Insider Ownership, Governance Mechanisms, and Corporate Bond Pricing Around the World[⋆,⋆⋆]

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Abstract

We investigate the effect of insider ownership on corporate bond yield spreads from 2003 to 2014 using a sample of 10,470 bonds issued by 1,222 non-financial firms from 48 countries. We find that greater insider ownership is associated with higher yield spreads. This positive relationship holds after controlling for measures of risk-taking, which suggests that bondholders price-protect against greater insider ownership for reasons beyond insiders' heightened incentives to take risk. We consider consumption of private benefits as another economic channel through which insider ownership hurts bondholders. Using a global index of shareholder rights, we show that the positive association between insider ownership and the spread decreases for firms with relatively stronger shareholder rights, in which consumption of private benefits is less likely to occur. Furthermore, we present evidence that the probability of tunnelling, through related-party transactions, is larger in firms with more insider ownership. The positive relation between insider ownership holds even after excluding firms that deviate from the one-share-one-vote principle and firms with cross-ownership. We conclude that bondholders anticipate that greater insider ownership facilitates consumption of private benefits, with implications for the valuation of corporate debt around the world.

Keywords: Corporate Bonds, Insider Ownership, Tunnelling

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1. Introduction

A great deal of attention in the literature has been devoted to the diversity of ownership and corporate governance structures around the world and their consequences for the valuation of corporations. Many of these studies have investigated corporate ownership from a shareholder perspective. An important question to ask is whether ownership structures also play a role in the valuation of corporations' outstanding debt. This question is particularly relevant now that the bond market has become an even more prominent source of capital supply for companies in both developed and emerging markets. According to Tendulkar and Hancock (2014), the global corporate bond market has almost tripled since the early 2000s, and corporate bond financing – especially for the medium and long term - increased relative to other forms of financing.

In this study, we focus on bond pricing effects associated with owners that have not received much attention in the international corporate bond literature to date despite their prominent presence in ownership structures around the world: corporate insiders. We define insider ownership as the percentage of shares that directors, managers, and other individuals involved in the management of a firm hold directly, through private companies or obtained by exercising employee stock options. We exploit a rich, pooled cross section of 10,470 bonds from 48 countries over the period from 2003 to 2015, issued by over 1,200 firms that vary in terms of insider ownership.

On the theoretical front, a prevailing view is that with greater levels of ownership, insiders' interests become more closely aligned with those of outside shareholders because insiders' payoffs are more directly linked to stock market performance (Jensen and Meckling, 1976). This reasoning implies that insiders who are directly involved in management or able to exert managerial influence in other ways engage in less self-serving behavior when they have larger personal stakes at risk. Bondholders may rationally anticipate that they also benefit from this *incentive-alignment* effect, which suggests there is a negative relation between insider ownership and corporate bond spreads.

However, on the empirical front, we provide consistently evidence to the contrary. Our first main finding is that around the world yield spreads of corporate bonds increase significantly with the level of insider ownership, which is inconsistent with the incentive-alignment view. This positive relation is statistically significant across many regional subsamples, and economically relevant: a one percentage-point increase in insider ownership is associated with an average 1.4 basis points increase in the yield spread, controlling for a host of fixed effects as well as firm- and issue-level variables.

The question why greater insider control exacerbates debt agency costs is the subsequent focus of this study. The first common explanation, which we dub the *risk-taking* view, is that increased insider ownership might cause managers to undertake more risky investments that benefit shareholders but reduce value for bondholders (Shleifer and Vishny, 1997; Ortiz-Molina, 2006). Although the risk preferences of insiders and outside shareholder are better aligned in firms with more insider ownership, the risk preferences of insiders and outside shareholder are better aligned, bondholders may suffer from the higher levels of risk taking favoured by equity holders. The corporate bond market may consequently rationally anticipate riskier corporate decisions to emerge with greater insider ownership; (see, e.g., Ortiz-Molina (2006) for a discussion of managerial decisions reflective of future risk taking.). However, we find that greater insider control continues to be associated with higher spread levels even after controlling for proxies of risk such as volatility and financial leverage. The risk-taking view also predicts that insiders become more risk-averse at high levels of ownership (e.g., Wright et al., 1996; Ortiz-Molina, 2006), whereas in our sample spreads are higher even when insider ownership is over 20 percent. These results suggest that insider control matters for bond pricing, and for reasons beyond those implied by the risk-taking view.

In this paper, we therefore examine in this paper whether consumption of private benefits is an additional economic channel of concern to bondholders that underlies the relation between insider ownership and spreads of corporate bonds around the world,

which we refer hereafter as the *private-benefits* view. Specifically, insiders may enjoy greater control over the firm with an increase in ownership that could facilitate their consumption of private benefits (e.g., Fama, 1980; Fama and Jensen, 1983; Morck et al., 1988). Because the consumption of private benefits might diminish the value of corporate assets, we could expect that both bondholders and shareholders price-protect against insider ownership.

Given these alternative explanations, it is important for our empirical analysis that we distinguish between risk-taking incentives and consumption of private benefits stemming from insider ownership. To achieve this goal, we first introduce an interaction effect between insider ownership and firm-level shareholder-rights provisions as measured by a global shareholder-rights index we construct in a manner similar to Bebchuk et al. (2008). Governance provisions affecting shareholder rights are useful here because of their dual impact on conflicts of interest between managers, shareholders, and debt capital suppliers: they affect shareholders' ability not only to (i) prevent and discipline self-serving managerial behaviour that would harm shareholder value as well as bondholder wealth, but also to (ii) encourage management in taking risks that benefits shareholders at the expense of bondholders (Klock et al., 2005; Ashbaugh-Skaife et al., 2006). Hence, to the extent that insiders abuse corporate resources for personal benefit, bondholders and non-insider shareholders have a common interest in stronger shareholder rights. We therefore hypothesize under the private-benefits view that the positive effect of insider ownership on the spread is mitigated by shareholder-rights provisions. In contrast, under the risk-taking view, greater insider ownership fuels managerial risk taking that benefits shareholders but which raises the risk of default. Because shareholder rights on their own have been suggested to encourage managerial risk taking at the expense of bondholders (Klock et al., 2005; Ashbaugh-Skaife et al., 2006; Cremers et al., 2007), we expect under the risk-taking view that more shareholder rights either amplify or at least do not mitigate the positive relation between insider ownership and the spread. The results indicate that the positive effect of insider ownership on yield spreads is weaker in firms with stronger shareholder rights, which we consider consistent with the private-benefits

view.

We delve deeper into the private-benefits view by studying the specific channel through which insiders could use their ownership to expropriate outsiders: tunnelling. Tunnelling is defined as the "transfer of assets and profits out of firms for the benefit of their controlling shareholders" (Johnson et al., 2000). Whereas some forms of tunnelling, especially illegal ones such as theft and fraud, are hard to observe, other forms require disclosure. We focus on related-party transactions (RPTs). Disclosure rules on RPTs are nowadays widespread, but regulation is generally too weak to prevent transactions that could be harmful to outside shareholders and creditors (Atanasov et al., 2011). We find that greater insider ownership is associated with a greater probability of RPTs, and that RPTs are also positively related to spreads.

We undertake various tests to address potential endogeneity, reverse causality and robustness issues. We account for the alternative interpretations that insiders take large stakes in the company when or before it experiences higher debt capital costs, either because of informed trading or in order to strengthen the financial firms' financial condition. Additionally, it is possible that firms with greater insider ownership exhibit deviations from the one-share-one-vote principle, given that the incentive to consume private benefits to the detriment of capital suppliers may arise when insiders have stronger voting rights relative to cash flow rights. Interestingly, the positive association between insider ownership and the spread remains after we drop firms from the sample that deviate from a one-share-one-vote principle and firms with cross-ownership, suggesting that a control-ownership wedge cannot fully account for this relation. Finally, the results are qualitatively similar when we change the unit of observation from bond-level spreads to firm-level spreads.

This study makes several contributions. First of all, we disentangle the nature of debt agency costs arising from insider ownership by distinguishing risk-taking from private-consumption channels. Ortiz-Molina (2006) hypothesizes that bondholders anticipate

future risk-taking and risk-shifting incentives arising from managerial ownership. He reports that at-issue spreads on U.S corporate bonds were higher with greater top-management ownership and/or stock options, but less so at high ownership levels. Our global evidence on bond yields and related-party transactions suggests that, next to potential managerial risk-taking incentives, higher insider ownership heightens the risk that bondholder wealth is affected by consumption of private benefits.

Second, our study adds a new perspective on the relevance of shareholder rights mechanisms for the bond market. Literature has suggested that the bond market deems shareholder rights mechanisms harmful to bondholder wealth due to conflicts of interests between shareholders and bondholders (e.g., Klock et al., 2005; Ashbaugh-Skaife et al., 2006). We provide evidence that bondholders' consideration of shareholder rights is less straightforward: although shareholder rights mechanisms on their own could theoretically encourage management to take risks that benefits shareholders at the expense of bondholders, our results imply that bondholders deem shareholder rights mechanisms instrumental in reducing their risk of expropriation by powerful insiders. This moderating role of shareholder rights in the relation between insider ownership and bond spreads extends Cremers et al. (2007), who report that shareholder rights moderate the relation between concentrated institutional ownership and bond prices.

Furthermore, by linking insider ownership to spreads and related-party transactions (RPTs), this study not only contributes to the corporate bond literature but also extends studies that examine the effects of tunnelling on firm value. Although RPTs are not 'an evil by definition' (Pacces, 2011) and seldom prohibited, their potential abuse is an internationally widespread concern of policymakers. Empirical evidence suggests that the impact of RPTs on firm profitability and stock returns in specific Asian countries is negative , but bondholder' response to RPTs has not yet been documented. Anecdotal evidence from practice suggests that related party transactions matter for a company's creditworthiness. For example, in its assessment of an equipment-manufacturing company, a leading credit-rating agency commented that "...ownership concentration may

also result in a deterioration of its corporate governance standards, including an increase in risks related to excessive shareholder distributions, related-party transactions and prudent financial policy" (Service, 2013). This study documents beyond such anecdotes that RPTs reduce firm value through their association with higher bond yield spreads.

