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

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Abstract

We investigate the effect of insider ownership and shareholder rights mechanisms on corporate bond yield spreads from 2003 to 2015 using a sample of 10,470 bonds issued by 1,222 non-financial firms from 48 countries. Across the globe, insider ownership is reflected in higher yield spreads, consistent with the hypothesis that bondholders associate insider ownership with an increased risk of tunnelling. Lending further support to this argument, we find that the positive impact of insider ownership on spreads is diminished in firms with a more shareholder oriented governance. Besides, we show that insider ownership is positively related to the probability of corporations' involvement in related party transactions as one form of tunnelling. In line with the hypothesis that bondholders are concerned about insiders' consumption of private benefits, the predicted risk of these transactions alternatively explains the spread increase associated with insider ownership.

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I. Introduction

In this study, we focus on the bond pricing effects associated with owners that have not received much attention in the literature to date: 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. Using a sample of 10,470 corporate bonds publicly issued by 1,222 firms in 48 countries over the period from 2003 to 2015, we shed light on competing hypotheses regarding the impact of insider ownership on corporate bond prices. On the one hand, with greater levels of ownership, insiders' interests are more closely aligned with those of outside shareholders, since insiders' payoffs are more directly linked to stock market performance (Jensen & Meckling, 1976). This reasoning implies that insiders who are directly involved in management or can exert managerial influence in other ways engage in less self-serving behavior compared to management teams without ownership in a firm, since insiders have higher personal stakes at risk. Bondholders may rationally anticipate this incentive effect, suggesting a negative relation between insider ownership and corporate bond spreads.

An alternative view is that spreads rise with insider ownership. Along with an increase in ownership, insiders enjoy greater control over the firm which can lead to entrenchment and facilitate the consumption of private benefits (e.g. Fama, 1980; Fama & Jensen, 1983; Morck, Schleifer, & Vishny, 1988). In many countries around the world, entrenchment and excessive effective levels of control through greater insider ownership may occur because voting rights associated with share ownership exceed cash flow rights. Otherwise, the conflict of interest between bondholders and shareholders may be exacerbated through greater insider ownership, which might be reflected in discounted bond prices.

We present three empirical results supporting the view that the risk of entrenchment from insider ownership matters for corporate bond prices. First, we find that around the world yield spreads of corporate bonds increase significantly with the level of insider ownership. A one percentage point increase in insider ownership is associated with an average 1.4 basis points increase in the yield spread, ceteris paribus.

Second, we find that the positive effect of insider ownership and yield spreads weakens in firms with more shareholder rights provisions as measured by an Anti-Entrenchment Index (Anti-E-Index; similar to Bebchuk, Cohen, & Ferrell (2008)). Specifically, a significant negative interaction effect between insider ownership and the presence of shareholder rights, a well-known mechanism against entrenchment, provides further testimony that spreads reflect the risk of excessive insider control that could harm bondholder wealth.

Third, to further investigate whether the expectation about the scope of private benefits underlie the positive relation between insider ownership and bond spreads, we study related party transactions as a form of tunnelling (Johnson, 2000), representing a major concern in corporate governance (OECD, 2012). We find that insider ownership is significantly positively related to the probability of related-party transactions. We also find the ex-ante probability of related party transactions subsumes a great deal of the positive relation between insider ownership and spreads in our regressions. These results suggest that bondholders anticipate the effect of insider ownership on tunnelling risk and its implications for default risk or expected losses given default through bond pricing.

Taken together, the results of this study make several contributions to the literature. To begin with, we add to the works that link ownership structures to debt financing costs such as institutional ownership (Bhoraj & Sengupta, 2003; Cremers, Nair, & Wei, 2007; Huang & Petkevich, 2016), government ownership (Borisova et al., 2015) and family ownership

(Anderson, Mansi, & Reeb, 2003; Ellul, Guntay, & Ugur, 2009) by showing that insider ownership matters in corporate bond pricing.

Besides, we contribute to the literature linking governance mechanisms and shareholder rights (Bhojraj & Sengupta 2003; Anderson, et al., 2003; Klock, Mansi, & Maxwell, 2005; Cremers et al., 2007; Bradley & Chen, 2015) to the cost of debt by showing that insider ownership is associated with lower spread increases in firms with more shareholder rights.

Moreover, our evidence that bondholders' response to insider ownership depends on shareholder rights extends earlier studies on bond pricing that document significant interaction effects between ownership and governance mechanisms. Along these lines, Cremers, Nair and Wei (2007) show that the relation between concentrated institutional ownership and bond prices is moderated by shareholder rights provisions, whereas Bradley and Chen (2015) suggest that the effect of board independence on the cost of debt financing depends on the extent of a potential conflict of interest between shareholders and bondholders.

The paper proceeds as follows: Section 2 describes our dataset and section 3 introduces the methodology. In section 4, we present and interpret empirical results and test alternative explanations linked to endogeneity concerns. Section 5 outlines robustness tests, whereas section 6 concludes.

II. Data Description

A. Data Sources

We use four data sources in our analysis: Thomson Reuters Datastream, FactSet, GMI Ratings and the World Bank Doing Business report. Datastream provides information on yield spreads, historical security-level ratings issued by S&P as well as accounting and financial information. FactSet offers access to historical security-level ratings issued by Moody's, information on the nature of fixed-income securities such as indicators whether bonds are callable, puttable, convertible, index- or inflation-linked. From GMI, we access information on corporate governance, shareholder rights and related party transactions from the board accountability as well as the ownership and control section. From the World Bank report, we access information on the country-level contract enforcement.

The GMI universe is the most restrictive and therefore determines the scope of our sample in terms of companies included as well as the analysis period from 2003 to 2015. In line with prior research, we exclude firms from the financial industry, as the determinants of financing conditions of financial institutions are known to fundamentally differ from the pricing determinants of corporate debt (Anderson et al., 2004; Klock et al., 2005; Cremers et al., 2007). Besides, we exclude index-linked, inflation-linked, floating and convertible bonds. After these restrictions, our sample covers 1,222 non-financial firms issuing 10,470 corporate bonds with overall 50,134 bond-year observations. Thereby, our sample is to our best knowledge the largest current sample of corporate bonds analysed in the context of corporate governance and ownership structures. [1]

[1] To our best knowledge, there are only two other studies in the field of corporate governance and ownership that have recently investigated the impact on bond yield spreads based on substantially smaller international samples. Firstly, Boukrabi and Ghouma (2010) use a sample of 100 bonds issued outside of the U.S. of which 65% where denominated in USD. Secondly, Borisova et al. (2015) investigate government ownership in an international context based on 1,278 bonds issued by 214 companies. Furthermore, Ellul et al. (2009) use a large international sample of issue yield spreads covering an observation period up until the year 2002.

B. Bondholder Risk, Ownership and Corporate Governance

Our dependent variable is the yield spread on corporate bonds, which we obtain from Thomson Reuters 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. We obtain the data on an annual basis at the year-end. Since the yield spreads are skewed by outliers, we trim the variable at the top and bottom 1%.

