerned about incomes, which are used to calculate dividends to pay, according to Ball, Li, and Shivakumar (2015), stakeholders not necessarily will understand accounting features in the same way. Notwithstanding, the earnings transparency reduces informational asymmetry between creditors and borrowers, it is not enough to impact in a significant reduction in interest rates Following this line, we built the Hypothesis (2) as follows.

Hypothesis (2) – The relationship between earnings transparency and cost of debt is not statistically significant, although it is expected to be negative.

3. Research Design

This section presents the most relevant details about the methodological procedures related to sample selection, descriptive statistics, and econometric specifications.

3.1. Statistical models and variables

To perform hypotheses verification were created, two statistical models. Firstly, was constructed Equation (4) aiming to test *Hypothesis (1)*, as follows:

$$Ke_{i,t} = \alpha + \beta_1 TRANS_{i,t} + \beta_2 LEV_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 ROA_{i,t} + \beta_5 MTB_{i,t} + \sum_{j=1}^{24} \beta_j Industry + \sum_{k=1}^{34} \beta_k Country + \omega_{i,t} \quad (4)$$

where: Ke is the cost of equity of firm i in year t ; $TRANS$ is the earnings transparency measure of firm i in year t and denotes the interest variable of this evaluation. LEV is the financial leverage of firm i in year t ; $SIZE$ is the magnitude of firm i in year t .

Equation (5) was employed to test *Hypothesis (2)*, the only difference from this model to the first one is the subject term, as follows:

$$Ki_{i,t} = \alpha + \beta_1 TRANS_{i,t} + \beta_2 LEV_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 ROA_{i,t} + \beta_5 MTB_{i,t} + \sum_{j=1}^{24} \beta_j Industry + \sum_{k=1}^{34} \beta_k Country + \omega_{i,t} \quad (5)$$

where: Ki is the cost of debt of firm i in year t ; $TRANS$ is the earnings transparency measure of firm i in year t and denotes the interest variable of this evaluation. LEV , $SIZE$, ROA , MTB , $Sector$, and $Country$, are control variables used to moderate sample dispersion. Their description and operationalization, such as dependents and interest variables, are provided in Table 1 in Appendix A.

TABLE 1 HERE

Equations (4) and (5) were adjusted using panel data methodology, in accordance with Wooldridge (2009), and Othman and Zeghal (2006). Considering the result of Hausman's test models' coefficients were obtained through fixed-effects estimation. Due to the potential intrinsic heteroscedasticity, the estimated parameters from both equations were obtained through the Generalized Linear Models according to Hardin and Hilbe (2012) guidance.

3.2. Sample and descriptive statistics

This research is an applied study developed by an archival methodology. The sample data was built using Thomson Reuters Eikon® and were considered thirty-four different capital markets displayed in six different macro-regions in Americas and Europe. Firms-observations were collected from 2010 to 2016. Were excluded from the sample all the observations which presented missing values. In order to mitigate the effects of the outliers in the sample, the databases variables were winsorized using percentiles 0.5 and 99.5. The final sample consisted of 6,725 company-year observations for 1,050 companies and reflected the largest publicly traded companies in Latin America, North America, and Europe.

Table 2 shows the correlations for all variables calculated using Pearson's and Spearman's methodology. The results indicate that Ke and TRANS are negatively correlated under Spearman's approach (-0.020**), and this is significant at five percent. Another interesting correlation still on Ke and financial leverage (LEV), these terms are positively correlated at 5 percent. Although Ki is negatively associated with TRANS, there is no statistical significance in this relation. Other significant find provided by Table 2 still on the verification of the correlations between control variables and subject terms, LEV, MTB, ROA, and Size, showed statistical significance with both subject terms Ke and Ki.

The cost of Equity is negatively correlated with TRANSI according to Spearman's indicator and positively associated with TRANSIN. The cost of Debt has negative correlations with TRANSI and TRANSIN, following Pearson and Spearman parameters. However, these values are not significant.