Finally, despite the rapid growth of the market for traded debt outside the U.S., the vast majority of studies on the role of ownership and corporate governance in bond valuation to date have revolved around U.S. corporate bonds whereas much less is known about their influence on corporate bond dynamics around the world. Next to literature on managerial ownership, Anderson et al. (2003) find that family ownership is negatively associated with the cost of debt of U.S. firms. Bhojraj and Sengupta (2003) document a negative relation between institutional ownership (as well as stronger control by outside directors) and at issue-spreads of U.S. bonds, but higher spreads in the presence of concentrated institutional ownership. Huang and Petkevich (2016) suggest that institutional ownership negatively relates to the yield spread provided that institutions are long-term oriented. Among the scarce body of evidence on bonds issued outside the U.S., Ellul et al. (2009) report that family ownership exhibits a positive (negative) relation to the issue yield when county-level investor protection is relatively weak (strong). Borisova et al. (2015) report that government ownership causes higher spreads, but a lower spread in times of crisis or greater likelihood of financial distress. We investigate the cross section of traded corporate bond yields for firms based on a considerably larger bond universe matched with data on insider ownership and firm-level governance mechanisms.

2. Data Description

2.1. Main Dependent and Independent Variables

Our unique global dataset on corporate bonds leans on a number of different data providers. Our initial universe of companies is defined by GMI Ratings, which provides corporate governance ratings and indicators for listed firms worldwide over the

period from 2003 to 2014, including indicators about shareholder rights provisions and related-party transactions. For each firm in the GMI universe, we use Factset Research ("Factset") to obtain all identifiers on debt securities outstanding in a given year[1]. The resulting bond-ISIN identifiers serve as inputs to Datastream and Factset for the collection of issue-level bond data. We drop index-inked, inflation-linked, floating and convertible bonds. In line with prior research, we exclude firms from the financial industry (Anderson et al., 2004; Klock et al., 2005; Cremers et al., 2007). Our main dependent variable is the yield spread on corporate bonds at the end of each calendar year provided by Datastream. The spread is defined as the difference between the bond's yield to maturity and that of a risk-free benchmark with matching currency and the closest maturity possible. Since the yield spreads are skewed by outliers, we trim the variable at the top and bottom 1%.

To determine how insider ownership relates to the yield spread, we obtain annual data on insider ownership for each bond issuer from Factset Ownership (also known as Factset/LionShares)[2]. Factset contains international ownership information for equities with detailed insight into owner classifications. For instance, different types of insiders can be distinguished and the percentage of their ownership can be accessed separately. We define insider ownership as the percentage of shares that directors, managers, and other individuals involved in the management of a firm hold directly, through private companies or obtained by exercising employee stock options.

We introduce an annual shareholder-rights index for each firm in our dataset in order to investigate whether bondholders value insider ownership conditional on governance mechanisms that strengthen shareholder control. We construct the shareholder-rights

[1]Using Datastream, bonds would have to be matched manually to issuing firms in order to achieve a panel dataset. However, Datastream appears to have the largest coverage of yield spread data. For this reason, in our study, Factset serves as an intermediate step in matching issue-specific data with firm-specific data.

[2]Factset data is available directly from Factset Research Systems, and indirectly via alternative platforms. We obtained ownership data directly from Factset.

index based on annual data on shareholder-rights limitations from Governance Metrics International (GMI). GMI (now part of MSCI) assesses small, mid and large cap companies' corporate governance based on macro data from academic, government and NGO datasets, company disclosures, and media reports (MSCI, 2016). The index we construct using a selection of GMI data is similar to the Entrenchment Index (E-Index) of Bebchuk et al. (2008) but is converted to a shareholder-rights measure in the spirit of Cremers et al. (2007).

An important issue in our research design is whether firms with different levels of insider ownership have fundamentally different characteristics that may also affect spreads, which would need to be taken into account. We consider as controls a battery of variables that drive spreads according to prior related empirical studies. Firm-level control variables taken from Datastream include the market value of equity, total debt-to-assets, profitability (*Return on Assets*), stock return volatility, and the dividend yield. As for issue level controls, we include a Moody's Rating from Factset and an indicator of investment-grade bonds (*Investment Grade Rating*). We consider a Split Rating dummy, which equals 1 whenever a Moody's rating differs from a S&P credit rating from Datastream, and Second Rating dummy that equals 1 whenever an issuer in our sample receives a rating from both Moody's and S&P. We transform the ordinal credit ratings from Moody's and S&P to numerical variables that range from 1 (D Rating) to 9 (AAA Rating). Other issue specific controls are issue volume, measured by the logarithm of the amount issued in million U.S. dollars (*ln Amount Issued*), the remaining time to maturity from observation to redemption date (*Time to Maturity*), a dummy that equals 1 if the bond is issued not only domestically both also elsewhere (*Globally Issued Bond*). We also use dummies to indicate whether bond is senior (*Senior*) and secured (*Secured*), and dummies for identifying put (Put Option) and call (*Call Option*) features, similar to Cremers et al. (2007) and Boubakri and Ghouma (2010).

We study whether insider ownership is associated with the risk of tunnelling using GMIs records on companies' related party transactions (RPTs). Specifically, GMI indi-

cates whether it has become public in given year that a firm has been involved in a RPT in the past two years. The transactions are defined as events involving executive and non-executive directors, managers, controlling shareholders, and relatives of any of these individuals. For modelling the probability of RPTs, we use from Datastream debt-assets and market value of equity as proxies of cash-flow restrictions and firm visibility, and both analyst coverage and the number of stock indexes the issuer is part of as proxies of firm opacity. We also collect the contract enforcement score from the World Bank Doing Business (World WorldBank, 2016) report as a proxy for the strength of legal frameworks.

Appendix A summarizes the variables and their underlying sources.

2.2. Summary Statistics

Our sample covers 50,134 bond-year observations, which pertain to 10,470 corporate bonds from 1,222 non-financial firms. The GMI universe is the most restrictive and limits our analysis in terms of firm-year observations and the timespan from 2002 to 2014. Table 1 shows descriptive statistics for the full sample of corporate bonds.

For our sample of corporate bonds issued around the world, we find a mean yield spread of 2.15%, the median is 1.47%. Insider ownership is in our sample on average 3.46%, and in certain companies it reaches considerable magnitudes. The sample has a tilt towards financially healthy companies: the mean Moody's bond rating is 6.30, equivalent to a BBB rating, and the lowest observed rating is CCC. S&P ratings are less frequently acquired by issuing firms, and only 44.5% of the issuers in our sample obtain both ratings.

Table 2 presents mean values of firm and issue characteristics for, respectively, the subset of firms that experiences less than 10% insider ownership and the firms that have at least 10% insider ownership. Firms with at least 10% insider ownership have on average a smaller equity-market capitalization, a higher leverage ratio, a higher stock

price volatility, and a lower dividend yield. Bond issues of firms with substantial insider ownership not only have, on average, a higher yield spread but also a lower Moody's rating, a somewhat shorter maturity, and slightly more often seniority and put features. It is also interesting to see that these firms score somewhat higher on the shareholder rights index. Given these differences, we carefully account for firm and bond covariates in our regressions.

3. Empirical Analysis

3.1. Insider Ownership and Corporate Bond Spreads

We start with the relation between insider ownership and corporate bond yield spreads based on the entire sample. We estimate this relation by means of pooled ordinary least squares regressions with random effects:

$$\begin{aligned} Yield\ Spread_{i,t} = \alpha_0 + \beta_1 Insider\ Ownership_{i,t} + \sum_{j=1}^{J} \gamma_j Issue\ Controls_{j,i,t} + \\ \sum_{k=1}^{K} \delta_k Firm\ Controls_{k,i,t} + \sum_{l=1}^{L} \theta_l Country_{l,i,t} + \sum_{m=1}^{M} \upsilon_m Industry_{m,i,t} \\ + \sum_{n=1}^{N} \omega_n Currency_{n,i,t} + \sum_{o=1}^{O} \varphi_o Year_{o,i,t} + \rho_{i,t} + \epsilon_{i,t} \end{aligned} \tag{1}$$

where $Insider\ Ownership$ is the percentage of shares owned by directors, managers and other insiders directly or through private firms, $Issue\ Controls$ is the vector of issue-specific control variables, and Firm controls denotes issuer-level control variables. $Country$, $Industry$, $Currency$, and $Year$ represent vectors of country, industry, currency, and year dummy variables. $\rho_i t$ stands for the bond-specific error term, $\epsilon_i t$ is the residual.

The firm-level control variables include firm size ($ln\ Market\ Value\ Equity$), $Leverage$, $ReturnonAssets$, stock return volatility ($Volatility$), and $DividendYield$. As for issue level controls, we include the $Moody's Rating$ and the $InvestmentGradeRating$ dummy,

which should both be negatively related to the spread. Because rating agencies are likely to assess firms using a variety of variables that also appear as separate controls in equation 1, the model alternatively includes an $OrthogonalRating$. In addition, we include the $SplitRating$ dummy because split ratings indicate rating uncertainty (Elton, 2004), and the $SecondRating$ dummy as additional credit analyst coverage reduces information asymmetry (Hsueh and Kidwell, 1988). Other issue specific controls are the logarithm of the amount issued ($ln\ Amount\ Issued$), $Time\ to\ Maturity$, and the dummy $GloballyIssuedBond$. We exclude convertible, inflation-, and index-linked bonds, and include dummies for $Senior$ and $Secured$ bonds as well as $Put\ Option$ and $Call\ Option$ features. In Table 3, the coefficient estimates on the controls largely match those of earlier studies: yield spreads are lower for firms that are larger, more profitable, have bonds traded globally and have larger issue sizes, but higher for bonds issued by firms that have greater financial leverage, a higher cash flow volatility, and a higher dividend yield. The observation that a longer time to maturity positively relates to the yield spread is also in line with prior studies (Borisova et al., 2015).

We now turn to the coefficient estimates for Insider ownership. Table 3 shows that across all variants of specification (1), larger insider ownership is associated with a higher yield spread. Column 1 of Table 3 shows that $Insider\ Ownership$ has a coefficient that is economically largest in models that include as controls year, country, industry, and currency fixed effects ($\beta_1 = 0.038$, $p < 0.01$). Columns 2 and 3 indicate that the coefficient becomes economically smaller but continues to be statistically significant at the 1% level once we add firm-specific financials ($\beta_1 = 0.013$, $p < 0.01$) and issue-specific control variables ($\beta_1 = 0.014$, $p < 0.01$). Columns 4 and 5 point out that the positive relation between insider ownership and the yield spread remains similar in magnitude under the most conservative specifications we estimate.

