Does Analysts' Information Influence the Cost of Debt? Some International Evidence

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Abstract
This paper examines the contribution of analysts' forecasting accuracy in reducing the average cost of debt to firms. The results, based on data from five countries (France, Germany, Spain, the United Kingdom, and the United States), show that analyst accuracy is effective in reducing information asymmetries between lenders and borrowers and thereby significantly reducing the average cost of debt to firms. The effect is not uniform across firms, however, and tends to be greater in those that are hard to value and difficult to arbitrage. This difference is significant only for firms operating within the civil law system, where there are fewer corporate governance *mechanisms to monitor and control management*. A further finding is that a significant level of institutional ownership (in firms in common law countries) or a significant level of bank-held ownership (in firms in civil law countries) serves as a substitutive mechanism which mitigates the capacity of analyst forecasting accuracy to reduce information risk.

Keywords
Cost of Debt; Analysts' Information; Ownership Structure; Institutional Environment; Accounting Quality

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1. INTRODUCTION

There exists a vast literature on the subject of factors influencing the average cost of debt to firms. Thus, we find frequent reference to variables such as size, profitability, asset tangibility, growth options, or level of leverage (see, among others, Rajan and Zingales 1995). More recently, however, growing attention is being paid to variables with a direct influence on the severity of information asymmetries between debtors and creditors, which can have a significant impact on the cost of debt. Specifically, analysis including ownership and corporate governance issues (see Anderson, et al., 2004; Piot and Missonier-Piera, 2007; Elyansiani et al., 2010; or Boubakri and Ghouma, 2010), the accounting information quality (see Anderson et al., 2004; or Armstrong et al., 2011) and analyst activity (see Mansi et al., 2011 or Boubakri et al., 2013).

Little attention has been paid to the influence of analyst activity on the cost of debt to firms in contexts beyond the US, except for Boubakri et al. (2013) where, as in Mansi et al. (2011), the analysis deals only with bond yield spreads. Thus, there has been little deep research into the effect on other types of debt[1], such as bank debt, which is distinct in character, mainly because the lender profile is so different[2]. Basically, the bank is a sophisticated agent, with greater and fuller capacity to acquire information about borrowers, together with greater data-processing capacity to help in avoiding the adverse selection problems typically faced by lenders. Recognition of the differences between different types of lenders explains our interest in examining whether the results of the above-mentioned studies on bond yield spreads can be generalised to all types of debt.

The level of information risk, meanwhile, is not independent of firm characteristics, which, in turn, have a significant impact on analyst accuracy. It may therefore be worth analysing whether these characteristics affect the capacity of analysts to reduce information asymmetries between the firm and its financial providers.

As well as analyst activity, the literature has, as already mentioned, highlighted other mechanisms through which information asymmetries could be reduced. Two important examples are ownership structure, which determines the type of investors that are present, and the accounting information quality. It is therefore reasonable to ask whether the effect of analyst information on the cost of debt is independent of these other mechanisms or can in fact have a complementary or substitute effect.

This paper contributes in several ways to the literature. The first is by undertaking the analysis of the impact of the information provided by analysts, particularly in terms of its accuracy, on the average cost of debt, by testing whether the observed effect can be

[1]See Hasan et al. (2012) for the impact of analyst activity on earnings predictability and its role in the various bank loan parameters (rates, terms and guarantees). This paper uses a sample of 8,022 US bank loans, since there is, at least to our knowledge, no equivalent work on bank debt outside the US. With respect to the overall effects of information asymmetries, we can also cite Bushman et al. (2010) on a US syndicated loan sample.

[2] Indeed, Bharath, et al. (2008) show that the choice between bank debt and listed debt is influenced by borrower quality.

generalised to all types of corporate debt. The second contribution is to examine the moderating capacity of stock characteristics, as proxies for uncertainty of firm value and arbitrage opportunities, which is a novelty in this type of research. As a complementary analysis, we examine the role of institutional investors and auditing quality in the cost of debt and test whether the effect of analyst activity is in any way altered by the presence of these alternative mechanisms to reduce information asymmetries.

In addition, we assess the impact of sample bias deriving from the inclusion of analyst data. This issue has some relevance in terms of sample bias, because, beyond the US market context, much lower analyst coverage (the subsample for which analyst data exist) leads to the underrepresentation of certain types of firm, particularly young, low capitalized firms, with high levels of growth opportunities, and low media attention. It is interesting to note that the explanatory variables for the cost of debt vary between firms of this type and firms in general (see Fortin and Pittman, 2004 or Cassar et al., 2015). Failure to consider this bias could therefore lead to misleading conclusions.

Finally, it is worth noting that all these issues are analysed both for the whole dataset and for two panels differentiated by the financial system: common law versus civil law, to check for differences in the explanatory capacity of the different variables when observed in one legal-institutional context or the other. Specifically, we analyse five countries with developed financial markets: the US and the UK, as examples of common law countries; and Germany, France, and Spain, to represent different versions of civil law legal system.

In summary, our evidence is consistent with the hypothesis that analysts' forecasting accuracy presents a negative association to the average cost of debt to firms and this association is moderated by firm characteristics. Analyst activity is found to be more effective as an information-risk control mechanism in settings with poor ownership-rights protection, thus highlighting the role of the institutional environment in shaping these relationships. A further finding is that a significant level of institutional ownership (in firms in common law countries) or a significant level of bank-held ownership (in firms in civil law countries) serves as a substitutive mechanism which mitigates the capacity of analyst forecasting accuracy to reduce information risk. Finally,the incorporation of analyst coverage data is found to cause sample bias, particularly when the analysis involves markets other than the US.

The paper is organised as follows: Section 2 explains the theoretical framework and the hypotheses to be tested. Section 3 presents the methodology and the database. The main results are shown in Section 4; and Section 5 provides some robustness checks. The paper ends in Section 6 with the main conclusions reached in this research.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

The literature has revealed a link between the cost of debt and certain firm-characteristic variables, including size, asset tangibility, growth options, profitability or the level of leverage. The relevance of size has been highlighted in several studies (see, among others, Rajan and Zingales, 1995; Booth et al., 2001; Frank and Goyal, 2003; or González and González, 2008). Size is, in fact, positively related to the level of diversification which reduces the probability of default. It is also a proxy for the firm's ability to access the market and is linked to lower difficulty of valuation and arbitrage. Information asymmetries also tend to be lower in larger firms, thereby facilitating their access to other mechanisms through which to reduce information costs. Thus, the empirical evidence reveals a negative relationship between firm size and the cost of corporate debt.

Asset tangibility also has a significant impact on the cost of debt, insofar as higher tangibility can reduce conflicts of interests, information asymmetries, potential bankruptcy costs (see Titman and Wessels, 1988 or Rajan and Zingales, 1995), and thereby the cost of debt. Firm profitability can also have a negative relationship with the cost of debt, since more profitable firms are able to obtain greater tax benefits, and thus reduce conflicts arising from free cash-flow and lower potential default costs (Titman and Wessels, 1988).

Firm growth options are another variable that the literature has linked to the cost of debt. In this case, however, previous research (Titman and Wessels, 1988; Rajan and Zingales, 1995, among others) has produced less conclusive findings. Some studies find greater growth options to be linked to an increase in conflicts of interest between the firm and its creditors, and also to potential bankruptcy costs incurred by embarking on riskier investments. Others find that greater growth options can generate profits enabling the firm to meet its current debt costs and encourage the lender to offer better repayment terms.

Finally, higher levels of debt are clearly associated with higher bankruptcy costs and potentially with an aggravation of agency conflicts, which suggests a positive relationship with the cost of debt (Anderson et al., 2004).

2.1. Information Asymmetries and the Cost of Debt

Recent literature has highlighted the role of variables with a potential impact on the level of information asymmetries between lenders and borrowers and thereby on the cost of debt. The variables in question are the quality of accounting information, the firm ownership structure, and the activity of financial analysts.

2.1.1. Accounting information quality

Studies such as Bharath et al. (2008) or Armstrong et al. (2011) have demonstrated the influence of accounting information quality on the cost of a firm's financial resources, in terms of its potential to improve earnings predictability and thereby reduce information asymmetries. One of the most widely-used indicators of accounting information quality

is the firm's choice of auditing company[3]. There is a general belief that high-quality auditing by a reputable company improves a firm's financial reporting credibility and enables it to obtain more favourable debt-financing terms (see, among others, Kim et al., 2013). In a similar vein, Anderson et al. (2004) show that the presence of independent auditors, as an indication of high-quality financial reporting, reduces bond rates; and Kim et al. (2013) show that firms audited by the Big Four[4] have significantly lower bank-loan costs. Note that auditors provide independent proof of the accuracy and credibility of accounting information, which grows with their prestige.

This general view is nuanced in other studies, however. Piot and Missonier-Piera (2007), in fact, find no significant link between the cost of debt and auditing quality, while Fortin and Pittman (2004) show that, although auditing quality reduces the cost of debt, the effect is not uniform across all firms and appears to be stronger in young firms and those characterized by more pronounced information asymmetries.

Finally, it is worth noting that the choice of proxy for accounting quality is not easy. In particular, despite the widespread use of auditing by one of the Big Four as a proxy, Boone et al. (2010) found weak evidence that the Big 4 have a higher tendency to issue going concern opinions than the mid-sized firms although, ex-ante, these auditors are the most trusted by investors.

2.1.2. Firm ownership typology

The type of investors that make up the firm ownership structure can also play a key role in determining the level of agency costs due to information asymmetries between shareholders and creditors. As shown by Anderson et al. (2004), as agency costs increase, so does the premium charged by external finance providers[5]. Assuming institutional investors to be sophisticated agents and thus better informed than non-institutional investors, their share of the ownership can proxy for lower agency costs and less information asymmetries between the various stakeholder groups.

Shleifer and Vishny (1997) show, in this context, that institutional ownership is a key mechanism in reducing the cost of debt through its role in management monitoring and control. In a similar vein, Boubakri and Ghouma (2010) show that bond ratings improve significantly as the percentage ownership held by banks increases, ultimately causing the bond spread to narrow[6]. This role of finance companies should be more prominent in civil law settings, due to their importance as credit providers and supervisors with an interest in the firm's activities. Thus, Ang et al. (2000) show that agency costs are significantly lower under closer monitoring by banks. The relationship may be more complex than it appears, however, given banks' dual role as shareholders and creditors.

[3]Other analyses of the effect of accounting data on the cost of debt have used the quality of accounting entries (Bharath et al. 2008; Ghosh and Moon, 2010; or Cassar et al., 2015), conservatism (Sunder et al., 2009) or earnings predictability (Hasan et al., 2012).

[4] The auditing companies known as the "Big Four" are: PwC, KPMG, Deloitte, and EY.

[5]These authors also show that the cost of debt is significantly influenced by the size and degree of independence of the board of directors.

[6]Their study also highlights the role played by family control and ultimate firm ownership on bond spread.

When their share is small, their incentives will be more sensitive to hold-up problems, which would lead to an increase in the cost of debt, but they will also have less power to achieve their own objectives. When their share is large, however, their incentives will be more in line with those of the firm, and thus more oriented towards reducing the cost of debt.