TABLE 2 HERE

Table 3 demonstrates the descriptive statistics for all variables. Panel A is based in all countries, industries and longitudinal series indicate that Ki has a larger standard deviation compared to Ke, respectively 0.96 against 0.07. This result can be perceived as an indication of homogeneity beside among firms that make up the sample. Additionally, there is a natural expectation that Ki has a more pronounced variance than Ke because credit markets are intuitively less standardized than capital markets. Panel B, which provides descriptive statistics based on regions corroborate this statement. The Standard Deviation for variable Ki goes from 0.13 in North America until 1.69 in Northern Europe. Based on Panel B, it is possible to verify a concentration around 0.05 for Ke term. Panel C shows mean and standard deviation both based on industries. Taking dependent variables as a reference, it is possible to predicate an existence of a strong variation between economic sectors goes from 0.05 to 0.09 in Ke variable and goes from 0.05 to 0.31 based on Ki.

TABLE 3 HERE

Regarding the variable TRANS, descriptive statistics denotes that the mean of this term in a general context, Panel A, is 0.33 with a strong standard deviation in order to 18.74. Panel B shows that companies located in Eastern Europe have the higher scores of TRANS (2.45), while firms in Latin America and Northern Europe present lower values for this variable, 0.31 mutually. Based on Industries analysis, TRANS indicates a significant interval of means begin with 0.08 in Real State segment and finishing in 5.27 in Cyclical Consumer Products. This enormous interim show how is matter insert in Equations (2) and (3), country and sector as control variables aiming to reduce sample dispersion.

About TRANSI¹ and TRANSIN², Panel A shows that the first one has a lower standard deviation compared to the second one. However, TRANSI has the highest mean 0.19 against 0.03 from TRANSIN. In a cross-region perspective, both TRANSI and TRANSIN revealed a consistency across several countries.

4. Results

¹ TRANSI was computed considering t from 2010 to 2016, and 24 industries.

² TRANSIN was estimated through the building of the four portfolios as previous performed by Barth, Konchitchki & Landsman (2013)

In this section are presented the findings of both hypotheses. Firstly are showed the coefficients obtained to the Hypothesis (1), subsequently are demonstrated the results obtained to the Hypothesis (2), at the end of this section are exposed the results of robustness tests.

4.1. Empirical results for Earnings transparency and Cost of Equity

According to the Table 4 – Panel A, it is possible to evaluate Hypothesis (1). The regression results show that TRANS has an adverse effect on Ke, the cost of equity. This result was found in all regions and remained statistically significant in all situations. The higher estimated coefficient was verified in North-American firms (-0.031***). This evidence might be understood take into consideration at least two factors. Firstly, United States has the largest capital market in the world. According to the World Federation of Exchanges, only in New York Securities Exchange (NYSE), was negotiated in 2010 more than US\$ 12.4 trillions of dollars in assets. Moreover, there is a traditional association between financial statements and investors information concerns in the USA. (e.g., Beaver 1968, and Ball and Brown, 1968).

Northern Europe showed the lowest coefficient (-0.001*), but equally negative and significant. Latin America, Eastern Europe, Southern Europe, and Western Europe, also demonstrated negative and significant coefficients, respectively -0.005*, -0.021*, -0.026*, and -0.010*.

Based on these results, and considering overall coefficient, -0.013**, it is possible to corroborate the Hypothesis (1) – Earnings transparency is negatively associated with the cost of equity, and this relation is statistically significant. This statement indicates that earnings transparency is one accounting feature perceived by the stock prices analysts and shareholders, respectively reflected in the cost of equity. These findings are in line with previous findings provided by Francis, Nanda, and Olsson (2008), Bhattacharya, Desai, and Venkataraman (2013), Barth, Konchitchki and Landsman (2013), Barth et al. (2015), and Beigi, Hosseini & Qodsi (2016).

Such findings of the relationship between earnings transparency and Ke remained valid and aligned with the previous literature; it can be understood as a robustness validation that our sample and estimation procedure are not biased.

In general means, these results still appointed that the increase in earnings transparency is a potential deflator of the cost of equity. From this empirical finding, it is possible to understand that accounting procedures aiming to increase the quality and the value-relevance of financial statements are a matter for investors because this group is able to incorporate this features in its valuation models and reflect it in their decision process.

4.2. Empirical results for Earnings transparency and Cost of Debt

Considering Table 4 – Panel B, it is not conceivable reject the Hypothesis (2) – Earnings transparency is negatively associated with the cost of debt, but this relation is not statistically significant. In all regions, TRANS showed a negative association with the cost of debt (ki), however, in none case, there was statistical significance. The highest estimated coefficient was in Eastern Europe (-0.066) but without significance.

