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

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Abstract

We examine the contribution of analyst forecasting accuracy in reducing the average total cost of debt to firms. Our results reinforce the importance of analyst accuracy as a mechanism for reducing information asymmetries in the market, which is important to increase firms' access to available investment funding. A significant level of institutional and bank-held ownership serves as a substitution mechanism which mitigates the capacity of analyst accuracy to reduce information risk. External governance mechanisms also moderate the role played by analyst accuracy in the reduction of the cost of corporate debt. Our empirical findings are robust to different model specifications including the potential effect of the legal origin, to the consideration of an alternative proxy for the total cost of debt, to the inclusion of additional analyst-characteristics and stock-level characteristics.

Keywords

Cost of Debt; Analyst Accuracy; Internal Governance Mechanisms; External Governance Mechanisms;

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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, the literature makes frequent reference to traditional variables such as size, profitability, asset tangibility, growth options, or the degree of leverage (see, among others, Rajan & 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. Specific examples include studies incorporating ownership and corporate governance issues (see Anderson, Mansi &Reeb 2004; Piot &Missonier-Piera, 2009; Elyasiani, Jia & Mao, 2010; or Boubakri & Ghouma, 2010), accounting information quality (see Anderson, Mansi &Reeb 2004; or Armstrong, Core, Taylor &Verrecchia, 2011) and analyst accuracy (see Mansi, Maxwell & Miller, 2011 or Boubakri, El Ghoul, Guedhami & Samet, 2015).

The existing empirical evidence regarding analyst accuracy is focused primarily on its impact on corporate bonds traded in competitive United States (US) markets[1]. The key issue is whether the observed effect of analyst accuracy on the type of debt traded in competitive markets, where there is a strong presence of institutional investors, can be generalized to all types of debt. Bank debt, for instance, may behave differently because of its specific characteristics and those of the borrower's and lender's profiles[2]. For the case of bank loans, there are specific studies, such as Hasan, Park, & Wu (2012), which examines the impact of analyst accuracy on earnings predictability and its influence on the various bank loan parameters (rates, terms and guarantees), or Bushman, Smith, & Wittenberg-Moerman (2010), which addresses the overall effects of information asymmetries on a US syndicated loan sample.

[1] Except for Boubakri, El Ghoul, Guedhami, &Samet (2015) these studies focus on the US.

[2]Bharath, Sunder & Sunder, 2008, for example, show that the choice between bank debt and listed debt is influenced by borrower quality.

It would also be relevant to broaden the scope of the study to include other types of debt, such as over-the-counter (OTC) traded corporative bonds and, more particularly, other alternative, typically short-term, funding sources involving loans by unsophisticated lenders. To this end, this paper analyzes the impact on the average cost of corporate debt, taking the firm itself as the new unit of analysis. Making the firm, rather than the specific debt products, the object of the empirical analysis opens up a new path for research. This enables the use of a considerable number of controls including firm characteristics, such as internal corporate governance mechanisms, and external governance factors, whose effects may either complement or substitute the impact of analyst forecast accuracy on firms' total debt costs.

Within this context, this paper contributes to the existing literature in several ways. The first is to examine the impact of the accuracy of analysts' information on the average cost of total debt. This analysis will allow us to determine whether the effect observed in previous literature, which is mainly apparent in bond spreads, can be generalized to all types of corporate debt, including bank debt, where the lender is a sophisticated and specialized agent, and to firms from different countries. In addition to considering the traditional firm-characteristic variables for explaining firms' debt cost, this paper contributes to previous research by also analysing the role of both internal and external governance mechanisms that may affect the average cost of corporate debt through their impact on information asymmetries between lenders and borrowers. We first focus on the role played by institutional and bank-held ownership as an internal mechanism for reducing potential agency problems and empirically test, not only its direct effect on the cost of debt, but also its role in shaping the ultimate impact of analyst accuracy. With respect to external governance variables, our analysis considers the role of two National Governance Bundles (NGBs) proposed by Aslan & Kumar (2014), which relate to specific firm-level agency costs and have an impact on the cost of debt. In this way, we are able to test whether the information asymmetry-reducing effect of analyst accuracy is in any way altered by the presence of these alternative governance mechanisms.

The empirical results of this paper show that, after controlling for the potential endogeneity problem affecting our empirical approach, analyst forecasting accuracy is negatively associated with the average cost of debt to firms. This result holds for the specific case of bank debt, where the lender is a specialized agent. A further finding of this paper is that a significant level of institutional and bank-held ownership also

contributes to reducing the corporate cost of debt, while also serving as a substitute internal mechanism, which dilutes the mitigating impact of analyst forecasting accuracy on information risk and, thereby, on the reduction of firms' total debt costs.

In addition to ownership structure, as an internal information risk-reduction mechanism, we examine the role of external factors potentially affecting the cost of debt and shaping the influence of analyst accuracy. In particular, the consideration of the NGBs proposed by Aslan & Kumar (2014) reveals that our basic results are not homogeneous across countries. Specifically, these external mechanisms not only have a direct effect on corporate debt, but also modulate the role of analyst accuracy, intensifying its impact in countries with higher transparency and disclosure practices, lower creditor rights protection, and less efficient debt enforcement.

The robustness tests provided in the last section of the paper show, furthermore, that our results are robust to alternative specifications of the empirical models and to the consideration of an alternative dependent variable. Our results also hold up to the inclusion of measures to capture additional analyst activity characteristics, controls for the effects of the global financial crisis during the second half of the sample period, and specific macroeconomic variables to capture the economic business cycle. Finally, the impact of analyst accuracy in reducing the cost of debt is not homogeneous for all types of firms but rather appears to be modulated by hard-to-value and difficult-to-arbitrage (HVDA) firm-level characteristics.

Overall, the results of this paper highlight the role of the accuracy of analyst reporting as an additional internal mechanism for reducing information asymmetries between the firm and its creditors and, thereby, also the total cost of debt. However, this global result requires some qualification, as it appears to be strongly associated with the presence of other internal and external mechanisms which determine the ultimate potential of analyst accuracy for reducing information risk and, thus, firms' total debt costs.

The rest of the paper is organized 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 and implications deriving from this research.

2.-THEORETICAL FRAMEWORK AND HYPOTHESES

The literature has revealed a link between debt cost and certain firm-characteristic variables, including size, asset tangibility, growth options, profitability, or leverage. As well as the traditional firm-level determinants of capital structure, recent literature has highlighted the role of variables with a potential impact on the degree 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 accuracy of financial analysts.

Studies such as Bharath, Sunder & Sunder (2008) or Armstrong, Core, Taylor &Verrecchia (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. 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, Song &Tsui, 2013). In a similar vein, Anderson, Mansi &Reeb (2004) show that the presence of independent auditors, as an indication of high-quality financial reporting, reduces bond rates; and Kim, Song &Tsui (2013) show that firms audited by the Big Four (PwC, KPMG, Deloitte, and EY) have significantly lower bank-loan costs[3].

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 and their relationships in terms of loan amounts, maturities and costs. Mande & Park (2012) analyze whether corporate governance plays a role in influencing a firm's choice of financing, i.e., equity versus debt. Shleifer &Vishny (1997) show that, given its role in monitoring and controlling management, institutional ownership is a key mechanism in reducing the cost of debt. Similarly Boubakri & Ghouma (2010) show that bond ratings improve significantly as the percentage ownership

[3]Note that auditors provide independent proof of the accuracy and credibility of accounting information, which grows with their prestige.

held by banks increases, ultimately causing the bond spread to narrow. Thus, the presence of institutional investors, particularly banks, can have a significant impact on the cost of debt due to its role as an internal mechanism to reduce information asymmetry problems between lenders and borrowers.

2.1.-Analyst accuracy

Information risk tends to increase a firm's cost of capital (Easley & 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 & Maher (2005) who, using analyst accuracy as a proxy for earnings predictability, show that forecasting error and dispersion in analyst earnings forecasts are positively related to bond spreads. Hasan, Park, & Wu (2012), in an analysis of US bank loans, find these variables to play a key role in determining the terms of bank loan contracts, including both the price and other conditions. Results obtained by Mansi, Maxwell & Miller (2011) show that 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, El Ghoul, Guedhami, &Samet (2015) on a sample of bonds issued in 35 countries not including the US, confirm that analyst accuracy significantly reduces bond spread, particularly in countries with weaker governance institutions.

The impact of analyst information accuracy on bond spreads and prices and conditions for bank loans suggests that this variable can reduce information asymmetries between borrowers and lenders, thereby significantly reducing a firm's average total debt cost. However, for a proper analysis, we need to focus on the firm, rather than on a specific financial debt product, thereby enabling the consideration of a large set of firm- and country-level control variables. Despite these controls, if analyst accuracy plays a key role in this issue, it will, *ceteris paribus*, also have a significant impact in reducing debt cost. This suggests the following hypothesis:

Hypothesis 1: Greater analyst forecasting accuracy significantly reduces the average cost of corporate debt.

The results of the above test may be entirely due to the previously-demonstrated impact on bond spreads. For this to be the case, analyst accuracy would need to have either no positive impact on the cost of bank debt or only enough for the overall effect to be negative. There are, in fact, arguments to support the theory of a non-significant impact on bank debt. It is important to note that bond investors have a different profile from that shown by banks. Banks are sophisticated agents whose greater capacity to acquire information about borrowers allows them to reduce adverse selection problems. Some of the information provided by analysts can reduce information asymmetries, particularly for uninformed investors. It is less clear, however, whether such information is also relevant and useful for specialized agents such as banks, especially if we take into account the incentives of analysts to issue "optimistic" information about firms.

There are, nevertheless, also arguments to suggest that analysts, especially those whose forecasts are highly accurate, may possess private information with market value. There is, in fact, evidence in the literature of this type of private information in specific sectors where intangible assets prevail (see Higgins, 2013).

Thus, it will be interesting to analyze whether the reduction of the information asymmetries due to analysts' forecasting accuracy can be generalized to bank debt by testing this hypothesis:

Hypothesis 2: The association between accuracy and debt cost is insensitive to the proportion of bank loans.