To measure insider ownership, we obtain the percentage of shares held by different types of the nature of corporate insiders and we can control the composition of our insider ownership variable. In the main analysis, we use a measure of insider ownership comprising shares held by individuals such as managers and directors, which they hold directly, through private companies or which they obtained by means of employee stock options.

In order to construct our governance measure, we follow the approach of Gompers, Ishii and Metrick (2003) as well as Bebchuk et al. (2008) and develop a shareholder rights index (Anti-E-Index) similar to the Entrenchment Index (E-Index) based on the global corporate governance data provided by GMI Ratings. GMI assesses small, mid and large cap companies' governance quality based on macro data from academic, government and NGO datasets, company disclosure as well as media reports (MSCI, 2016). Our index consists of five governance or antitakeover provisions: the presence of classified boards, poison pills, and golden parachutes, the limitation of the shareholder right to approve bylaw amendments, and the limitation of the right to approve charter amendments. The construction of the Anti-E-Index is methodologically similar to the approach of Cremers et al. (2007), subtracting one point for every mechanism in place from the maximum of five points. Hence, our E-Index can be thought of as a shareholder rights index (Anti-E-Index), with its minimum (maximum)

of zero (five) points indicating five (zero) restrictions on shareholder rights in place, and hence, a comparably higher (lower) management power.

C. Related Party Transactions

Tunnelling includes corporate activities ranging from fraud or theft to legal but questionable transactions such as related party transactions, excess executive compensation and loans to corporate insiders (Johnson, 2000). To relate insider ownership to the risk of tunnelling, we draw upon records on related party transactions (RPTs) provided by GMI ratings. Records on the spectrum of illegal tunnelling activities are unfortunately not available to us. The GMI data indicates whether it has become public in given year that a firm has been involved in a RPT in the past two years. The transactions recorded do not cover the full variety of RPTs, but are limited to events involving executive and non-executive directors, managers, controlling shareholders as well as relatives of any of these individuals. When modelling the risk of tunnelling in terms of RPTs, we draw upon leverage and firm size obtained from Datastream as proxies of cash-flow restrictions and firm visibility; the number of analysts covering a firm and the number of stock indexes the issuer is part of as proxies of firm opacity as well as the contract enforcement score from the World Bank Doing Business report as a proxy for the strength of legal frameworks.

D. Financial and Accounting Control

In all of the subsequent analyses, we follow the literature in controlling for issue and issuer heterogeneity. With regard to firm controls, we use the log of the total market value from Datastream as a proxy for firm size, expecting a negative relation to yield spreads, since larger companies benefit from economies of scale (Bhoraj & Sengupta, 2003; Klock et al., 2005). We obtain information on total debt and total assets to calculate the leverage ratio and expect a positive relation to spreads as a higher leverage indicates constraints in further

refinancing opportunities (Klock et al., 2005; Van Landschoot, 2008). Profitability or profit margins (Bhoraj & Sengupta, 2003; Borisova et al., 2015) indicate how easily a company can generate cash flows to satisfy creditor claims. We include the return on assets in the controls and expect a negative relation with yield spreads. In addition, we take return volatility into account, since return volatility is assumed to be strongly positively correlated with bond spreads (Van Landschoot, 2008). Finally, we add the dividend yield to the model and expect a positive relation with yield spreads, since bondholders disapprove of an increase in pay-outs to shareholders. At the issue-level, we include Moody's ratings and a dummy for investment-grade bonds, expecting that higher ratings should lead to lower yield spreads. We transform the obtained ratings from text (AAA to D) to a numerical variable ranging from 1 (corresponding to D ratings) to 9 (AAA ratings), similar to the scheme used by Klock et al. (2005). Since rating agencies base their assessment on a variety of variables that simultaneously determine yield spreads and hence, appear in our regression model, we derive an orthogonal rating by obtaining the residuals of a regression of ratings on the mutual set of control variables. Besides, we generate a split rating dummy indicating whether Moody's and S&P ratings are in accordance as well as a dummy indicating whether an issuer in our sample obtained both Moody's and S&P ratings. The split dummy should carry a positive coefficient, because split ratings indicate rating uncertainty (Elton, 2004). In contrast, the second rating dummyshould carry a negative coefficient, as an additional rating reduces information asymmetry (Hsueh & Kidwell, 1988). Other issue controls are the log of the amount issued in million U.S. dollar, the time remaining to maturity from observation to redemption date, information on whether a bond is traded domestically or internationally and whether a bond pays coupons, all obtained from Datastream. We expect a positive impact of maturity time on yield spreads since longer maturities imply greater interest rate exposure (Bhoraj & Sengupta, 2003). The issue volume and the dummy indicating global issuance are proxies for liquidity.

Hence, both coefficients should indicate a negative association with yield spreads (Bhoraj & Sengupta, 2003). Finally, we withdraw information on bond features such as call, put and conversion options as well as on whether there is a link of the coupon to inflation or interest rates from both FactSet and Datastream. We only maintain bonds labelled straight by Datastream in our dataset and further exclude convertible bonds as well as bonds with yields linked to the inflation or interest rate. Similar to Cremers et al. (2007) and Boukrabi and Ghouma (2010) we then add put and call dummies to our regression model in order to control for these bond features.

E. Descriptive Statistics

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%. These figures are similar to the sample statistics of Borisova et al. (2015), who state a mean of 2.16% and a median spread 1.36% on a sample covering non-financial firms operating in 43 countries from 1991 to 2010. As for firms' credit ratings, the mean Moody's bond rating is 6.30, equivalent to a BBB rating. Hence, our sample has a tilt towards financially healthy companies with the lowest represented rating being a CCC rating. S&P ratings are less frequently acquired by issuing firms, only 44.5% of the issuers in our sample obtain both ratings.

On average, insiders own 3.46% of the shares issued of the firms in our sample. However, the distribution of the variable is strongly skewed. Given that there is at least 1% insider ownership in the firm, the mean percentage of shares held is 9.18% (see Figure 1 and 2).

Table 2 illustrates descriptive statistics based on a hypothetical division into treatment and control group. Column 1 and 2 refer to issues and issuers with less than 10% insider ownership, column 3 and 4 to issuers with more than 10% of shares owned by corporate

insiders. Evidently, insider-owned and non-insider-owned firms differ on a range of characteristics. For instance, insider-owned firms are smaller, have a slightly higher leverage, a higher stock price volatility as well as lower dividend yields. Besides, issues of insider-owned firms have slightly shorter maturities. We carefully account for differences in firm and bond covariates in our regression by including a large set of controls[2]. Furthermore, we conduct robustness tests to ensure that the results are not driven by a lack of common support[3].