TABLE 4 HERE

These finds corroborate the original idea that creditors and lenders are more interested in real guarantees presented by borrowers than the quality of accounting information. (However, the negative coefficient found in all regions might be understood that accounting information based on market returns, has a very limited effect on interest rates, basically because creditors not necessarily are concerned about firms' earnings, their returns are paid by companies presenting positive cash-flows, and their credit risk decrease as there are real guarantees for loans. These results differ from previous literature Sengupta (1998), Mazumdar and Sengupta (2005), Francis et al. (2005), and Shi and Zhang (2007). Most likely, these opposite results come from of fact that earlier researchers used only debt instruments negotiated in financial markets, excluding fundraising directly obtained in private negotiations.

Demerijan (2011), and Ball, Li, and Shivakumar (2015), precede the concept that investors and creditors perceive accounting information through different points. On the on hand, investors are more concerned about forecast figures, so, whether this information can be provided by companies with low or none cost, it will be a perfect scenario for them. On the other hand, creditors are interested in decreasing credit risk and increase returns, in this way, whether they need additional information, probably they will ask for additional guarantees that reduce risk-default, independent of earnings transparency and predictability, such as in private transactions of raising funding.

These findings reinforce the arguments pro conceptualization that accounting information is not prime criteria to reduce interest rates, most specifically because earnings transparency is an indirect characteristic of accounting information and probably are not associated with lenders as a relevant issue about financial statements. It is important to mention that under this view, creditors, potentially, are more concerned about the historical cash-flow to evaluate the payment ability of debtors.

4.3. Robustness tests employing the Thomson Reuters earnings quality measure

Table 5 presents results to robustness check among earnings transparency measured according to Barth, Konchitchki & Landsman (2013) criteria and earnings quality score from Thomson Reuters. The results show a significant positive relationship between earnings transparency and earnings quality for Latin America, Eastern Europe, Southern Europe and Northern Europe and overall when we consider all continents.

TABLE 5 HERE

In terms of magnitude, the earnings quality is 13.27%, 14.15%, 24.43% and 22.69% higher for firms from Latin America, Eastern Europe, Southern Europe and Northern Europe, respectively. These results are statistically significant at 1% or 10%. The earnings quality is 10.78% higher and statistically significant at 5% when we consider all continents.

The main verification in the context of Table 5 is that TRANS is positive and statistically associated with the earnings quality score provided by Thomson Reuters, indicating that the variable TRANS potentiality remains valid when observed in several contexts. Lu & White (2014) highlight the relevance of robustness verifications in the paper related to finance and accounting fields, most specifically because in social sciences a result can be achieved by different ways and cross-check these findings using more than one way brings an increase in the assurance of this results.

5. Conclusion

This study examines whether earnings transparency affects the cost of debt (K_i), with the same relevance that previous literature related to the cost of equity (e.g. Francis, Nanda, and Olsson, 2008; Bhattacharya, Desai, and Venkataraman, 2013; Barth, Konchitchki and Landsman, 2013; Barth et al., 2015; Beigi, Hosseini & Qodsi, 2016). The earnings transparency measure used was the same as Barth, Konchitchki, and Landsman (2013, pp. 221), called TRANS, and it is “based on the explanatory power of the returns-earnings relation, i.e., the extent to which earnings and change in earnings covary contemporaneously with returns”.

The results found, showed that earnings transparency did not affect the cost of debt such as the cost of equity. While the variable TRANS was negatively and statistically significantly correlated with K_e , it was verified only a negatively association with K_i , however, without any significance.

Additionally, this finding corroborates the main idea preconized by previous literature (e.g., Demerijan, 2011, and Ball, Li, and Shivakumar, 2015), that investors and creditors have different interest about accounting information, and for this reason perceive accounting information features, such as earnings transparency, differently. Furthermore, there are at least two perspectives to better understand these findings: (i) an accounting procedure that potentially provides an increase in earnings transparency, not essentially is similarly perceived by creditors such as investors, consecutively, do not affect lenders’ judgment about the agreed interest rates in financial liabilities contracts; and (ii) maybe creditors are not able to recognise and integrate the specifications of accounting information quality in their credit risk models.