Thus, the presence of institutional investors, particularly banks, can have a significant impact on the cost of debt, although the effect may vary between countries, depending on financial system characteristics. Insofar as the quality of the institutional framework affects the amount of external financing used by firms (Giannetti, 2003; Fan et al., 2006) and cultural dimensions, corporate governance issues, or the quality of the legal environment may affect financing patterns and the cost of financial resources [7], we expect the effect of institutional ownership on the cost of debt to differ according to the financial system within which the firm is operating. For the same reason, the difference in the degree of ownership concentration between common law and civil law countries could also significantly impact on agency costs[8] and, thereby, on the cost of debt.

One important factor to consider when evaluating the impact of ownership structure is the capacity of the institutional environment to implement supervision and control mechanisms. Previous research has shown that, while firms operating in common law frameworks are primarily bound by market discipline, those operating under civil law are more heavily influenced by the nature of their investors, particularly when banks have a share in the ownership (La Porta et al., 1997, 1998). As well as the role played by firm ownership typology, the literature has also shown the quality of corporate governance to have significant capacity to reduce the cost of debt (Piot and Missonier-Piera, 2007).

2.1.3. Analyst activity

Information risk tends to increase a firm's cost of capital (Easley and O'Hara, 2004). Thus, the predictability of earnings is a key factor in determining the cost of available financial resources. Reports by financial analysts, in their capacity as sophisticated agents who are better-informed than the average investor, can be valuable in improving the credibility of earnings forecasts and thereby reducing information risk. This idea is supported by Crabtree and Maher (2005) who, using analyst accuracy as a proxy for the earnings predictability, show that forecasting error and dispersion in analysts' forecasts of earnings are positively related to bond spreads. Hasan et al. (2012), in an analysis of US bank loans, find these variables to play a key role in determining the terms of bank

[7]Bae and Goyal (2004) illustrate the role played by institutional quality in increasing debt availability and reducing bank loan spread in legal environments where creditor rights are strongly protected. La Porta et al. (1997) describe the common law system as being superior in this respect, because of a broader spread of ownership and there is a separation between ownership and control, in contrast to the control groups present in the continental system.

[8]The literature provides many examples to show that the presence of large-scale investors strengthens control over corporate management (Shleifer and Vishny, 1997; or Bos and Donker, 2004, among others). However, there is also the risk of blockholders wielding their power to the disadvantage of other stakeholders, creditors included.

loan contracts, including both the price and other conditions. Results obtained by Mansi et al. (2011) show that, after controlling for the effect of private information and the firm's degree of information disclosure, the information content of analyst forecasts is economically significant in that it reduces the spread in bonds issued by US firms. In the same vein, Boubakri et al. (2013) on a sample of bonds issued in 35 countries not including the US, confirm that analyst activity significantly reduces bond spread, particularly in countries with weaker governance institutions. The authors obtain this result after controlling for bond- and firm-specific effects, and for country-specific factors. Finally, Derrien et al. (2013) find that lower analyst coverage increases bond rates and reduces the probability of credit availability[9].

Previous research examining the impact of analysts' activity on bond rates justifies the analysis of whether and how the accuracy of analyst information reduces information asymmetries between borrowers and lenders, thereby significantly reducing the average cost of debt. This suggests the following hypothesis:

H1: Greater analyst forecasting accuracy significantly reduces the average cost of corporate debt.

Another potentially key role in this issue is played by firm characteristics, which can have a significant impact on the accuracy and perceived utility of the information provided by analysts. The information that analysts supply on firm earnings is well known to be positively biased on average (see Brown, 1997; and Chopra, 1998, among others). This "optimism" is both strategically and cognitively motivated[10] (see Corredor et al., 2014) and its magnitude is not constant across all stock characteristics, or for any type of institutional framework surrounding the firm. Firstly, the bias may be attenuated in the presence of regulatory measures, which have been shown to have an impact on analyst optimism particularly when strategically motivated (Dubois et al., 2014). Both components of analyst optimism, especially the cognitive component, also vary with the characteristics of the stock (Baker and Wurgler, 2006; Kumar, 2009) and with country-specific factors, such as the nature of the institutional framework or cultural traits in market traders (Corredor et al., 2013).

Several studies, based primarily on stock characteristics, have shown that there is more forecasting error in hard to value and difficult to arbitrage (HVDA) firms. Thus, two effects clash in this type of stocks. Firstly, they are more sensitive to investor sentiment (Baker and Wurgler, 2006, 2007; Schmeling, 2009; Chang et al., 2012) whereby forecasting accuracy diminishes as optimism spreads across the market. Secondly, they are also more vulnerable to information risk, but this will decrease significantly with any relevant news and so, therefore, will the cost of debt. Whatever the ultimate outcome of these opposing forces, it would appear reasonable to assume that interaction between

[9] Insolvency, delisting or bankruptcy levels are between 100% and 150% higher.

[10]The literature has shown that analysts' optimism bias is strategically driven (see Ertimur et al., 2011; o Karamanou, 2011), but can also have a cognitive component (Hribar and McInnis, 2012). Corredor et al. (2014) show that analyst optimism bias is both cognitively and strategically driven.

stock characteristics and analyst accuracy moderates the impact of forecasting error in reducing a firm's total cost of debt. Thus, our next hypothesis states that:

H2: Firm characteristics moderate the impact of analyst accuracy on the average cost of corporate debt.

A last issue worth addressing is whether the three mechanisms analysed for the reduction of information asymmetries work independently or, in fact, have some degree of interdependence[11] (be it complementary or substitutive). It is particularly worth testing to see whether the potential impact of analyst activity on the cost of debt does or does not depend on the presence of other mechanisms, which, in the case in hand, are a significant level of institutional ownership, particularly bank-held ownership, or auditing by one of the Big Four.

The hypothesis to be tested in this case is the following:

H3: The impact of analyst activity on the average cost of corporate debt is dependent upon the effect of other mechanisms to reduce information asymmetries.

The Law and Finance literature has established the relevance of the quality of the institutional environment in promoting financial development and improve the availability of external funds (La Porta et al., 1997, 1998). To the extent to which the protection of property rights in well-developed institutional environments can be positively associated with the use of external funds, as institutional quality diminishes, the availability of long-term credit decreases and the cost of external funds increases (Rajan, 1992). Having accepted the potential of institutional quality as a means to reduce problems of information asymmetries between borrowers and lenders, we can examine its influence on the average cost of corporate debt and on the impact of the different mechanisms analysed for the reduction of information asymmetries (analysts' forecasts, accounting information quality, and ownership structure). Thus we propose the following hypotheses regarding the role of institutional quality:

H4: The characteristics of the legal and institutional environment shape the way the various mechanisms for the reduction of information asymmetries affect the average cost of corporate debt.

3. DATABASE, VARIABLES, AND METHODOLOGY

3.1. Database

The data used in this analysis are firm-year observations on the average cost of debt, institutional ownership structure, and analysts' forecasts. The study includes a sample

[11]The subject of the possible interdependence of the various mechanisms of reduction of information asymmetries has received hardly any attention in the literature, although it could provide a valuable insight into their respective roles. Cassar et al. (2015) show, in this context, that the quality of accounting data based on accounting entries is of less use in determining the cost of debt in the presence of other information risk controls, such as independent credit ratings, in which case accounting data quality is only significant in firms with low credit ratings and short banking relationships.

of listed non-financial[12] firms in the United States (US) and four European markets: France, Germany, the United Kingdom (UK), and Spain. The criteria for the choice of European markets are that, together with the US and Japan[13], they are known to be highly prominent on the global stage (Chang et al., 2012). According to the data from the World Stock Exchange Federation for the end of the period analysed (2011), the London SE is the leading group in Europe in stock market capitalization terms, followed by the NYSE Euronext, Deutsche Börse and BME Spanish Exchanges. In addition, these markets provide a representative sample of two well-researched, clearly differentiated, financial and institutional systems: common law and civil law. It should be noted that the differences between these two systems affect the role played by financial analysts in these markets, since there is a higher degree of analyst coverage in the common law countries, particularly the US.

The study period runs from 2003 to 2011[14]. Accounting variables (balance sheet and income statement) both for calculating the average cost of debt and for constructing firm-level control variables, plus institutional ownership data are drawn from the OSIRIS database (Bureau Van Dijk). Information relating to analyst activity is obtained from the FACTSET[15] database. The firms included in the analysis are all those with available data from the above-mentioned sources. The final sample comprises 400 firms for France, 375 for Germany, 218 for the UK, 2,655 for the US, and 51 for Spain, making a total of 33,291 observations. After computation of the ownership structure variables, the number of available observations in the benchmark model drops to 11,208. The subsample of firms with analyst coverage is substantially smaller, with a total of 4,281 observations. Table 1 shows the descriptive statistics for the total sample and also for the common law (UK and US) and civil law (France, Germany, and Spain) subsamples. Table 2 shows the correlation matrix among the main variables.

INSERT TABLE 1 AND 2 ABOUT HERE

3.2. Variables

3.2.1. Average cost of debt

[12] We also drop firms from regulated sectors (SIC Codes 40-49 and 91-97).
[13]Data for Japan are unavailable.
[14]This period of analysis was selected in order to collate the available information from both sources (OSIRIS and FACTSET).
[15]FACSECT data are potentially subject both to survivorship bias and to selection bias since they include the recommendations and forecasts of brokerage houses participating on a voluntary basis. There is no way of correcting either of these biases.

The dependent variable is the average cost of corporate debt (DEBTCOST), which is computed as the ratio of financial expenses to the average corporate debt in year t and year t-1[16].

$$DebtCost_{ijkt} = \frac{Financial\ Expenses_{ijkt}}{(Total\ Liabilities_{ijkt} + Total\ Liabilities_{ijkt-1})/2}$$

[1]

Financial expenses are the total cost to the firm in terms of interest charges plus financial assets write off. Total Liabilities is the total debt of the firm (current liabilities + non-current liabilities).

3.2.2. Analysts' forecasts

The analyst activity variables included in this study are: (a) earnings forecast accuracy and (b) earnings forecast dispersion. Accuracy (ACC), used as a measure of the quality of analysts' forecasts, is computed as the negative of the absolute value of the difference between the (median[17]) consensus earnings (EPS) forecast issued for period t, firm *i* and fiscal year *y*, and the actual earnings of firm *i* during fiscal year *y*. Following Hribar and McInnis (2012), the results are scaled by the absolute value of the earnings forecast, omitting any observations where the absolute value of the earnings forecast is less than \$0.10[18].

$$ACCi,t,y = -1 * abs\left(\frac{ActualEPSiy - EPSi,t,y}{Abs(EPS_{i,t,y})}\right)$$

[2]

Values close to 0 reflect higher accuracy, while more negative values capture forecasts deviating further from the firm's actual earnings. The analyses presented in this paper use quarterly averages for the fiscal year before calculation of the accuracy of analysts' information. Dispersion (STDEV) is defined as the standard deviation of the earnings forecasts scaled by the absolute value of the consensus (mean) which FACTSET[19] supplies. We also compute the mean annual data. Both these measures are used by Mansi et al. (2011) or Boubakri et al. (2013)[20] to show their impact on the cost of bonds.

3.2.3. Accounting information quality

As mentioned earlier, one way to approximate the accounting information quality is by means of a variable representing the firm's auditing company (Fortin and Pittman, 2004;

[16]If Total Liabilities data for the period t or t-1are unavailable, a constant value is assumed for the whole fiscal year.
[17]Median consensus is used in place of mean consensus in order to reduce the EPS skewness effect.
[18]Or the equivalent in local currency.
[19]Quarterly average deviations for the respective year are used to obtain a smoother average of this variable.
[20]Some studies of analysts and the cost of debt (Mansi et al., 2011; Boubakri et al., 2013) use forecasts revisions. Unfortunately, we do not have this type of data at our disposal.