A potential concern with the sample composition is the large representation of U.S. firms in the sample. Given that Ortiz-Molina (2006) documents a positive relation between top management ownership and issue yields on U.S. corporate bonds, the es-

timates in Table 3 could be driven by the relatively large subsample of U.S. issuers. However, Table 4 indicates that the coefficients on *Insider Ownership* remain qualitatively similar when we exclude bonds issued by firms headquartered in the United States.

In Table 5 we break down the sample even further, by regions, markets, and type of governance structure. Specifically, Panel A of Table 5 shows that the positive and significant relation between insider ownership and the yield spread does not only hold for the full and the non-U.S. sample (columns 1 and 2), but also holds for subsamples North America (β_1= 0.011, p $<$ 0.05) and Europe (β_1= 0.012, p $<$ 0.05). The relation is positive but not statistically significant based on samples from Asia and Oceania, and positive and significant based on a sample that includes all remaining countries (β_1= 0.021, p $<$ 0.05) 5%-level). In another sample decomposition, shown in columns 8 and 9, we find that insider ownership is positively related to the spread in both developed markets (β_1= 0.011, p $<$ 0.01) and emerging markets (β_1= 0.024, p $<$ 0.05), although the effects differ across the samples in magnitude. In addition, columns 11 and 12 point to a larger coefficient estimate regarding *Insider Ownership* for bonds issued by firms in civil law countries (β_1= 0.015, p $<$ 0.01) compared to those of firms in common law countries (β_1= 0.011, p $<$ 0.01). As literature finds that creditor rights are weaker in civil law countries, this also suggests that insider ownership is more heavily reflected in spreads when firms reside in countries with weaker creditor protection (Djankov et al., 2008).

The positive relation between insider ownership and yield spreads that we observe contrasts with the idea that bondholders associate greater ownership with stronger management commitment and incentive alignment. Instead, the evidence suggests that bondholders associate greater insider ownership either with an increased likelihood that insiders extract private benefits or with increased risk taking. We further explore these alternative economic mechanisms in the next section.

3.2. Insider Ownership and Risk Taking

One interpretation of the observed positive relation between insider ownership and yield spreads is theoretically rooted in differences in risk appetite between holders of a firm's equity and holders of debt. Ortiz-Molina (2006) suggests that spreads reflect an expression of bondholders' concerns about the risk-shifting potential that comes with management incentives to behave in the interest of shareholders. Using 1360 issue yield spreads of U.S. bonds issued between 1993 and 2000, he documents an average yield spread increase of 1.8 basis points per additional percentage of managerial ownership. While our global results are qualitatively similar to Ortiz-Molina's (2006) study of issue yields in the U.S., we note two observations suggesting that insiders' risk-taking incentive is not the only driver of the observed effect.

First, Tables 3 and 4 show that insider ownership continues to be positively associated with the yield spread after controlling for the level of stock price volatility, which prior studies have used to link insiders' shareholdings and equity incentives to risk taking (e.g. Wright et al., 1996), and proxies for future values of volatility such as leverage.

Second, we have so far estimated linear relations between insider ownership and corporate bond spreads, whereas a risk-taking story could imply a nonlinear relationship. Wright et al. (1996, 2007) and Ortiz-Molina (2006) hypothesize that managers with high levels of ownership are relatively more concerned about non-systematic risk, which would reduce incentives to take risk. We explore this possibility in Table 6, which shows regression results that we obtain after replacing insider ownership by dummy variables that mark specific threshold levels of ownership. That is, we divide firms into a hypothetical control group if the insider ownership percentage is smaller than 5% and compare this group to firms that exceed particular higher threshold ownership level. To ensure that the control group and the alternative sample have a clear distinction in terms insider control, we drop firms with insider ownership levels between 5% and the higher threshold. Firms that exceed the higher threshold are allocated to a dummy variable that replaces Insider ownership in our regressions. Panel A shows the estimations based on the full sample, Panel B shows the results after excluding bonds issued by U.S. based

corporations.

The coefficients on the different threshold levels of insider ownership indicate that higher threshold levels for insider ownership are associated with higher spreads. Regressions based on our global sample indicate that bonds issued by companies with at least 10% insider ownership trade at an additional spread of approximately 27 basis points compared to bonds of companies with less than 5% insider ownership (equivalent to an increase of 12.6% at the average spread of 215 basis points in our sample), whereas bonds issued by firms with at least 20% insider ownership trade at an additional 51 basis points. Only beyond the 50% threshold, the impact seems to decline again. However, this result should be interpreted with caution, because few firms exhibit such high levels of insider ownership, and because the declining effect disappears once we exclude U.S. bonds from our sample (See Panel B). In fact, in our non-U.S. sample spreads are significantly higher for firms with at least 50% insider ownership.

Taken together, we interpret these results as evidence that the yield spread increase associated with greater insider ownership occurs for reasons beyond just risk shifting, which motivates our exploration into an alternative channel from insider ownership to bond spreads.

3.3. Insider Ownership, Shareholder Rights, and Spreads

As an alternative to a risk-taking view, in line with the private-benefits view, our results could suggest that bondholders anticipate more consumption of private benefits when insiders have greater levels of share ownership in the spirit of Morck et al. (1988). In this section, we aim to distinguish between bondholders' concerns about consumption of private benefits and risk-taking caused by insider ownership.

To accomplish that objective, we introduce a unique global index of firm-level shareholder-rights provisions as a moderator variable in the relation between insider ownership and the spread. Essentially, when insiders have sufficient power to consume corporate re-

sources, not only bondholders but also shareholders face a threat of expropriation by insiders. It stands to reason that in such cases bondholders and shareholders have a common interest in shareholder-rights mechanisms that weaken the ability of insiders with greater ownership to extract private benefits at the expense of outsiders. For example, shareholder rights can directly help to control tunnelling (Atanasov et al., 2011; Jung and Chung, 2016) and corporate governance might simultaneously moderate tunnelling harmfulness (Wahab et al., 2011). However, shareholder rights provisions may also align the risk preferences of insiders and outside shareholders to the detriment of bondholder wealth (Klock et al., 2005; Ashbaugh-Skaife et al., 2006; Cremers et al., 2007). Therefore, if bondholders value insider ownership due to concerns about risk taking, we expect that shareholder-rights provisions do not weaken (if not strengthen) the positive relation between insider ownership and the spread[3].

We test these alternative predictions by running regressions in which specification (1) is augmented with an interactive effect between insider ownership and a firm level shareholder rights measure. Models that are estimated take the form:

$$\begin{aligned} Yield\ Spread_{i,t} = \alpha_0 + \beta_1 Insider\ Ownership_{i,t} + \\ \beta_2 Insider\ Ownership_{i,t} * Shareholder - Rights\ Index_{i,t} + \\ \beta_3 Shareholder - Rights\ Index_{i,t} + \\ \sum_{j=1}^{J} \gamma_j Issue\ Controls_{j,i,t} + \sum_{k=1}^{K} \delta_k Firm\ Controls_{k,i,t} + \sum_{l=1}^{L} \theta_l Country_{l,i,t} \\ + \sum_{m=1}^{M} \upsilon_m Industry_{m,i,t} + \sum_{n=1}^{N} \omega_n Currency_{n,i,t} + \sum_{o=1}^{O} \varphi_o Year_{o,i,t} + \rho_{i,t} + \epsilon_{i,t} \end{aligned} \tag{2}$$

where *Shareholder-Rights Index* represents an index of five governance or anti-takeover

[3]Potentially further supporting this line of reasoning is our earlier result in Table 5 that insider ownership more positively relates to spreads in civil law countries. According to Johnson et al. (2000), courts in civil-law countries are compared to common-law countries effectively more lenient towards insiders engaging in tunneling, which in turn could facilitate consumption of private benefits.

provisions: the presence of (i) classified boards, (ii) poison pills, and (iii) golden parachutes, (iv) the limitation of the shareholder right to approve bylaw amendments, and (v) the limitation of the right to approve charter amendments. Since fewer provisions imply more shareholder rights, we subtract one point for every mechanism in place from the maximum of five points. The components of the index are similar to those that jointly comprise the "Entrenchment Index" for U.S. firms developed by Bebchuk et al. (2008), but our global index is converted to an index that can be thought of as a shareholder-rights measure; more points on the index indicates fewer restrictions on shareholder rights, and thus comparably weaker management power.

The results in Table 7 point to a negative coefficient on the interaction between insider ownership and shareholder rights and a positive coefficient on insider ownership: the positive relation between insider ownership and the yield spread *decreases* with higher values of the shareholder-rights index[4]. In Panel A, one percent additional insider ownership is associated with a spread increase of 3.2 basis points if shareholder rights are relatively weak ($Shareholder - Rights\ Index = 0$). In contrast, the yield spread increase diminishes to 0.7 basis points if shareholder rights stay unrestricted. One additional point on the shareholder-rights index reduces the insider ownership effect by 15.6%.

Table 8 presents an alternative way to study the effect of insider ownership on the spread conditional on shareholder rights. Reported are coefficients on insider ownership variables *($Insider\ Ownership, > 10\%\ Insider\ Ownership, > 20\%\ Insider\ Ownership$)* that were estimated independently after breaking down the sample based on the average level of the shareholder-rights index. According to Panel A of Table 8, the relation between insider ownership and the yield spread is in magnitude weaker among firms

[4]In non-reported regressions, we estimate separately models that include the Shareholder-Rights index without its interaction with insider ownership. The full-sample coefficient on the index is positive and marginally significant. However, our international sample yields smaller effects than these U.S. studies, and the coefficients are statistically insignificant in region-specific subsamples.

with above-average shareholder rights (columns 1 to 3) than among firms with weaker shareholder rights (column 4 to 6). Panel B shows that the coefficients on the insider ownership variables are no longer significant for firms with more shareholder rights once U.S. firms drop out of the subsamples.

Hence, the shareholder-rights index negatively moderates the positive relation between insider ownership and corporate spreads, which we interpret as evidence consistent with the private-benefits view.

3.4. Insider Ownership and Tunnelling

Finding that more shareholder rights negatively moderate the positive effect of insider ownership on bond spreads can be thought of as indirect evidence that consumption of private benefits is an underlying channel of transmission from insider ownership to bond spreads. To provide more direct evidence on this economic channel, we turn to a corporate practice that the literature deems symptomatic of private consumption: tunnelling. Tunneling can manifest itself in illegal activities such as "outright theft or fraud" (Johnson et al., 2000), but is not limited to this spectrum. One measurable way in which tunneling manifests itself are related-party transactions (RPTs) (Enriques and Volpin, 2007). IAS24 defines a related party transaction as "a transfer of resources, services, or obligations between related parties, regardless of whether a price is charged"[5]. There is a widespread concern that insiders abuse RPTs even though in theory, certain cases of such transactions can be economically beneficial (OECD, 2012).