2.2.-Ownership structure

As noted earlier, by making the firm the object of our analysis, it is possible to examine the potential moderating role played by internal and external corporate governance mechanisms in reducing information asymmetries between debtors and creditors, and thereby influencing the relationship between analyst accuracy and the average cost of debt for firms.

As agency costs increase, so does the premium charged by external finance providers (Anderson, Mansi &Reeb 2004). 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 information asymmetries between the various stakeholder groups. It is therefore useful to introduce this variable in order to

account for the role of this internal governance mechanism in controlling the observed impact on analyst accuracy. Its reducing impact on the cost of debt, through its role in monitoring and controlling management, has already been clearly established in the literature (see Shleifer &Vishny, 1997 or Boubakri & Ghouma, 2010). Roberts & Yuan (2010) also show that institutional ownership is negatively related to loan spreads and that this relationship is stronger for firms with higher degrees of information asymmetries.

Another issue worth addressing is whether the various mechanisms for the reduction of information asymmetries analyzed in this paper work independently or have, in fact, some degree of interdependence (be it complementary or substitution). Investigation of their potential interdependence has received hardly any attention in the literature, although it could provide a valuable insight into their respective roles. Cassar, Ittner & Cavalluzzo (2015) show that the quality of financial reporting based on accounting entries is less useful for determining the cost of debt in the presence of other information risk controls, such as independent credit ratings. In this case, accounting information quality is significant only in firms with low credit ratings and short banking relationships. It is therefore worth testing whether the potential impact of analyst accuracy on the cost of debt does or does not depend on the presence of other internal mechanisms, which, in the case in hand, are a significant level of institutional ownership, particularly bank-held ownership, and/or auditing by one of the Big Four.

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

Hypothesis 3: The impact of analyst accuracy on the average cost of corporate debt is dependent upon the effect of other internal information risk reduction mechanisms.

2.3.-Legal and institutional environment: external governance factors

The Law and Finance literature has established the relevance of the quality of the institutional environment in promoting financial development and improving the availability of external funds (La Porta, López-de-Silanes& Shleifer, 1997, 1998). Previous research has shown that, while firms operating in common law settings 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, López-de-Silanes& Shleifer, 1997, 1998). As far as the protection of property rights in well-developed institutional environments can be positively

associated with the use of external funds, it can be assumed that, as institutional quality diminishes, the availability of long-term credit decreases and the cost of external funds increases (Rajan, 1992). The literature has also demonstrated the significant debt-cost reducing capacity of corporate governance quality (Piot &Missonier-Piera, 2009). Just as the presence of large-scale investors strengthens control over corporate management (Shleifer &Vishny, 1997; Bos & Donker, 2004, among others), the different degrees of ownership concentration between common law and civil law countries might also have a significant impact on agency costs. However, there also exists the risk of blockholders wielding their power to the disadvantage of other stakeholders, creditors included. Given these relationships, we can expect to find some impact on the cost of debt.

The corporate governance literature has endeavoured to highlight the role played by the legal and institutional setting through the consideration of National Governance Factors (NGFs), one of the main ones being the well-documented cultural divide between civil and common law systems, and National Governance Bundles (NGBs). The concept of "bundle", incorporated into the governance literature by Rediker & Seth (1995), enables consideration of complementary and substitution links between governance mechanisms. These bundles are "configurations of governance mechanisms that simultaneously operate at the firm and national levels to govern firms" (see Schiehll & Martins, 2014, p.180).

National and firm-level governance mechanisms interact to influence firm outcomes. With respect to the case in hand, Aslan & Kumar (2014) develop a theoretical model and empirically identify the components of two NGBs that are related to specific firm- level agency costs, namely, Corporate Information Quality (CIQ), and Creditor Rights and Efficient Debt Enforcement (CRDE) bundles. They show that firms' debt costs will be negatively associated with strong CIQ and CRDE bundles. In light of these arguments, it appears reasonable to assume that the corporate cost of debt might be affected by the characteristics of the institutional setting and, specifically, by the role played by these external governance mechanisms.

Finally, given that the literature has placed a strong emphasis on substitution and complementary effects between internal and external governance mechanisms (see among others Rediker & Seth, 1995), it is worth trying to determine whether CIQ and CRDE bundles have any influence on the impact of analyst accuracy on debt cost. It is

reasonable to assume CIQ to have a substitution effect, based on the previously-mentioned findings of Cassar, Ittner & Cavalluzzo (2015), which suggest that the relevance of accounting data quality diminishes in the presence of other risk-control mechanisms, such as independent credit ratings. However, it is also reasonable to consider the possibility of a complementary effect, whereby the impact of analyst accuracy would benefit from strong national governance factors. A similar debate might arise for the case of the NGFs included in the CRDE bundle. Efficient enforcement of debt contracts constitutes a formal institution affecting the credit market and thereby possibly moderating the role of analyst accuracy in reducing the impact of information asymmetries on debt cost.

Thus, the null hypothesis concerns the possibility of the institutional environment having either a complementary or substitution effect on analyst performance, without assuming one or the other, particularly in view of the relative apparent homogeneity of the sample countries.

Hypothesis 4: The legal and institutional environment, in its role as an external governance mechanism, affects the relationship between analyst accuracy and cost of debt.

3.-DATABASE, VARIABLES, AND METHODOLOGY

3.1-Database

The data used in this analysis are firm-year observations on the average cost of corporate debt, institutional ownership structure, and analyst forecasts. The study includes a sample of listed non-financial firms in the United States (US) and four European markets: France, Germany, Spain, and the United Kingdom (UK). Firms from regulated sectors (SIC Codes 40-49 and 91-97) were dropped from the sample[4]. Our sample runs from 2003 to 2011. This period was selected in order to collate the available information from both data sources: OSIRIS (Bureau Van Dijk) and FACTSET. Both the accounting variables

[4]The criteria for the choice of European markets are that, together with the US and Japan, they are known to be highly prominent on the global stage (Chang, Faff, & Hwang, 2012). According to the data from the World Stock Exchange Federation for the end of the period analyzed (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.

(balance sheet and income statement) used to calculate the average cost of debt and construct firm-level controls, and the institutional ownership data are drawn from the OSIRIS database (Bureau Van Dijk). Analyst forecast data are drawn from the FACTSET[5] 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 and the lagged values of the firm-level variables, the number of available observations in the benchmark model drops to 11,208. Finally, the subsample of firms with analyst coverage is substantially smaller, with a total of 3,261 observations. Table 1 shows the descriptive statistics for the overall sample and also for the common law (UK and US) and civil law (France, Germany, and Spain) subsamples. Table 2 shows the correlation matrix of the main variables.

INSERT TABLE 1 AND 2 ABOUT HERE

3.2.-Variables

3.2.1.-Average cost of debt

Given that the firm is the object of our empirical analysis, 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.

$$DEBTCOST_{ijkt} = \frac{FinancialExpenses_{ijkt}}{(TotalDebt_{ijkt} + TotalDebt_{ijkt-1})/2} \quad [1]$$

Financial expenses are the total cost to the firm in terms of interest charges plus financial assets write off. A firm's total debt is the sum of its current liabilities plus its non-current liabilities. If Total Debt data for the period t or t-1 are unavailable, a constant value is assumed for the whole fiscal year.

[5] FACTSET 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.

3.2.2.-Analyst forecasts

Earnings Forecast Accuracy (ACC), used as a measure of analyst forecasting quality, is computed as the negative of the absolute value of the difference between the actual earnings of firm *i* during fiscal year *y* and the consensus earnings (EPS) forecast issued for period t, firm *i* and fiscal year *y*. We consider median consensus in place of mean consensus in order to reduce the EPS skewness effect. Following Hribar & McInnis (2012), the results are scaled by the absolute value of the earnings forecast, while omitting any observations where the absolute value of the earnings forecast is less than $0.10, or the equivalent in local currency[6].

$$ACCi\ ,t,y = -1 * abs\left(\frac{ActualEPSi\ \ ,y - EPSi\ ,t,y}{Abs\left(EPS_{i,t,y}\right)}\right) \quad [2]$$

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 prior to the calculation of analyst accuracy. This measure is used by Mansi, Maxwell & Miller, (2011) and Boubakri, El Ghoul, Guedhami, & Samet (2015) to show its impact on the cost of bonds.

3.2.3.-Accounting information quality

As mentioned earlier, accounting information quality could be approximated by a variable representing the firm's auditing company (Fortin & Pittman, 2004; Piot &Missonier-Piera, 2009; or Kim, Song & Tsui, 2013). The variable used in this study is a dummy variable that takes a value of 1 if the auditor is one of the Big Four, and 0 otherwise (BIG4)[7]. The expectation, based on much previous literature, is that auditing by one of the Big Four will reduce firm's information asymmetries, thereby increasing transparency and significantly reducing its total debt cost.

[6] The conclusions hold even without deleting such observations. These results are available upon request from the authors.

[7] French firms are assigned a value of 1 if either of the audits is conducted by one of the Big Four.

3.2.4.-Institutional investors

We examine the effect of institutional ownership, in general, and bank-held ownership, in particular, on total debt cost and on the influence of the accuracy of analyst information on firms' total debt cost. The proportion of institutional investors (INST) is included as a proxy for the percentage of shares held by various institutional investors (mutual funds, pension plans, insurance companies, banks and other financing companies), while BANK refers to the percentage of the firm's ownership held by banks. For the purposes of this study, the term "BANK" refers to Banks, Saving Banks, and Credit Cooperatives[8]. According to the arguments given above, the overall expectation is that the presence of institutional investors will reduce the cost of debt.

3.2.5.-National Governance Factors (NGFs) and National Governance Bundles (NGBs)

Following the paper by Aslan & Kumar (2014), we analyze the role of some National Governance Factors included in the CIQ and CRDE bundles. In view of the limited number of countries and their relative homogeneity, principal components analysis is used to identify the commonality between the NGFs included in each bundle, PCA_CIQ and PCA_CRDE. The cited authors also warn that endogeneity and simultaneity issues will generally arise in empirical testing where various NGFs are considered jointly. This study proposes a means to address both these issues.