Piot and Missonier-Piera, 2007; or Kim et al., 2013). The variable used in the case in hand is BIG4, a dummy variable that takes a value of 1 if the auditor is one of the Big Four and 0, otherwise[21]. The expectation, based on much previous literature, is that auditing by one of the Big Four will reduce a firm's information asymmetries, thereby leading to greater transparency and thence to a significant reduction in the total cost of its debt.

3.2.4. Institutional investors

This study will examine the effect of institutional ownership in general and bank-held ownership in particular. The proportion of institutional investors (INST) is included as a proxy for the percentage held by various institutional investors (mutual funds, pension plans, insurance companies, banks and other financing companies, etc.), while BANK refers to the percentage held by banks[22]. Two dummy variables are also included. The first is a qualitative variable which takes a value of 1 if the percentage of institutional/bank-held ownership is above the median and 0 otherwise (INST_ABOVEMEDIAN or BANK_ABOVEMEDIAN). The second is a dummy variable that takes a value of 1 if the percentage of institutional/bank-held ownership higher than 5% and 0, otherwise (INST_ABOVE5 or BANK_ABOVE5). In both cases, these dummy variables are computed for total institutional holdings and for the part held by banks. Elyasiani et al. (2010), Sánchez-Ballesta and García-Meca (2011) and others use similar means to construct variables to represent firm ownership structure.

The overall expectation is that the presence of institutional investors will reduce the cost of debt. Given the significant differences between common law and civil law countries with respect to firm ownership structure, institutions are expected to predominate in the former and banks in the latter.

3.2.5. Control variables

The model includes a series of control variables to capture firm-level characteristics other than those captured by analyst variables, the quality of accounting data and institutional ownership structure, which may have an impact on the total cost of debt. Following Mansi et al. (2011), Hasan et al. (2012), Lin et al. (2012, 2013), and others, firm size (SIZE) measured as the natural log of total assets in millions of US dollars is also included. By the reasoning given in the theoretical framework, we can expect larger firm size to be associated with a lower average total cost of debt. The degree of tangibility of assets (TANG) is computed as the ratio of total tangible assets to total assets, which is expected to have a negative sign, given that, *ceteris paribus*, it is a proxy for higher collateral against default. Profitability (PROF) is calculated as the ratio of earnings before interest and taxes (EBIT) to total assets. Tobin's Q (QTOBIN) is proxied by the ratio of market capitalization to the book value of the shareholder's equity. Following Rajan and Zingales (1995), Gaud et al. (2005), and Flannery and Rangan (2006), we measure growth opportunities (QTOBIN) as the market-to-book ratio. Finally, leverage (LEV), is

[21]French firms are assigned a value of 1 if either of the audits is conducted by one of the Big Four.
[22]For the purposes of this study, the term "BANKS" refers to Banks, Savings Banks, and Credit Cooperatives.

computed as the ratio of long-term liabilities to the sum of the market value of the shareholder's equity and total liabilities. Based on the above reasoning, PROF is expected to relate negatively to the cost of debt and LEV to relate positively, making the sign of QTOBIN an empirical issue, as can be seen from the disparity of results presented in previous studies.

3.3. Methodology

The relationship between the cost of debt and analyst activity is analysed with the following model:

$$DebtCost_{ijkt} = \alpha_o + \sum_{j=1}^{k} \alpha_j Control_{ijkt-1} + \alpha_{k+1} Big4_{ijkt-1} + \alpha_{k+2} InstInv_{ijkt-1} + \alpha_{k+3} AnlActv_{ijkt-1} + \delta_{kt} + \varphi_{jt} + \gamma_{kj} + \pi_{ijkt} + \varepsilon_{ijkt} \quad [3]$$

where the dependent variable is the average cost of total debt to firm *i*, in sector *j*, of country *k*, for period *t;* and the control variables are: firm size (SIZE), tangibility of assets (TANG), earnings (PROF), Tobin's Q (QTOBIN), and financial leverage (LEV). Additionally, the proxy for the accounting information quality (*Big4)*; the institutional ownership indicators, *InstInv* (INST and BANK), and analyst activity data, *AnlActv (*ACC and STDEV), are included as independent variables.

An important concern is that analysts activity is likely to be endogeneus. To control for potential endogeneity among the firm-level explanatory variables, all the variables are lagged one period[23]. Also included is a variable to control for the firm's baseline cost of debt (year 2003) and to take into account potential inverse causality between the cost of debt and baseline firm characteristics. All the variables are winsorized at the 5% and 95% levels to reduce the effect of potential outliers in the data sample. Three specific effects (country-year (δ_{kt}), industry-year (φ_{jt}) and country- industry (γ_{kj})) are included in the estimation in order to address the problem of omitted variables in the specification of the model[24] and to control for any shocks that might affect the cost of debt. Thus, γ_{kj} is meant to capture industry characteristics persisting throughout the study period in a given country[25]. φ_{jt} controls for potential industry- year-specific effects common to all industries in a given year in any country. δ_{kt} controls for any factors, such as the financial

[23]Estimation by Generalized Method of Moments (GMM) produces similar results to those obtained with the baseline methodology, thus confirming the validity of the instruments used (lagged values of explanatory variables). Results are available upon request.

[24]Consideration of specific controls of this type avoids having to use individual country- or industry-level controls, thereby adding validity to the estimation with the firm-level explanatory variables of interest. Dell'Ariccia et al. (2008) use the same procedure to examine the effects of systemic banking crises on economic growth in industries with different levels of external financial dependence.

[25]This vector of specific controls includes factors such as persistent size differences, concentration, financial frictions, dependence on external finance, etc., deriving from industry-specific effects in each country, which can lead to different cross-industry and cross-country trends in the cost of debt.

development level or the impact and severity of the current financial crisis, having equal impact in all industries in a given country at any point in the study period.

All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. In a fixed-time model, this correlation would be partially captured by the fixed effect δ_{kt}. However, we prefer the more general framework used in Petersen (2009), which avoids having to make any assumptions regarding the specific form of dependence between the standard errors by employing a simultaneous two-level (country and industry) clustering approach.

Panel data analysis with random effects is used in order to account for unobservable firm-specific effects. π_{ijkt} captures the firm-specific fixed effect, which is assumed to be constant for firm i, industry j, in country k, for period t. ε_{ijkt} is the error term.

The main object of the analysis is to test whether different variables relating to mechanisms to reduce lender-borrower information asymmetries have a significant impact on the average cost of corporate debt. The first step in this process is to study the impact of auditing quality, as an independent indicator of accounting information quality and earnings predictability. The next is to analyse whether the presence of sophisticated investors in the firm ownership structure exerts a significant controlling effect on information asymmetry, effectively reducing the cost of debt. This part of the analysis considers the presence of institutional investors in general and banks in particular. The last part of the analysis focuses on whether the activity of financial analysts, as sophisticated, informed market agents, reduces the severity of the information symmetries between lenders and borrowers or, provides them instead with redundant information that has no significant impact on the cost of debt. The potential impact of stock characteristics on the role of financial analysts is also tested, as is the possibility of this role being moderated by the presence of the other considered mechanisms for reducing information asymmetries. Moreover, all the reported analyses take into account the existence of potential differences across countries due to the features of the legal and institutional environment.

4. EMPIRICAL RESULTS

Prior to testing the hypotheses, we present in Table 3 (columns 1, 3, and 5) the results of the dependent variable, the average cost of corporate debt, as a function of the control variables considered. In line with expectations, size is negative and significant, both for the sample as a whole and for the common-law / civil-law subsamples, which is consistent with the notion that smaller firms are more risky or have less access to cheaper credit. The same result is found for the tangibility of firm assets, which serves as a measure of the collateral available to the lender in the event of default by the borrower. The cost of debt is found to be lower in more profitable firms, but this effect is significant in the sample as a whole and in common-law countries.

The coefficient of the variable measuring growth opportunities is negative in all estimations, which suggests that access to cheaper credit improves with growth options. This appears to suggest a positive link between firm growth options and potential earnings improvements, which can mean higher debt payment capacity, although the effect is statistically significant only for the civil-law subsample. Finally, the cost of debt is positively related to the financial leverage, which can serve as a proxy for default risk. This effect is statistically significant for the sample as a whole and for both the common- and the civil-law subsamples.

4.1. Accounting Information Quality and the Total Cost of Debt

Table 3 (columns 2, 4, and 6) provides the results for the impact of accounting information quality (proxied by a reputable auditing company) on the cost of debt. As can be seen, the BIG4 variable has a negative sign and is significant for the sample as a whole and for the civil-law subsample. The results for the common-law subsample have the expected sign but the coefficient is not statistically significant at the conventional levels. This could be because in the overall sample 16% more common-law firms than civil-law firms are audited by one of the Big Four, and this may have reduced the discriminatory power of the BIG4 variable for firms from common-law countries.

INSERT TABLE 3 ABOUT HERE

4.2. Institutional Ownership and the Total Cost of Debt

Table 4 (Panels A and B) shows the results for the estimation including the percentage of ownership held by institutional investors in general, and specifically by banks, respectively. There is no evidence in the results for the sample as a whole that overall institutional ownership significantly reduces the average cost of debt to the firm. In the case of common-law firms, however, the percentage of institutional ownership is associated with a significant reduction in the cost of debt, suggesting it to be a key management monitoring and control mechanism. By reducing perceived agency costs and perceived information asymmetries, it makes lenders' credit-qualifying criteria less demanding. It must be noted that the main institutional investors in common-law countries are mutual funds and pension plans, in contrast to civil-law countries, where the most relevant institutional investors are banks. The civil-law subsample, like the sample as a whole, shows no significant effect from the presence of institutional investors. The explanation for these results may lie in different combinations of agents with different target functions.

A fuller picture of the contribution of the institutional investor to the cost of debt can be obtained by analysing the percentage held by banks as a specific type of institutional investor with a dual role as investor and creditor. Panel B presents the data for the variables representing the percentage of bank-held ownership. The results for the overall sample show that, for the three proxies considered, a higher bank-held share in firm ownership is associated with a lower cost of debt. This is consistent with the notion that a larger holding in the firm reduces banks' expropriation incentives, and brings their

interests into line with the objectives of the firm, one of which is to reduce financial costs. In contrast to the findings for institutional investors in general, this pattern of behaviour appears in both types of financial system.

As well as depicting firm ownership typology, Tables 4 also illustrates the impact of accounting information quality on the average cost of debt after controlling for ownership structure. The main fact to emerge from both panels is that the findings reported earlier remain unaltered, in the sense that firms audited by reputable companies (Big4) have a significantly lower cost of debt than the rest, at least in the case of civil-law firms. Thus, a significant degree of institutional (or bank-held) ownership does not mitigate the explanatory power of the role of auditing quality in reducing information asymmetries.

INSERT TABLE 4 ABOUT HERE

4.3. Analyst Activity and the Cost of Debt

The main focus of this paper, as well as its main innovation with respect to previous studies, centres on the role of analyst activity in the average cost of corporate debt.