III. Methodology

By analysing bond spreads over time, we investigate whether bondholders expect positive or negative consequences of insider ownership. In order to do so, we first of all make use of the regression model shown below,

$$
\begin{aligned}
&Yield\ spread_{it} = \\
&\alpha_0 + \beta_1\ Insider\ ownership_{it} + \textstyle\sum_{j=1}^{J} \gamma_j Issue\ controls_{j,it} + \\
&\textstyle\sum_{k=1}^{K} \delta_k Firm\ controls_{k,it} + \sum_{l=1}^{L} \theta_l Country_{l,it} + \sum_{m=1}^{M} \vartheta_m Industry_{m,it} + \\
&\textstyle\sum_{n=1}^{N} \omega_n Currency_{n,it} + \sum_{o=1}^{O} \varphi_o Year_{o,it} + \ \varepsilon_{it},
\end{aligned}
\tag{1}
$$

where $Insider\ ownership$ is the percentage of insider ownership with corporate insiders defined as described above, $Issue\ control$ is the vector of issue-specific control variables, and $Firm\ controls$ denoting issuer-level control variables. Also included in each model are country-, industry-, year-, and currency-fixed effects. Subsequently, we assess the mutual impact of insider ownership and anti-entrenchment provisions on bond spreads in equation

[2] Our standard set of controls is aligned with previous literature. We additionally test whether including log(sales), debt/equity ratio, earnings before interest and tax, retained earnings and working capital influence our results, but do not find relevant changes. Since the additional variables further reduce our number of observations, we stick to the set of control variables outlined in Tables 3 and 4.

[3] On this note, we limit the inclusion of observation when the minimum and maximum values of variables (e.g. market value, return on assets, dividend yield, and issue amount) are not commonly supported by observations stemming from firms with and without insider ownership (defined by 10% threshold). The results thereby remain unchanged.

(2), where $Anti-Entrenchment\ Index$ represents the index of anti-entrenchment provisions (i.e., one point is deducted from a maximum of five points for every shareholder right in place, similar to Bebchuk et al., 2008) and with all other variables defined as previously outlined. We estimate the coefficients in both models using panel regressions with random effects[4]. All standard errors are robust and clustered at the firm-level.

$$Yield\ spread_{it} = \alpha_0 + \beta_1\ Insider\ ownership_{it} + \beta_3\ Insider\ ownership_{it}\ x\ Anti - Entrenchment\ Index_{it} + \beta_3\ Anti - Entrenchment\ Index_{it} + \sum_{j=1}^{J} \gamma_j Issue\ controls_{j,it} + \sum_{k=1}^{K} \delta_k Firm\ controls_{k,it} + \sum_{l=1}^{L} \theta_l Country_{l,it} + \sum_{m=1}^{M} \vartheta_m Industry_{m,it} + \sum_{n=1}^{N} \omega_n Currency_{n,it} + \sum_{o=1}^{O} \varphi_o Year_{o,it} + \varepsilon_{it}, \quad (2)$$

After having estimated the mutual and individual relation of insider ownership and the Anti-E-Index, we turn to investigate a channel through which insider ownership potentially influences bondholder risk. Per definition, tunneling can manifest itself in illegal activities such as "outright theft or fraud" (Johnson, LaPorta, Lopez-di-Silanes, & Shleifer, 2000), but is not limited to this spectrum. One measurable way in which tunneling manifests itself are related party transactions (Enriques & Volpin, 2007), which we use as the dependent variable in firm-level probit regressions based on equation (3),

$$Related\ party\ transaction_{\ it} = \alpha_0 + \beta_1\ Insider\ ownership_{it} + \sum_{k=1}^{K} \delta_k Firm\ controls_{k,it} + \sum_{k=1}^{K} \delta_k Firm\ opacity_{k,it} + \sum_{k=1}^{K} \delta_k Strength\ legal\ framework_{k,it} + \sum_{l=1}^{L} \theta_l Country_{l,it} + \sum_{m=1}^{M} \vartheta_m Industry_{m,it} + \sum_{o=1}^{O} \varphi_o Year_{o,it} + \varepsilon_{it}, \quad (3)$$

where i denotes the firm and t the year of observation. $Insider\ ownership$ is again measured at the percentage of shares owned by directors, managers and other individual insiders,

[4] We do not use fixed-effects as the main independent variables exhibit little within-bond variation. We explicitly address concerns related to the use of random effects in section 5.

$Firm\ controls$ include leverage and firm size to proxy for the capacity for tunneling as well as firm visibility. $Firm\ opacity$ consists of the number of analysts covering the firm as well as the number of stock indexes the firm is part of. The $Strength\ legal\ framework$ control comprises the World Bank enforcing contracts score in order to control for differences in legal environments, which might influence the probability of RPTs being reported. We use the described framework to estimate the impact of insider ownership on the frequency of RPTs as well as to predict the probability of RPTs becoming public for the firms in our sample.

IV. Results

A. Insider Ownership and Corporate Bond Spreads

Table 3 shows the effect of insider ownership on corporate bond yield spreads under different regression model specifications. Across all models, we find that an increase in insider ownership leads to a statistically significant increase in the yield spread. Besides, we find that the effect is largest if we do not account for the covariate imbalance and regress insider ownership and year, country, industry and currency dummies on the yield spread without further controls. This is not surprising, as descriptive statistics show that insider owned firms are smaller and tend to expose a higher stock price volatility. However, the increase in yield spreads under insider ownership also stays statistically significant at the 1%-level when we account for differences in firm and bond characteristics in column (4), suggesting that insider ownership matters to bondholder beyond well-known determinants of credit spreads. The effect appears small but is nevertheless economically relevant. Given that a firm is insider-owned, the average percentage of shares in the hands of corporate insiders is 9.18%. Assuming a linear relation between spreads and insider ownership, an increase of 9.18% in insider ownership would incur an increase in the yield spread of 12.85 basis points, implying a 6% difference based on the average spread of 215 basis points in our sample.

Furthermore, this effect is economically relevant if the effect of insider ownership on the yield spread over the time to maturity is similar at the issue and hence, has to be borne by the issuing corporation. At an average issue volume of 470 million U.S. dollar, a one percent increase in insider ownership would come at additional yield spread of 1.4 basis points, translating into an addition annual interest expense of 65,800 U.S. dollar. At 9.18% insider ownership, this effect expands to 604,044 U.S. dollar. Magnitude and significance are similar when we exclude bonds issued by firms headquartered in the United States in Table 4.

Therefore, we shed light on the competing hypothesis on the impact of insider ownership and corporate bond yield spreads. If insiders engage in less self-serving behavior with increasing levels of ownership, bondholders should rationally anticipate this effect and accept lower yield spreads for bonds with greater insider ownership. Since we find the opposite effect, our results provide evidence against the notion that a higher degree of insider ownership is perceived as a signal of higher management commitment or aligned incentives.

As for the control variables, the factor loadings are robust across the different models and in line with our expectations. The bonds of larger firms (coefficient (4): -0.368; significant at the 1%-level) and more profitable firms (coefficient (6): -0.045; significant at the 1%-level) are traded at significantly lower yield spreads. Furthermore, bonds with higher liquidity implied through global trading (coefficient (4): -0.009) or larger volumes (coefficient (4): -0.004) trade at lower yield spreads, even though these effects are statistically insignificant. In contrast, bonds issued by more levered firms (coefficient (4): 0.520, significant at the 1%-level) with a higher cash flow volatility (coefficient (4): 0.078, significant at the 1%-level) and higher dividend yields (coefficient (4): 0.077, significant at the 1%-level) exhibit higher yield spreads. Also in line with existing literature, a longer time to maturity seems to have a significantly positive impact on the yield spread (Borisova et al., 2015).

