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The Congruence of Shareholder and Bondholder Governance

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THE CONGRUENCE OF SHAREHOLDER AND BONDHOLDER GOVERNANCE

Abstract

We document the effect of shareholder governance mechanisms on bondholder risk. We find that shareholder control (proxied by the presence of an institutional blockholder) is associated with higher (lower) yields if the firm is exposed (protected) to takeovers. In the presence of shareholder control, the difference in bond yields due to differences in takeover vulnerability can be as high as 139 basis points. Also, suggestive of risk differences due to shareholder governance, we find that a bond portfolio that buys issues of firms with both strong shareholder control and high takeover vulnerability and shorts issues of firms without either shareholder control or takeover vulnerability generates an annual return of 1.5%. Finally, to investigate the importance of the takeovers, we show that issues with event risk protection always consider stronger shareholder control beneficial, especially as takeover vulnerability increases. Therefore, in the presence of event risk covenants, shareholder governance and bondholder interests converge.

In their survey, Shleifer and Vishny (1997) broadly term corporate governance as "the ways through which suppliers of capital to corporations assure themselves of getting a return on their investment". In general, the Anglo-Saxon view of corporate governance has mainly focused on transparency and strengthening shareholder rights, as witnessed by the recent governance reforms in the US and the UK.[1] Since shareholders are, by virtue of their contract, the residual claimants of the firm cash flows, this view suggests that higher shareholder vigilance automatically benefits bondholders – the other major supplier of capital - by reducing chances of bankruptcy due to managerial self-dealing. However, there are reasons to believe that bondholders might not always welcome stronger shareholder control and governance.

Different governance mechanisms available to shareholders can have different consequences for bondholders. For example, acquisitions and disciplinary takeovers can benefit target shareholders but also hurt the target bondholders by adding additional debt to the firm.[2] Higher leverage can reduce the value of outstanding bonds both by increasing the probability – and the deadweight costs – of a possible future bankruptcy and by reordering the priority of claims in bankruptcy.[3] An extreme case is that of Leveraged Buyouts. Using trader quoted data, Warga and Welch (1993) show that bondholder losses range on average between 6-7% on Leveraged Buyout announcements.[4] More generally, if greater shareholder control results in an increase in leverage, existing bondholders stand to lose unless the benefits of increasing leverage (e.g. reducing managerial misuse by reducing free cash flow (Jensen, 1990)) are large.

[1] See for example Black (1998), Coates et. al. (2002), Bebchuk (2004) and the Sarbanes-Oxley act of 2002.
[2] Among others, Kim and McConnell (1977), Cook and Martin (1991) and Ghosh and Jain (2000) show that, on an average, firm leverage significantly increases after a takeover.
[3] Even if a bond has priority covenants that prevent the firm from issuing bonds of equal or higher seniority, these priority rules are not completely upheld in the case of financial distress (see e.g. Franks and Torous (1989), Weiss (1990) and Eberhart, Moore, and Roenfeldt (1990)).
[4] In a more general setting of all mergers and acquisitions in the 1980's and the 1990's, Billet, King and Mauer (2003) consider the impact of takeovers on bondholder wealth. Although this study does not separate disciplinary takeovers from mergers and takeovers for managerial interests, it shows that when takeovers are accompanied by an increase in asset risk or reduction in credit rating of the target firm, the bondholders of the target firm lose.

Since stronger shareholder control also better aligns management to shareholders, bondholder concerns of asset substitution might be heightened as well (Jensen and Meckling, 1976). Therefore, the net impact of strong shareholder governance on bondholders depends on the nature of the governance mechanisms in place, is theoretically unclear and is ultimately an empirical issue – a sentiment reflected in the following statement by a prominent bond rating agency:[5] *"Generalized implications for creditors of companies that have controlling shareholders are not clear to us at this point. While there is substantial overlap between creditor and shareholder interests, there also are important potential conflicts."*

This paper looks at if, and under what conditions, shareholder governance and bondholder interests converge. To do so, we first investigate how different governance mechanisms that strengthen shareholders affect bondholders. Focusing on shareholder control and takeover defenses, we first investigate how shareholder control and takeover vulnerability affect bond yields. Second, we check if rating agencies account for the interaction between the different governance mechanisms. Third, we compare returns of bond portfolios differing in their issuer's shareholder governance characteristics to detect any risk differences. We then investigate whether bond covenants, a form of bondholder governance, help in the convergence of bondholder interests and shareholder governance. To proxy for strong shareholder control, we use the presence of an institutional blockholder (i.e., with equity ownership greater than 5%). To proxy for a firm's exposure to the market for corporate control we consider firm charter-level takeover defense provisions.