Before proceeding, it is worth drawing attention to an issue frequently overlooked in other research, which is largely based on the US setting, where it has much less impact. The issue in question is sample bias due to the degree of analyst coverage defined in terms of the number of firms followed by any analyst. It is a well-known fact that analysts tend to fix their attention on a certain type of firm, while relatively ignoring small, young, non-indexed firms, or firms with less media attention. Thus, the very consideration of analyst data in a given study effectively results in a sample bias, whereby firms not followed by analysts are underrepresented. As already stated, this type of bias has noticeably less impact in studies of firms in the US, where analyst coverage is very widespread, in marked contrast to other markets, even those with an advanced level of financial development such as those of Europe. This can be illustrated with some data. Comparing the sample of firms with available analyst information for the study period with the baseline firm sample, we find that the average size of a firm with analyst coverage is 195.63% higher in civil-law countries and 116% higher in common-law countries, respectively. Volatility in firms with analyst coverage is 15% lower in the civil-law system and 3.53% lower in the common-law system than it is in the initial sample.

These results reveal two important points. The first is that the subsample formed from firms with analyst coverage is clearly biased towards firms ranking high in terms of size and low in terms of volatility. These characteristics are usually found, *ceteris paribus*, in firms where information asymmetries are low. This means that, in overall terms, the various mechanisms to reduce information asymmetries will have less impact in the biased sample, where information asymmetries are clearly lower than in the sample as a whole. The second major point is that the bias is considerably greater in the civil-law

subsample, making the foreseeable effects of the various mechanisms to reduce information asymmetries even less perceptible than they would be without such a bias.

Table 5 presents the results of the same estimation as reported in Table 3 but this time applied to the biased samples resulting from the incorporation of analyst data (henceforth: the "constrained" sample). The results clearly show that some of the control variables (specifically, QTOBIN and LEV) lose their significance in the constrained sample for all five markets. The coefficients on size and tangibility are also lower (they are not significant for civil-law firms). The only variable that appears to have increased in importance is profitability. The analysis divided by type of financial system yields similar results, except that the financial leverage retains its significance for civil-law firms.

INSERT TABLE 5 ABOUT HERE

Important differences emerge when the focus turns to the two variables (accounting information quality and institutional ownership) representing alternative mechanisms to reduce information asymmetries. Firstly, the proxy for accounting quality (BIG4) loses its significance. A possible explanation for this is that vast majority of firms in the constrained sample are audited by one of these big companies[26], and therefore little difference in accounting quality can emerge when it is proxied by this variable. Institutional ownership also loses its significance in the sample covering all five markets. Examination of the role played by the percentage of bank-held ownership shows that it has ceased to be significant in the civil-law subsample. This could be because the sample constrained to analyst-covered firms is clearly biased towards larger firms in which the potential of institutional ownership to reduce information asymmetries may be more limited, both because information risk is generally lower in this type of firm and also because they have other supervision and control mechanisms at their disposal. In fact, the civil-law subsample increases so far in size as to completely eliminate the explanatory power of the percentage of bank-held ownership. This obviously does not mean that banks play a less important role in civil-law countries, but rather that their power to reduce information asymmetries is likely to be greater in smaller firms, whose representation in the sample decreased more significantly when analyst information was incorporated into the analysis.

Having examined the explanatory power of the control variables, the impact of accounting quality and the role of institutional ownership in this new sample, we can now turn to the analyst activity data, having succeeded in isolating variation due to differences in firm characteristics in the constrained sample.

Table 6 reports on two variables relating to the accuracy of analyst earnings forecasts. The first is ACC, which measures the absolute (negative) value of the spread between the firm's consensus earnings forecast and its actual earnings; the other is STDEV which

[26] As many as 85.60% of these firms are audited by one of the BIG4.

measures the dispersion in analysts' earnings forecasts, both variables scaled by the absolute value of the consensus forecast.

The results for the overall sample confirm the role of analysts' forecasting accuracy as a variable that helps to reduce information asymmetries and thereby lead to a significant decrease in the average cost of corporate debt. The dispersion, on the other hand, has no significant impact in this respect. The estimates from the common-law and civil- law subsamples yield similar conclusions. In both cases, accuracy has a negative sign and is significant, while dispersion has no significant explanatory power. These results support hypothesis H1 on the capacity of analyst activity to reduce information asymmetries in a firm and thereby the average cost of its debt.

The impact of higher forecast accuracy is consistent with higher earnings predictability, in line with findings from research on bonds (Crabtree and Maher, 2005; Mansi et al., 2011; or Boubakri et al., 2013). It is hard to determine empirically whether this result is due to higher accuracy being associated with higher earnings predictability making firm valuation easier for the lender, or to it reflecting stronger consensus around earnings expectations and thus lower information asymmetry among all agents. It is also quite likely that the two explanations are linked, since, all else being equal, there will be less forecasting error in easy-to-value firms and analysts' information output for these firms will be more credible and thus more valuable to the market. Information on complex firms will be potentially more useful; but, if not credible, may contribute little to reducing information asymmetries.

INSERT TABLE 6 ABOUT HERE

One important aspect of analyst accuracy, as indicated in section 2.1.3, is its relationship with stock characteristics. There is a huge empirical literature showing that, in contrast to stocks whose value is more certain, HVDA stocks (proxied by variables such as asset volatility) present significantly higher earnings forecast error at times of high investor sentiment, (Qian, 2009; Corredor et al., 2014). It is true, nonetheless, that greater information risk will be found in HVDA firms, and that independent information will have greater potential to reduce that risk. In order to disentangle this issue, we incorporate a dummy variable for HVDA stocks. Based on a component[27] created to capture the common part of all three characteristics volatility, size and book-to-market, interpreted in alignment with volatility, and denoted by "PCA_CHARACT", we create a dummy variable that takes a value of 1 for stocks in the fifth quintile of this component and 0, otherwise. As stock volatility is one of the best individual measures to capture the effect of the multidimensional variable of difficulty of valuation and arbitrage (see Corredor et al., 2014) another dummy variable is also created that takes a value of 1 for stocks in the fifth volatility quintile and 0, otherwise[28].

[27]Principal Components Analysis is used to identify the commonality between the 3 characteristics. The first factor extracted shows that volatility and BTM have a negative impact and size has a positive impact.
[28]We have also computed another two dummy variables that take a value of 1 for stocks in the fifth BTM quintile, or the first size quintile, where these characteristics, jointly with volatility, proxy for HVDA stocks,

The results for the constrained overall sample, shown in Table 7, Panel A, show no significant link between these variables and any of the proxies used. Important differences emerge in the results sorted by type of financial system (Panels B and C), however. In particular, in the civil-law subsample, higher analyst accuracy is found in HVDA stocks, although, they may, in turn, be more seriously affected by behavioural biases. In this case, the inclusion of the above-mentioned dummy variable annuls the significance of analyst accuracy, thus revealing that the effect is significant only for HVDA firms. These results enable us to confirm hypothesis H2, which states that the capacity of analyst activity to reduce information asymmetries varies with firm type.

INSERT TABLE 7 ABOUT HERE

As the effect of stock-level characteristics seems to be significant only in the case of firms from civil-law countries, this finding could raise an interesting new issue for analysis. Note that this result does not appear consistent with expectations, given the type of firms grouped in the constrained civil-law and common-law subsamples. Indeed, the higher degree of analyst coverage in common-law firms (especially those in the US) should mean that there is a greater proportion of HVDA firms in this constrained subsample than in the constrained civil-law subsample, which would mean that, *ceteris paribus*, the interaction variable has greater explanatory power in a common-law than in a civil-law context, in complete contrast to what was found in the previous analysis. The observed difference could, however, be due to stricter monitoring and control mechanisms, together with stronger protection of ownership rights, which are present in common-law countries. Findings by Boubakri and Ghouma (2010) that stronger protection of debtors rights increases bond rates and reduces bond spread could be consistent with this reasoning.

For a deeper examination of this issue, Table 7 reports on the estimation for the constrained overall sample, incorporating a proxy for the degree of protection on shareholders' ownership rights[29], (PROPERTY) available from the Heritage Foundation. PROPERTY is defined as an index of a country's implementation and enforcement of legislation to protect private ownership rights. Higher scores on this index indicate a stronger degree of protection. Its interaction with the stock characteristic moderates the role of the characteristic in the ultimate impact of analyst accuracy on the average cost of debt. As can be seen, this dummy variable is significant. The results in all cases suggest that the impact of these stock characteristics on the capacity of analyst accuracy to reduce the average cost of debt is significantly lower for listed firms in environments where shareholders' ownership rights are strongly protected. This suggests that the protection of shareholders' ownership rights and analyst activity may be two alternative mechanisms for the reduction of information risk in a firm. Thus, in settings with strong

and 0, otherwise. The results of these two variables are not shown in tables to save space. The procedure is as follows: The stocks are sorted into quintiles (20%) according to each of the characteristics of interest, for the sample as a whole and for the entire study period. HVDA stocks are grouped in the fifth quintile (above the 80th percentile) in terms of volatility and BTM and in the first quintile (below the 20th percentile) in terms of size.

[29] It also proxies for the probability of private property expropriation.

protection of shareholders' ownership rights, analyst activity plays a much less prominent role in reducing perceived information risk among creditors and thus also in reducing average debt charges. These results do not contradict hypotheses H1 and H2; they simply moderate them by confirming that the effects of a mechanism for the reduction of information asymmetries, such as analyst activity, are dependent upon the possible presence of other effects (observations for the case in hand show them to be substitutive; such that an increase in the intensity of one reduces the impact capacity of the other). This result partially confirms hypothesis H3, in the sense that the impact of analyst activity is dependent upon the presence of other mechanisms for the reduction of a firm's information asymmetries.

While on the subject, and given the lack of significance of accounting information quality proxied by the BIG4 variable in the constrained sample, hypothesis H3 can also be tested in relation to analyst accuracy and institutional ownership. We can approach this by analysing the results when both the above variables are included (shown in Table 8). As can be seen, accuracy retains its significant negative sign, irrespective of the percentage of institutional ownership. The latter has less explanatory power as a mechanism for the reduction of the average cost of corporate debt, however, since it is significant only for common-law firms. The percentage of bank-held ownership is significant for the constrained sample as a whole and for the common-law subsample. Overall, no appreciable difference emerges in the explanatory power of these mechanisms when considered in combination.

INSERT TABLE 8 ABOUT HERE

To reach firmer conclusions on this point, therefore, we need to perform a more direct analysis, which can be done by including interaction effects in the estimations of the average cost of debt[30]: ACC*INST, ACC*BANK. If the coefficients on these variables are significantly different from 0, it will mean that the impact of analyst activity varies significantly in the presence of alternative mechanisms for the reduction of information asymmetries between a firm and its creditors.

The results of this analysis are given in Table 9. The joint estimation for all five markets reveals that institutional ownership typology serves as an alternative to analyst activity, and that the latter is less effective in reducing information asymmetries when there is a significant percentage of institutional ownership. The same finding does not emerge for the particular case of the percentage of bank-held ownership.

Differentiation by institutional ownership typology shows that the substitutive role of institutional ownership found in the overall sample varies somewhat between the two types of institutional and legal systems. In particular, the significant moderating variable in the estimation for the common-law countries is the percentage of institutional ownership, whereas, in the case of the civil-law countries, it is the percentage of bank-

[30]Given the inability of the BIG4 variable to explain the results shown in Table 8, the moderating variable ACC*BIG4 is not included. However, this variable also lacks significance in all cases. The results are available from the authors upon request.

held ownership. This finding is consistent with the relative importance of the role played by these agents in each institutional framework.