Table 5 shows that the non-linearity of the effect, suggesting that economic effects are underestimated when interpreting the percentage change in insider ownership. We divide issuing firms into treatment and control groups by declaring firms as non-insider-owned if the ownership percentage is smaller than 5% and as insider-owned if the percentage of shares owned by insiders crosses a certain percentage[5]. Panel A shows the results estimated based on the full sample, Panel B the results when excluding bonds issued by U.S. based corporations. The positive impact of insider ownership on the spread increases beyond the linear prediction when moving from less than 5% percent insider ownership to the 10% threshold as well as when moving from the 10% to the 15% threshold, and so forth. 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. This is an increase of 12.6% at the average spread of 215 basis points in our sample. For companies with at least 20% insider ownership (insider coefficient: 0.512), the effect is almost twice as strong in the full sample and substantially increases to a 0.387 percent increase in the yield spread when limiting the analysis to non-U.S. borrowers. Only beyond the 50% threshold, the impact seems to decline again. However, this result should be interpreted with caution, as the number of firms with more than 50% insider ownership in our sample is small in both panels and hence, the estimations are less reliable[6]. Thus, we find additional support for the hypothesis that bondholders take insider ownership into account when valuing corporate bonds and that insider ownership signals more, not less incentive problems.

Panel A of Table 6 shows that this finding is internationally consistent. The positive and significant relation between insider ownership and yield spread does not only hold for the full

[5] We follow the literature and pick several commonly used ownership thresholds.
[6] To illustrate this concern, we indicate the number of firms with a percentage of insider ownership above the threshold below the overall number of observations in Table 5.

and the non-U.S. sample (columns 1 and 2), but also proves to be statistically significant and similar in magnitude in North America (1.1 basis points, significant at the 5%-level), Europe (1.2 basis points, significant at the 5%-level), Asia (0.7 basis points, insignificant), Oceania (1.1 basis points, insignificant) and the remaining countries in the sample (RoW; 2.1 basis points, significant at the 5%-level). Besides, we observe the yield spread increase in both developed and emerging markets, albeit the effect seems to be more pronounced in emerging markets (2.4 basis points, significant at the 5%-level). In line with the expectation that bondholders might be more concerned about powerful shareholders in countries with weaker creditor protection and the observation that creditor rights are weaker in civil law countries (Djankov, La Porta, Lopez-di-Silanes, & Shleifer, 2008), we find a stronger effect in civil law countries (1.5 basis points per 1% insider ownership increase) compared to bonds issued by firms based in common law countries (1 basis point per 1% increase).

Aslan and Kumar (2012) and Lin et al. (2011) find that creditors disapprove of ownership concentration and require higher bank loan spreads if voting rights divert from cash flow rights. In order to test whether we observe the same effect based on corporate bonds and taking into account that corporate insiders often establish dual class structures to strengthen their position within the corporation, we investigate the voting rights policies of the firms in the sample. GMI Ratings indicate when firms deviate from a one-share-one-vote policy. This is merely the case for 157 firms in our sample and unreported interaction effects do not show any significance. For this reason, we exclude firms with dual share classes and report the by-region results in Panel B of Table 6. We find that the results remain unchanged. Hence, the spread increase associated with insider ownership is a phenomenon beyond the ownership concentration effect observed by Aslan and Kumar (2012) and Lin et al. (2011) in the context of bank loans.

B. Insider Ownership, Governance Mechanisms and Corporate Bond Spreads

The finding that insider ownership increases spreads raises the question of why bondholders anticipate that certain owner types influence their risk. There are two alternative theories as far as potential channels with regard to insider ownership are concerned. One line of reasoning is that bondholders disapprove of insider ownership because their equity stakes motivate greater risk taking and alignment with shareholder interests (Ortiz-Molina, 2007). Alternatively, the ability of corporate insiders to pursue private benefits could lead to a higher perceived agency risk. If the latter is true and bondholders expect insiders to consume corporate resources to an extent that could become harmful to bondholders, the decrease in bond prices associated with insider ownership should be mitigated by firm-level provisions that facilitate monitoring and limit the potential of insiders to seek private benefits. In this case, we should observe a negative coefficient for an interaction effect of insider ownership and shareholder rights. In contrast, if bondholders expect insider ownership to fuel risk-taking, shareholder rights should not mitigate the effect, since the existence of shareholder rights is by itself understood to foster risk-taking (Klock et al., 2005; Ashbaugh-Skaife, Collins, & LaFond, 2006; Cremers et al., 2007).

The results from estimating shareholder rights and insider ownership in interaction are outlined in Table 7. The coefficients on insider ownership continue to be positive and statistically significant. The coefficients of the Anti-E-Index are positive and marginally significant. Thereby, the positive effect in line with the studies of Klock et al. (2005) and Cremers et al. (2007) showing that bond yield spreads increase with shareholder rights as shareholder orientation is associated with a higher risk of asset reduction and substitution[7].

[7] Similar results in the context of bank loan spreads have been reported by Chava, Livdan, & Purnanandam (2009).

However, within our international sample the effect is much smaller in magnitude and statistically insignificant in regional subsamples[8].

Additionally, we observe a negative coefficient on the interaction between these two variables. Thus, these estimates imply that the positive effect of insider ownership on bond spreads decreases with the anti-entrenchment provisions. The negative coefficient regarding the interaction of shareholder rights and insider ownership is significant at or beyond the 5%-level for all three thresholds of insider ownership. In Panel A, one percent additional insider ownership is associated with a spread increase of 3.2 basis points if shareholder rights are low, or in other words, when there are five shareholder rights restrictions in place (Anti-E-Index=0). In contrast, the yield spread increase is diminished to 0.7 basis points if the shareholder rights that are part of our index stay unrestricted. Accordingly, one additional shareholder rights provision in place reduces the insider ownership effect by 15.6%. These results as well as the coefficients estimated in the threshold analyses in columns 2, 3, 5 and 6 are similar when comparing results across Panel A and B, suggesting that insider ownership is less of a concern to investors globally if the firm exhibits a more shareholder oriented governance.

As a robustness test, we divide our sample into two subsamples in Table 8, separating issuers with high and low Anti-E-Indexes based on the year- and country-average as the cut-off. In this way, we form a subsample with below-average shareholder rights restrictions, labelled unrestricted shareholder rights, and a sample with above average restrictions, labelled restricted shareholder rights. In comparing the effect across those two groups, we find that the increase in the yield spread associated with insider ownership is weaker in the sample of issuers with unrestricted shareholder rights, suggesting that the insider ownership effect can be mitigated if the firm facilitates monitoring of outside shareholders. Thereby, the results in

[8] The corresponding tables are not reported for brevity but are readily available upon request.