The CIQ bundle includes a set of NGFs relating to financial reporting quality. Specifically, these are: Disclosure Index (DISC), Earnings Management Measure (EM) and Market-based versus bank-based economies (MKT). The Information-Sharing index was not considered because it was the same for all the sample countries. The CRDE bundle includes the following NGFs: Creditor rights (CR), Anti-Director Index (AD),

[8] Following Elyasiani, Jia, & Mao (2010) and Sánchez-Ballesta & García-Meca (2011), among others, we define a series of alternative variables. The first is a dummy variable which takes a value of 1 if the percentage of institutional/bank-held ownership is above the median, and 0 otherwise. The second is a dummy variable that takes a value of 1 if the percentage of institutional/bank-held ownership is higher than 5%, and 0 otherwise. In both cases, these dummy variables are computed for total institutional holdings and for the part held by banks. The results are very similar to those presented in the paper.

Debt Enforcement Efficiency (DEE) and Legal Origin (LO). See Aslan & Kumar (2014) for the definition and measurement of the NGF included in each bundle[9].

More specifically, the scores (given below) on the NGB component, which captures CIQ bundle, account for 94.50% of the variance.

$$PCA\_CIQ = 0.336*DISC - 0.346*EM + 0.346*MKT \quad [3]$$

The scores (given below) on the component that proxies for the CRDE Bundle account for 67.43% of the variance:

$$PCA\_CRDE = -0.260*CR + 0.326*AD + 0.335*DEE + 0.291*LO \quad [4]$$

3.6.-Control variables

The model includes a set of control variables to capture firm-level characteristics, other than those captured by analyst variables, accounting data quality, and institutional ownership structure, potentially affecting the total cost of debt. The literature has, in fact, revealed a link between the cost of debt and certain firm-characteristic variables, including size, asset tangibility, growth options, profitability or the degree of leverage (see Titman &Wessels, 1988; Rajan & Zingales, 1995; Booth, Aivazian, Demirgüç-Kunt & Macsimovic, 2001; González & González, 2008, or Chen, Cheng, Lo, & Wang, 2015, among others).

Following previous literature, firm size (SIZE) is measured as the natural logarithm of total assets in millions of US dollars. Tangibility of assets (TANG) is computed as the ratio of total tangible assets to total assets. Firm growth options (QTOBIN) are proxied by the ratio of market capitalization to the book value of the shareholder's equity.

[9] We have also considered that informal institutions (social and cultural norms) may play a key role in determining accounting data quality. Gray (1988) reports that cultural dimensions (Hofstede, 2001) influence accounting in terms both of institutional arrangements and accounting values. Guan, Pourjalali, Sengupta &Teruyad (2006) and Doupnik (2008) show the impact of cultural values in cross-country differences in earnings management. We have checked that the results do not vary when, as in the case of the previous variables, principal components analysis is used to identify the commonality between the various cultural dimensions. The dimensions considered are: Power Distance (PD), Individuality (IND) and Uncertainty Avoidance (UA). The results are available from the authors upon request.

Profitability (PROF) is calculated as the ratio of earnings before interest and taxes (EBIT) to total assets. Finally, leverage (LEV) is computed as the ratio of long-term liabilities to the sum of the market value of shareholder equity and total liabilities.

3.7.-Methodology

The relationship between the average cost of debt to firms and analyst accuracy is analyzed with the following basic model:

$$DEBTCOST_{ijkt} = \alpha + \sum_{r=1}^{s} \beta_r CONTVAR_{rijkt-1} + \beta_{s+1} BIG4_{ijkt-1} + \beta_{s+2} ACC_{ijk}^{IV} + \delta_{kt} + \varphi_{jt} + \gamma_{kj} + \pi_{ijk} + \varepsilon_{ijkt} \quad [5]$$

where the dependent variable is the average total cost of debt to firm i, in sector j, of country k, for period t; and the control variables (CONTVAR) are: firm size (SIZE), tangibility of assets (TANG), earnings (PROF), Tobin's Q (QTOBIN), and financial leverage (LEV). The proxy for accounting information quality (BIG4), and analyst accuracy data, (ACC) are also included as independent variables. Other specifications include the institutional ownership indicators, INSTINV (INST and BANK), and interactions between analyst accuracy and institutional investors to determine whether the impact of analyst accuracy on the average cost of corporate debt is dependent upon the effect of other internal information risk-reduction mechanisms[10]. We also analyze the role of external governance mechanisms (National Governance Bundles, NGBs, or National Governance Factors, NGFs) on the debt cost and test for complementary and/or substitute effects between these NGBs and analyst accuracy.

An important concern is that analyst accuracy is likely to be endogenously determined. To control for this econometric issue, we apply a Two-Stage Least Squares methodology (2SLS), which enables us to focus on the influence of the exogenous component in the accuracy of analyst forecasts on the total cost of debt. The predicted values of a first-stage

[10] All the variables are winsorized at the 1% and 99% levels to reduce the effect of potential outliers in the data sample.

estimation explaining the accuracy of analyst forecasts are used to replace the observed values of the accuracy variable (ACC^{IV})[11].The explanatory variables for the first-stage estimation are the set of variables that intervene in the second stage (explanatory variables for the cost of debt: initial debt cost; the lagged values of size, profitability, growth options, tangibility of assets, and leverage; BIG4; and the set of country-industry, country-year, and industry-year fixed effects) plus an additional instrument for analyst accuracy: the accuracy variable lagged by 2 periods[12]. The Wald-test of this first-stage estimation need to confirm that the instruments are jointly highly significant in all the first-stage regressions. Moreover, the absence of statistically-significant correlation between the instrument for analyst accuracy and the second-stage dependent variable (cost of debt) validates this instrument. Furthermore, in order to take into account potential reverse causality between the cost of debt and baseline firm-level characteristics, a variable to control for the firm's initial cost of debt (2003 or earliest available) is also included in all our estimates[13].

Following Dell'Ariccia, Detragiache & Rajan (2008), three specific effects, country-year (δ_{kt}), industry-year (φ_{jt}) and country-industry (γ_{kj}), are included in the estimations to address potential model misspecification and control for any shocks that might affect the debt cost. Consideration of these specific control variables avoids the need to use individual country- or industry-level controls, thereby adding validity to the estimation with the firm-level explanatory variables of interest. Thus, γ_{kj} is meant to capture industry characteristics persisting throughout the study period in a given country. This vector includes factors such as persistent size differences, financial frictions, and dependence on external finance, among others deriving from industry-specific effects in each country, which can lead to different cross-industry and cross-country trends in the cost of debt.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 degree of financial development or the repercussion of the current financial crisis, having equal impact in all industries in a given country at any point of time during our sample period. Panel data

[11] The results of the first-stage regressions explaining the accuracy of analyst forecasts are available from the authors upon request.

[12] We have also used the three-year lagged value of the firm-level accuracy variable as the additional instrument. Furthermore, instead of using the firm-level accuracy, we have tried the industry-level accuracy of analysts' information in the first-stage estimation. Results are similar to those reported.

[13] A robustness check using Generalized Method of Moments (GMM) confirms the basic results.

analysis with random effects is used to account for unobservable firm-specific effects. π_{ijk} captures the firm-specific effect. ε_{ijkt} is the error term.

4.-EMPIRICAL RESULTS

4.1.-Analyst accuracy and the cost of debt

In Table 3, we present the basic results of estimating the influence of the accuracy of analyst information on the average cost of debt. The empirical findings confirm the significant impact of the predicted value of analyst accuracy (ACC^{IV}) in reducing information asymmetries and thereby negatively affecting the average total cost of debt to firms. Columns (2), (4), and (5) present the results when controlling for the potential role of country-specific legal frameworks. As can be seen, the conclusions are invariant when CIVIL, a dummy variable identifying the legal system, is included (column (2)), and when the sample observations is split into common-law and civil-law subsamples (columns (4), and (5), respectively). These results support our first hypothesis for both institutional settings. The classic firm-level explanatory variables have the expected signs overall.

One issue arising from the above analysis is whether the results might apply exclusively 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 analyst forecasting accuracy improves. In order to test whether, as our intuition suggests, the above results are valid for the average total cost of debt to firms, we also include a proxy for a specific type of corporate debt (BANKLOANS) and a variable for the interaction between this proxy and the analyst accuracy measure (ACC^{IV}). BANKLOANS measures the percentage of long-term bank loans as a share of the firm's total long-term debt[14]. If the percentage of bank debt alters the impact of ACC^{IV} on the average cost of total debt to the firm, the coefficient on the interaction variable will be significantly different from 0. Indeed, it is not beyond the realms of reason that analyst forecasts might be of more value to uninformed investors, such as borrowers of bond issues, than to sophisticated investors. If this were the case, the sign of the interaction variable, ACC^{IV}*BANKLOANS would be positive and

[14] Unfortunately, we have no specific information on the cost of bank debt to firms.

significant, indicating that analyst accuracy will have less impact on the average cost of debt to firms with higher bank-to-total-debt ratios.

From the results given in column (3) of Table 3, it can be seen that, although positive, the coefficient on ACC^{IV}*BANKLOANS is not statistically significant at the conventional levels, while the coefficient on ACC^{IV} considered in isolation remains negative and statistically significant. This enables us to confirm the second hypothesis and to conclude that the results previously reported are not driven by the amount of bank debt held by the firm[15]. Therefore, our findings do not vary significantly as a function of the bank-to-total-debt ratio, and apply equally to any type of corporate debt.

INSERT TABLE 3 ABOUT HERE

4.2.-Analyst accuracy, ownership structure, external governance mechanisms and the cost of debt

In this section, we present the empirical findings concerning the role played by firms' ownership structure and external corporate governance mechanisms on their total cost of debt. First, in order to test the role of ownership structure, the model is defined as follows:

$$DEBTCOST_{ijkt} = \alpha + \sum_{r=1}^{s} \beta_r CONTVAR_{rijkt-1} + \beta_{s+1} BIG4_{ijkt-1} + \beta_{s+2} ACC_{ijk}^{IV} + \beta_{s+3} INSTINV_{ijkt-1} + \delta_{kt} + \varphi_{jt} + \gamma_{kj} + \pi_{ijk} + \varepsilon_{ijkt} \quad [6]$$

The basic results for the role played by ownership structure in explaining the total cost of debt to firms are shown in columns (1) and (2) of Table 4. The effect of analyst accuracy on the cost of debt is negative, irrespective of the percentage of institutional (INST) and bank-held (BANK) ownership. Both institutional and bank-held ownership, moreover, appear as additional mechanisms for the reduction of the average total cost of debt to firms, since their coefficient is negatively significant at conventional levels.