We suggest the conduction of future studies aiming to evaluate the effect of other quality features of accounting information such as comparability, timeliness, among others, in the context of creditors and lenders perspective, aiming to verify the reaction of these financial resources allocators about accounting numbers.

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Table 1: Definition and description of variables.

Variable	Label	Description	Preview Literature
DAC	Discretionary Accruals	This term was obtained using Modified Jones Model (1995). Firstly we estimated the original regression and after we compute DAC.	Dechow et al. (1995); Subramanyam (1996); McNichols (2000); Leone, Kothari & Wasley (2005); Ali, Ahmad & Islam (2011).
K_e	Cost of Equity	Variable computed using Fama-French (1993).	Thomas, Gordon & Gordon (2001); Gebhardt, Lee & Swaminathan (2001); Ohlson, Juettner-Narouth (2005); Hou, Dijk & Zhang (2012).
K_i	Cost of Interest	Cost of debt considering market value as reference.	
Leverage	Financial leverage	The ratio of loans and financing over total assets.	Sweeney (1994); Dechow & Skinner (2000); Dichev & Skinner (2002); Charitou, Lambertides & Trigeorgis (2007); Jelinek (2007).
MTB	Market to Book	Market Capitalization over Equity Value.	
ROA	Return on Assets	Net income of t over total assets of $t-1$.	Dechow, Sloan, & Sweeney (1995); McNichols (2000); Larcker & Richardson (2004); Kothari, Leone, & Wasley (2005); Othman and Zeghal (2006)
SIZE	Size of firm	Natural logarithm of total assets.	
TRANS	Earnings transparency	The sum of TRANSI and TRANSIN. See Equation A1 in Barth, Konchitchki and Landsman (2013).	
TRANSI	Cross-section measure of earnings transparency	Measure of earnings transparency considering returns from current year. See Equation A2 in Barth, Konchitchki and Landsman (2013) and Equation (2) in section 2.1.	Barth, Konchitchki and Landsman (2013); Beigi, Hosseini & Qodsi (2016).
TRANSIN	Intertemporal measure of earnings transparency	Measure of earnings transparency considering returns from a time-series. See Equation A3 in Barth, Konchitchki and Landsman (2013) and Equation (3) in section 2.1.	

Source: Authors (2017).

Table 2: Correlation Matrices Pearson (Spearman).

The panel below reports the correlation matrices from Pearson and Spearman approaches. All variables are defined in Table 1.

1. *** indicates that the correlation is significant at the 0.01 level;
2. ** indicates that the correlation is significant at 0.05 level;
3. * indicates that the correlation is significant at the 0.10 level. (N = 6,725).

	1	2	3	4	5	6	7	8	9	10
1 DAC	-	0.018	0.023*	-0.002	0.026*	-0.011	0.019	0.009	0.001	0.003
2 Ke	0.019	-	0.075*	-0.022	0.024*	-0.082*	0.116*	-0.000	-0.010	0.007
3 Ki	-0.005	-0.013	-	0.079*	-0.127*	-0.027*	-0.037*	-0.013	-0.024*	-0.004
4 Leverage	0.002	0.009	0.002	-	-0.289*	0.076*	0.368*	0.026*	-0.006	0.022
5 MTB	0.021	0.038*	-0.046*	-0.257*	-	0.040*	-0.188*	-0.067*	-0.037*	-0.035*
6 ROA	-0.000	-0.014	-0.004	0.162*	0.003	-	-0.121*	0.108*	0.098*	0.068*
7 Size	0.017	0.148*	-0.038*	0.370*	-0.149*	-0.017	-	0.011	-0.027*	0.035*
8 Trans	-0.009	0.030*	-0.019	-0.018	-0.041*	0.005	0.005	-	0.583*	0.796*
9 Transi	-0.006	0.012	0.001	-0.020	-0.052*	0.009	-0.022	0.773*	-	0.057*
10 Transin	-0.009	0.034*	-0.028*	-0.012	-0.021	0.000	0.023*	0.888*	0.394*	-

Table 3: Descriptive statistics.