Table 9 corroborate the aforementioned hypothesis that bondholders are less concerned about insider ownership when the extent to which insiders can seek private benefits is limited by outside monitoring.

C. Insider Ownership and Tunnelling

So far, our results are in line with the idea that bondholders expect insiders to consume more private benefits with increasing share ownership. We further test this hypothesis by putting insider ownership into relation with related party transactions (RPTs) as one form of tunneling. Table 9 shows the results estimated using probit regressions[9] with an RPT recorded in GMI as the dependent variable. With (column 1 and 3) and without further controls (column 2 and 4), the percentage of insider ownership is strongly positively related to the occurrence of an RPT. A one percent increase in insider ownership is associated with a 0.6 percent increase in the probability of a RPT being recorded in GMI. Interestingly, this positive effect is rather constant across different levels of insider ownership, illustrated by the similarity of the marginal effects estimated at the sample means and the average marginal effect across the sample. In terms of controls, the probability of related party transactions is strongly negatively related to firm opacity and positively related to firm size as the proxy for visibility[10], even though this effect is not statistically significant.

Overall, these results support the idea that the propensity of insiders to engage in tunneling grows linearly with the percentage of shares owned. Next to the estimation of marginal effects, we use the outlined probit model to predict the probability of the firms in our sample to become involved in RPTs. If bondholders are concerned that insider ownership might

9 We also estimate the effect using panel probit regressions, the tables are readily available upon request. Statistical significance is unchanged, the magnitude of the positive insider ownership effect further increases.
[10] The insider ownership coefficient stays positive, significant and consistent in magnitude when including further ownership controls on government, institutional and cross-ownership stakes.

increase their losses given default or the default risk, the impact of these proxies of tunneling risk should be reinforced by limiting the sample to lower rating grades.

In Table 10, we use this estimated probability besides the indicator of realized RPTs provided by GMI to test their direct relation with yield spreads. In line with our expectations, both realized RPTs and the predicted probabilities are significantly positively associated with higher bond yield spreads. Moreover, both coefficients grow when the sample is limited to bonds rated below BBB (column 2 and 5) and below BB (column 3 and 6). When GMI records that a company has engaged in an RPT in the past two years, bond yields rise by 10.3 basis points (column 1, statistically significant at the 1%-level). This increase grows to 15.8 (30.5) basis points if only below-BBB (BB) bonds are considered. The effect linked to the predicted probabilities appears economically stronger but is not directly comparable. An increase of the predicted probability by 50% translates into a 61.9 basis point increase in the spread, whereas this effect magnifies to 180.4 basis points if only below-BBB (BB) bonds are taken into consideration. When limiting the sample to non-U.S. borrowers, we find that only the predicted probability of RPTs is significantly related to yield spreads, nevertheless, the outlined relation with regard to rating grades holds.

Finally, we test the predictive power of realized RPTs, ex-ante probabilities of RPTs and the percentage of insider ownership simultaneously in explaining the yield spread increases associated with bondholder risk. The results are illustrated in Table 11, with the first three columns illustrating the base effect for the sample with RPT predictions available. Columns 4 to 6 include realized RPT records and columns 7 to 9 subsequently include the estimated RPT probabilities. In both the full sample (Panel A) and the non-U.S. sample (Panel B), the coefficient of insider ownership alone is very close to previously estimated results in columns

1 to 3.[11] When adding realized RPTs into the equation (columns 3 to 6) the effect diminishes only marginally. But interestingly, we find that the predicted probability of RPTs strongly reduces both the statistical significance as well as the magnitude of the insider ownership coefficient (columns 7 to 9). The effect is particularly strong when considering the non-U.S. sample in Panel B, where the explanatory power of insider ownership is completely removed. We interpret this as additional support for the notion that bondholders are concerned about insider ownership due to elevated levels of tunneling risk. However, as the remaining effect in Panel A shows, we thereby do not rule out other potential channels driving the yield spread increases such as changes in risk-taking and investment policies.

C. Endogeneity of Insider Ownership

We acknowledge the endogeneity of insider ownership and the fact that we cannot fully rule out 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 & Holderness, 2016).

However, we provide several considerations addressing the related concerns. First of all, we test the alternative hypothesis that insiders buy shares of their companies in order to strengthen the financial position once financial conditions deteriorate[12]. We outline test results in Table R2. First, we estimate the effect of insider ownership on yield spreads in the full as well different regional samples after excluding all bonds from issuing firms with changes of more than 1% in insider ownership over the whole observation period in Panel A. Thereby, the effect stays robust in magnitude in significance, supporting the view that the

[11] The number of observations drops compared to previous tables due to the limited coverage of additional variables included in the prediction of RPTs.

[12] From a qualitative standpoint, this alternative explanation is counterintuitive, particularly given the fact that our sample is tilted towards financially healthy issuers.

observed relation is not driven by adjustments in insider ownership to changes in financing conditions. Second, we exclude all bonds issued by firms facing a bond downgrade between 2003 and 2015 from the sample and re-estimate the effect in order to test whether the observed effect could indeed be driven by repurchases subsequent to financial performance deterioration. This exclusion largely reduces the sample, since downgrades frequently occur during the financial crisis. Nonetheless, the outlined effects also stay robust in magnitude and significance in Table R2, Panel B under this sample restriction.

Another alternative interpretation of our results could be that insiders have access to superior information and buy shares as the refinancing conditions of their firm deteriorates in anticipation of a subsequent recovery. Therefore, we test whether the relation of insider ownership and bond yield spreads, which would then have to be a proxy of overall firm financial health, turns around when we induce a lead-lag structure. However, also in letting insider ownership lead by one or two years[13], we find a statistically significant positive relation of insider ownership and yield spreads (Table R3).

V. Robustness Tests

We conduct several robustness tests to rule out other alternative explanations for the observed results. To begin with, we obtain the names of the private firms through which insiders hold their shares according to FactSet. Thereby, we realize that these names often but not always make credible that the shares are controlled by corporate insiders. For this reason, we repeat all regression with an alternative definition of insider ownership, only including shares acquired directly or through employee stock options, but not through private companies. Results stay equal in significance and very similar in their magnitude. We therefore stick to our original definition.

[13] The statistical relation weakens but coefficients stay consistently positive when we introduce a three year lag.

Next, we test several alternative explanations with regards to ownership structure and re-run the analyses in order to prevent that the results are driven by omitted variables in terms of other unaccommodated ownership variation. In doing so, we first exclude 77 firms with government ownership stakes from the sample reducing the sample by 852 corporate bonds in total. In doing so, the statistical significance remains unchanged and our results slightly gain in magnitude. This is consistent with the finding that government ownership can co-insure bondholders in specific cases, leading to an association of insider ownership and lower yield spreads (Borisova et al., 2015). Next, we exclude all firms with cross-ownership structures as indicated by Datastream, reducing the sample by 260 issuing firms and 1608 bonds. The results stay similar in magnitude and largely similar in significance, even though the significance is sometimes compromised by this exclusion. Thus, we conclude that bondholders concerns are reinforced by cross-ownership but not solely conditional on cross-ownership structures being in place. Furthermore, we add comprehensive controls for institutional ownership to all of our regression models. We do so by first of all adding the percentage of shares owned by institutions, then replacing this measure by adding a dummy indicating the presence of an institutional blockholder holding more than 5% of the shares outstanding, before we finally add both controls together. Our results by this means remain unchanged[14].