GMI records whether there have been related party transactions "involving the CEO, company Chairman or other senior executive, a controlling shareholder, non-executive director or a relative of any of these individuals". We use these data points to estimate firm-level probit models with the indicator that a RPT by firm i took place in year t as dependent variable and where our *Insider Ownership* variable is expected to positively

[5]E.g., see Deloitte (2017).

influence the probability of RPTs. Leverage and firm size are proxies for firms' tunneling capacity and visibility. Since RPTs are controversial and related studies suggests that they are detrimental to firm value, we expect firm size to negatively influence the probability of a RPT. We also control for firm opacity, by means of analyst coverage and the number of stock indexes that the firm is part of. We use the World Bank enforcing contracts score to control for differences in legal environments, which might influence the probability of whether RPTs have to be consistently reported which in turn can also have a disciplining effect on tunneling.

Table 9 shows the marginal effects that arise from the estimation of probit models with RPT as the dependent variable. The estimated marginal effects in Panel A point out that the percentage of insider ownership is positively related to the occurrence of an RPT, even after controlling for other plausible determinants of tunneling likelihood. A one-percent increase in insider ownership is associated with a 0.6 percent increase in the probability that an RPT is recorded by GMI ($p < 0.01$). This positive effect is largely consistent across different levels of insider ownership, as illustrated by the similarity of the marginal effects estimated at the sample means and the average marginal effect across the sample. In addition, the marginal effect associated with *Insider Ownership* remains positive when firms located outside the U.S. are excluded from the sample, as shown in Panel B.

These effects support the idea that the consumption of private benefits is more likely to occur in firms with more insider ownership. Since legal liability associated with abusive RPTs is either weak or difficult to enforce (OECD, 2012), investors may weigh the effects of connected-party transactions in the pricing of corporate bonds. If the bond market values consumption of private benefits ex ante, then we could expect that our RPT variable positively influences the yield spread (to the extent an observed RPT influences bond investors' ex ante expectation of consumption of private benefits). In Table 10, we formally introduce RPTs as determinant of the spread in variants of model specification (1), where we replace insider ownership by RPT. Column (1) in Panel A

reports the full-sample regression result, columns (2) and (3) pertain to samples of BBB- and BB-rated bonds, respectively.

The RPT variable is significantly positively associated with the yield spread, and the coefficients increase as the sample is reduced to bonds with relatively greater credit risk. When GMI records that a company has engaged in an RPT in the past two years, the spread is estimated to rise by 10.3 bp. The spread is estimated to rise by 15.8 bp (30.5 bp) based on a sample of below BBB (BB) bonds. We further explore the effect of RPT on the spread in Panel B of Table 8, which excludes non-U.S. firms. The coefficient on RPT is statistically significant for non-U.S. bonds rated below BB, and according to its magnitude the spread is over 50 bp higher when a related-party transaction is recorded.

In Table 11, we include RPT alongside insider ownership in models of the yield spread. As in Table 10, full-sample estimates for the coefficient on RPT are positive and significant. The coefficients on insider ownership variables that were explored in Section 3.1 remain positive in the presence of RPT, suggesting that bondholders may consider insider ownership in the pricing of debt also for reasons beyond the threat of related-party transactions. Since RPTs represent just one of several alternative practices that can help insiders' extract private benefits, an interesting avenue for future research would be to study bondholders' response to a wider range of practices that are symptomatic of tunneling.

3.5. Endogeneity of Insider Ownership

We acknowledge the endogeneity of insider ownership (e.g., Demsetz and Villalonga, 2001) and the possibility that insiders change their ownership in response to financial performance, instead of financial performance being exogenously affected by insider ownership. To date, no valid instrument to cleanly identify causal effects from block-ownership has been detected (Edmans and Holderness, 2016). However, we provide several considerations of these concerns.

One alternative story could be that insiders buy shares of their companies in order to strengthen the financial position of the firm once these experience weaker financial conditions (and higher yield spreads). Even though this alternative explanation is theoretically counterintuitive because our sample is tilted towards financially healthy issuers, we investigate whether the positive association between insider ownership and the spread disappears once firms with ownership changes are dropped from the sample. Panel A of Table 11 reports the effect of insider ownership on yield spreads using the global sample as well different regional samples after dropping all bonds from firms with changes of more than 1% in insider ownership. The positive coefficient on *Insider Ownership* continues to be significantly different from zero and robust in magnitude.

To further test whether the observed effect could be driven by insider repurchases in response to financial performance deterioration, we exclude from the sample firms that experienced a bond rating downgrade between 2003 and 2015 before re-estimating specification (1). This exclusion largely reduces the sample, since downgrades often occur during the financial crisis. Panel B of Table 12 shows that the coefficient on *Insider Ownership* remains positive and significant under this sample restriction.

Another alternative interpretation of our results could be that insiders enjoy superior information and buy shares as the firm financing conditions deteriorate, in anticipation of a subsequent recovery. However, also when we use 1-year and 2-year lagged values of *Insider Ownership* as the independent variable in specification (1), insider ownership relates positively to the yield spread; see Table 13.

3.6. Additional Robustness Tests

In addition to ruling out alternative interpretations of the relation between insider ownership and corporate bond spreads, we conduct several additional robustness tests. To begin with, we verify that our results are not affected by other ownership characteristics. First, some studies suggest that the wedge between ownership and control (voting rights) drives related-party transactions and self-dealing (Enriques and Volpin,

2007), while other studies such as Aslan and Kumar (2012) and Lin et al. (2011) find that a greater wedge is positively associated with bank loan rates. Since consumption of private benefits may harm firm value, insiders with fewer cash flow-rights (ownership) relative to voting rights (control) theoretically have more incentives to expropriate wealth. Given that ownership and voting rights tend to be highly correlated, the question arises whether the percentage of shares held by insiders is associated positively with spreads only because it is a proxy for the control-ownership wedge[6]. Since studies on U.S. firms such as Gompers et al. (2011) suggests that insider ownership in terms of cash flow rights could lead to higher firm value after controlling for voting rights, it is possible that for firms with no control-ownership wedge more insider ownership provides relatively greater incentive-alignment rather than incentives to consume private benefits. If so, we could expect the coefficient on *Insider Ownership* to decrease or become negative in samples composed of these firms. Although we do not measure cash flow rights and voting rights directly, we do present evidence along two lines suggesting that our main results are not driven by the wedge. Specifically, we have access to information about deviations from a one-share-one vote policy, which is known to exacerbate the control-ownership wedge. The GMI database contains information about whether common or ordinary equity shares have "one-share, one-vote, with no restrictions". In Table 14, we see that insider ownership positively relates to the spread also after excluding firms without a one-share-one-vote policy as identified by GMI. Next, in tests we do not report for the sake of brevity, we identify using Datastream firms with cross-ownership, which is known to cause the wedge between ownership and control. Excluding firms with cross-ownership reduces the sample by 1608 bonds from 260 firms. The coefficients stay similar in magnitude and significance, even though the significance is sometimes affected by this exclusion. Taken together, the additional results up to this point suggest

[6]We acknowledge however that mechanisms other than deviation from one share-one-vote could elevate the percentage of votes that insiders enjoy, which could be positively correlated with the percentage of shares held. For example, using Swedish data, Cronqvist and M (2003) report regressions that yield a negative relation between controlling owner vote ownership and Tobin's q, but no relation between firm value and deviation from one-share-one-vote. They refer to potential multicollinearity problems regarding their vote ownership and equity ownership variables.

that insider ownership positively relates to bonds spreads even after excluding firms in which consumption of private benefits is theoretically more likely to occur because of disproportionate voting rights in the hands of certain owners[7].

Second, apart from considering the control-ownership wedge, we also consider potentially confounding roles of other types of ownership. We exclude 77 firms with government ownership stakes, because government ownership matters for bond pricing according to earlier empirical evidence on yields of publicly traded debt (Borisova et al., 2015). Reducing the sample by 852 corporate bonds from these 77 firms causes the insider ownership coefficients to slightly increase in magnitude. Third, our results are similar after adding control variables such as the percentage of shares owned by institutions and dummy variables that indicate institutional blocks to our regression specification (see, e.g, Bhojraj and Sengupta, 2003; Cremers et al., 2007)[8].

Finally, we make use of alternative estimators and collapse the data to firm-level observations in order to address two potential concerns. First, throughout the paper, specification (1) is estimated using random effects, although unobservable firm or bond characteristics might be correlated with the error terms. The other potential concern is that bond observations from the same issuer are inherently correlated. Four additional tests are reported in Table 15 to mitigate these concerns. We first convert yearly spread observations at the bond level to observations at the firm level, by taking a weighted average of bond spreads that a firm has outstanding. In separate random-effects regressions, a firm-level spread-year is computed as either an equal-weighted average across outstanding bonds (Panel A) or a weighted average based on bond issue size (Panel B). The effect of insider ownership on yield spreads is equal in magnitude and significant for the full sample as well as various subsamples broken down by region. Finally, we further

[7]While these results are different from studies that link the control-ownership wedge to bank loan spreads, we note that Cheung et al. (2006) find no relation between the likelihood of related-party transactions and the ownership-control wedge in their Hong Kong sample.

[8]Results not reported, but available upon request.

reduce these annual equal- and value-weighted yield spread observations to one observation per firm, i.e., the firm-level annual yields are averaged across time, because spreads may exhibit limited time variation. The results in Panels C and D are qualitatively similar.

4. Conclusion

Based on 10,470 corporate bonds publicly issued by 1,222 firms in 48 countries over the period from 2003 to 2014, we study the impact of insider ownership and governance mechanisms on bonds' yield spreads. First, we find that insider ownership is positively related to bond spreads. While this finding is consistent with the conventional hypothesis that bondholders anticipate a higher risk emerging from higher levels of insider ownership, this effect exists after controlling for measures of current and future levels of risk. We therefore suggest that the positive relation is not solely driven by an impact of insider ownership on managerial risk taking, and consider consumption of private benefits as another economic channel through which insider ownership hurts bondholders.

In line with our expectations, the positive association between insider ownership and the yield spread is weaker in firms where consumption of private benefits is less likely to occur due to stronger rights of shareholders. Related party transactions, which are known to provide private benefits, are more likely to occur in firms with more insider ownership and positively influence bond spreads. We conclude that bondholders expect that greater insider ownership facilitates consumption of private benefits next to risk-taking incentives.