Panel A: based on all countries, industries and longitudinal series												
	Mean	Median	Std	Mfn	Max	N						
Ke	0,07	0,04	0,07	0,01	0,53	6,720						
Ki	0,16	0,05	0,96	0,00	0,22	6,621						
LEVERAGE	3,69	1,72	5,81	0,00	61,95	6,725						
MTB	0,46	0,34	0,45	0,00	3,62	6,719						
ROA	0,18	0,13	1,44	-14,06	71,90	6,719						
SIZE	10,21	10,13	0,87	8,08	14,17	6,719						
TRANS	0,04	0,33	18,74	-124,19	229,98	6,719						
TRANSI	0,04	0,19	9,25	-58,04	109,81	6,719						
TRANSIN	0,01	0,00	12,79	-66,16	120,17	6,719						
Panel B: based on regions												
	Latin America		North America		Eastern Europe		Southern Europe		Western Europe		Northern Europe	
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.
Ke	0,13	0,05	0,08	0,09	0,16	0,10	0,06	0,06	0,06	0,05	0,06	0,06
Ki	0,12	0,22	0,07	0,27	0,42	1,02	0,16	0,74	0,10	0,29	0,27	1,69
LEVERAGE	2,81	3,25	3,16	4,48	2,43	2,86	6,80	7,64	3,96	6,36	3,54	6,54
MTB	0,40	0,41	0,54	0,47	0,63	0,53	0,41	0,47	0,43	0,41	0,40	0,41
ROA	0,14	0,23	0,23	2,11	0,09	0,11	0,17	1,57	0,17	1,29	0,15	0,55
SIZE	10,87	1,14	10,23	0,64	11,40	0,95	10,26	0,74	10,14	0,75	9,88	0,89
TRANS	0,15	17,37	2,03	19,82	-4,93	18,81	-3,53	23,73	-0,62	16,59	0,05	17,34
TRANSI	-0,16	9,25	0,14	9,78	-2,37	9,06	-1,71	11,90	0,56	8,39	0,39	8,24
TRANSIN	0,31	12,72	1,83	12,83	-2,45	13,54	-1,81	15,37	-1,19	11,86	-0,31	12,26
N	503		2092		236		568		1511		1814	