On another note, we test the robustness of our results with regard to alternative technical specifications. In the main analysis, we estimate all results using panel random effects regressions despite the fact that unobservable firm or bond characteristics and error terms might be correlated. Besides, multiple observations per bond and firm could inflate effects applying to sub-samples only. Therefore, we first average bonds by year over their issuing firms and run the regressions with firm panels, including one observation per issuing firm and

[14] All results are readily available upon request.

year. The effect of insider ownership on yield spreads is equal in magnitude and significant for the full sample as well as the North American, European and the sample of remaining bond issuer nationalities. Results remain unchanged if we further reduce the observations to one observation per firm (Panel B and D), regardless of whether we equal or value weight the observations by using the amount issued per bond.

VI. Conclusion

Using 10,470 corporate bonds publicly issued by 1,222 firms in 48 countries over the period from 2003 to 2015, we study the impact of insider ownership and governance mechanisms on yield spreads. First, we find that insider ownership is positively related to bond spreads, consistent with the hypothesis that bondholders anticipate a higher risk stemming from insider ownership. Second, we uncover that the positive impact of insider ownership on yield spreads is mitigated by shareholder rights. Through the finding that insider ownership increases the yield spread that bondholders expect to receive, however less so in the presence of anti-entrenchment provisions or additional shareholder rights, we find further support for the hypothesis that insider ownership constitutes an excess control problem. Third, we document a strong, positive and significant relation between insider ownership and the probability of related party transactions, supporting the view that bondholders are concerned about increases in tunnelling risk through insider ownership. And finally, we show that the ex-ante prediction of related party transactions risk is significantly positively related to corporate bond yield spreads and subsumes large parts of the yield spread increase observed under insider ownership. In a nutshell, this paper thereby provides international evidence that insider ownership and governance mechanisms matter in bond pricing. Besides, our results suggest that bondholder concerns stem at least partially stem from the expectation that corporate insiders will make use of their ownership to seek private benefits.

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Appendix

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 as well as 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	
Anti-E-Index	Governance Index constructed largely in line with Bebchuk, Cohen, and Ferrell (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	GMI

	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 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
	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, 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 as well as on an international trading platform.	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: Composition of Firms and Bonds

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

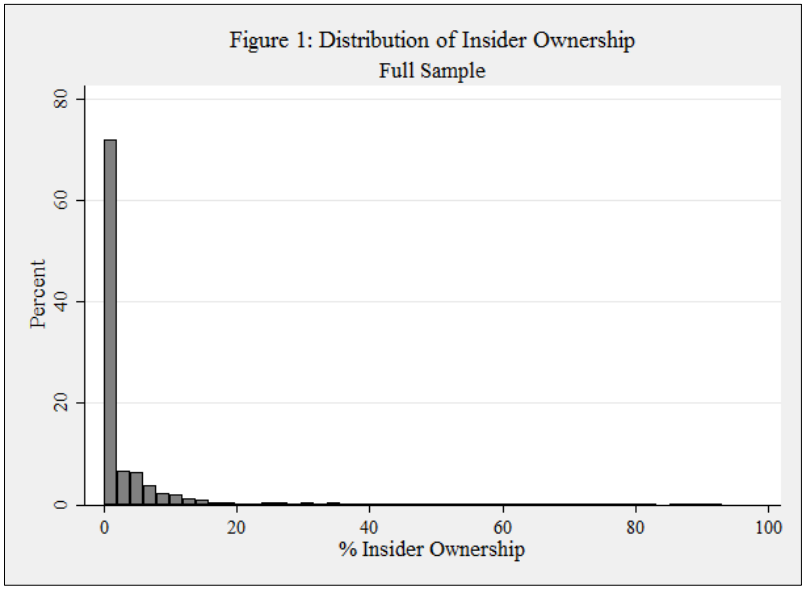
RUS	Russia	6	37	89
SGP	Singapore	10	104	431
SWE	Sweden	5	5	16
TUR	Turkey	7	43	145
TWN	Taiwan	16	59	234
USA	United States of America	700	6182	32170
ZAF	South Africa	4	20	37
Total		*1,221*	*10,470*	*50,138*

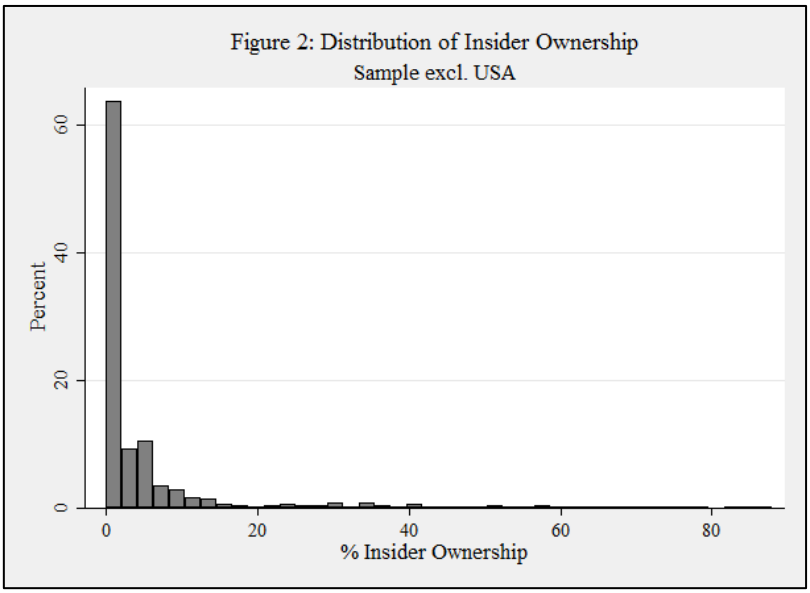
Appendix C: Rating Conversion Scheme

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

Appendix D: Figures





Appendix E: Main Tables

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. Complete variable descriptions can be found in Appendix A, the transformation scheme for Moody's and S&P ratings in Appendix B as well as the distribution of observations across countries in Appendix C.