[15] This result is not at odds with the fact that both banks and their affiliated security analysts (see Chen & Martin, 2011) may gain an informational advantage from the borrowers; precisely as a result of their lending relationship. This issue transcends into the area of analysis concerned with variables to explain the accuracy of an individual analyst. Investigation of the possible link between this and other corporate governance mechanisms, such as those considered in this paper, would be an interesting direction for future research. Our result, however, simply establishes that the impact of analyst accuracy (in general) on the cost of debt does not depend significantly on the percentage of bank debt in a firm's total debt.

Having sorted the results by NGF based on the classic civil/common law dichotomy in Table 3, we still have a more general issue to address. Thus, following Aslan & Kumar (2014) we will focus on the role of the various NGFs and NGBs that are related to specific agency costs at the firm level and have a potential association with debt cost. The model for testing the role of this set of external corporate governance mechanisms can be defined as follows:

$$DEBTCOST_{ijkt} = \alpha + \sum_{r=1}^{s} \beta_r CONTVAR_{rijkt-1} + \beta_{s+1} BIG4_{ijkt-1} + \beta_{s+2} ACC_{ijk}^{IV} + \beta_{s+3} PCA\_BUND_{kt} + \varphi_{jt} + \pi_{ijk} + \varepsilon_{ijkt} \quad [7]$$

Where PCA_BUND is the corresponding NGB (PCA_CIQ and PCA_CRDE, respectively).The initial analysis tests the individual effect of these bundles on the cost of debt. As already stated, the small size of the country sample calls for an *ad hoc* solution to the approximation of these bundles, and our proposal is a principal components analysis (PCA), which will capture the common features of the various NGFs included in the bundle. Columns (3) and (4) of Table 4 present the results when PCA_CIQ and PCA_CRDE are included as additional control variables. As can be seen, PCA_CIQ presents a negative and statistically significant coefficient, whereas the coefficient for PCA_CRDE is significantly positive. These findings suggest that the factors in the CIQ bundle that are directly related to financial reporting quality and disclosure practices in each country imply lower information asymmetries, resulting, on average, in lower total debts costs to firms. The set of country-level features composing the CRDE bundle, namely, creditor rights, anti-director index, debt enforcement efficiency, and legal origin, appear to be mostly connected to the importance of different concepts of creditor protection quality and, thus, to higher debt costs for firms applying for external funding.

In columns (5) to (8) we present the results of different combinations of internal and external corporate governance mechanisms. In these regressions, we aim to examine whether and to what extent the results previously discussed hold when controlling for various corporate governance mechanisms jointly rather than individually. The results are largely unchanged. In columns (7) and (8), however, we find no significant effect for the proxy for the bank-held ownership (BANK), although its coefficient remains negative. This finding suggests that, once external corporate governance mechanisms are considered, the contribution of bank-held ownership to the reduction of information

asymmetries and, thereby, to the lowering of total debt costs, disappears. This would be consistent with potential substitution effects between bank ownership and the features of the legal and institutional environment acting as alternative mechanisms for increasing transparency between firms and creditors, which would reduce the cost of debt financing for firms.

INSERT TABLE 4 ABOUT HERE

4.3. -Analyst accuracy, ownership structure, external governance mechanisms and the cost of debt: Interaction terms

In this section, we empirically examine if the impact of the accuracy of analysts information on the total cost of debt to firms is shaped by both internal and external corporate governance mechanisms. In other words, we test whether and to what extent analyst accuracy and governance mechanisms have complementary or substitution effects in reducing information costs and, thereby, total debt costs.

To strengthen our conclusions in this respect, we need to perform an analysis including interaction effects in the estimations of models [6] and [7]. Specifically, we introduce the effect of ACC^{IV}*INST, ACC^{IV}*BANK, ACC^{IV}*PCA_CIQ, and ACC^{IV}*PCA_CRDE[16]. If the coefficients on these interaction terms are significantly different from 0, it will mean that the impact of analyst accuracy on the total cost of debt to firms varies significantly in the presence of alternative (internal and/or external) mechanisms for the reduction of information asymmetries between a firm and its creditors.

The results of this empirical analysis are given in Table 5. As can be seen, the sign for the coefficient of ACC^{IV} remains negative and statistically significant. This suggests that, on average, the observed reduction in the total cost of debt to firms due to analyst accuracy is robust to the inclusion of ownership structure and external governance mechanisms as potential moderators. The results in column (1) indicate that institutional ownership serves as an alternative to the analyst accuracy mechanism, and that the latter is less effective in reducing information asymmetries when there is a significant percentage of

[16] Given the inability of the BIG4 variable to explain the results shown in Table 3 and Table 4, the moderating variable ACC^{IV}*BIG4 is not included. However, this variable also lacks significance in all cases. The results are available from the authors upon request.

institutional ownership. In terms of bank-held ownership, our results are consistent with both bank owners and the accuracy of analyst forecasts reducing the total cost of debt to firms. However, the interaction term ACC^{IV}*BANK presents a positive and statistically significant coefficient, which is consistent with a substitution effect between accuracy level and bank-held ownership. In other words, although, individually considered, both accuracy and bank owners contribute to reducing the total cost of debt to firms, their joint effect is less effective in promoting a more transparent environment and, thus, in reducing the total cost of debt to firms.

Columns (3) and (4) of Table 5, introduce the interaction terms between the principal factors of the bundles, PCA_CIQ and PCA_CRDE, and the variable for analyst accuracy, respectively. The goal is to determine whether these external corporate governance mechanisms play a role in modulating the impact of the accuracy of analyst forecasts on the cost of debt. We find a negative and statistically significant individual effect for the PCA_CIQ variable and for its interaction term with the accuracy measure. These results suggest that PCA_CIQ acts as a complement to analyst accuracy in the reduction of information asymmetries between the firm and its creditors and, therefore, in decreasing the cost of debt. PCA_CRDE, however, does play a substitution role; such that a high (low) accuracy value is further decreased (increased) if the value of the creditor rights and efficient debt enforcement bundle is high (low).

Finally, in columns (5) to (8) we report the results of different combinations of ownership structure measures and external governance mechanisms. The results obtained are consistent with those previously reported. The lack of significance for the individual effect of BANK in columns (7) and (8), suggest, once more, that, although bank-held ownership works to reduce the total cost of debt to firms in the case of lower levels of analysts' accuracy (the sign of the ACC^{IV}*BANK remains positive and statistically significant), the individual effect of bank-held ownership disappears when the features from the legal and institutional environment are considered in the same regression. This finding indicates that the relative importance of the role played by banks may not be homogenous across countries and may vary with different institutional characteristics[17].

[17]Furthermore, Engelberg, Gao & Parsons (2012) mention the relevance of firm-bank relationships when explaining the role of institutional ownership. Better financing conditions (in terms of lower interest rates) might be more likely when banks and firms establish close lending relationships, so it might be necessary

Taken together, these results clearly support our third and fourth hypotheses, confirming the roles of both ownership structure and external corporate governance mechanisms in modulating the impact of analyst accuracy on the cost of debt.

INSERT TABLE 5 ABOUT HERE

5.-ROBUSTNESS CHECKS

The focus in this section is on testing the robustness of the above results. The first robustness test involves an alternative measure of the cost of debt. The second analyzes the impact of an additional analyst-activity variable -the degree of dispersion in analysts' forecasts- and introduces analyst coverage as a control variable. The third examines whether and to what extent hard-to-value and difficult-to-arbitrage (HVDA) firm-level characteristics help to explain the total cost of debt to firms and possibly shape the influence of the accuracy of analyst information on the cost of debt. The fourth robustness check focuses on the effect of the 2007/2008 global financial crisis on the results obtained. Finally, in the fifth analysis, we explicitly include a set of macroeconomic variables replacing the country-year control variable in the previous estimations.

5.1.-An alternative measure of the cost of debt

Our main dependent variable is defined as the ratio of financial expenses to average corporate debt in year t and year t-1. An alternative denominator, although in our view less appropriate, is the final value of the total cost of debt to firms. Thus, in this robustness test the dependent variable is defined as follows:

$$DEBTCOST_{ijkt} = \frac{FinancialExpenses_{ijkt}}{TotalDebt_{ijkt}} \quad [8]$$

We show the estimates from the baseline model using this new dependent variable in Table 6. As can be seen, the results obtained are largely identical to those reported in Table 3. For the five estimations shown, the variable ACC^{IV} retains its negative sign and remains statistically significant, suggesting that the accuracy of analyst forecasts significantly contributes to reducing the total cost of debt to firms when this new proxy

to highlight the potential effect of this on a bank's decision to acquire a stake in the firm's ownership. However, data constraints prevent us from controlling for the relevance of firm-bank lending relationships.

for debt cost is defined as an alternative dependent variable. As in our basic estimations, this result holds when accounting for the influence of the legal origin of our sample of firms (column (2), (4), and (5)), and also when including the share of bank loans in total debt and its interaction term with the accuracy variable (column (3)). The results for the firm-level control variables and accounting data quality are very similar to those previously reported. In three out of the five estimations in Table 6, we obtain a negative and statistically significant coefficient for the SIZE variable. Assets tangibility (TANG) and profitability (PROF) also present a negative association with the total cost of debt to firms. We find that higher levels of leverage (LEV) are positively related to the total cost of debt to firms, although this result is only statistically significant in column (3) and for the subsample of civil-law countries (column (5)). As in Table 3, neither QTOBIN nor BIG4 present statistically significant coefficients.

INSERT TABLE 6 ABOUT HERE

5.2. -Other analyst activity data

While this paper focuses exclusively on the accuracy of analyst forecasts, there are other analyst activity variables that might be worth including, either as an alternative (dispersion, for example) or as an additional control (analyst coverage). Dispersion should be considered alternatively to accuracy, as greater dispersion among analysts is usually associated with less agreement about the future trend of a given variable (in this case, EPS), and will presumably be negatively associated with accuracy. Thus, the variable DISPERSION, defined in FACTSET as the percentage difference between the standard deviation of source estimates for a consensus and the mean consensus calculated using the same estimates should be positively associated with the cost of debt.