The bond markets' pricing of insider ownership has implications for disclosure practice and corporate governance policy. Mechanisms to tackle expropriation by insiders have been a long-standing concern among policymakers (OECD, 2012), and have developed further in recent years. However, consumption of private benefits would not necessarily constitute an expropriation problem if bondholders anticipate the amount consumed and adjust their willingness to pay for corporate bonds accordingly. On

the other hand, it might be questionable whether the penalties paid by insider owners through their cash flow rights for engaging in RPTs is tightly enough connected to their true value (Atanasov et al., 2011). More regulatory efforts to improve regulation, disclosure quality, board effectiveness and shareholder rights might be needed to effectively control self-dealing of powerful insiders, which in turn raises the empirical question how these efforts affect bondholders' valuation of insider ownership.

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Table 1: Descriptive Statistics of the Full Sample

Table 1 shows descriptive statistics for our sample covering 10,470 corporate bonds issued by 1,221 non-financial firms in 48 countries from 2003 to 2015. The number of observations in this table refers to bond-years. We present complete variable descriptions in Appendix A, the distribution of observations across countries in Appendix B, and the scheme for transforming Moody's and S&P ratings to numerical ratings in Appendix C.

	N	Mean	St. Dev.	P25	P75
% Insider Ownership	50,143	3.426	8.452	0.155	2.823
Shareholder-Rights Index	50,143	3.162	1.333	2.000	4.000
Market Capitalization	50,143	33.17	47.26	5.819	37.92
Leverage	50,143	0.345	0.157	0.238	0.425
Return on Assets	50,143	5.894	5.782	3.460	8.290
Volatility	50,143	23.29	8.721	16.84	27.58
Dividend Yield	50,143	2.897	2.246	1.410	4.140
Panel B: Bond Characteristics					
Spread	50,143	2.147	2.166	0.865	2.612
Moody's Rating	50,143	6.297	1.044	6.000	7.000
S&P Rating (9)	22,328	6.065	1.132	6.000	7.000
Split Rating	50,143	0.319	0.466	0.000	1.000
Second Rating	50,143	0.445	0.497	0.000	1.000
Globally Issued Bond	50,143	0.303	0.460	0.000	1.000
Maturity (Years)	50,143	15.040	11.490	8.000	20.000
Amount Issued (Mio. USD)	50,143	470.500	525.300	150.000	600.000
Senior Bond	50,143	0.700	0.458	0.000	1.000
Secured Bond	50,143	0.0593	0.236	0.000	0.000
Put Option	50,143	0.0203	0.141	0.000	0.000
Call Option	50,143	0.623	0.485	0.000	1.000

Table 2: Descriptive Statistics of the Full Sample

Table 2 shows descriptive statistics for our sample split into insider-owned and non-insider-owned issuing companies. The number of observations in this table refers to the number of firms (Panel A, firm characteristics) and number of bonds (Panel B, bond characteristics). We present complete variable descriptions in Appendix A, the distribution of observations across countries in Appendix B, and the scheme for transforming Moody's and S&P ratings to numerical ratings in Appendix C.

	N	Mean <10%	N	Mean >10%	Difference	(p-value)
		Panel A: Firm Characteristics				
% Insider Ownership	1,002	1.86	220	32.49	-30.62	0.00
Shareholder-Rights Index	1,002	3.28	220	3.78	-0.50	0.00
Market Capitalization	1,002	17.16	220	8.25	8.92	0.00
Leverage	1,002	0.33	220	0.38	-0.05	0.00
Return on Assets	1,002	6.20	220	5.33	0.88	0.11
Volatility	1,002	28.02	220	33.14	-5.11	0.00
Dividend Yield	1,002	2.12	220	1.75	0.36	0.03
		Panel B: Bond Characteristics				
Spread	9,445	2.03	1,026	3.12	-1.09	0.00
Moody's Rating	9,445	6.29	1,026	5.71	0.59	0.00
S&P Rating (9)	4,636	6.07	521	6.12	-0.05	0.38
Split Rating	9,445	0.36	1,026	0.39	-0.03	0.05
Second Rating	9,445	0.49	1,026	0.51	-0.02	0.30
Globally Issued Bond	9,445	0.31	1,026	0.33	-0.02	0.28
Maturity (Years)	9,445	12.91	1,026	10.21	2.70	0.00
Amount Issued (Mio. USD)	9,445	490.37	1,026	521.08	-30.71	0.08
Senior Bond	9,445	0.71	1,026	0.75	-0.03	0.03
Secured Bond	9,445	0.06	1,026	0.06	-0.00	0.69
Put Option	9,445	0.01	1,026	0.00	0.01	0.06
Call Option	9,445	0.64	1,026	0.64	-0.00	0.98

Table 3: Insider Ownership and Corporate Bonds Spreads: Global Evidence

We estimate models with the bond yield spread as dependent variable, and as independent variables insider ownership and control variables. The first model includes insider ownership while controlling for country, industry, currency, and year fixed effects. We then sequentially augment the model by including issuer controls in column (2), bond-specific controls in column (3), ratings in column (4) and orthogonal ratings in column (5). The bond spread is measured over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. The number of observations in this table refers to bond-years. Robust standard errors clustered at the firm level are shown in parentheses. Complete variable descriptions can be found in Appendix A. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)
% Insider Ownership	0.038***	0.013***	0.014***	0.011***	0.014***
	(0.006)	(0.004)	(0.004)	(0.003)	(0.003)
Moody's Rating (9)				-0.461***	
				(0.051)	
Orthogonal Rating					-0.523***
					(0.052)
Investment Grade Rating				-1.439***	
				(0.260)	
Split Rating				0.154***	
				(0.026)	
Second Rating				-0.157***	
				(0.024)	
Ln Market Value		-0.545***	-0.549***	-0.368***	-0.496***
		(0.041)	(0.041)	(0.028)	(0.030)
Leverage		0.926***	0.948***	0.520***	1.047***
		(0.210)	(0.204)	(0.160)	(0.170)
Return on Assets		-0.048***	-0.048***	-0.045***	-0.050***
		(0.007)	(0.007)	(0.006)	(0.007)
Volatility		0.078***	0.079***	0.057***	0.086***
		(0.005)	(0.005)	(0.007)	(0.005)
Dividend Yield		0.061***	0.061***	0.077***	0.067***
		(0.021)	(0.021)	(0.020)	(0.020)
Globally Issued Bond			-0.014	-0.009	-0.011
			(0.031)	(0.027)	(0.028)
Time to Maturity			0.016***	0.018***	0.016***
			(0.002)	(0.002)	(0.002)
Ln Amount Issued			-0.003	-0.004	-0.003
			(0.010)	(0.008)	(0.009)
Senior Bond			0.006	0.024	0.001
			(0.027)	(0.024)	(0.025)
Secured Bond			-0.052	-0.046	-0.063
			(0.058)	(0.046)	(0.047)
Put Option				0.138	0.184
				(0.114)	(0.116)
Call Option				-0.033	0.052
				(0.055)	(0.056)
# Observations (bond-years)	50,143	50,143	50,143	50,143	50,143
# Bonds	10,471	10,471	10,471	10,471	10,471
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes
Within R^2	0.514	0.593	0.593	0.595	0.593
Between R^2	0.252	0.650	0.656	0.727	0.717
Overall R^2	0.353	0.613	0.619	0.669	0.661

Table 4: Insider Ownership and Corporate Bonds Spreads: Excl. U.S.-headquartered Firms

We regress the bond yield spread on insider ownership and control variables using a sample that is limited to bonds issued by firms with headquarters outside of the United States. The first model includes insider ownership while controlling for country, industry, currency, and year effects. We then sequentially augment the model by including issuer controls in column (2), bond-specific controls in column (3), ratings in column (4) and orthogonal ratings in column (5). The spread is measured over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is defined as the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. Robust standard errors clustered at the firm level are shown in parentheses, complete variable descriptions can be found in Appendix A. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)
% Insider Ownership	0.027***	0.011***	0.011***	0.011***	0.013***
	(0.005)	(0.004)	(0.004)	(0.003)	(0.003)
Moody's Rating (9)				-0.528***	
				(0.117)	
Orthogonal Rating					-0.541***
					(0.114)
Investment Grade Rating				-1.007**	
				(0.507)	
Split Rating				0.141***	
				(0.035)	
Second Rating				-0.147***	
				(0.034)	
Ln Market Value		-0.664***	-0.666***	-0.434***	-0.574***
		(0.101)	(0.100)	(0.054)	(0.066)
Leverage		0.619**	0.600**	0.365	0.825***
		(0.277)	(0.276)	(0.239)	(0.258)
Return on Assets		-0.028**	-0.028**	-0.028***	-0.033***
		(0.011)	(0.011)	(0.010)	(0.011)
Volatility		0.056***	0.057***	0.036**	0.066***
		(0.010)	(0.010)	(0.015)	(0.010)
Dividend Yield		0.033	0.033	0.049**	0.038
		(0.026)	(0.026)	(0.024)	(0.025)
Globally Issued Bond			-0.078**	-0.065*	-0.067*
			(0.040)	(0.036)	(0.036)
Time to Maturity			0.017***	0.019***	0.017***
			(0.003)	(0.002)	(0.002)
Ln Amount Issued			-0.018	-0.018	-0.020
			(0.016)	(0.014)	(0.014)
Senior Bond			0.015	0.023	0.002
			(0.038)	(0.034)	(0.035)
Secured Bond			0.088	0.064	0.047
			(0.086)	(0.072)	(0.073)
Put Option				0.127	0.181
				(0.353)	(0.357)
Call Option				0.030	0.139
				(0.103)	(0.093)
Observations	17,973	17,973	17,973	17,973	17,973
Number of Bonds	4,289	4,289	4,289	4,289	4,289
Bond Features	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes

Within R-sq	0.408	0.498	0.498	0.496	0.498
Between R-sq	0.371	0.643	0.649	0.719	0.710
Overall R-sq	0.401	0.580	0.586	0.637	0.632

Table 5: Insider Ownership and Corporate Bond Spreads: Regional Sub-samples

In Panel A, we breakdown the global bond sample into regional subsamples based on location of firm headquarters and estimate models with the yield spread as dependent variable, and as independent variables insider ownership along with firm-specific control variables, bond characteristics, credit ratings, country fixed effects, industry fixed effects, currency fixed effects and year fixed effects. The bond spread is measured over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. The number of observations in this table refers to bond-years. Robust standard errors clustered at the firm level are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Panel A: Full Sample