	N	Mean	St. Dev.	P25	P75
Panel A: Firm Characteristics					
% Insider Ownership	50,143	3.426	8.452	0.155	2.823
% Institutional Ownership	50,143	65.12	23.06	50.56	82.95
% Cross-Ownership	49,667	3.237	11.06	0	0
% Government Ownership	49,667	2.052	9.868	0	0
Anti-E Index	50,143	3.162	1.333	2	4
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 (9)	50,143	6.297	1.044	6	7
S&P Rating (9)	22,328	6.065	1.132	6	7
Split Rating	50,143	0.319	0.466	0	1
Second Rating	50,143	0.445	0.497	0	1
Globally Issued Bond	50,143	0.303	0.460	0	1
Maturity (Years)	50,143	15.04	11.49	8	20
Amount Issued (Mio. USD)	50,143	470.5	525.3	150	600
Senior Bond	50,143	0.700	0.458	0	1
Secured Bond	50,143	0.0593	0.236	0	0
Put Option	50,143	0.0203	0.141	0	0
Call Option	50,143	0.623	0.485	0	1

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). Complete variable descriptions can be found in Appendix A, the transformation scheme for Moody's and S&P ratings in Appendix B as well as the distribution of observations across countries 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
% Institutional Ownership	981	11.86	217	7.81	4.05	0.00
% Cross-Ownership	992	4.44	220	15.24	-10.79	0.00
% Government Ownership	992	2.07	220	0.45	1.62	0.02
Anti-E 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)	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: Model Development, Full Sample

Table 3 shows the impact of insider ownership on bond spreads when sequentially completing the regression model by including issuer controls in column (2), bond controls in column (3), ratings in column (4) and orthogonal ratings in column (5). 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 number of observations in this table refers to bond years. Robust standard errors clustered at the firm-level are depicted 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)
Observations	50,143	50,143	50,143	50,143	50,143
Number of Bonds	10,471	10,471	10,471	10,471	10,471
Bond Features	No	No	No	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes
Within R-sq	0.514	0.593	0.593	0.595	0.593
Between R-sq	0.252	0.650	0.656	0.727	0.717
Overall R-sq	0.353	0.613	0.619	0.669	0.661

Table 4: Model Development, Sample excl. USA

Table 4 corresponds to Table 3 but shows the impact of insider ownership on bond spreads when the sample is limited to bonds issued by firms with headquarters outside of the United States. 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 number of observations in this table refers to bond years. Robust standard errors clustered at the firm-level are depicted 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)
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 Thresholds and Yield Spreads

Table 5 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 2/3, 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-sq	0.601	0.600	0.599	0.647	0.653	0.492	0.493	0.492	0.492	0.496
Between R-sq	0.712	0.707	0.706	0.697	0.684	0.715	0.711	0.710	0.709	0.708
Overall R-sq	0.663	0.659	0.656	0.671	0.667	0.630	0.626	0.627	0.626	0.624

Table 6: Insider Ownership and Yield Spreads Around the World

Table 6 shows the impact of insider ownership on bond spreads for different regional or country groups as indicated by the column headers and described in Appendix A. 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.

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-sq	0.595	0.496	0.637	0.573	0.421	0.679	0.487	0.605	0.606	0.619	0.504
Between R-sq	0.727	0.719	0.732	0.716	0.733	0.768	0.780	0.728	0.787	0.726	0.729
Overall R-sq	0.669	0.637	0.688	0.649	0.627	0.709	0.705	0.673	0.709	0.677	0.646

Panel B: Including Issuers with One-Share-One-Vote Policy

	(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	0.010***	0.009***	0.009**	0.008*	0.004	0.010	0.023**	0.009***	0.022***	0.008**	0.011***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.006)	(0.007)	(0.010)	(0.003)	(0.008)	(0.003)	(0.004)
Observations	43,596	14,038	30,020	4,666	4,573	2,186	2,151	40,269	2,874	36,249	7,347
Number of Bonds	9,125	3,363	5,870	1,141	1,207	404	503	8,317	715	7,243	1,882
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-sq	0.603	0.495	0.642	0.516	0.439	0.692	0.498	0.612	0.504	0.625	0.452
Between R-sq	0.755	0.747	0.758	0.787	0.751	0.799	0.787	0.752	0.867	0.749	0.802
Overall R-sq	0.686	0.652	0.702	0.701	0.639	0.729	0.688	0.688	0.743	0.690	0.689

Panel C: Full Sample, 10% Insider Ownership Threshold

	(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
>10% Insider Ownership	0.273***	0.260**	0.269**	0.411**	0.197	0.230	0.602*	0.287***	0.238	0.224**	0.457***
	(0.086)	(0.118)	(0.112)	(0.180)	(0.183)	(0.241)	(0.338)	(0.093)	(0.222)	(0.095)	(0.171)
Observations	45,749	16,278	30,455	5,264	5,396	2,279	2,355	41,764	3,518	37,291	8,458
Number of Bonds	10,012	4,071	6,214	1,374	1,443	427	554	8,989	929	7,760	2,252
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-sq	0.601	0.492	0.643	0.531	0.415	0.678	0.494	0.608	0.536	0.623	0.465
Between R-sq	0.712	0.715	0.711	0.727	0.724	0.771	0.787	0.709	0.806	0.706	0.744
Overall R-sq	0.663	0.630	0.681	0.655	0.608	0.711	0.703	0.665	0.702	0.668	0.654

Panel D: Full Sample, 20% Insider Ownership Threshold

	(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
>20% Insider Ownership	0.512***	0.387**	0.647***	0.527**	0.171	0.337	0.781**	0.519***	0.715	0.503***	0.567***
	(0.157)	(0.160)	(0.245)	(0.238)	(0.255)	(0.329)	(0.389)	(0.168)	(0.462)	(0.195)	(0.206)
Observations	43,333	15,368	28,704	5,097	4,978	2,235	2,319	39,624	3,257	35,243	8,090
Number of Bonds	9,498	3,857	5,862	1,326	1,350	418	542	8,554	854	7,334	2,164
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-sq	0.599	0.492	0.643	0.533	0.412	0.681	0.485	0.608	0.519	0.621	0.467
Between R-sq	0.706	0.710	0.706	0.716	0.719	0.770	0.846	0.703	0.810	0.699	0.743
Overall R-sq	0.656	0.627	0.673	0.650	0.606	0.713	0.722	0.658	0.705	0.659	0.657

Table 7: Interaction Anti-E-Index, Insider Ownership and Yield Spreads

Table 7 shows the interaction of insider ownership, governance mechanisms and their individual as well as 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 Anti-E-Index (Anti-Entrenchment Index), constructed similar to Bebchuk et al. (2008) and based on data from GMI Ratings. A higher index indicates that a company has adopted less 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 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.

	Panel A: Full Sample			Panel B: Sample excl. USA		
	(1)	(2)	(3)	(4)	(5)	(6)
Anti-E 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 Anti-E-Index	-0.005***			-0.006***		
	(0.002)			(0.002)		
>10% Insider Ownership		0.698***			0.949***	
		(0.179)			(0.262)	
>10% Insider Ownership x Anti-E-Index		-0.125***			-0.182***	
		(0.045)			(0.059)	
>20% Insider Ownership			1.119***			1.398***
			(0.303)			(0.437)
>20% Insider Ownership x Anti-E-Index			-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-sq	0.596	0.601	0.599	0.499	0.495	0.494
Between R-sq	0.728	0.712	0.707	0.719	0.714	0.711
Overall R-sq	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 orientation of the issuing firm of the bond. As before, 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. Governance is measured by means of the Anti-E-Index (Anti-Entrenchment Index), constructed similar to Bebchuk et al. (2008) and based on data from GMI Ratings. A higher index indicates that a company has adopted less 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 Anti-E-Index above the year-country mean are included into the regressions, in columns 4-6 those issuers with an Anti-E-Index below the year-country mean. 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.