Panel C: based on industries

	DAC		Ke		Ki		LEVERAGE		MTB		ROA		SIZE		TRANS		TRANSI		TRANSIN		N
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	
Applied Resources	0,00	0,21	0,08	0,08	0,06	0,02	1,85	1,59	0,86	0,51	0,02	0,35	9,89	0,48	3,94	16,10	4,49	9,33	-0,72	11,69	124
Automobiles & Auto Parts	-0,01	0,19	0,09	0,09	0,05	0,04	3,72	5,48	0,51	0,28	0,05	1,23	10,25	0,75	4,45	19,54	4,51	9,92	-0,11	13,25	138
Banking & Investment Services	0,00	0,18	0,09	0,08	0,31	0,49	12,72	8,50	0,00	0,02	0,10	0,17	11,35	0,99	-1,83	20,89	-1,93	8,68	0,12	14,73	590
Chemicals	0,03	0,16	0,08	0,08	0,08	0,17	1,77	1,56	0,68	0,34	0,20	0,13	9,96	0,50	2,75	12,14	2,85	6,20	-0,13	10,10	260
Cyclical Consumer Products	0,00	0,17	0,07	0,08	0,22	0,63	1,55	2,06	0,40	0,32	0,18	0,26	9,69	0,61	5,27	16,84	4,92	8,07	0,31	12,12	217
Cyclical Consumer Services	-0,01	0,16	0,07	0,09	0,17	0,95	2,44	2,68	0,37	0,37	0,13	0,43	9,72	0,55	3,12	21,13	2,88	9,06	0,21	14,40	275
Energy - Fossil Fuels	-0,01	0,16	0,08	0,07	0,31	2,08	1,62	1,61	0,85	0,50	0,10	0,27	10,33	0,89	-3,09	26,17	-3,14	13,23	0,14	16,27	606
Food & Beverages	-0,01	0,17	0,06	0,05	0,06	0,05	2,20	4,46	0,46	0,27	0,18	0,89	10,08	0,83	-0,13	15,24	-0,11	7,72	-0,01	11,04	282
Food & Drug Retailing	0,00	0,14	0,05	0,04	0,06	0,02	2,33	1,51	0,56	0,37	0,28	1,29	10,32	0,64	0,47	14,16	0,44	7,52	0,00	10,58	131
Healthcare Services	0,01	0,17	0,07	0,07	0,24	0,81	3,77	8,21	0,38	0,28	0,13	0,33	9,87	0,47	-0,57	15,18	-0,76	8,54	0,11	10,99	136
Industrial & Commercial Services	0,01	0,15	0,05	0,05	0,20	1,09	3,68	5,39	0,35	0,33	0,27	1,83	9,68	0,57	-0,21	15,96	0,06	5,69	-0,26	12,24	470
Industrial Conglomerates	0,03	0,24	0,08	0,07	0,04	0,02	2,14	1,45	0,44	0,29	0,19	0,09	10,71	0,66	4,92	9,80	4,92	8,11	0,00	7,16	46
Industrial Goods	0,01	0,14	0,07	0,07	0,09	0,17	2,78	3,61	0,32	0,23	0,57	4,55	9,88	0,68	1,26	14,46	1,37	6,85	-0,12	11,22	446
Insurance	0,01	0,22	0,07	0,07	0,07	0,06	11,81	10,29	0,01	0,02	0,13	0,10	10,92	0,65	2,22	11,74	2,24	7,47	-0,01	9,22	348
Mineral Resources	0,02	0,15	0,08	0,08	0,18	0,71	1,26	1,27	0,78	0,37	0,08	0,12	9,99	0,82	-2,92	27,01	-2,69	11,87	-0,11	17,52	520
Personal & Household	-0,03	0,19	0,05	0,05	0,05	0,02	2,84	3,91	0,40	0,23	0,32	0,87	9,98	0,64	1,98	9,41	0,79	4,91	0,09	5,09	108
Pharma. & Medical Research	0,00	0,18	0,05	0,04	0,05	0,05	1,49	1,63	0,29	0,20	0,27	0,33	10,29	0,67	0,89	13,05	0,85	8,03	0,08	9,70	187
Real Estate	-0,01	0,18	0,07	0,08	0,05	0,03	1,72	3,11	0,27	0,43	0,06	0,11	9,85	0,53	0,08	10,19	-0,24	8,48	0,32	7,64	277
Retailers	0,00	0,19	0,08	0,07	0,66	3,26	2,22	3,72	0,58	0,31	0,24	0,34	9,98	0,90	1,98	19,71	1,47	8,71	0,48	13,46	210
Software & IT Services	0,00	0,15	0,09	0,10	0,07	0,05	1,43	1,17	0,21	0,14	0,20	0,18	9,63	0,56	0,86	17,36	1,06	7,90	-0,22	12,45	126
Technology Equipment	-0,02	0,21	0,10	0,10	0,07	0,06	1,97	3,79	0,35	0,41	0,05	1,44	9,79	0,63	0,96	19,91	1,15	8,57	-0,16	14,16	169
Telecommunications Services	0,01	0,18	0,06	0,06	0,07	0,05	3,14	3,17	0,96	0,55	0,13	0,72	10,50	0,78	-2,90	18,38	-2,95	9,70	0,09	12,22	239
Transportation	-0,01	0,18	0,07	0,06	0,06	0,03	3,30	4,65	0,69	0,48	0,14	0,38	10,05	0,47	3,22	20,90	3,09	10,05	0,00	13,78	260
Utilities	0,00	0,16	0,08	0,07	0,06	0,07	2,57	1,88	0,42	0,46	0,22	2,09	10,53	0,75	-2,80	13,92	-2,69	6,46	-0,06	10,75	558

Table 4: Regression analysis for earnings transparency and cost of capital.

Panel A: Cost of Equity (Ke) and Earnings Transparency								
VARIABLES	Prediction	Latin America Ke	North America Ke	Eastern Europe Ke	Southern Europe Ke	Western Europe Ke	Northern Europe Ke	Overall Ke
TRANS	-	-0.0005 (-0.51)	-0.0031*** (-3.18)	-0.0000 (-0.00)	-0.0026*** (-3.10)	-0.0010 (-1.03)	-0.0001 (-0.12)	-0.0013** (-1.99)
LEV	+	0.0040 (0.55)	0.0086** (2.13)	0.0813** (2.50)	0.0032 (0.96)	0.0092** (2.20)	0.0016 (0.30)	0.0045* (1.84)
SIZE	?	-0.0277 (-0.85)	-0.0279 (-1.04)	0.2431*** (5.60)	-0.3141*** (-5.75)	0.0239 (0.67)	0.0175 (0.46)	0.0014 (0.09)
ROA	?	-0.0521 (-0.44)	-0.0108 (-0.17)	-0.3721 (-0.93)	0.0561 (0.61)	0.1651 (1.02)	-0.1564*** (-2.70)	-0.0781 (-1.52)
MTB	?	-0.0231 (-0.26)	-0.0469 (-1.18)	-0.0962 (-0.81)	0.0512 (0.43)	0.0790 (1.12)	0.0823 (1.58)	0.0117 (0.42)
Industry Controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects Controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant		Yes	Yes	Yes	Yes	Yes	Yes	Yes
N		524	2,140	229	504	1,514	1,811	6,618
Adj. R-squared		16.92%	75.89%	64.39%	13.87%	10.54%	4.33%	47.78%