In columns (1) to (4) of Table 7, we present the empirical findings for the role of this additional set of analyst-related variables. In a similar vein to the results presented in Table 3, in columns (5) to (8), we additionally control for the potential influence of the legal environment by including the dummy CIVIL and its interaction terms with the analyst-related variables. As in the basic set of results, we control for possible endogeneity between these analyst characteristics and the cost of debt by using a 2SLS procedure. The results in columns (2), (3), (6), and (7) confirm the existence of a positive relationship between the predicted value of forecast dispersion ($DISPERSION^{IV}$) and the total cost of debt to firms, both when forecast dispersion is included on its own and when

it is accompanied by analyst coverage as an additional control variable. The latter, NUMEST, is defined as the natural logarithm of (1+NAF), where NAF is the number of analyst forecasts issued for a firm during the time period considered.

Although analyst coverage may have relevance as a control variable in so far as a greater number of forecasts can affect both accuracy and dispersion, there is no evidence of this in the results presented in Table 7. It does not appear to have any significant direct explanatory power for –or any moderating effect on– accuracy or dispersion in the relationship under consideration. However, its inclusion in no way alters the explanatory power of analyst forecast accuracy, which has already been identified as a mechanism for reducing the average cost of debt to a firm.

INSERT TABLE 7 ABOUT HERE

5.3.-Analyst accuracy and the cost of debt: influence of HVDA characteristics

The impact of higher forecasting accuracy on the average cost of debt could also be consistent with higher earnings predictability, in line with findings from research on bonds (Crabtree & Maher, 2005; Mansi, Maxwell & Miller, 2011; or Boubakri, El Ghoul, Guedhami, & Samet, 2015). It is hard to determine empirically whether this result is to be interpreted as higher accuracy being associated with higher earnings predictability making firm valuation easier for the lender, or as a reflection of stronger consensus around earnings expectations reducing information asymmetries among all agents. The two explanations are also quite likely to be linked, since, all else being equal, there will be less forecasting error in easy-to-value firms and analyst reports on these firms will be more credible and thus have more market value. Information on complex firms will be potentially more useful; but, if lacking credibility, may contribute little to reducing information asymmetries.

There is a huge empirical literature showing that, in contrast to easy-to-value stocks, whose value is more certain, hard-to-value and difficult-to-arbitrage (HVDA) stocks present significantly higher earnings forecast error at times of high investor sentiment (Qian, 2009; Corredor, Ferrer & Santamaria, 2014). It is true, nevertheless, 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. As in the case of NGBs, principal components

analysis is used to identify the commonality between the three most conventional characteristics proxying for HVDA stocks: volatility, size, and book-to-market. The first factor extracted shows that volatility and book-to-market have a negative impact and size has a positive impact. Based on this component, interpreted in alignment with volatility, and denoted by "PCA_CHARACT", a dummy variable is created 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, Ferrer & Santamaria, 2014) another dummy variable is created that takes a value of 1 for stocks in the fifth volatility quintile and 0 otherwise[18].

The results presented in Table 8 show that the negative coefficient of the ACC^{IV} variable remains invariant in all estimations. Moreover, we find an individual positive effect of both PCA_CHARACT and VOL, indicating that HVDA firms face, on average, higher debt costs. This result is consistent with the higher information complexity that characterizes this type of firms, making it more difficult for creditors to get fair estimates of their value. If we focus on the interaction terms between the accuracy of analyst forecasts and each of the proxies for HVDA firms (columns (3) and (4)), we obtain a positive but not significant coefficient at conventional levels, whereas the individual coefficient of ACC^{IV} remains negatively and significantly associated with the total cost of debt to firms. This finding indicates that, although, on average, the effect of analyst forecast accuracy is to reduce the total cost of debt to firms, its impact is moderated by HVDA stock characteristics, which are indicators of higher information asymmetries and higher firm opaqueness. The result is consistent with the literature that has reported this type of firm to have characteristics that make them more sensitive to investor sentiment (Baker and Wurgler, 2006; Corredor, Ferrer & Santamaria, 2013) and their earnings forecasts more likely to be biased by optimism, irrespective of possible strategic action (Corredor, Ferrer & Santamaria, 2014). These findings remain invariant when we control for the variable proxying for the legal environment (CIVIL) in columns (5) and (6).

INSERT TABLE 8 ABOUT HERE

[18]The two additional dummy variables take a value of 1 for stocks in the fifth quintile of the book-to-market ratio, or the first size quintile, respectively, where these characteristics, together with volatility, proxy for HVDA stocks, and 0 otherwise. HVDA stocks are grouped in the fifth quintile (above the 80th percentile) in terms of book-to-market and in the first quintile (below the 20th percentile) in terms of size.

5.4. -Analyst accuracy and the cost of debt: influence of the Global Financial Crisis

This robustness test is aimed at determining whether the recent period of global financial crisis significantly affected the impact of analyst forecasting accuracy on the average cost of corporate debt. Insofar as crisis periods can be considered periods of uncertainty characterized by higher information asymmetries, it seems reasonable to assume that the accuracy of analyst forecasts might play a more important role in reducing the cost of debt in times of financial distress. It can also be argued, however, that its role will eventually lose significance, since there is evidence of the average rate of error in analyst forecasts increasing during times of crisis (see Jáki & Neulinger, 2014 or Hsu, Yu & Wen, 2013), an observation that is consistent with a higher error rate in macroeconomic forecasts (see Fawcett, Körber, Masolo& Waldron, 2015).

To analyze this issue, we carry out two alternative estimations. In the first, we consider the effect of it being a crisis year by running our benchmark model over the subsample of firm-year observations corresponding to the crisis period (2008-2011). In the second, we consider an alternative estimation procedure in order to control for the severity of the crisis. According to Laeven and Valencia (2012), it is important to consider not only the effect of it being a crisis year, but also the financial and economic consequences of the crisis period. In order to control for the severity of the financial crisis in each country, we consider fiscal costs expressed as a percentage of GDP. Following Laeven and Valencia (2012), we define this variable as gross fiscal outlay for restructuring the financial sector. This variable specifically includes fiscal costs associated with bank recapitalizations, but excludes asset purchases and direct liquidity assistance from the treasury. In our case, we introduce the interaction term between our analyst accuracy variable and the variable proxying for fiscal costs incurred during the crisis period. We also check for cross-country variation associated with differences between common law versus civil law systems. In order to avoid confounding effects, we run these estimations without the country-year dummy, which could be partially capturing the effect of the crisis on each particular country.

The results of this robustness test are shown in Table 9. Columns (1) and (2) show the results of the basic regression testing the effect of analyst forecasting accuracy on corporate debt over the firm-year observations for the crisis period. Column (1) gives the results for the entire sample of firms; column (2) includes the CIVIL variable and the interaction term ACC^{IV}*CIVIL, in order to consider the potential differential effect of the

legal environment. These results show that, irrespective of the legal environment, the analyst accuracy effect remains negative, thereby confirming that the accuracy of analyst forecasts is relevant during financial crisis periods, when information asymmetries increase and economic uncertainty might drive up firms' debt costs.

The results in columns (3) and (4) confirm the above empirical findings for the role played by analyst accuracy during periods of financial distress. The coefficient of the analyst accuracy measure remains negative and statistically significant in both estimations, and the effect of the interaction term between accuracy and the variable that proxies for the severity of the crisis (FISCALCOSTS) is non-significant at conventional levels. This result confirms that accuracy in analyst forecasts can help to mitigate information asymmetries and keep corporate debt cost low, regardless of crisis severity.

INSERT TABLE 9 ABOUT HERE

5.5.-Macroeconomic environment variables

Finally, we also test 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 three widely-used economic cycle proxies, namely, GDP and unemployment variations, and the strictness of market disclosure requirements. Logically, in this set of estimates we omit the country-year fixed effect used in the previous models.

The results of this test lead to the same conclusions as obtained when controlling for the country-year fixed effect, thus showing that, as far as the results regarding the impact of analyst forecasting accuracy on the average total cost of debt to firms are concerned, there is no appreciable difference between the baseline analysis and the one including proxies for economic cycle effects[19].

6.-CONCLUSIONS

This paper analyzes the role of analyst accuracy and other information-asymmetry-reducing mechanisms on the average cost of corporate debt. In this way, by focusing the analysis on the firm, we extend previous analyses, focused primarily on the US bond market, to the study of the total cost of debt to firms in five developed financial markets

[19] The results are omitted for reasons of space but available from authors upon request

including both common-law and civil-law countries. Our focus on the firm as the unit of analysis enables us to examine the impact of a variety of firm-level controls. In particular, we check for variation in the explanatory power of analyst forecasting accuracy in the presence of other information-risk-reducing mechanisms (internal or external), and we analyze whether and to what extent these mechanisms complement or substitute each other.

According to our findings, after controlling for the potential endogeneity problem affecting the empirical strategy, the accuracy of financial analysts is a key information-asymmetry control mechanism which significantly reduces the average cost of corporate debt, including the cost of bank debt. This result is very interesting because it enables us to assert that analyst reports are useful not only for uninformed investors but also for sophisticated and specialized agents, such as banks, who have greater and fuller capacity to acquire information on borrowers and thus reduce information asymmetries. Our basic result is also robust to the inclusion of other internal and external corporate governance mechanisms. We find, however, that the effect of analyst accuracy on the total cost of debt to firms is not independent either of internal or external corporate governance mechanisms. In particular, our empirical findings allow us to state that the role of analyst accuracy as an information-risk control mechanism is most effective in firms with lower levels of institutional and bank-held ownership, in countries with higher levels of transparency and disclosure practices and weaker creditor rights protection. This is consistent with analyst accuracy acting as a complement/substitute to other alternative mechanisms that may help, both at firm- and country-level, to reduce information asymmetries between the firm and its creditors.