INSERT TABLE 9 ABOUT HERE

Finally, the different results obtained for the common-law and civil-law subsamples, due both to the firm typology and the institutional environment in each case, confirm hypothesis H4 and provide additional proof of the importance of the legal and institutional environment in explaining financial decision-making in firms.

5. ROBUSTNESS TESTS

The focus in this section is on testing the robustness of the above results to alternative measures of the key variables and to the inclusion of additional macroeconomic variables. The first test involves an alternative measure of the dependent variable. The second addresses the issue of the potential impact on the results of two major types of debt, bonds and bank debt, which have clearly distinct characteristics. Finally, we test the explicit use of macroeconomic variables to replace the country-year control variable in the above estimations.

5.1. Alternative Measures of the Cost of Debt

Our previous dependent variable considers the ratio of financial expenses to the firm's average liabilities. An alternative denominator, although in our view less appropriate, is the firm's final value of debt. Thus, the variable would be defined as follows:

$$DebtCost_{ijkt} = \frac{Financial\ Expenses_{ijkt}}{Total\ Liabilities_{ijkt}} \quad [4]$$

Table 10 shows the estimates from the baseline model using this new variable. As can be seen, they are largely identical to those given in Table 6. For the three estimations shown, the variable ACC retains its negative sign and remains statistically significant. Only asset tangibility (TANG), which had a negative and significant coefficient for the constrained sample including all five markets, lacks significance after the inclusion of this new dependent variable. The remaining control variables and accounting information quality already lacked statistical significance in the estimation presented in column (1) of Table 6. The difference in the new estimation lies in the fact that LEV attains statistical significance for the civil-law firms, suggesting that a higher leverage ratio leads to an increase in the average cost of debt.

INSERT TABLE 10 ABOUT HERE

5.2. Type of Debt

One issue arising from the above analysis is whether the results might apply exclusively due to one part of corporate debt, that is, bonds. There is, in fact, as mentioned in the theoretical framework, a large amount of past research showing that bond rates increase and thus bond spread narrows as analysts' forecasting accuracy improves.

BANKLOANS, a variable created to test for variation in the impact of the ACC variable across different types of debt, measures the percentage of long-term bank loans as a share of the firm's total long-term debt. The regression also includes a variable for the interaction between the analyst accuracy measure (ACC) and the proxy for a specific type of corporate debt (BANKLOANS). If the percentage of bank debt alters the impact of ACC on the average cost of corporate debt, the coefficient on the interaction variable will be significantly different from 0. Indeed, it is not beyond the realms of reason that analysts' forecasts might be of more value to the uninformed borrower, as in bond issues, than to a sophisticated investor. If this were the case, the sign of the interaction variable, ACC*BANKLOANS would be positive and significant, indicating that analysts' forecasts will have less impact on the average cost of debt in firms with higher bank-to-total-debt ratios.

From the results given in Table 11, it can be seen that the coefficient on ACC*BANKLOANS is not statistically significant at the conventional levels, while the coefficient on ACC considered in isolation remains negative and statistically significant. This enables us to conclude that the above-reported results from the previous analysis do not vary significantly as a function of the bank-to-total-debt ratio, and thus apply equally to any type of corporate debt.

INSERT TABLE 11 ABOUT HERE

5.3. Macroeconomic Environment Variables

The last of the robustness tests carried out in this study is aimed at testing whether the direct inclusion of economic cycle indicators significantly affects the impact of analyst forecasting accuracy on the average cost of corporate debt. This involves including two widely-used economic cycle proxies, namely, GDP and unemployment variations, and, logically therefore, omitting the country-year fixed effect used in the previous models.

The results of this test, shown in Table 12, lead to the same conclusions as obtained when controlling for the country-year fixed effect, thus showing that there is no appreciable difference between the baseline analysis and the alternative analysis including proxies for economic cycle effects, as far as the results regarding the impact of analyst forecasting accuracy on the average total cost of corporate debt are concerned.

INSERT TABLE 12 ABOUT HERE

6. CONCLUSIONS

This paper analyses the role of analyst activity and other information-risk-reducing mechanisms, such as accounting information quality or a significant level of institutional ownership, on the average cost of corporate debt. In this way, it extends a previous analysis of the US bond market to the study of total corporate debt in five developed financial markets including where both the common-law and the civil-law system are represented. Stock characteristics are examined for their moderating role on the impact of analyst activity. The study also checks for variation in the explanatory power of analyst forecasting accuracy in the presence of other information-risk-reducing mechanisms and whether these mechanisms complement or substitute each other.

The results for accounting information quality, proxied by the reputation of the auditing company, show that it merely helps to reduce information risk and thereby lower the average total cost of debt in firms where the level of information risk is high. This variable loses its significance when the analysis is performed on a constrained sample containing only firms with analyst coverage. The results may be explained by the change in the profile of the sample firms which occurs due to analyst coverage bias, which biases the sample towards large, firmly-established firms attracting media attention.

Meanwhile, the level of institutional ownership, which indicates the presence of sophisticated market agents with the capacity to reduce information risk, only plays a significant role in reducing the cost of debt in common-law firms. The role played by the level of bank-held ownership in this respect, however, is significant both in the overall firm sample and in the common-law and civil-law subsamples. These two ownership structure variables, particularly bank-held ownership, lose much of their explanatory power in the analysis of the constrained sample (firms with analyst coverage), however. Since both accounting information quality and a high percentage of institutional ownership lose explanatory power for the constrained sample, it is difficult to determine how much impact they might have in an overall sample unaffected by analyst coverage bias.

Focusing on the specific hypotheses addressed in the paper, the most notable finding to emerge is that the activity of financial analysts is a key information-risk control mechanism that significantly reduces the average cost of corporate debt. In line with expectations, however, this is not a homogeneous effect, but one associated predominantly with HVDA firms. It is shown, furthermore, that analyst activity is more effective as an information-risk control mechanism in settings with poor ownership-rights protection, thus highlighting the role of the institutional environment in shaping these relationships. It has also been found that institutional ownership (in common-law countries) and a particular type of institutional ownership, that is, bank-held ownership (in firms in civil-law countries), serve as substitutes for analyst coverage, because of their moderating effect on the impact of the accuracy of analyst information on the average cost of debt in countries where these institutional investors play a more prominent role.

The incorporation of analyst coverage data is found to cause sample bias, particularly when the analysis involves markets other than the US. This has a considerable impact

on the results, and must therefore be taken into account in order to avoid misleading conclusions.

Finally, the observed differences between common-law and civil-law firms emphasise the role of the institutional environment in explaining corporate decision making.

The results of this paper suggest that it would be worth encouraging the development of alternative mechanisms for the reduction of information asymmetries between lenders and borrowers in order to ensure firms' access to better credit terms. One potentially effective mechanism would be to encourage analyst coverage in order to reduce the average cost of corporate debt when the development of market tools to address information asymmetries problems is impeded by the characteristics of the institutional and legal setting.

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***Table 1*: Descriptive Statistics**

This table shows the descriptive statistics of the variables for both subsamples (civil-law and common-law) and for the sample as a whole. DEBTCOST is defined as the ratio of financial expenses in period t to the averaged value of the total debt in periods t and t-1. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of a firm's leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0 otherwise. INST and BANK are the percentage of institutional ownership and bank-held ownership, respectively. ACC is the measure of the of analysts' forecasting accuracy. STDEV is the standard deviation of forecasts scaled by the absolute value of the median consensus.

		DEBTCOST	SIZE	TANG	PROF	QTOBIN	LEV	BIG4	INST	BANK	ACC	STDV
Civil	*Mean*	0.0548	11.5089	0.4555	0.0130	0.0020	0.3766	0.5361	12.2445	1.7946	-0.6182	0.2220
	StDev	0.1142	2.2992	0.3342	0.2751	0.0031	0.2411	0.4987	20.4224	5.0117	1.3809	1.8726
	25%	0.0151	10.0090	0.1192	-0.0015	0.0008	0.1696	0.0000	0.0000	0.0000	-0.4275	0.0350
	Median	0.0297	11.2437	0.4410	0.0535	0.0015	0.3618	1.0000	0.0000	0.0000	-0.1875	0.0930
	75%	0.0496	12.7478	0.7758	0.1045	0.0025	0.5648	1.0000	16.0000	0.0000	-0.0800	0.2040
Common	*Mean*	0.0648	12.5327	0.4926	-0.1742	0.0026	0.4336	0.6452	8.4698	1.7312	-0.3409	0.0497
	StDev	0.1325	2.5911	0.3125	0.8992	0.0055	0.2842	0.4785	16.7770	4.6721	1.1853	1.3068
	25%	0.0152	10.8833	0.2025	-0.0641	0.0010	0.1729	0.0000	0.0000	0.0000	-0.2500	0.0120
	Median	0.0311	12.7085	0.4884	0.0579	0.0018	0.4428	1.0000	0.0000	0.0000	-0.1100	0.0370
	75%	0.0562	14.3347	0.7763	0.1140	0.0033	0.6770	1.0000	8.3900	0.0000	-0.0525	0.0930
Total	*Mean*	0.0621	12.2898	0.4838	-0.1299	0.0025	0.4222	0.6216	9.2240	1.7438	-0.3826	0.0748
	StDev	0.1277	2.5622	0.3182	0.8010	0.0051	0.2770	0.4850	17.6302	4.7419	1.2207	1.4048
	25%	0.0152	10.5920	0.1843	-0.0404	0.0010	0.1722	0.0000	0.0000	0.0000	-0.2750	0.0130
	Median	0.0307	12.3421	0.4793	0.0569	0.0017	0.4215	1.0000	0.0000	0.0000	-0.1200	0.0420
	75%	0.0540	14.0890	0.7762	0.1118	0.0032	0.6549	1.0000	10.1550	0.0000	-0.0550	0.1080

Table 2: **Correlations**

This table shows the correlations among the main variables. DEBTCOST is defined as the ratio between the financial expenses of period t and the averaged value of the total debt of periods t and t-1. SIZE is measured as the natural logarithm of assets. TANG measures the tangibility of assets as the ratio between tangible assets (property, plant, and equipment) and firms' total assets. PROF measures firm profitability as the ratio between operating EBIT and total assets. QTOBIN measures growth opportunities as the ratio book-to-market. LEV is the measure of firm's leverage calculated as the ratio non-current liabilities-to-total assets. BIG4 is a dummy variable that takes value 1 if the firm is audited by a BIG4 auditor and 0, otherwise. INST and BANK are the percentage of firm's capital owned by an institutional investor and a financial institution, respectively. ACC is the measure of the accuracy of analysts' information. STDEV is the standard deviation of forecasts scaled by the absolute value of the median consensus.