Using bond yields of an average of 1839 issues per year from 1990 to 1997, we document several striking results. First, shareholder governance can increase bondholder risk. In particular, shareholder control is associated with **lower** yields only if the firm is *protected* from takeovers. However, shareholder control is associated with **higher** yields if the firm is *exposed* to takeovers. The detrimental effect of strong shareholder governance, characterized by the presence of a large external shareholder and high takeover vulnerability, for bondholders is the strongest for firms that are small and have

[5] See Moody's 'Rating Methodology' (2003).

low leverage. In the presence of shareholder control, the difference in bond yields due to differences in takeover vulnerability can be as high as 139 basis points. Since takeovers become more likely with stronger shareholder control (Shleifer and Vishny (1986)), the results suggest that strong shareholder control along with low takeover defenses increases bondholders' concerns of takeover risk. The results using firm size and leverage also point to the takeover channel as the source of concern to the bondholders, as firms that are small and have low leverage are more likely to be takeover targets (see e.g. Stulz, 1988, Harris and Raviv, 1988, Zweibel, 1997, and Novaes and Zingales, 1995).

Moreover, we find strong evidence that bond portfolios differing in their issuer's shareholder governance characteristics differ in their realized returns. Specifically, we show that a portfolio that buys bonds of firms with strong shareholder control and high takeover vulnerability and shorts bonds of firms with neither high shareholder control nor takeover vulnerability generates an annual return of up to 1.5%. Again, the differences in returns are higher for firms that are small and have low leverage. Finally, bond ratings do not appear to completely account for the interaction between shareholder control and takeover vulnerability. We also find that the ratings are overly pessimistic about the existence of shareholder control.

We then proceed to investigate whether bondholder governance, through the use of bond covenants, mitigates the conflict between shareholder control and bondholders. Since the previous results suggest that the source of this conflict is through takeovers, we use covenants that reduce a bond's exposure to event risk. We find that issues that are protected from takeovers through leverage restricting covenants, net worth requirements and the poison put covenant welcome the appearance of a blockholder, especially as takeover vulnerability increases. Combined with earlier research – Cremers and Nair (2004), which extends Gompers, Ishi, and Metrick (2003, henceforth GIM) and looks at the interaction of various governance mechanisms finds that shareholder control and takeover defenses are complementary shareholder governance mechanisms – these results show that event risk covenants help in the convergence of shareholder and bondholder governance.

To the best of our knowledge this is the first paper that analyzes when shareholder and bondholder governance converge. There is scant evidence on how different governance mechanisms interact to affect bond yields, returns and ratings. As documented in this paper, shareholder governance can have *divergent* and economically important effects on bondholders. The results in this paper add to the findings of both Gompers, Ishi, and Metrick (2003) and of Cremers and Nair (2004), which looks at the impact of shareholder governance on equity returns and firm performance. Furthermore, our approach adds to most of the literature that investigates the effect of shareholder control and firm decisions on bondholders by focusing on bondholder wealth changes around certain events (e.g. looking at spin-offs (Maxwell and Rao, 2003), mergers and acquisitions (Billet, King and Mauer, 2004), and seasoned equity offerings (Eberhart and Siddique, 2002)).

In doing so, we also highlight the importance of using shareholder control in bond pricing models. We apply the long run event study methodology used in Gompers, Ishii and Metrick (2003) and Cremers and Nair (2004) for equity prices to bonds. This approach, new in the literature on bondholder wealth effects, helps us understand how bondholders price in the effects of greater shareholder control and how bond prices change over time. Finally, using covenant information we show the importance of event risk in bondholders' reaction to changes in governance.