Our results are robust to different model specifications including the potential effect of the legal origin, to the consideration of an alternative proxy for the total cost of debt to firms, and to the inclusion of additional analyst-level characteristics potentially affecting the basic results. Additionally, taking advantage of the firm as the main unit of the empirical analysis, we also test whether the stock characteristics traditionally used to identify HVDA firms shape the effect of analyst accuracy on the cost of debt. The results of this test enable us to assert that, although on average analyst accuracy works as a mechanism to reduce information asymmetries and thereby the cost of corporate debt, its influence is modulated by this set of firm-level features that are strongly associated with high valuation difficulty and the release of less accurate earnings forecasts. Our basic

conclusions also hold when the period of the recent financial crisis is considered in the empirical analysis and when macroeconomic control variables are included.

Finally, the results of this paper suggest the value of developing and/or strengthening alternative internal and external mechanisms for reducing information asymmetries between lenders and borrowers in order to guarantee the access of firms to more favourable credit terms and thereby enhance their investment appeal and economic growth. The conclusions from this research clearly indicate that one potentially effective mechanism for achieving this goal would be to encourage analyst coverage and accuracy in order to reduce the average cost of corporate debt. Regulators should take into account that this is particularly important in firms where the characteristics of the ownership structure and the institutional and legal framework hamper the development of market tools to address information asymmetries.

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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 overall sample. 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 options as the ratio of book-to-market value of assets. LEV denotes the 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 percentages of institutional ownership and bank-held ownership, respectively. ACC is the measure of analyst forecast accuracy. CIQ and CRDE are the Corporate Information Quality and Creditor Rights Debt Enforcement Bundles, respectively. Principal components analysis is used to identify the commonality between the National Governance Factors (NGFs) included in each bundle, PCA_CIQ and PCA_CRDE.

		DEBTCOST	SIZE	TANG	PROF	QTOBIN	LEV	BIG4	INST	BANK	ACC	CIQ	CRDE
Civil	*Mean*	0.0364	13.2492	0.4352	0.0716	2.01	0.4022	0.7523	0.1615	0.0277	-0.6097	1.8116	-1.6477
	StDev	0.0449	2.1392	0.3094	0.1348	1.75	0.2327	0.4319	0.2095	0.0560	1.1994	0.6313	0.8995
	25%	0.0156	11.4972	0.1328	0.0432	0.90	0.2056	1	0.0000	0.0000	-0.4250	1.1323	-2.2134
	Median	0.0299	12.8486	0.3950	0.0775	1.56	0.4062	1	0.0784	0.0000	-0.1850	2.2658	-2.2434
	75%	0.0435	14.7476	0.7233	0.1241	2.44	0.5850	1	0.2433	0.0369	-0.0875	2.2658	-0.6856
			# Firms							# Observations			
	France			109						232			
	Germany			82						177			
	Spain			29						70			
	Total Civil			220						479			
Common	*Mean*	0.0439	14.1011	0.4810	0.0315	2.50	0.5251	0.9073	0.0945	0.0158	-0.3651	-0.5740	0.5813
	StDev	0.0689	1.7319	0.2900	0.2409	5.06	0.2528	0.2899	0.1523	0.0390	1.2194	0.3126	0.4796
	25%	0.0163	12.9037	0.2183	0.0319	1.11	0.3287	1.0000	0.0000	0.0000	-0.2700	-0.4376	0.3722
	Median	0.0301	14.0344	0.4690	0.0773	1.86	0.5686	1.0000	0.0000	0.0000	-0.1150	-0.4376	0.3722
	75%	0.0487	15.2371	0.7416	0.1252	3.19	0.7255	1.0000	0.1384	0.0000	-0.0525	-0.4376	0.3722
				# Firms						# Observations			
	UK			115						321			
	US			1,079						2,461			
	Total Common			1,194						2,782			
Total	*Mean*	0.0426	13.9541	0.4731	0.0384	2.42	0.5038	0.8806	0.1061	0.0179	-0.4073	-0.1622	0.1965
	StDev	0.0654	1.8369	0.2939	0.2267	4.66	0.2537	0.3242	0.1655	0.0427	0.0121	0.9811	1.0196
	25%	0.0162	12.7046	0.2034	0.0351	1.08	0.2982	1.0000	0.0000	0.0000	-0.2650	-0.4376	0.3722
	Median	0.0300	13.8857	0.4614	0.0773	1.79	0.5372	1.0000	0.0000	0.0000	-0.1275	-0.4376	0.3722
	75%	0.0477	15.1690	0.7391	0.1248	3.06	0.7052	1.0000	0.1547	0.0000	-0.0575	-0.4376	0.3722
				# Firms						# Observations			
	Total			1,414						3,261			

Table 2: Correlations

This table shows the correlations among the main variables. DEBTCOST is defined as the ratio between financial expenses during period t and the average value of total debt during 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 options as the book-to-market ratio. LEV denotes the 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 percentages of institutional ownership and bank-held ownership, respectively. ACC is the measure of analyst accuracy. CIQ and CRDE are the Corporate Information Quality and Creditor Rights Debt Enforcement Bundles, respectively. Principal components analysis is used to identify the commonality between the National Governance Factors (NGFs) included in each bundle, PCA_CIQ and PCA_CRDE.***, ** and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	DEBTCOST	SIZE	TANG	PROF	QTOBIN	LEV	BIG4	INST	BANK	ACC	CIQ	CRDE
DEBTCOST	1.0000											
SIZE	-0.1514***	1.0000										
TANG	-0.0250	0.0347**	1.0000									
PROF	-0.2767***	0.2945**	-0.0683***	1.0000								
QTOBIN	-0.0094	-0.0076	-00.0039	0.0393**	1.0000							
LEV	0.0442***	0.4108***	0.1862***	0.0402***	-0.0761***	1.0000						
BIG4	-0.0506***	0.3699***	0.0061	0.0797***	0.0247	0.1751***	1.0000					
INST	-0.0419***	-0.0379**	-0.0490***	0.0758***	-0.0023	-0.1126***	0.0297*	1.0000				
BANK	-0.0348***	0.0466***	0.0253*	0.0774***	0.0013	-0.0525***	0.0634***	0.5576***	1.0000			
ACC	-0.0578***	0.1047***	-0.0136	0.1658***	0.0416***	0.0072	0.0639***	-0.0492***	0.0093	1.0000		
PCA_CIQ	-0.0311**	-0.1287***	-0.0128	0.0291*	-0.0379**	-0.1025***	-0.1678***	0.0239	0.0382**	-0.0702***	1.0000	
PCA_CRDE	0.0049	0.1437***	0.0319**	-0.0142	-0.0295*	0.1509***	0.1787***	-0.0368**	-0.0253*	0.0584***	-0.8481***	1.0000

Table 3: Analyst accuracy and the cost of debt

This table shows the results of the 2SLS estimations used to examine the effects of analyst accuracy on the average cost of debt. DEBTCOST is defined as the ratio of financial expenses in period t to the average value of total debt in periods t and t-1. SIZE is measured as the natural logarithm of total 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 options as the ratio of book-to-market value of assets. LEV denotes the 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^{IV} is the predicted value of the measure of analyst forecast accuracy. CIVIL is a dummy variable that takes the value 1 if the firm belongs to a civil-law country and 0, otherwise. BANKLOANS is the ratio of bank loans to long-term debt. T-statistics are in parentheses. ***, ** and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	ALL			**COMMON**	**CIVIL**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
DEBTCOST_Initial	0.2054***	0.2096***	0.2178***	0.2399***	0.1137***
	(11.88)	(12.75)	(13.37)	(15.97)	(2.79)
SIZE	-0.0013	-0.0009	-0.0013	-0.0016**	0.0021
	(-1.48)	(-1.09)	(-1.51)	(-2.11)	(0.95)
TANG	-0.0085*	-0.0075*	-0.0093**	-0.0038	-0.0255**
	(-1.93)	(-1.76)	(-2.08)	(-0.99)	(-2.14)
PROF	-0.0493***	-0.0485***	-0.0440***	-0.0592***	0.0480
	(-6.83)	(-6.62)	(-4.78)	(-8.88)	(1.26)
QTOBIN	0.2517	0.2403	0.2462	0.0515	-0.1531
	(1.25)	(1.15)	(1.08)	(0.24)	(-0.12)
LEV	-0.0013	-0.0022	0.0118*	-0.0065	0.0372**
	(-0.26)	(-0.44)	(1.85)	(-1.37)	(2.31)
BIG4	-0.0032	-0.0029	-0.0005	-0.0006	-0.0028
	(-0.69)	(-0.63)	(-0.12)	(-0.15)	(-0.30)
ACC^{IV}	-0.0087**	-0.0117**	-0.0307**	-00085**	-0.0265**
	(-2.19)	(-2.45)	(-2.07)	(-2.11)	(-2.59)
CIVIL		-0.0123			
		(-1.42)			
ACC^{IV}*CIVIL*		-0.0093			
		(-0.71)			
BANKLOANS			-0.0043		
			(-0.70)		
ACC^{IV}* BANKLOANS*			0.0274		
			(1.37)		
Country-Year	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*No*	*Yes*	*Yes*	*Yes*
R-Squared	0.1204	0.0989	0.0964	0.1421	0.0659
Wald-Test (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000
# Firms	1,414	1,414	1,289	1,194	220
# Observations	3,261	3,261	2,937	2,782	479

Table 4: Analyst accuracy, the cost of debt, internal and external corporate governance mechanisms