	DEBTCOST	SIZE	TANG	PROF	QTOBIN	LEV	BIG4	INST	BANK	ACC	STDEV
DEBTCOST	1.0000										
SIZE	-0.2630	1.0000									
TANG	-0.0777	0.0397	1.0000								
PROF	-0.2694	0.4664	0.0050	1.0000							
QTOBIN	-0.0259	0.0406	-0.0143	0.1207	1.0000						
LEV	-0.1121	0.4686	0.1371	0.1548	-0.0573	1.0000					
BIG4	-0.1884	0.6174	0.0137	0.2481	0.0645	0.2835	1.0000				
INST	-0.0477	0.1543	-0.0278	0.0889	0.0036	-0.0009	0.1478	1.0000			
BANK	-0.0587	0.2156	-0.0034	0.0820	0.0230	0.0406	0.1828	0.6535	1.0000		
ACC	-0.0697	0.0995	-0.0158	0.1346	0.0492	-0.0008	0.0738	0.0025	0.0349	1.0000	
STDEV	-0.0124	0.0017	-0.0094	0.0230	-0.0062	-0.0075	-0.0005	0.0002	-0.0027	-0.1596	1.0000

***Table 3*: Capital Structure, Accounting Information Quality, and the Cost of Debt**

This table shows the results of the firm's characteristics and accounting information quality on the average cost of debt. DEBTCOST is defined as the ratio of financial expenses in period t to the averaged value of the total debt in periods t and t-1. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of firm's leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0 otherwise. All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. Country-year, industry-year, and country-industry dummy variables are included but are not reported. T-statistics are in parentheses. ***, **, and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	ALL		**COMMON**		**CIVIL**	
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.1485***	0.1371***	0.1660***	0.1604***	0.1098***	0.0973***
	(10.93)	(9.96)	(8.70)	(8.29)	(4.85)	(4.09)
DEBTCOST_Initial	0.2401***	0.2407***	0.2537***	0.2550***	0.1306***	0.1378***
	(7.91)	(8.07)	(7.53)	(7.67)	(2.97)	(3.11)
SIZE	-0.0079***	-0.0063***	-0.0088***	-0.0079***	-0.0046**	-0.0029
	(-7.80)	(-5.80)	(-7.42)	(-6.24)	(-2.49)	(-1.33)
TANG	-0.0295***	-0.0293***	-0.0301***	-0.0300***	-0.0333***	-0.0333***
	(-5.38)	(-5.24)	(-4.65)	(-4.59)	(-2.75)	(-2.68)
PROF	-0.0277***	-0.0286***	-0.0270***	-0.0278***	0.0059	0.0043
	(-5.56)	(-5.80)	(-5.29)	(-5.51)	(0.74)	(0.54)
QTOBIN	-0.2598	-0.2411	-0.1820	-0.1766	-1.1212**	-1.0271**
	(-0.75)	(-0.69)	(-0.48)	(-0.47)	(-2.37)	(-2.19)
LEV	0.0152**	0.0161***	0.0116*	0.0123*	0.0426***	0.0437***
	(2.54)	(2.67)	(1.83)	(1.92)	(2.77)	(2.81)
BIG4		-0.0139***		-0.0083		-0.0172**
		(-3.16)		(-1.55)		(-2.19)
Country-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
R-Squared	0.1868	0.1897	0.2159	0.2170	0.0596	0.0673
Wald-Test	227.04***	259.98****	208.40***	241.72***	60.88***	61.47***
# *Firms*	2,949	2,923	2,334	2,318	615	605
# *Observations*	11,208	11,129	8,555	8,518	2,653	2,611

***Table 4*: Ownership Structure and the Cost of Debt**

This table shows the results of the impact of institutional ownership on the average cost of debt. DEBTCOST is defined as the ratio of financial expenses in period t to the averaged value of the total debt in periods t and t-1. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of firm leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0 otherwise. INST (BANK) is the percentage of institutional (bank) ownership. INST_ABOVEMEDIAN (BANK_ABOVEMEDIAN) is a dummy value that takes a value of 1 if the percentage of institutional ownership (bank) is above the median, and zero otherwise. INST_ABOVE5 (BANK_ABOVE5) is a dummy variable that takes a value of 1 if the percentage of institutional (bank) ownership is greater than 5% and zero otherwise. All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. Country-year, industry-year, and country-industry dummy variables are included but are not reported. T-statistics are in parentheses. ***, **, and * indicate levels of significance of 1%, 5%, and 10%, respectively.

PANEL A: INSTITUTIONAL INVESTORS AND THE COST OF DEBT

	ALL			COMMON			CIVIL		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.1366***	0.1369***	0.1367***	0.1605***	0.1610***	0.1600***	0.0993***	0.0988***	0.0989***
	(10.16)	(10.15)	(10.04)	(8.47)	(8.51)	(8.25)	(4.19)	(4.19)	(4.21)
DEBTCOST_Initial	0.2366***	0.2365***	0.2366***	0.2504***	0.2502***	0.2503***	0.1379***	0.1388***	0.1385***
	(8.10)	(8.09)	(8.09)	(7.68)	(7.66)	(7.66)	(2.99)	(3.02)	(3.02)
SIZE	-0.0060***	-0.0060***	-0.0060***	-0.0075***	-0.0074***	-0.0074***	-0.0032	-0.0031	-0.0031
	(-5.69)	(-5.64)	(-5.73)	(-6.19)	(-6.15)	(-6.19)	(-1.45)	(-1.42)	(-1.45)
TANG	-0.0304***	-0.0304***	-0.0304***	-0.0313***	-0.0313***	-0.0312***	-0.0337***	-0.0337***	-0.0337***
	(-5.35)	(-5.36)	(-5.35)	(-4.74)	(-4.73)	(-4.72)	(-2.66)	(-2.66)	(-2.65)
PROF	-0.0297***	-0.0297***	-0.0297***	-0.0289***	-0.0289***	-0.0290***	0.0040	0.0038	0.0039
	(-5.95)	(-5.96)	(-5.96)	(-5.67)	(-5.67)	(-5.68)	(0.49)	(0.47)	(0.49)
QTOBIN	-0.1655	-0.1630	-0.1655	-0.1087	-0.1037	-0.1075	-0.9550**	-0.9523**	-0.9479**
	(-0.47)	(-0.46)	(-0.47)	(-0.29)	(-0.27)	(-0.28)	(-1.99)	(-2.00)	(-1.99)
LEV	0.0150**	0.0148**	0.0149**	0.0106*	0.0104*	0.0106*	0.0447***	0.0444***	0.0445***
	(2.51)	(2.48)	(2.50)	(1.69)	(1.66)	(1.68)	(2.84)	(2.82)	(2.83)
BIG4	-0.0143***	-0.0142***	-0.0143***	-0.0088	-0.0087	-0.0088	-0.0172**	-0.0174**	-0.0174**
	(-3.22)	(-3.20)	(-3.21)	(-1.61)	(-1.60)	(-1.61)	(-2.17)	(-2.20)	(-2.22)
INST	-0.0000			-0.0001*			0.0001		
	(-0.90)			(-1.66)			(0.93)		
INST_ABOVEMEDIAN		-0.0024			-0.0036*			0.0015	
		(-1.43)			(-1.85)			(0.45)	
INST_ABOVE5			-0.0017			-0.0028			0.0023
			(-0.87)			(-1.24)			(0.60)
Country-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
R-Squared	0.1904	0.1940	0.1904	0.2184	0.2184	0.2184	0.0696	0.0688	0.0695
Wald-Test	264.41***	272.97***	265.37***	264.51***	275.85***	261.78***	74.47***	68.84***	72.17***
# *Firms*	2,894	2,894	2,894	2,292	2,292	2,292	602	602	602
# *Observations*	11,033	11,033	11,033	8,449	8,449	8,449	2,584	2,584	2,584

PANEL B: BANK INVESTORS AND THE COST OF DEBT

	ALL			COMMON			CIVIL		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.1365***	0.1365***	0.1363***	0.1591***	0.1596***	0.1584***	0.0973***	0.0972***	0.0978***
	(10.14)	(10.12)	(10.12)	(8.39)	(8.30)	(8.32)	(4.13)	(4.11)	(4.16)
DEBTCOST_Initial	0.2367***	0.2367***	0.2367***	0.2507***	0.2506***	0.2507***	0.1395***	0.1398***	0.1393***
	(8.10)	(8.10)	(8.10)	(7.69)	(7.68)	(7.69)	(3.04)	(3.05)	(3.04)
SIZE	-0.0060***	-0.0059***	-0.0060***	-0.0074***	-0.0074***	-0.0074***	-0.0029	-0.0028	-0.0029
	(-5.62)	(-5.61)	(-5.67)	(-6.12)	(-6.12)	(-6.14)	(-1.34)	(-1.33)	(-1.37)
TANG	-0.0304***	-0.0304***	-0.0304***	-0.0312***	-0.0312***	-0.0311***	-0.0337***	-0.0338***	-0.0337***
	(-5.36)	(-5.36)	(-5.36)	(-4.72)	(-4.71)	(-4.72)	(-2.66)	(-2.67)	(-2.66)

PROF	-0.0297***	-0.0297***	-0.0297***	-0.0290***	-0.0290***	-0.0290***	0.0036	0.0036	0.0036
	(-5.96)	(-5.96)	(-5.96)	(-5.69)	(-5.68)	(-5.69)	(0.45)	(0.44)	(0.45)
QTOBIN	-0.1642	-0.1608	-0.1638	-0.1078	-0.1030	-0.1069	-0.9518**	-0.9592**	-0.9543**
	(-0.47)	(-0.46)	(-0.47)	(-0.28)	(-0.27)	(-0.28)	(-1.98)	(-1.98)	(-1.99)
LEV	0.0149**	0.0148**	0.0149**	0.0105*	0.0105*	0.0106*	0.0442***	0.0441***	0.0441***
	(2.50)	(2.49)	(2.50)	(1.69)	(1.68)	(1.69)	(2.80)	(2.80)	(2.80)
BIG4	-0.0143***	-0.0143***	-0.0143***	-0.0089*	-0.0090*	-0.0090*	-0.0172**	-0.0171**	-0.0172**
	(-3.22)	(-3.22)	(-3.22)	(-1.64)	(-1.65)	(-1.65)	(-2.17)	(-2.16)	(-2.17)
BANK	-0.0003**			-0.0003**			-0.0004**		
	(-2.45)			(-2.04)			(-2.51)		
BANK _ABOVEMEDIAN		-0.0032*			-0.0035*			-0.0040	
		(-1.92)			(-1.65)			(-1.48)	
BANK _ABOVE5			-0.0027*			-0.0029			-0.0034*
			(-1.87)			(-1.59)			(-1.74)
Country-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
R-Squared	0.1905	0.1904	0.1905	0.2183	0.2182	0.2182	0.0675	0.0678	0.0679
Wald-Test	273.60***	267.49***	275.88***	256.49***	250.18***	257.23***	63.59***	65.19***	63.94***
# Firms	2,894	2,894	2,894	2,292	2,292	2,292	602	602	602
# Observations	11,033	11,033	11,033	8,449	8,449	8,449	2,584	2,584	2,584

Table 5: **Quality of Accounting Information, Ownership Structure, and the Cost of Debt: Subsample of Firms with Analysts' Information. "Constrained" Sample**