	(1) Full Sample	(2) Excl. USA	(3) North America	(4) Europe	(5) Asia	(6) Oceania	(7) RoW	(8) Developed	(9) Emerging	(11) Common	(12) Civil
% Insider Ownership	0.011***	0.011***	0.011**	0.012**	0.007	0.011	0.021**	0.011***	0.024**	0.010***	0.015***
	(0.003)	(0.003)	(0.005)	(0.005)	(0.005)	(0.008)	(0.008)	(0.003)	(0.010)	(0.004)	(0.004)
Observations	50,143	17,973	33,611	5,903	5,786	2,330	2,513	45,706	3,965	40,912	9,231
Number of Bonds	10,471	4,289	6,528	1,437	1,488	433	585	9,413	964	8,137	2,334
Issuer/Bond/Rating Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.595	0.496	0.637	0.573	0.421	0.679	0.487	0.605	0.606	0.619	0.504
Between R^2	0.727	0.719	0.732	0.716	0.733	0.768	0.780	0.728	0.787	0.726	0.729

Table 6: Insider Ownership Thresholds and Yield Spreads

Table 6 shows the impact of insider ownership on bond spreads when separating the sample into treatment (bonds issued by firms with insider ownership) and control (bonds issued by firms without insider ownership). The dependent variable is the spread of corporate bonds over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is defined as the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. All regressions include the complete set of control variables as outlined in Table 3, column 4. Observations are considered as part of the treated if the respective issuers passed a certain threshold of insider ownership as indicated on the left. Panel A refers to the whole sample, Panel B is limited to issues by firms with headquarters outside of the United States. The number of observations refers to bond years. Robust standard errors clustered at firm level are depicted in parentheses, complete variable descriptions can be found in Appendix A. *** p<0.01, ** p<0.05, * p<0.1.

	Panel A: Full Sample					Panel B: Sample excl. USA				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
>10% Insider Ownership	0.273***					0.260**				
	(0.086)					(0.118)				
>15% Insider Ownership		0.333***					0.322**			
		(0.112)					(0.142)			
>20% Insider Ownership			0.512***					0.387**		
			(0.157)					(0.160)		
>25% Insider Ownership				0.957***					0.437**	
				(0.361)					(0.176)	
>50% Insider Ownership					0.484					0.799***
					(0.438)					(0.294)
Observations	45,749	43,941	43,333	27,781	27,434	16,278	15,493	15,368	15,246	14,514
Number of Bonds	10,012	9,644	9,498	5,603	5,514	4,071	3,888	3,857	3,835	3,647
Number of Firms	1,222	1,222	1,222	1,222	1,222	522	522	522	522	522
Number of Insider-Owned Firms	114	90	82	75	36	95	62	43	34	14
Issuer/Bond/Rating Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.601	0.600	0.599	0.647	0.653	0.492	0.493	0.492	0.492	0.496
Between R^2	0.712	0.707	0.706	0.697	0.684	0.715	0.711	0.710	0.709	0.708
Overall R^2	0.663	0.659	0.656	0.671	0.667	0.630	0.626	0.627	0.626	0.624

Table 7: Interaction Shareholder-Rights Index, Insider Ownership and Yield Spreads

Table 7 shows the interaction of insider ownership, shareholder rights, and their individual and mutual impact on bond spreads. The dependent variable is the spread of corporate bonds over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is defined as the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. In column 2 and 3, insider ownership is measured through a dummy indicating whether the percentage of insider ownership crosses the 10% and the 20% ownership threshold, respectively. Governance is measured by means of the Shareholder-Rights Index, constructed similar to Bebchuk et al. (2008) and based on data from GMI Ratings. A higher index indicates that a company has adopted fewer shareholder rights limitations. The index comprises six dimensions and thus varies from 0 to 5, with a high index hence indicating more shareholder-friendly governance. All regressions include the complete set of control variables as outlined in Table 3, column 4. Robust standard errors clustered at firm level are depicted in parentheses, the number of observations in this table refers to bond years.

*** p<0.01, ** p<0.05, * p<0.1.

	Panel A: Full Sample			Panel B: Sample excl. USA		
	(1)	(2)	(3)	(4)	(5)	(6)
Shareholder-Rights Index	0.050***	0.044**	0.041**	0.053*	0.054*	0.059**
	(0.018)	(0.019)	(0.019)	(0.028)	(0.029)	(0.029)
% Insider Ownership	0.032***			0.037***		
	(0.007)			(0.010)		
% Insider Ownership x Shareholder-Rights Index	-0.005***			-0.006***		
	(0.002)			(0.002)		
>10% Insider Ownership		0.698***			0.949***	
		(0.179)			(0.262)	
>10% Insider Ownership x Shareholder-Rights		-0.125***			-0.182***	
		(0.045)			(0.059)	
>20% Insider Ownership			1.119***			1.398***
			(0.303)			(0.437)
>20% Insider Ownership x Shareholder-Rights			-0.160**			-0.244**
			(0.067)			(0.096)
Observations	50,143	45,749	43,333	17,973	16,278	15,368
Number of Bonds	10,471	10,012	9,498	4,289	4,071	3,857
Issuer/Bond/Rating Controls	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.596	0.601	0.599	0.499	0.495	0.494
Between R^2	0.728	0.712	0.707	0.719	0.714	0.711
Overall R^2	0.670	0.664	0.657	0.637	0.630	0.627

Table 8: Shareholder Rights Restrictions, Insider Ownership and Yield Spreads

Table 8 shows the impact of insider ownership on bond spreads depending on the shareholder rights associated with the issuing firm. The dependent variable is the spread of corporate bonds over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is defined as the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. The shareholder-rights index is constructed similar to Bebchuk et al. (2008) and Cremers et al (2007), and based on global data from GMI Ratings. A higher index indicates that a company has adopted fewer shareholder-rights limitations. The index comprises six dimensions and thus varies from 0 to 5, with a high index hence indicating more shareholder-friendly governance. In columns 1 to 3, issuers with an Shareholder-Rights Index above the year-country mean are included in the regressions, in columns 4-6 results pertain to issuers with an index value below the year-country mean. All regressions include the complete set of control variables as outlined in Table 3, column 4. Robust standard errors clustered at firm level are depicted in parentheses, the number of observations in this table refers to bond years. *** p<0.01, ** p<0.05, * p<0.1.

Panel A: Full Sample

	(1)	(2)	(3)	(4)	(5)	(6)
	Unrestricted Shareholder Rights			Restricted Shareholder Rights		
% Insider Ownership	0.009**			0.017***		
	(0.004)			(0.004)		
>10% Insider Ownership		0.191*			0.366***	
		(0.107)			(0.125)	
>20% Insider Ownership			0.444**			0.593***
			(0.204)			(0.163)
Issuer/Bond/Rating Controls	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	26,015	23,812	22,369	24,128	21,937	20,964
Number of Bonds	7,696	7,322	6,940	6,661	6,282	6,007
Overall R^2	0.688	0.679	0.670	0.664	0.660	0.656

Panel B: Sample excl. USA

	(1)	(2)	(3)	(4)	(5)	(6)
	Unrestricted Shareholder Rights			Restricted Shareholder Rights		
% Insider Ownership	0.006			0.023***		
	(0.004)			(0.005)		
>10% Insider Ownership		0.014			0.530***	
		(0.134)			(0.160)	
>20% Insider Ownership			0.164			0.805***
			(0.196)			(0.187)
Issuer/Bond/Rating Controls	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,104	8,897	8,348	7,869	7,381	7,020
Number of Bonds	3,131	2,946	2,785	2,604	2,423	2,310
Overall R^2	0.670	0.659	0.654	0.637	0.627	0.627

Table 9: Insider Ownership and Related-Party Transactions

Table 9 shows the impact of insider ownership on the probability of predicted party transactions (RPTs) involving directors, managers, major shareholders or family members. The dependent variable is an indicator whether related party transactions that have happened in the past two years have become public and reported by GMI Ratings. Insider ownership is defined as the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. Column 1 and 2 show the marginal effect at the sample means as estimated by probit regressions, columns 3 and 4 show the average marginal effects. Robust standard errors clustered at firm level are depicted in parentheses, the number of observations in this table refers to firm years. *** p<0.01, ** p<0.05, * p<0.1.

Panel A: Full Sample				
	Marginal Effect at the Mean		Average Marginal Effect	
	(1)	(2)	(3)	(4)
% Insider Ownership	0.006***	0.006***	0.007***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
Ln Market Value		0.002		0.002
		(0.009)		(0.010)
Leverage		0.000		0.000
		(0.001)		(0.001)
# Analysts		-0.002		-0.002
		(0.002)		(0.002)
# Local Index Inclusions		-0.028**		-0.031**
		(0.013)		(0.014)
WB Enforcing Contracts		-0.012*		-0.013*
		(0.006)		(0.007)
Observations	8,797	8,260	8,797	8,260
Countr/Ind/Year FE	Yes	Yes	Yes	Yes

Panel B: Sample excl. USA				
	Marginal Effect at the Mean		Average Marginal Effect	
	(1)	(2)	(3)	(4)
% Insider Ownership	0.004***	0.004***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Ln Market Value		0.003		0.003
		(0.013)		(0.015)
Leverage		0.001		0.001
		(0.001)		(0.001)
# Analysts		-0.000		-0.000
		(0.002)		(0.002)
# Local Index Inclusions		-0.042***		-0.046***
		(0.013)		(0.015)
WB Enforcing Contracts		-0.015*		-0.017*
		(0.008)		(0.009)
Observations	3,188	2,831	3,188	2,831
Countr/Ind/Year FE	Yes	Yes	Yes	Yes

Table 10: Related-Party Transactions and Yield Spreads

The dependent variable is the spread of corporate bonds over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is defined as the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. Column 1 shows the impact of related party transactions for the full sample, columns 2 and 3 show the coefficients estimated based on a sample including bonds with, respectively, a BBB rating and lower and BB rating and lower. Panel A includes all issuers, Panel B only issuers with headquarters outside of the United States. Robust standard errors clustered at firm level are depicted in parentheses, the number of observations in this table refers to bond years. *** p<0.01, ** p<0.05, * p<0.1.