This table shows the results of the 2SLS estimations used to examine the effects of analyst accuracy and internal/external corporate governance mechanisms on the average cost of debt. DEBTCOST is defined as the ratio of financial expenses in period t to the average value of total debt in periods t and t-1. SIZE is measured as the natural logarithm of total 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 options as the ratio of book-to-market value of assets. LEV denotes the 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^{IV} is the predicted value of the measure of analyst forecast accuracy. INST and BANK are the percentages of institutional ownership and bank-held ownership, respectively. CIQ and CRDE are the Corporate Information Quality and Creditor Rights Debt Enforcement Bundles, respectively. Principal components analysis is used to identify the commonality between the National Governance Factors (NGFs) included in each bundle (PCA_CIQ and PCA_CRDE). T-statistics are in parentheses. ***, ** and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
DEBTCOST_Initial	0.2053***	0.2052***	0.2214***	0.2252***	0.2242***	0.2253***	0.2242***	0.2253***
	(11.88)	(11.86)	(17.55)	(17.67)	(17.57)	(17.71)	(17.58)	(17.69)
SIZE	-0.0012	-0.0011	-0.0007	-0.0007	-0.0007	-0.0007	-0.0006	-0.0006
	(-1.39)	(-1.30)	(-1.12)	(-1.10)	(-1.11)	(-1.10)	(-0.97)	(-0.95)
TANG	-0.0090**	-0.0087**	-0.0060*	-0.0062*	-0.0063*	-0.0065**	-0.0060*	-0.0062*
	(-2.04)	(-1.96)	(-1.81)	(-1.87)	(-1.90)	(-1.97)	(-1.80)	(-1.87)
PROF	-0.0490***	-0.0494***	-0.0553***	-0.0562***	-0.0550***	-0.0560***	-0.0552***	-0.0560***
	(-6.79)	(-6.85)	(-8.74)	(-8.95)	(-8.63)	(-8.91)	(-8.71)	(-8.94)
QTOBIN	0.2387	0.2389	0.1317	0.1292	0.1200	0.1174	0.1260	0.1236
	(1.19)	(1.19)	(0.62)	(0.61)	(0.57)	(0.56)	(0.60)	(0.59)
LEV	-0.0017	-0.0016	-0.0009	-0.0010	-0.0015	-0.0015	-0.0012	-0.0013
	(-0.35)	(-0.32)	(-0.24)	(-0.26)	(-0.36)	(-0.36)	(-0.29)	(-0.31)
BIG4	-0.0029	-0.0029	-0.0003	-0.0005	-0.0000	-0.0002	-0.0000	-0.0002
	(-0.62)	(-0.62)	(-0.09)	(-0.14)	(-0.01)	(-0.08)	(-0.01)	(-0.06)
ACC^{IV}	-0.0087**	-0.0083**	-0.0122***	-0.0114***	-0.0121***	-0.0112***	-0.0121***	-0.0113***
	(-2.22)	(-2.11)	(-3.23)	(-3.10)	(-3.21)	(-3.03)	(-3.21)	(-3.06)
INST	-0.0009**				-0.0001**	-0.0009**		
	(-2.36)				(-2.12)	(-1.98)		
BANK		-0.0002**					-0.0002	-0.0002
		(-2.05)					(-1.36)	(-1.33)
PCA_CIQ			-0.0023**		-0.0025**		-0.0023**	
			(-2.08)		(-2.25)		(-2.14)	
PCA_CRDE				0.0018*		0.0019*		0.0018*
				(1.80)		(1.90)		(1.85)
Country-Year	*Yes*	*Yes*	*No*	*No*	*No*	*No*	*No*	*No*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*No*	*No*	*No*	*No*	*No*	*No*
R-Squared	0.1205	0.1225	0.1073	0.1109	0.1085	0.1130	0.1084	0.1121
Wald-Test (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
# Firms	1,414	1,414	1,414	1,414	1,414	1,414	1,414	1,414
# Observations	3,261	3,261	3,261	3,261	3,261	3,261	3,261	3,261

Table 5: Analyst accuracy, the cost of debt, internal and external corporate governance mechanisms: interactions

This table shows the results of the 2SLS estimations used to examine whether internal and external governance mechanisms shape the impact of analyst accuracy on the average cost of debt. DEBTCOST is defined as the ratio of financial expenses in period t to the average value of total debt in periods t and t-1. SIZE is measured as the natural logarithm of total 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 options as the ratio of book-to-market value of assets. LEV denotes the 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^{IV} is the predicted value of the measure of analyst forecast accuracy. INST and BANK are the percentages of institutional ownership and bank-held ownership, respectively. CIQ and CRDE are the Corporate Information Quality and Creditor Rights Debt Enforcement Bundles, respectively. Principal components analysis is used to identify the commonality between the National Governance Factors (NGFs) included in each bundle (PCA_CIQ and PCA_CRDE). T-statistics are in parentheses. ***, ** and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
DEBTCOST_Initial	0.2044***	0.2064***	0.2154***	0.2160***	0.2237***	0.2238***	0.2163***	0.2181***
	(11.46)	(12.14)	(14.64)	(14.85)	(17.23)	(17.26)	(14.17)	(14.83)
SIZE	-0.0009	-0.0010	-0.0006	-0.0006	-0.0008	-0.0009	-0.0009	-0.0009
	(-0.99)	(-1.21)	(-0.83)	(-0.88)	(-1.32)	(-1.33)	(-1.15)	(-1.24)
TANG	-0.0113**	-0.0077*	-0.0066*	-0.0073*	-0.0083**	-0.0087**	-0.0071*	-0.0078**
	(-2.45)	(-1.77)	(-1.73)	(-1.94)	(-2.47)	(-2.57)	(-1.79)	(-2.05)
PROF	-0.0411***	-0.0477***	-0.0538***	-0.0558***	-0.0508***	-0.0512***	-0.0494***	-0.0513***
	(-4.41)	(-6.26)	(-7.86)	(-8.39)	(-7.17)	(-7.31)	(-6.71)	(-7.25)
QTOBIN	0.2688	0.2422	0.1462	0.1344	0.1296	0.1284	0.1597	0.1458
	(1.26)	(1.15)	(0.68)	(0.64)	(0.60)	(0.60)	(0.72)	(0.66)
LEV	-0.0007	-0.0034	-0.0017	-0.0016	-0.0002	-0.0003	-0.0039	-0.0038
	(-0.13)	(-0.65)	(-0.37)	(-0.35)	(-0.06)	(-0.07)	(-0.78)	(-0.80)
BIG4	-0.0055	-0.0006	-0.0020	-0.0023	-0.0029	-0.0031	-0.0007	-0.0009
	(-1.14)	(-0.13)	(-0.50)	(-0.60)	(-0.82)	(-0.88)	(-0.17)	(-0.24)
ACC^{IV}	-0.0219**	-0.0143***	-0.0136***	-0.0121***	-0.0205***	-0.0205***	-0.0199***	-0.0193***
	(-2.56)	(-2.78)	(-3.09)	(-2.82)	(-3.20)	(-3.21)	(-3.61)	(-3.60)
INST	-0.0000				-0.0000	-0.0000		
	(-1.46)				(-1.07)	(-1.10)		
BANK		-0.0002**					-0.0002	-0.0002
		(-1.96)					(-1.48)	(-1.39)
ACC^{IV} **INST*	0.0004**				0.0003***	0.0003***		
	(2.44)				(3.04)	(2.99)		
ACC^{IV} **BANK*		0.0012**					0.0015***	0.0015***
		(2.32)					(3.03)	(3.02)
PCA_CIQ			-0.0048***		-0.0068**		-0.0106***	
			(-2.71)		(-2.52)		(-3.10)	
PCA_CRDE				0.0043***		0.0055***		0.0088***
				(2.73)		(3.11)		(3.71)
ACC^{IV}**PCA_CIQ*			-0.0053***		-0.0024*		-0.0077***	
			(-2.67)		(-1.96)		(-3.29)	
ACC^{IV}**PCA_CRDE*				0.0056***		0.0039***		0.0087***
				(2.80)		(2.92)		(3.64)
Country-Year	*Yes*	*Yes*	*No*	*No*	*No*	*No*	*No*	*No*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*No*	*No*	*No*	*No*	*No*	*No*
R-Squared	0.0878	0.0951	0.1025	0.1113	0.1013	0.1028	0.0813	0.0865
Wald-Test (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
# Firms	1,414	1,414	1,414	1,414	1,414	1,414	1,414	1,414
# Observations	3,261	3,261	3,261	3,261	3,261	3,261	3,261	3,261

Table 6: Analyst accuracy and the cost of debt: alternative dependent variable

This table shows the results of the 2SLS estimations used to examine the effects of analyst accuracy on the average cost of debt. DEBTCOST is defined as the ratio of financial expenses to total liabilities in period t. SIZE is measured as the natural logarithm of total 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 options as the ratio of book-to-market value of assets. LEV denotes the 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^{IV} is the predicted value of the measure of analyst forecast accuracy. CIVIL is a dummy variable that takes the value 1 if the firm belongs to a civil-law country and 0, otherwise. BANKLOANS is the ratio of bank loans to long-term debt. T-statistics are in parentheses. ***, ** and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	ALL			**COMMON**	**CIVIL**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
DEBTCOST_Initial	0.1902***	0.2106***	0.2054***	0.2212***	0.1133***
	(10.40)	(15.41)	(12.63)	(12.84)	(2.78)
SIZE	-0.0014	-0.0011*	-0.0014*	-0.0020**	0.0021
	(-1.58)	(-1.71)	(-1.68)	(-2.43)	(0.98)
TANG	-0.0093**	-0.0059*	-0.0116***	-0.0045	-0.0276**
	(-2.09)	(-1.73)	(-2.71)	(-1.08)	(-2.32)
PROF	-0.0431***	-0.0539***	-0.0487***	-0.0550***	0.0542
	(-5.87)	(-8.22)	(-5.74)	(-7.89)	(1.41)
QTOBIN	0.1613	0.0387	0.1082	-0.0135	-0.0120
	(0.79)	(0.18)	(0.48)	(-0.06)	(-0.01)
LEV	0.0015	-0.0003	0.0147**	-0.0047	0.0390**
	(0.29)	(-0.09)	(2.38)	(-0.93)	(2.40)
BIG4	-0.0030	-0.0002	-0.0016	-0.0017	-0.0032
	(-0.62)	(-0.05)	(-0.33)	(-0.35)	(-0.35)
ACC^{IV}	-0.0101**	-0.0140***	-0.0237*	-0.0085**	-0.0283***
	(-2.52)	(-3.25)	(-1.72)	(-2.01)	(-2.74)
CIVIL		-0.0064			
		(-0.70)			
ACC^{IV}*CIVIL*		0.0069			
		(0.58)			
BANKLOANS			-0.0063		
			(-1.03)		
ACC^{IV}* BANKLOANS*			0.0212		
			(1.11)		
Country-Year	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*No*	*Yes*	*Yes*	*Yes*
R-Squared	0.1004	0.0920	0.1053	0.1272	0.0659
Wald-Test (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000
# Firms	1,414	1,414	1,289	1,194	220
# Observations	3,261	3,261	2,937	2,782	479