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-sq	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-sq	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 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

Table 10 shows the impact realized related party transactions as well as the probability of predicted party transactions 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 related party transactions for the full sample, columns 2 and 4 show the coefficients estimated based on a sample including bonds with a BBB rating and below only. 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)	(4)	(5)	(6)
Realized Related Party Transaction	0.103***	0.158***	0.305**			
	(0.039)	(0.055)	(0.121)			
Probability Related Party Transaction				1.239***	1.633**	3.608***
				(0.445)	(0.780)	(1.353)
Observations	42,610	23,115	6,231	42,610	23,115	6,231
Number of Bonds	9,812	6,012	2,053	9,812	6,012	2,053
Issuer/Bond/Rating Controls	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Overall R-sq	0.666	0.688	0.628	0.667	0.689	0.632
	Panel B: Sample excl. USA					
	(1)	(2)	(3)	(4)	(5)	(6)
Realized Related Party Transaction	0.001	0.164	0.515***			
	(0.069)	(0.116)	(0.180)			
Probability Related Party Transaction				1.965***	2.434***	2.498**
				(0.383)	(0.908)	(1.032)
Observations	15,464	7,493	1,802	15,464	7,493	1,802
Number of Bonds	3,879	2,236	672	3,879	2,236	672
Issuer/Bond/Rating Controls	Yes	Yes	Yes	Yes	Yes	Yes
Countr/Curr/Ind/Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Overall R-sq	0.638	0.631	0.686	0.644	0.637	0.691

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

Table 11 shows the impact realized related party transactions, the probability of predicted party transactions as well as 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, columns 7-8 results include the predicted probability of related party transactions based on probit estimations outlined in Table 10. 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)	(4)	(5)	(6)	(7)	(8)	(9)
% Insider Ownership	0.011***			0.011***			0.009*		
	(0.003)			(0.003)			(0.005)		
>10% Insider Ownership		0.245***			0.226***			0.156*	
		(0.086)			(0.086)			(0.088)	
>20% Insider Ownership			0.474***			0.451***			0.329**
			(0.149)			(0.150)			(0.164)
Realized Related Party Transaction				0.088**	0.084**	0.083**			
				(0.039)	(0.039)	(0.040)			
Probability Related Party Transaction							0.602	0.835**	0.767*
							(0.642)	(0.389)	(0.426)
Observations	42,610	39,009	37,002	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	9,812	9,358	8,874
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
Overall R-sq	0.668	0.663	0.655	0.668	0.663	0.655	0.668	0.664	0.655

Table 11 (continued): Insider Ownership, Related Party Transactions and Yield Spreads, Excl. USA

Table 11 shows the impact realized related party transactions, the probability of predicted party transactions as well as 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, columns 7-8 results include the predicted probability of related party transactions based on probit estimations outlined in Table 10. 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 B: Sample excl. USA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
% Insider Ownership	0.012***			0.012***			0.005		
	(0.003)			(0.003)			(0.005)		
>10% Insider Ownership		0.293**			0.296**			0.120	
		(0.125)			(0.125)			(0.134)	
>20% Insider Ownership			0.429***			0.440***			0.141
			(0.157)			(0.159)			(0.194)
Realized Related Party Transaction				-0.020	-0.020	-0.047			
				(0.069)	(0.070)	(0.074)			
Probability Related Party Transaction							1.546**	1.583***	1.514***
							(0.645)	(0.425)	(0.500)
Observations	15,464	13,931	13,119	15,464	13,931	13,119	15,464	13,931	13,119
Number of Bonds	3,879	3,672	3,468	3,879	3,672	3,468	3,879	3,672	3,468
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-sq	0.504	0.502	0.502	0.504	0.502	0.502	0.503	0.499	0.500

Appendix F: Robustness Tables

Table R1: Insider Ownership and Yield Spreads, Firm-Level Regressions

Table R1 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. Panel A and B show the coefficients estimating when bond observations are value weighting, Panel C and D show estimations based on a weighting according to the issue amount of the firm's bonds. In Panel A and C, observations are reduced to a firm panel and coefficients estimated using random effects. In Panel B and D, observations are reduced to one observation per firm, with coefficients estimated using OLS. Standard errors are robust, in Panel A and C clustered on firm-level. The number of observations refers to firm years in Panel A and C and firms in Panel B and D. *** 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: RE Firm Portfolios, Value Weighting									
% 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)
Observations	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-sq	0.634	0.545	0.672	0.559	0.547	0.729	0.610	0.642	0.575
Between R-sq	0.803	0.778	0.825	0.832	0.820	0.842	0.739	0.810	0.856
Overall R-sq	0.731	0.690	0.752	0.721	0.702	0.800	0.691	0.736	0.744
Panel B: OLS Firm Portfolios, Value Weighting									
% 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)
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-sq	0.796	0.804	0.806	0.866	0.865	0.967	0.881	0.799	0.916
Panel A: RE Firm Portfolios, Equal Weighting									
% 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)
Observations	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-sq	0.621	0.532	0.660	0.539	0.540	0.705	0.588	0.629	0.566
Between R-sq	0.799	0.773	0.822	0.831	0.800	0.861	0.726	0.807	0.842
Overall R-sq	0.722	0.679	0.744	0.717	0.681	0.807	0.673	0.728	0.730
Panel B: OLS Firm Portfolios, Equal Weighting									
% 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)
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-sq	0.762	0.764	0.783	0.852	0.813	0.982	0.849	0.771	0.833

Table R2: Insider Ownership and Yield Spreads, Alternative Explanations

Table R2 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-sq	0.618	0.522	0.666	0.600	0.405	0.692	0.538	0.632	0.660
Between R-sq	0.695	0.701	0.681	0.687	0.733	0.732	0.838	0.694	0.746
Overall R-sq	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-sq	0.617	0.513	0.654	0.528	0.417	0.767	0.527	0.625	0.517
Between R-sq	0.750	0.753	0.756	0.784	0.783	0.794	0.801	0.747	0.857
Overall R-sq	0.688	0.682	0.698	0.715	0.677	0.762	0.727	0.686	0.763

Table R3: Insider Ownership and Yield Spreads, Alternative Explanations

Table R3 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
% 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-sq	0.599	0.487	0.642	0.565	0.410	0.686	0.495	0.612	0.581
Between R-sq	0.710	0.698	0.716	0.704	0.721	0.728	0.799	0.710	0.791
Overall R-sq	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-sq	0.601	0.482	0.644	0.544	0.447	0.677	0.512	0.618	0.553
Between R-sq	0.680	0.667	0.691	0.674	0.635	0.718	0.807	0.676	0.759
Overall R-sq	0.660	0.617	0.681	0.634	0.594	0.681	0.726	0.665	0.698