	Panel A: Full Sample		
	(1)	(2)	(3)
Realized Related Party Transaction	0.103***	0.158***	0.305**
	(0.039)	(0.055)	(0.121)
Observations	42,610	23,115	6,231
Number of Bonds	9,812	6,012	2,053
Issuer/Bond/Rating Controls	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes
Overall R^2	0.666	0.688	0.628
	Panel B: Sample excl. USA		
	(1)	(2)	(3)
Realized Related Party Transaction	0.001	0.164	0.515***
	(0.069)	(0.116)	(0.180)
Observations	15,464	7,493	1,802
Number of Bonds	3,879	2,236	672
Issuer/Bond/Rating Controls	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes
Overall R^2	0.638	0.631	0.686

Table 11: Insider Ownership, Related-Party Transactions and Yield Spreads, Full Sample

Table 11 shows the impact of related-party transactions and the percentage of insider ownership on yield spreads. The dependent variable is the spread of corporate bonds over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is defined as the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. Column 1 and 3 show the impact of insider ownership separately, columns 4-6 include the indicator on realized related party transactions, Robust standard errors clustered at firm level are depicted in parentheses, the number of observations in this table refers to bond years. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)
% Insider Ownership	0.011***			0.011***		
	(0.003)			(0.003)		
>10% Insider Ownership		0.245***			0.226***	
		(0.086)			(0.086)	
>20% Insider Ownership			0.474***			0.451***
			(0.149)			(0.150)
				0.088**	0.084**	0.083**
Related Party-Transaction				(0.039)	(0.039)	(0.040)
Observations	42,610	39,009	37,002	42,610	39,009	37,002
Number of Bonds	9,812	9,358	8,874	9,812	9,358	8,874
Issuer/Bond/Rating Controls	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Overall R^2	0.668	0.663	0.655	0.668	0.663	0.655

Table 12: Insider Ownership and Yield Spreads: Excluding Ownership Changes >1% and Firms with Credit Rating Downgrades

Table 12 shows the impact of insider ownership on bond spreads for different regional or country groups as indicated by the column headers. The dependent variable is the spread of corporate bonds over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is defined as the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. All regressions include the complete set of control variables as outlined in Table 2/3, column 4. Robust standard errors clustered at firm level are depicted in parentheses, the number of observations in this table refers to bond years. *** p<0.01, ** p<0.05, * p<0.1.

	(1) Full Sample	(2) Excl. USA	(3) North America	(4) Europe	(5) Asia	(6) Oceania	(7) RoW	(8) Developed	(9) Emerging
Sample excl. Bonds from Issuers with Changes in Insider Ownership > |+/- 1 %|									
% Insider Ownership	0.017***	0.013**	0.018***	0.033**	-0.003	0.004	0.025	0.016***	0.045*
	(0.004)	(0.005)	(0.005)	(0.013)	(0.006)	(0.015)	(0.022)	(0.004)	(0.024)
Observations	37,733	12,777	25,590	4,321	3,979	2,044	1,799	34,539	3,034
Number of Bonds	7,816	3,056	4,920	1,047	1,078	372	399	7,075	708
Bond Features	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.618	0.522	0.666	0.600	0.405	0.692	0.538	0.632	0.660
Between R^2	0.695	0.701	0.681	0.687	0.733	0.732	0.838	0.694	0.746
Overall R^2	0.656	0.633	0.670	0.645	0.632	0.687	0.742	0.660	0.696
Sample excl. Bonds from Issuers Experiences 1 or More Rating Downgrades									
% Insider Ownership	0.012***	0.012***	0.014***	0.010	0.009*	0.006	0.036**	0.011***	0.027**
	(0.003)	(0.004)	(0.004)	(0.007)	(0.005)	(0.006)	(0.017)	(0.003)	(0.011)
Observations	27,418	9,682	18,260	2,802	3,606	1,402	1,348	25,160	2,126
Number of Bonds	6,100	2,522	3,729	769	990	275	337	5,504	564
Bond Features	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.617	0.513	0.654	0.528	0.417	0.767	0.527	0.625	0.517
Between R^2	0.750	0.753	0.756	0.784	0.783	0.794	0.801	0.747	0.857
Overall R^2	0.688	0.682	0.698	0.715	0.677	0.762	0.727	0.686	0.763

Table 13: Insider Ownership and Yield Spreads: Lagged Ownership

Table 13 shows the impact of insider ownership on bond spreads for different regional or country groups as indicated by the column headers. The dependent variable is the spread of corporate bonds over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is defined as the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. All regressions include the complete set of control variables as outlined in Table 3, column 4. Robust standard errors clustered at firm level are shown in parentheses; the number of observations in this table refers to bond-years. *** p<0.01, ** p<0.05, * p<0.1.

	(1) Full Sample	(2) Excl. USA	(3) North America	(4) Europe	(5) Asia	(6) Oceania	(7) RoW	(8) Developed	(9) Emerging
% Insider Ownership	0.010***	0.011***	0.009*	0.019***	0.007	0.013	0.022**	0.010***	0.024**
(1 Year Lag)	(0.003)	(0.004)	(0.005)	(0.007)	(0.006)	(0.010)	(0.010)	(0.004)	(0.010)
Observations	39,672	13,684	27,083	4,466	4,298	1,897	1,928	36,293	3,001
Number of Bonds	9,287	3,749	5,832	1,249	1,312	392	502	8,361	840
Bond Features	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.599	0.487	0.642	0.565	0.410	0.686	0.495	0.612	0.581
Between R^2	0.710	0.698	0.716	0.704	0.721	0.728	0.799	0.710	0.791
Overall R^2	0.666	0.625	0.687	0.643	0.617	0.694	0.714	0.671	0.711
% Insider Ownership	0.008**	0.012***	0.005	0.016*	0.014**	0.014	0.009	0.007*	0.029***
(2 Year Lag)	(0.004)	(0.004)	(0.006)	(0.009)	(0.006)	(0.011)	(0.009)	(0.004)	(0.011)
Observations	30,385	9,935	21,251	3,217	2,986	1,505	1,426	27,932	2,161
Number of Bonds	7,869	3,064	5,048	1,010	1,048	349	414	7,114	679
Bond Features	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.601	0.482	0.644	0.544	0.447	0.677	0.512	0.618	0.553
Between R^2	0.680	0.667	0.691	0.674	0.635	0.718	0.807	0.676	0.759
Overall R^2	0.660	0.617	0.681	0.634	0.594	0.681	0.726	0.665	0.698

Table 14. Insider Ownership and the Yield Spread: Excluding Firms without One-Share-One-Vote

After removing firms without a one-share-one vote policy according to GMI, we estimate models with the yield spread as dependent variable, and as independent variables insider ownership along with firm-specific control variables, bond characteristics, credit ratings, country fixed effects, industry fixed effects, currency fixed effects and year fixed effects (see equation 1). The bond spread is measured over the yield of a government benchmark with the same currency and the closest maturity available, retrieved from Datastream. Insider ownership is the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. All regressions include the complete set of control variables as outlined in Table 3, column 4. The number of observations in this table refers to bond-years. Robust standard errors clustered at the firm level are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	(1) Full Sample	(2) Excl. USA	(3) North America	(4) Europe	(5) Asia	(6) Oceania	(7) RoW	(8) Developed	(9) Emerging
% Insider Ownership	0.010***	0.009***	0.009**	0.008*	0.004	0.010	0.023**	0.009***	0.022***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.006)	(0.007)	(0.010)	(0.003)	(0.008)
Observations	43,596	14,038	30,020	4,666	4,573	2,186	2,151	40,269	2,874
Number of Bonds	9,125	3,363	5,870	1,141	1,207	404	503	8,317	715
Issuer/Bond/Rating Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.603	0.495	0.642	0.516	0.439	0.692	0.498	0.612	0.504
Between R^2	0.755	0.747	0.758	0.787	0.751	0.799	0.787	0.752	0.867
Overall R^2	0.686	0.652	0.702	0.701	0.639	0.729	0.688	0.688	0.743

Table 15: Insider Ownership and Firm-Level Yield Spreads

Table 15 shows the impact of insider ownership on bond spreads for different regional or country groups as indicated by the column headers. The dependent variable is the spread of corporate bonds over the yield of a government benchmark with the same currency and the closest maturity available. Insider ownership is the percentage of shares held by individual insiders such as directors, managers and family members directly, obtained through employee stock options or held through private companies based on information provided by FactSet. All regressions include the complete set of control variables as outlined in Table /3, column 4. Panel A and B show the coefficients, estimated using random effects with robust standard errors, when bond observations for each firm are equal-weighted and issue size-weighted, respectively. Panel C and D show OLS estimations, with standard errors clustered at firm level, when yearly firm-level observations are further averaged over time to obtain one observation per firm. *** p<0.01, ** p<0.05, * p<0.1.

	(1) Full Sample	(2) Excl. USA	(3) North America	(4) Europe	(5) Asia	(6) Oceania	(7) RoW	(8) Developed	(9) Emerging
Panel A: Random effects, using firm-level yield spreads based on equal-weighting of bond yields									
% Insider Ownership	0.013***	0.010***	0.015***	0.009	0.002	0.020**	0.032***	0.012***	0.016
	(0.003)	(0.004)	(0.004)	(0.006)	(0.007)	(0.009)	(0.011)	(0.003)	(0.012)
# Firm-year obs.	8,829	3,220	5,836	960	1,141	369	523	7,990	739
Number of Firms	1,222	522	742	164	183	52	81	1,087	121
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.621	0.532	0.660	0.539	0.540	0.705	0.588	0.629	0.566
Between R^2	0.799	0.773	0.822	0.831	0.800	0.861	0.726	0.807	0.842
Overall R^2	0.722	0.679	0.744	0.717	0.681	0.807	0.673	0.728	0.730
Panel B: Random effects, using firm-level yield spreads based on issue size-weighted bond yields									
% Insider Ownership	0.012***	0.010**	0.013***	0.008	0.001	0.021**	0.033***	0.011***	0.016
	(0.003)	(0.004)	(0.004)	(0.006)	(0.007)	(0.009)	(0.009)	(0.003)	(0.011)
# Firm-year obs.	8,829	3,220	5,836	960	1,141	369	523	7,990	739
Number of Firms	1,222	522	742	164	183	52	81	1,087	121
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R^2	0.634	0.545	0.672	0.559	0.547	0.729	0.610	0.642	0.575
Between R^2	0.803	0.778	0.825	0.832	0.820	0.842	0.739	0.810	0.856
Overall R^2	0.731	0.690	0.752	0.721	0.702	0.800	0.691	0.736	0.744
Panel C: Firm-level spread; yields are equal-weighted average across bond and time; OLS estimator									
% Insider Ownership	0.016***	0.015***	0.020***	0.014*	0.008	0.024	0.039	0.015***	0.031
	(0.004)	(0.006)	(0.006)	(0.008)	(0.011)	(0.020)	(0.027)	(0.004)	(0.020)
# Firm observations	1,222	522	742	164	183	52	81	1,087	121
Countr/Curr/Ind FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.762	0.764	0.783	0.852	0.813	0.982	0.849	0.771	0.833
Panel D: Firm-level spread; yearly average yields are issue size-weighted across bonds; OLS estimator									
% Insider Ownership	0.011***	0.009**	0.012**	0.019**	0.005	0.050***	0.041*	0.010***	0.017
	(0.003)	(0.005)	(0.005)	(0.008)	(0.007)	(0.012)	(0.023)	(0.003)	(0.015)
# Firm observations	1,222	522	742	164	183	52	81	1,087	121
Countr/Curr/Ind/ FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.796	0.804	0.806	0.866	0.865	0.967	0.881	0.799	0.916