This table shows the results of the effect of the quality of accounting information and ownership structure on average cost of debt. The sample is constrained by the availability of analyst coverage data. DEBTCOST is defined as the ratio of financial expenses in period t to the averaged value of the total debt in periods t and t-1. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of firm's leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0, otherwise. INST and BANK are the percentage of institutional ownership and bank-held ownership, respectively. All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. Country-year, industry-year, and country-industry dummy variables are included but are not reported. T-statistics are in parentheses. ***, **, and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	ALL			**COMMON**			**CIVIL**		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.0740***	0.0751***	0.0742***	0.0801***	0.0850***	0.0823***	0.0493***	0.0497***	0.0493***
	(9.16)	(9.61)	(9.34)	(5.40)	(6.17)	(5.83)	(4.32)	(4.41)	(4.34)
DEBTCOST_Initial	0.2393***	0.2409***	0.2409***	0.2716***	0.2738***	0.2739***	0.1087**	0.1073*	0.1086**
	(5.42)	(5.44)	(5.43)	(5.54)	(5.59)	(5.58)	(2.01)	(1.95)	(2.01)
SIZE	-0.0018**	-0.0017**	-0.0017*	-0.0024**	-0.0023**	-0.0022*	-0.0006	-0.0007	-0.0006
	(-2.21)	(-2.00)	(-1.93)	(-2.20)	(-2.06)	(-1.95)	(-1.02)	(-1.19)	(-1.02)
TANG	-0.0125**	-0.0132**	-0.0130**	-0.0114*	-0.0122**	-0.0120**	-0.0193	-0.0191	-0.0191
	(-2.35)	(-2.46)	(-2.46)	(-1.87)	(-2.00)	(-1.97)	(-1.57)	(-1.54)	(-1.54)
PROF	-0.0763***	-0.0748***	-0.0749***	-0.0747***	-0.0731***	-0.0732***	-0.0192	-0.0184	-0.0189
	(-6.73)	(-6.80)	(-6.81)	(-6.42)	(-6.429	(-6.45)	(-0.90)	(-0.86)	(-0.88)
QTOBIN	0.1270	0.1134	0.1123	0.0864	0.0718	0.0708	0.3040	0.2213	0.2190
	(0.92)	(0.82)	(0.81)	(0.59)	(0.49)	(0.48)	(0.67)	(0.47)	(0.46)
LEV	-0.0002	-0.0004	-0.0004	-0.0053	-0.0055	-0.0056	0.0298*	0.0305*	0.0301*
	(-0.02)	(-0.05)	(-0.05)	(-0.68)	(-0.71)	(-0.72)	(1.68)	(1.72)	(1.69)
BIG4	-0.0062	-0.0063	-0.0062	-0.0060	-0.0062	-0.0061	-0.0003	-0.0000	-0.0001
	(-0.92)	(-0.91)	(-0.90)	(-0.65)	(-0.66)	(-0.65)	(-0.08)	(-0.00)	(-0.03)
INST		-0.0001			-0.0001*			0.0001	
		(-1.41)			(-1.72)			(0.94)	
BANK			-0.0002*			-0.0002*			0.0000
			(-1.67)			(-1.76)			(0.10)
Country-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
R-Squared	0.2006	0.1996	0.1996	0.2205	0.2199	0.2197	0.0832	0.0838	0.0832
Wald-Test	232.66***	238.66***	242.11***	253.21***	261.82***	268.33***	19.35**	25.77***	19.19*
# Firms	1,839	1,829	1,829	1,515	1,507	1,507	324	322	322
# Observations	4,281	4,260	4,260	3,542	3,526	3,526	739	734	734

***Table 6*: Analysts' Characteristics and the Cost of Debt**

This table shows the results of the effect of the characteristics of analysts' information on average cost of debt. DEBTCOST is defined as the ratio of financial expenses in period t to the averaged value of the total debt in periods t and t-1. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of firm's leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0, otherwise. ACC is the measure of analysts' forecasting accuracy. STDEV is the standard deviation of forecasts scaled by the absolute value of the median consensus. All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. Country-year, industry-year, and country-industry dummy variables are included but are not reported. T-statistics are in parentheses. ***, **, and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	ALL		**COMMON**		**CIVIL**	
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.0726***	0.0864***	0.0791***	0.0886***	0.0444***	0.0526***
	(9.04)	(8.30)	(5.31)	(5.92)	(3.85)	(4.21)
DEBTCOST_Initial	0.2395***	0.2355***	0.2719***	0.2493***	0.1090**	0.1697**
	(5.43)	(4.39)	(5.54)	(3.95)	(2.03)	(2.49)
SIZE	-0.0018**	-0.0032***	-0.0023**	-0.0038***	-0.0004	-0.0012
	(-2.16)	(-3.43)	(-2.16)	(-3.19)	(-0.68)	(-1.50)
TANG	-0.0124**	-0.0135**	-0.0113*	-0.0131**	-0.0191	-0.0180
	(-2.34)	(-2.51)	(-1.85)	(-2.12)	(-1.55)	(-1.53)
PROF	-0.0756***	-0.0571***	-0.0742***	-0.0572***	-0.0077	-0.0140
	(-6.54)	(-3.02)	(-6.29)	(-2.78)	(-0.36)	(-0.95)
QTOBIN	0.1367	0.2762	0.0928	0.2694	0.3987	-0.3325
	(1.00)	(1.26)	(0.64)	(1.20)	(0.91)	(-0.65)
LEV	-0.0004	0.0029	-0.0055	-0.0005	0.0290	0.0264
	(-0.05)	(0.43)	(-0.71)	(-0.08)	(1.62)	(1.42)
BIG4	-0.0059	-0.0014	-0.0054	-0.0020	-0.0006	0.0058
	(-0.87)	(-0.26)	(-0.59)	(-0.28)	(-0.18)	(1.23)
ACC	-0.0015**		-0.0015*		-0.0032**	
	(-2.02)		(-1.81)		(-2.18)	
STDEV		-0.0006		-0.0007		0.0002
		(-1.03)		(-1.02)		(0.22)
Country-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
R-Squared	0.2012	0.1709	0.2210	0.1830	0.0912	0.1056
Wald-Test	226.94***	153.45***	250.11***	155.34***	26.67***	33.55***
# *Firms*	1,839	1,869	1,515	1,559	324	310
# *Observations*	4,281	4,524	3,542	3,785	739	739

Table 7: **Analysts' Data, Stock Characteristics, Institutional Quality, and the Cost of Debt**

This table shows the results of stock characteristics, analyst data and information quality on the average cost of debt. DEBTCOST is defined as the ratio of financial expenses in period t to the averaged value of the total debt in periods t and t-1. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of firm's leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0, otherwise. ACC is the measure of analysts' forecasting accuracy. PCA_CHARACT is the component created from the asset-level characteristics. VOL is the volatility of the firm's financial assets. PROPERTY is an index the extent to which the property rights are protected in each country. All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. Country-year, industry-year, and country-industry dummy variables are included but are not reported. T-statistics are in parentheses. ***, **, and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	ALL				**COMMON**		**CIVIL**	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	0.0652***	0.0673***	0.0649***	0.0671***	0.0701***	0.0715***	0.0374***	0.0379***
	(7.15)	(7.75)	(7.10)	(7.73)	(4.12)	(4.27)	(3.13)	(3.17)
DEBTCOST_Initial	0.2251***	0.2270***	0.2251***	0.2271***	0.2596***	0.2623***	0.1114**	0.1108**
	(4.32)	(4.42)	(4.32)	(4.42)	(4.28)	(4.42)	(2.01)	(1.98)
SIZE	-0.0013	-0.0016*	-0.0013	-0.0016*	-0.0017	-0.0022**	0.0003	0.0003
	(-1.51)	(-1.91)	(-1.54)	(-1.94)	(-1.55)	(-2.01)	(0.35)	(0.37)
TANG	-0.0126**	-0.0124**	-0.0126**	-0.0125**	-0.0114*	-0.0113*	-0.0189	-0.0182
	(-2.47)	(-2.43)	(-2.47)	(-2.43)	(-1.94)	(-1.90)	(-1.43)	(-1.42)
PROF	-0.0674***	-0.0582***	-0.0673***	-0.0581***	-0.0680***	-0.0578***	-0.0047	-0.0026
	(-3.46)	(-3.54)	(-3.46)	(-3.53)	(-3.22)	(-3.26)	(-0.20)	(-0.12)
QTOBIN	0.3424*	0.2061	0.3487*	0.2098	0.2664	0.1491	0.5034	0.4347
	(1.63)	(1.46)	(1.66)	(1.48)	(1.19)	(0.98)	(1.10)	(0.95)
LEV	-0.0008	0.0014	-0.0007	0.0015	-0.0065	-0.0036	0.0270	0.0265
	(-0.10)	(0.19)	(-0.09)	(0.20)	(-0.80)	(-0.47)	(1.50)	(1.48)
BIG4	-0.0058	-0.0048	-0.0059	-0.0049	-0.0061	-0.0046	-0.0016	-0.0021
	(-0.78)	(-0.65)	(-0.79)	(-0.67)	(-0.59)	(-0.46)	(-0.46)	(-0.61)
ACC	-0.0006	-0.0006	-0.0007	-0.0007	-0.0013	-0.0010	-0.0004	-0.0008
	(-0.72)	(-0.89)	(-0.79)	(-0.96)	(-1.10)	(-1.19)	(-0.22)	(-0.44)
*ACC*PCA_CHARACT*	-0.0016		-0.0338**		-0.0005		-0.0075**	
	(-1.12)		(-2.49)		(-0.33)		(-2.37)	
*ACC*VOL*		-0.0018		-0.0325**		-0.0009		-0.0086***
		(-1.22)		(-2.56)		(-0.62)		(-2.71)
*ACC*PCA_CHARACT*PROPERTY*			0.0004**					
			(2.35)					
*ACC*VOL*PROPERTY*				0.0003**				
				(2.37)				
Country-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
R-Squared	0.1598	0.1556	0.1605	0.1562	0.1786	0.1734	0.1051	0.1085
Wald-Test	96.16***	108.92***	111.02***	125.74***	89.84***	108.66***	30.71***	30.56***
# *Firms*	1,629	1,672	1,629	1,672	1,333	1,374	296	298
# *Observations*	3,764	3,913	3,764	3,913	3,095	3,240	669	673

Table 8: **Analyst Data, Ownership Structure, and the Cost of Debt**

This table shows the results of the impact of analyst data on the average cost of debt controlling for firm ownership structure. DEBTCOST is defined as the ratio of financial expenses in period t to the averaged value of the total debt in periods t and t-1. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of firm's leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0, otherwise. ACC is the measure of analysts' forecasting accuracy. INST and BANK are the percentage of institutional ownership and bank-held ownership, respectively. All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. Country-year, industry-year, and country-industry dummy variables are included but are not reported. T-statistics are in parentheses. ***, **, and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	ALL		**COMMON**		**CIVIL**	
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.0738***	0.0728***	0.0842***	0.0812***	0.0447***	0.0444***
	(9.50)	(9.23)	(6.10)	(5.74)	(3.93)	(3.87)
DEBTCOST_Initial	0.2412***	0.2411***	0.2741***	0.2742***	0.1076*	0.1089**
	(5.45)	(5.43)	(5.59)	(5.58)	(1.96)	(2.02)
SIZE	-0.0017*	-0.0016*	-0.0022**	-0.0022*	-0.0005	-0.0004
	(-1.95)	(-1.89)	(-2.02)	(-1.91)	(-0.82)	(-0.68)
TANG	-0.0131**	-0.0129**	-0.0121**	-0.0118*	-0.0189	-0.0189
	(-2.45)	(-2.44)	(-1.98)	(-1.95)	(-1.52)	(-1.52)
PROF	-0.0740***	-0.0741***	-0.0725***	-0.0727***	-0.0065	-0.0070
	(-6.62)	(-6.63)	(-6.29)	(-6.33)	(-0.30)	(-0.32)
QTOBIN	0.1233	0.1224	0.0782	0.0774	0.3117	0.3118
	(0.89)	(0.88)	(0.53)	(0.53)	(0.69)	(0.69)
LEV	-0.0006	-0.0006	-0.0057	-0.0058	0.0297*	0.0293*
	(-0.08)	(-0.08)	(-0.74)	(-0.74)	(1.66)	(1.64)
BIG4	-0.0060	-0.0059	-0.0056	-0.0056	-0.0004	-0.0004
	(-0.86)	(-0.85)	(-0.60)	(-0.59)	(-0.11)	(-0.14)
ACC	-0.0015**	-0.0015**	-0.0016*	-0.0015*	-0.0033**	-0.0033**
	(-2.10)	(-2.04)	(-1.90)	(-1.84)	(-2.25)	(-2.23)
INST	-0.0001		-0.0001*		0.0001	
	(-1.47)		(-1.81)		(0.97)	
BANK		-0.0002*		-0.0002*		0.0001
		(-1.63)		(-1.74)		(0.25)
Country-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
R-Squared	0.2002	0.2002	0.2205	0.2203	0.0921	0.0915
Wald-Test	232.42***	236.11***	260.29***	266.23***	34.30***	28.36***
# *Firms*	1,829	1,829	1,507	1,507	322	322
# *Observations*	4,260	4,260	3,526	3,526	734	734