Panel B: Cost of Debt (Ki) and Earnings Transparency								
VARIABLES	Prediction	Latin America Ki	North America Ki	Eastern Europe Ki	Southern Europe Ki	Western Europe Ki	Northern Europe Ki	Overall Ki
TRANS	-	-0.0003 (-0.33)	-0.0005 (-0.94)	-0.0066** (-2.61)	-0.0004 (-0.56)	-0.0010 (-1.24)	0.0008 (0.19)	-0.0005 (-0.40)
LEV	+	0.0125** (2.42)	0.0000 (0.02)	0.2687*** (4.35)	-0.0012 (-0.19)	0.0008 (0.29)	0.0034 (0.94)	-0.0003 (-0.21)
SIZE	?	-0.0352 (-1.54)	-0.0233* (-1.65)	0.1027 (1.39)	-0.2011* (-1.70)	-0.0413** (-2.14)	-0.2174*** (-3.95)	-0.1078*** (-4.69)
ROA	?	-0.0166 (-0.33)	0.0158 (0.85)	-0.3205 (-0.60)	0.0260 (0.36)	-0.0463 (-0.92)	-0.1300 (-1.27)	-0.0421 (-1.15)
MTB	?	0.0198 (1.24)	-0.0234 (-1.40)	-0.5111* (-1.67)	-0.1095 (-1.09)	-0.0354** (-2.43)	-0.4358** (-2.18)	-0.1734*** (-2.81)
Industry Controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects Controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant		Yes	Yes	Yes	Yes	Yes	Yes	Yes
N		435	2,084	254	536	1,579	1,835	6,721
Adj. R-squared		15.86%	48.63%	18.16%	11.96%	9.35%	2.53%	20.77%

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table 5: Regression analysis for earnings transparency versus earnings quality (Robustness tests)

Panel A: Earnings Quality (EQ) and Earnings Transparency								
VARIABLES	Prediction	Latin America EQ	North America EQ	Eastern Europe EQ	Southern Europe EQ	Western Europe EQ	Northern Europe EQ	Overall EQ
TRANS	+	0.1327* (1.93)	0.0219 (0.67)	0.1415* (1.75)	0.2443*** (3.68)	-0.0069 (-0.13)	0.2269*** (4.81)	0.1078*** (4.72)
LEV	?	0.1930 (0.16)	-0.9507*** (-4.02)	-12.2040** (-2.37)	0.2470 (0.97)	-0.4528** (-2.37)	-1.0798*** (-7.30)	-0.7400*** (-6.95)
SIZE	?	-4.9018** (-2.19)	-0.5427 (-0.45)	-87.4069*** (-2.72)	-3.5319 (-1.16)	-2.5371* (-1.79)	-3.1417*** (-2.99)	-2.4698*** (-4.12)
ROA	?	16.9653 (1.50)	31.7723*** (6.17)	92.3576*** (3.26)	20.2860*** (3.12)	45.6976*** (5.87)	16.0997*** (4.25)	23.2726*** (5.21)
MTB	?	-0.7467 (-0.15)	-2.0176 (-1.00)	7.0225 (0.64)	-1.4525 (-0.37)	0.0639 (0.03)	0.6084 (0.24)	-0.1004 (-0.09)
Industry Controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects Controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant		Yes	Yes	Yes	Yes	Yes	Yes	Yes
N		513	2,085	241	569	1,541	1,774	6,712
Adj. R-squared		16.97%	24.89%	14.22%	13.00%	19.58%	23.03%	17.60%