Appendix A: Variable Descriptions

Name	Description	Source
	Dependent Variable	
Spread	Yield spread in percent as provided by Datastream. Defined as the annualized yield to maturity of the corporate bond over the yield to maturity of a government security of the respective currency and closest time to maturity available.	Datastream
	Ownership	
% Insider Ownership	Sum of the percentage of shares obtained through employee stock options, shares held by individual corporate insiders and private companies.	FactSet
% Insider Ownership (Alternative Definition)	Sum of the percentage of shares obtained through employee stock options and shares held by individual corporate insiders.	FactSet
> x % Insider Ownership	Dummy indicating whether the percentage of insider ownership calculates as indicated above exceeds x %. In order to cleanly separate firms with and without insider ownership, observations of bonds issued by firms with less than five percent are labelled 0, others are excluded in this definition.	FactSet
% Institutional Ownership	Percentage of shares held by institutional owners and investment banks.	Datastream
% Government Ownership	Percentage of shares held by the government or a government institution.	Datastream
% Cross ownership	Percentage of shares held by one company in another.	Datastream
	Corporate Governance	
Shareholder-Rights Index	Governance Index constructed largely in line with Bebchuk et al. (2008). GMI provides information on five out of the six original dimensions, comprising the existence of a poison pill, golden parachutes, limitation of the shareholder right to prevent charter amendments, limitation of the shareholder right to prevent bylaw amendments and the existence of a classified board. For the existence of every provision one point is deducted	GMI

	from six, the maximum of the governance index.	
Related Party Transaction	Dummy indicating whether there have been related party transactions "involving the CEO, company Chairman or other senior executive, a controlling shareholder, non-executive director or a relative of any of these individuals".	GMI
One-Share One-Vote	Dummy indicating whether the firm deviated from a one-share one-vote policy.	GMI
Multiple Share Classes	Dummy indicating whether the firm currently has multiple share classes outstanding.	Datastream
	Legal Environment	
Enforcing Contracts Score	The enforcing contracts indicator measures the time and cost for resolving a commercial dispute through a local first-instance court, and the quality of judicial processes index, evaluating whether each economy has adopted a series of good practices that promote quality and efficiency in the court system (World Bank, 2016) The score thereby ranging from 0 (weak contract enforcement) to 100 (strong contract enforcement).	World Bank
Strength of Legal Rights Index	The strength of legal rights index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending (World Bank, 2016). The index ranges from 0 to 12.	World Bank
	Rating Variables	
Moody's Rating	Moody's security level rating, converted into nine rating categories.	FactSet
Moody's Rating (Orthogonal)	Residuals from a regression of Moody's security level ratings on the remaining control variables including market value, leverage, return on assets, stock volatility, dividend yield, zero coupon dummy, maturity, amount issued, seniority, securitization, bond features, year, industry, country and bond currency dummies.	FactSet
Moody's Investment Grade	Dummy indicating whether a bond is considered to possess investment grade quality. The threshold for investment grade bonds is set at B. Corporate bonds rated triple CCC or worse are considered below investment grade.	FactSet
S&P Rating	S&P security level rating, converted into nine rating categories.	Datastream

Split Rating	Dummy indicating whether Moody's and S&P ratings are known not to be in accordance.	
Second Rating	Dummy indicating whether the firm acquired ratings from both Moody's and S&P.	
	Issue Controls	
Globally Issued Bond	Dummy indicating whether a bond is issued globally, meaning that is traded both on the local and on an international trading platform.	Datastream
Zero Coupon Bond	Dummy indicating whether bonds are not paying coupons.	Datastream
Senior	Dummy indicating whether a bond is considered senior.	Datastream
Secured	Dummy indicating whether a bond is secured.	Datastream
Ln(Amount Issued)	Natural logarithm of the amount of the bond issue in million U.S. dollar.	Datastream
Time to Maturity	Remaining time to maturity calculated from the year end of the observation year to the redemption date.	Datastream
Put	Dummy indicating whether a bond can be put early by the holder. Information obtained from Datastream is supplemented by FactSet. Comprised in the control for bond features.	Datastream/FactSet
Call	Dummy indicating whether a bond can be called early by the issuer. Information obtained from Datastream is supplemented by FactSet. Comprised in the control for bond features.	Datastream/FactSet
	Issuer Controls	
Ln Market Cap	Natural logarithm of the market capitalization, expressed in million U.S. dollar.	Datastream
Leverage	Total debt divided by total assets (%).	Datastream
Return on Assets	Return on assets (%).	Datastream
Dividend Yield	Dividend yield (%).	Datastream

Volatility	Stock's average annual price movement (%) to a high and low from a mean price for each year. Defined in the Datastream Worldscope module as follow: "A stock's price volatility of 20% indicates that the stock's annual high and low price has shown a historical variation of +20% to -20% from its annual average price."	Worldscope
Analysts	Number of analysts following the firm.	Datastream
Index Coverage	Number of stock indexes covering the firm.	Datastream
	Fixed Effects	
Currency FE	Dummies generated according to 3-digit currency codes as defined by the International Standards Organization.	Datastream
Country FE	Dummies generated according to 3-digit country codes as defined by the International Standards Organization.	Datastream
Industry FE	Dummies generated using the first digit of the Standard Industry Classification codes.	Datastream
Year FE	Dummies indicating the observation year.	Datastream
	Regional Classifications	
Europe	Includes issuers with headquarters in Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Greece, Italy, Luxemburg, the Netherlands, Norway, Portugal, Spain, Sweden and Switzerland.	FactSet
Asia	Includes issuers with headquarters in Hong Kong, Indonesia, India, Japan, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand.	FactSet
Oceania	Australia and New Zealand.	FactSet
Rest of the World	Includes issuers with headquarters in/on the Bahamas, Bermuda, Brazil, Chile, Cyprus, Egypt, Israel, Mexico, Pakistan, Puerto Rico, Qatar, South Africa and the United Arab Emirates.	FactSet
Developed Markets	Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Luxemburg, Netherlands, New Zealand, Norway, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, United Kingdom and the United States of America.	FactSet/FTSE 2016 Classification

Emerging Markets	Includes issuers with headquarters in Brazil, Chile, China, Egypt, India, Indonesia, Hungary, Malaysia, Mexico, Pakistan, the Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Turkey and the United Arab Emirates.	FactSet/FTSE 2016 Classification
Civil Law Counties	As classified in Djankov, La Porta, Lopez-di-Silanes and Shleifer (2006), this subset includes issuers with headquarters in civil law countries.	Djankov et al. (2006)
Common Law Countries	As classified in Djankov, La Porta, Lopez-di-Silanes and Shleifer (2006), this subset includes issuers with headquarters in common law countries.	Djankov et al. (2006)

Appendix B: Geographical Distribution

3-Digit ISO Code	Country Name	Number of Firms	Number of Bonds	Bond-Year Observations
ARE	United Arab Emirates	1	1	3
AUS	Australia	50	431	2327
AUT	Austria	9	226	781
BEL	Belgium	8	96	429
BHS	Bahamas	1	41	223
BMU	Bermuda	9	37	179
BRA	Brazil	12	176	859
CAN	Canada	42	346	1441
CHE	Switzerland	1	17	60
CHL	Chile	1	1	2
CHN	China	25	127	550
CYP	Cyprus	1	1	2
DEU	Germany	17	43	101
DNK	Denmark	1	50	232
EGY	Egypt	2	12	58
ESP	Spain	8	100	464
FIN	Finland	2	6	22
FRA	France	17	99	344
GBR	Great Britain	57	368	1707
HKG	Hong Kong	36	351	1425
HUN	Hungary	1	1	1
IDN	Indonesia	4	45	173
IND	India	26	242	997
IRL	Ireland	5	22	81
ISR	Israel	5	23	82
ITA	Italy	10	88	361
JPN	Japan	70	604	2189
KOR	South Korea	14	61	273
LUX	Luxemburg	3	55	330
MCO	Monaco	1	4	10
MEX	Mexico	2	30	64
MYS	Malaysia	4	15	52
NLD	Netherlands	11	73	231
NOR	Norway	1	9	19
NZL	New Zealand	2	2	3
PAK	Pakistan	2	30	154
PHL	Philippines	3	7	12
POL	Poland	4	112	529
PRI	Puerto Rico	1	10	53
PRT	Portugal	3	52	187
QAT	Qatar	1	6	6
RUS	Russia	6	37	89
SGP	Singapore	10	104	431
SWE	Sweden	5	5	16
TUR	Turkey	7	43	145

TWN	Taiwan	16	59	234
USA	United States of America	700	6182	32170
ZAF	South Africa	4	20	37
Total		*1,221*	*10,470*	*50,138*

Appendix C: Rating Conversion Scheme

Rating Conversion from Text to Numerical

Conversion	S&P Debt Rating	Grade
9	AAA	Investment
8	AA+	Investment
8	AA	Investment
8	AA-	Investment
7	A+	Investment
7	A	Investment
7	A-	Investment
6	BBB+	Investment
6	BBB	Investment
6	BBB-	Investment
5	BB+	Speculative
5	BB	Speculative
5	BB-	Speculative
4	B+	Speculative
4	B	Speculative
4	B-	Speculative
3	CCC+	Speculative
3	CCC	Speculative
3	CCC-	Speculative
2	CC	Speculative
1	C	Speculative
1	D	Speculative