Table 9: **Complementarities and Substitutive Effects among Analyst Data, Accounting Information Quality, and Ownership Structure**

This table shows the results examining the extent to which analyst data complements or substitutes for accounting information quality and ownership structure in reducing the average cost of debt. DEBTCOST is defined as the ratio of financial expenses in period t to the averaged value of the total debt in periods t and t-1. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of firm's leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0, otherwise. ACC is the measure of analysts' forecasting accuracy. INST and BANK are the percentage of institutional ownership and bank-held ownership, respectively. All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. Country-year, industry-year, and country-industry dummy variables are included but are not reported. T-statistics are in parentheses. ***, **, and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	ALL		**COMMON**		**CIVIL**	
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.0733***	0.0728***	0.0847***	0.0812***	0.0439***	0.0426***
	(9.44)	(9.23)	(6.12)	(5.79)	(3.86)	(3.76)
DEBTCOST_Initial	0.2411***	0.2411***	0.2740***	0.2742***	0.1075**	0.1092**
	(5.44)	(5.43)	(5.59)	(5.58)	(1.96)	(2.03)
SIZE	-0.0017*	-0.0016*	-0.0022**	-0.0022*	-0.0005	-0.0003
	(-1.91)	(-1.89)	(-1.99)	(-1.90)	(-0.76)	(-0.53)
TANG	-0.0132**	-0.0129**	-0.0124**	-0.0118*	-0.0188	-0.0187
	(-2.47)	(-2.43)	(-2.03)	(-1.95)	(-1.52)	(-1.51)
PROF	-0.0738***	-0.0741***	-0.0722***	-0.0727***	-0.0055	-0.0051
	(-6.56)	(-6.63)	(-6.23)	(-6.32)	(-0.26)	(-0.24)
QTOBIN	0.1235	0.1219	0.0778	0.0775	0.3245	0.3228
	(0.90)	(0.88)	(0.53)	(0.53)	(0.71)	(0.72)
LEV	-0.0005	-0.0006	-0.0055	-0.0058	0.0297*	0.0290*
	(-0.06)	(-0.08)	(-0.70)	(-0.74)	(1.66)	(1.65)
BIG4	-0.0061	-0.0059	-0.0059	-0.0056	-0.0004	-0.0005
	(-0.88)	(-0.84)	(-0.63)	(-0.59)	(-0.13)	(-0.16)
ACC	-0.0024*	-0.0016**	-0.0028*	-0.0015*	-0.0039**	-0.0044**
	(-1.95)	(-1.99)	(-1.85)	(-1.79)	(-2.08)	(-2.56)
INST	-0.0000		-0.0001*		0.0001	
	(-1.36)		(-1.70)		(1.06)	
BANK		-0.0002*		-0.0002*		0.0001
		(-1.66)		(-1.74)		(0.36)
*ACC*INST*	0.0000*		0.0001*		0.0000	
	(1.67)		(1.80)		(0.67)	
*ACC*BANK*		0.0001		0.0000		0.0002**
		(0.98)		(-0.03)		(2.27)
Country-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
R-Squared	0.2005	0.2002	0.2210	0.2203	0.0926	0.0944
Wald-Test	244.27***	238.82***	266.94***	269.52***	35.96***	32.47***
# *Firms*	4,260	4,260	3,526	3,526	734	734
# *Observations*	1,829	1,829	1,507	1,507	322	322

Table 10: **Analysts' Forecasting Accuracy and the Cost of Debt: Alternative Dependent Variable**
This table shows the results of the impact of analysts' forecasting accuracy on the average cost of debt using an alternative measure of the dependent variable. DEBTCOST is defined as the ratio financial expenses-to-total liabilities in period t. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of firm's leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0, otherwise. ACC is the measure of analysts' forecasting accuracy. All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. Country-year, industry-year, and country-industry dummy variables are included but are not reported. T-statistics are in parentheses. ***, **, and * indicate levels of significance of 1%, 5%, and 10%, respectively.

DEPENDENT VARIABLE: FINANCIAL EXPENSES / TOTAL LIABILITIES			
	ALL	**COMMON**	**CIVIL**
Constant	0.0625***	0.0542***	0.0524***
	(7.48)	(4.13)	(3.53)
DEBTCOST_Initial	0.8870***	0.9095***	0.3869*
	(4.68)	(4.57)	(1.91)
SIZE	-0.0020**	-0.0022**	-0.0013
	(-2.55)	(-2.10)	(-1.53)
TANG	-0.0075	-0.0070	-0.0153
	(-1.53)	(-1.30)	(-1.18)
PROF	-0.0608***	-0.0606***	-0.0099
	(-5.44)	(-5.04)	(-0.28)
QTOBIN	0.0243	0.0022	0.1193
	(0.19)	(0.02)	(0.22)
LEV	0.0071	0.0002	0.0335**
	(1.00)	(0.04)	(2.04)
BIG4	-0.0023	-0.0019	0.0028
	(-0.39)	(-0.23)	(0.73)
ACC	-0.0018**	-0.0018*	-0.0039**
	(-2.24)	(-1.87)	(-2.55)
Country-Year	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*
R-Squared	0.1557	0.1733	0.0365
Wald-Test	265.54***	291.53***	25.83***
# *Firms*	1,881	1,557	324
# *Observations*	4,365	3,624	751

Table 11: **Analysts' Forecasting Accuracy and the Cost of Debt: Influence of Bank Debt**

This table shows the results of the impact of analysts' forecasting accuracy on the cost of debt after controlling for different types of debt. DEBTCOST is defined as the ratio of financial expenses in period t to the averaged value of the total debt in periods t and t-1. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of firm's leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0, otherwise. ACC is the measure of analysts' forecasting accuracy. BANKLOANS is the ratio of bank loans to long-term debt. All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. Country-year, industry-year, and country-industry dummy variables are included but are not reported. T-statistics are in parentheses. ***, **, and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	ALL	**COMMON**	**CIVIL**
Constant	0.0789***	0.0908***	0.0312**
	(7.31)	(5.51)	(2.25)
DEBTCOST_Initial	0.2091***	0.2248***	0.1423**
	(3.76)	(3.41)	(2.29)
SIZE	-0.0027***	-0.0032***	-0.0006
	(-3.19)	(-3.07)	(-0.91)
TANG	-0.0081	-0.0066	-0.0176**
	(-1.37)	(-0.97)	(-2.20)
PROF	-0.0583***	-0.0581***	0.0440
	(-2.71)	(-2.64)	(1.24)
QTOBIN	0.1444	0.1182	1.1270*
	(0.72)	(0.57)	(1.67)
LEV	0.0000	-0.0012	0.0195**
	(0.00)	(-0.16)	(2.49)
BIG4	-0.0021	-0.0029	0.0018
	(-0.41)	(-0.40)	(0.52)
ACC	-0.0017*	-0.0020*	-0.0023*
	(-1.87)	(-1.69)	(-1.80)
*ACC*BANKLOANS*	0.0006	0.0005	-0.0037
	(0.82)	(0.55)	(-1.40)
Country-Year	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*
R-Squared	0.1547	0.1585	0.2043
Wald-Test	100.99***	93.61***	35.51***
# *Firms*	1,519	1,290	229
# *Observations*	3,467	2,980	487

Table 12: **Analysts' Forecasting Accuracy and the Cost of Debt: Influence of the Business Cycle**
This table shows the results of the impact of analysts' forecasting accuracy on the average cost of debt after controlling for macroeconomic variables. DEBTCOST is defined as the ratio of financial expenses in period t to the averaged value of the total debt in periods t and t-1. SIZE is measured as the natural log of assets. TANG measures the tangibility of assets as the ratio of tangible assets (property, plant, and equipment) to total assets. PROF measures firm profitability as the ratio of operating EBIT to total assets. QTOBIN measures growth opportunities as the ratio of book-to-market value of assets. LEV is the measure of firm's leverage calculated as the ratio of non-current liabilities to total assets. BIG4 is a dummy variable that takes a value of 1 if the firm is audited by a BIG4 auditor and 0, otherwise. ACC is the measure of analysts' forecasting accuracy. ΔGDP is the annual rate of GDP per capita. ΔUNEMPLOYMENT is the annual variation of the unemployment rate. All estimations use a country-industry cluster to capture correlations between different firms and industries affected in the same time period in each of the markets considered. Industry-year, and country-industry dummy variables are included but are not reported. T-statistics are in parentheses. ***, **, and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	ALL	**COMMON**	**CIVIL**
Constant	0.0770***	0.0902***	0.0375***
	(8.40)	(7.17)	(3.53)
DEBTCOST_Initial	0.2390***	0.2721***	0.1074**
	(5.38)	(5.55)	(2.08)
SIZE	-0.0016*	-0.0023**	-0.0009
	(-1.95)	(-2.13)	(-1.44)
TANG	-0.0125**	-0.0115*	-0.0195*
	(-2.35)	(-1.89)	(-1.64)
PROF	-0.0760***	-0.0742***	-0.0077
	(-6.55)	(-6.29)	(-0.38)
QTOBIN	0.1268	0.0931	0.0734
	(0.92)	(0.64)	(0.19)
LEV	-0.0002	-0.0056	0.0349*
	(-0.03)	(-0.71)	(1.91)
BIG4	-0.0056	-0.0057	-0.0006
	(-0.82)	(-0.62)	(-0.20)
ACC	-0.0015**	-0.0015*	-0.0040***
	(-2.06)	(-1.82)	(-2.63)
ΔGDP	0.0225**	0.0150	0.1011***
	(2.29)	(1.51)	(4.38)
ΔUNEMPLOYMENT	0.0113**	0.0083	0.0388***
	(2.37)	(1.33)	(2.68)
Country-Year	*No*	*No*	*No*
Industry-Year	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*
R-Squared	0.2011	0.2213	0.1062
Wald-Test	222.74***	271.42***	64.19***
# Firms	1,839	1,515	324
# Observations	4,281	3,542	739