Table 7: Analyst accuracy and the cost of debt: analysts control variables

This table shows the results of the 2SLS estimations used to examine the effects of analyst accuracy on the average cost of debt including additional analyst activity variables. DEBTCOST is defined as the ratio of financial expenses in period t to the average value of total debt in periods t and t-1. SIZE is measured as the natural logarithm of total 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 options as the ratio of book-to-market value of assets. LEV denotes the 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^{IV} is the predicted value of the measure of analyst forecast accuracy. $NUMEST^{IV}$ is defined as the predicted value of the natural logarithm of (1+number of analysts); $DISPERSION^{IV}$ is the predicted standard deviation of the inter-analyst forecast. CIVIL is a dummy variable that takes the value 1 if the firm belongs to a civil-law country and 0, otherwise. T-statistics are in parentheses. ***, ** and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
DEBTCOST_Initial	0.1420***	0.1329***	0.1360***	0.1420***	0.1407***	0.1345***	0.1362***	0.1391***
	(9.94)	(8.54)	(9.04)	(9.58)	(8.95)	(9.33)	(9.12)	(8.37)
SIZE	0.0001	-0.0009	0.0002	0.0001	-0.0004	-0.0009	-0.0004	-0.0023
	(0.09)	(-1.11)	(0.11)	(0.07)	(-0.21)	(-1.20)	(-0.24)	(-1.06)
TANG	-0.0021	-0.0017	-0.0017	-0.0029	-0.0022	-0.0018	-0.0019	-0.0029
	(-0.56)	(-0.43)	(-0.44)	(-0.73)	(-0.52)	(-0.48)	(-0.49)	(-0.65)
PROF	-0.0408***	-0.0336***	-0.0330***	-0.0332***	-0.0401***	-0.0319***	-0.0311***	-0.0338***
	(-5.56)	(-3.89)	(-3.88)	(-3.95)	(-5.19)	(-3.91)	(-3.77)	(-3.77)
QTOBIN	0.0277	0.1159	0.1358	0.0627	0.0513	0.1015	0.1332	-0.0720
	(0.13)	(0.54)	(0.61)	(0.29)	(0.24)	(0.47)	(0.59)	(-0.32)
LEV	0.0132**	0.0120**	0.0117**	0.0131**	0.0120**	0.0132***	0.0123**	0.0148**
	(2.49)	(2.27)	(2.12)	(2.39)	(2.08)	(2.63)	(2.22)	(2.43)
BIG4	0.0038	0.0028	0.0035	0.0035	0.0037	0.0024	0.0028	0.0027
	(0.91)	(0.63)	(0.80)	(0.79)	(0.79)	(0.60)	(0.64)	(0.54)
ACC^{IV}				-0.0086**				-0.0149**
				(-2.10)				(-2.02)
$NUMEST^{IV}$	-0.0045		-0.0041	-0.0030	-0.0047		-0.0038	0.0053
	(-0.73)		(-0.65)	(-0.47)	(-0.56)		(-0.48)	(0.57)
$DISPERSION^{IV}$		0.0522**	0.0494**			0.0576*	0.0557*	
		(2.05)	(2.03)			(1.90)	(1.82)	
CIVIL					-0.0173	-0.0046	-0.0185	-0.0045
					(-1.34)	(-1.03)	(-1.42)	(-0.30)
ACC^{IV}*CIVIL*								0.0097
								(1.31)
$NUMEST^{IV}$*CIVIL*					0.0075		0.0064	0.0020
					(1.24)		(1.12)	(0.31)
$DISPERSION^{IV}$*CIVIL*						-0.0018	0.0000	
						(-0.06)	(0.00)	
Country-Year	*Yes*	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*	*No*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*	*No*
R-Squared	0.0988	0.1034	0.1017	0.0916	0.1004	0.1024	0.1019	0.0843
Wald-Test (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
# Firms	811	811	811	811	811	811	811	811
# Observations	1,840	1,840	1,840	1,840	1,840	1,840	1,840	1,840

Table 8: Analyst accuracy and the cost of debt: Influence of HVDA characteristics

This table shows the results of the 2SLS estimations used to examine the impact of analyst accuracy and HVDA characteristics on the average cost of debt. DEBTCOST is defined as the ratio of financial expenses in period t to the average value of total debt in periods t and t-1. SIZE is measured as the natural logarithm of total 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 options as the ratio of book-to-market value of assets. LEV denotes the 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^{IV} is the predicted value of the analyst accuracy variable. PCA_CHARACT is the component created from the asset-level characteristics. VOL is the firm's financial asset volatility. CIVIL is a dummy variable that takes the value 1 if the firm belongs to a civil-law country and 0 otherwise. T-statistics are in parentheses. ***, ** and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
DEBTCOST_Initial	0.2050***	0.2054***	0.2054***	0.2060***	0.2053***	0.2061***
	(12.00)	(12.01)	(12.49)	(12.50)	(12.46)	(12.48)
SIZE	-0.0005	-0.0006	0.0003	0.0001	0.0003	0.0002
	(-0.63)	(-0.77)	(0.37)	(0.20)	(0.37)	(0.21)
TANG	-0.0081*	-0.0080*	-0.0075*	-0.0079*	-0.0075*	-0.0078*
	(-1.82)	(-1.80)	(-1.74)	(-1.82)	(-1.72)	(-1.78)
PROF	-0.0530***	-0.0533***	-0.0577***	-0.0579***	-0.0576***	-0.0579***
	(-7.05)	(-7.08)	(-7.48)	(-7.48)	(-7.45)	(-7.45)
QTOBIN	0.3380	0.3298	0.2899	0.2789	0.2904	0.2796
	(1.33)	(1.30)	(1.10)	(1.06)	(1.10)	(1.06)
LEV	-0.0045	-0.0043	-0.0063	-0.0060	-0.0063	-0.0060
	(-0.86)	(-0.82)	(-1.20)	(-1.14)	(-1.20)	(-1.15)
BIG4	-0.0043	-0.0042	-0.0061	-0.0058	-0.0061	-0.0058
	(-0.93)	(-0.90)	(-1.28)	(-1.23)	(-1.29)	(-1.23)
PCA_CHARACT	0.0080***		0.0198**		0.0198**	
	(3.12)		(2.41)		(2.41)	
VOL		0.0064**		0.0179**		0.0180**
		(2.50)		(2.30)		(2.31)
ACC^{IV}	-0.0069*	-0.0071*	-0.0178**	-0.0174**	-0.0178**	-0.0176**
	(-1.75)	(-1.81)	(-2.24)	(-2.32)	(-2.23)	(-2.31)
ACC^{IV}* PCA_CHARACT			0.0216		0.0216	
			(1.49)		(1.49)	
ACC^{IV}*VOL				0.0212		0.0214
				(1.53)		(1.53)
CIVIL					-0.0003	-0.0012
					(-0.04)	(-0.15)
Country-Year	*Yes*	*Yes*	*Yes*	*Yes*	*No*	*No*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*Yes*	*Yes*	*Yes*	*No*	*No*
R-Squared	0.1364	0.1344	0.1024	0.1003	0.1022	0.0996
Wald-Test (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
# Firms	1,378	1,378	1,378	1,378	1,378	1,378
# Observations	3,138	3,138	3,138	3,138	3,138	3,138

Table 9: Analyst accuracy and the cost of debt: the effect of the global financial crisis

This table shows the results of the 2SLS estimations used to examine the effects of analyst accuracy on the average cost of debt and the influence of the global financial crisis. DEBTCOST is defined as the ratio of financial expenses in period t to the average value of total debt in periods t and t-1. SIZE is measured as the natural logarithm of total 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 options as the ratio of book-to-market value of assets. LEV denotes the 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^{IV} is the predicted value of the analyst accuracy variable. FISCALCOSTS are measured as the share of gross fiscal outlays dedicated to restructuring the financial sector, including fiscal costs associated with bank recapitalizations but excluding asset purchases and direct liquidity assistance from the treasury. CIVIL is a dummy variable that takes the value 1 if the firm belongs to a civil-law country and 0, otherwise. T-statistics are in parentheses. ***, ** and * indicate levels of significance of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)
DEBTCOST_Initial	0.1859***	0.1830***	0.2239***	0.2054***
	(11.47)	(10.85)	(17.35)	(11.82)
SIZE	-0.0011	-0.0012	-0.0006	-0.0013
	(-1.35)	(-1.42)	(-0.93)	(-1.46)
TANG	-0.0091**	-0.0094**	-0.0067**	-0.0086*
	(-2.08)	(-2.06)	(-1.99)	(-1.92)
PROF	-0.06174***	-0.0603***	-0.0578***	-0.0549***
	(-8.15)	(-7.87)	(-8.77)	(-8.38)
QTOBIN	0.3276	0.3254	0.0989	0.2055
	(1.26)	(1.26)	(0.46)	(1.01)
LEV	-0.0009	-0.0012	-0.0019	-0.0010
	(-0.18)	(-0.23)	(-0.46)	(-0.20)
BIG4	0.0009	0.0013	-0.0016	-0.0039
	(0.21)	(0.27)	(-0.45)	(-0.83)
ACC^{IV}	-0.0083*	-0.0089*	-0.0218**	-0.0173*
	(-1.83)	(-1.66)	(-2.57)	(-1.73)
FISCALCOST			0.0020**	0.0013**
			(2.14)	(1.97)
ACC^{IV}*FISCALCOSTS*			0.0038	0.0029
			(1.46)	(1.60)
CIVIL		0.0043		-0.0008
		(0.62)		(-0.09)
ACC^{IV}*CIVIL*		0.0069		0.0109
		(1.20)		(1.40)
*FISCALCOSTS * CIVIL*				0.0031
				(1.60)
Country-Year	*No*	*No*	*No*	*No*
Industry-Year	*Yes*	*Yes*	*Yes*	*Yes*
Country-Industry	*Yes*	*No*	*Yes*	*No*
R-Squared	0.1204	0.1193	0.0985	0.1130
Wald-Test (p-value)	0.0000	0.0000	0.0000	0.0000
# Firms	1,349	1,349	1,414	1,414
# Observations	2,281	2,281	3,261	3,261