Our work is related to Bhojraj and Sengupta (2003) and Klock, Mansi and Maxwell (2003) in their focus on the relation between bondholder wealth and corporate governance. However, important differences exist. These papers exclusively analyze how one single proxy for shareholder governance affects yields and/or ratings, whereas this paper considers the interaction of different governance mechanisms. In particular, Bhojraj and Sengupta (2003) use aggregate institutional ownership as their sole proxy for governance, and Klock, Mansi and Maxwell (2003) use the index compiled by Gompers, Ishii and Metrick (2003) and look at yields only.[6] However, as shown in this paper, the interaction between different governance mechanisms is crucial - the relation between

[6] Like Klock, Mansi and Maxwell (2003), Chava, Dierker and Livdan (2004) also use the index compiled by Gompers, Ishii and Metrick(2003) but focus on bank loans.

governance and bondholder wealth is not uniform across all firms as in these papers. In fact, we proceed further and show it is critical to consider how the effects of shareholder governance depend on size and leverage. In addition, this paper also uses a portfolio approach and a time series of bond prices to see how the effects of governance evolve into bond returns. Finally and perhaps most importantly, these papers do not deal with bond covenants – which can shed valuable light on the documented relationships and show when shareholder governance and bondholder governance converge.

The rest of the paper is organized as follows. After describing the data in the next section, we present results relating bond yields and credit ratings to governance mechanisms in section III. Section IV investigates how bond prices change over time. In section V, we take a closer look at our findings by using issue specific covenant information. Section VI concludes.

II. Data

The data used in this study can be separated into three categories – A) data on corporate bonds, B) data on governance mechanisms and C) data on firm characteristics.

A. Corporate Bonds

We use two sources to collect the information required on corporate bonds. We use the Lehman Brothers' Bond Database (LBBD) to construct quarterly yield spreads of bonds (used in Section III and V). LBBD reports the institutional pricing for Treasury and corporate bonds over the 1973 - 1997 time period. As our firm-specific shareholder governance proxies only start in 1990, we use only the latter part of the database. Our sample includes an average of 1,839 corporate bonds per year from 1990 to 1997. On average, there are 4.3 corporate bonds with the same issuing firms in our sample.[7] LBBD contains both matrix prices as well as dealer quotes, where matrix prices are set according to some pricing algorithm based on bonds with similar characteristics. As matrix prices are regarded as less reliable than actual dealer quotes (see e.g. Warga and

[7] While the average number of issues per firm is 4.3, the standard deviation is 4.6. The quartile cutoffs for the number of issues per firm are 1 (25%), 2 (median) and 5 (75%). All our results are robust to excluding firms in above the 90 percentile category.

Welch (1993)), we only use dealer quotes. Total monthly returns based on full prices (flat plus accrued interest) are used in the long-run portfolio return analysis in Section IV. Finally, LBBD also provides information on some issue-level control variables such as issue size, number of years to maturity, dummies for callability, senior and senior-secured debt, and credit ratings (for details, see the description of Table 3).

The risk-free term structure of interest rates is from the Salomon Brothers Yield Book, including the quarterly treasury benchmark yields with time-to-maturity of 1 year, 2 years, 3 years, 5 years, 10 years, 20 years and 30 years. The term structure of interest rate is used not only to compute yield spreads (Section III and V), but also abnormal bond returns (Section IV).

We also use the Fixed Income Securities Database (FISD) to obtain information on bond covenants that protect bond investors. FISD contains detailed issue-level information on over 140,000 corporate, US Agency, US Treasury and supranational debt securities. Specifically, we focus on covenant provisions related to leverage restrictions, net worth restrictions and the existence of a 'poison put', as these have been shown to crucially affect bondholder reactions to takeovers (Asquith and Wizman (1990)). While net worth and leverage restrictions limit the amount of debt the firm can have, a poison put covenant gives bondholders the option of selling the issue back to the issuer at par or at a premium upon a change of control of the issuer firm.

B. Governance Mechanisms

The first shareholder governance mechanism considered is the presence of an active shareholder, which we refer to as the existence of shareholder control. Our proxy for whether or not there is shareholder control is a dummy for the existence of an institutional blockholder, denoted by BLOCK = 1 if such an institutional blockholder is present. We define blockholders as shareholders, external to the firm, with an ownership greater than 5% of the firm's outstanding shares. To construct this measure, we use data on institutional share holdings from Thompson / CDA Spectrum, which collects quarterly

information from the SEC 13f filings.[8,9] By using institutional blockholding rather than simply institutional ownership, we mitigate the problem that institutions with minor stakes have few incentives to be involved in firm-specific decisions and reduce the noise associated with picking up non-monitoring shareholders. Furthermore, Shleifer and Vishny (1986) argue that blockholders often have substantial voting control, enabling them to pressurize the firm's management and play an important role in acquisitions. Therefore the use of blockholder data is important to measure the takeover vulnerability of the firm (see, e.g., Ivashina, Nair, Saunders and Massoud (2004)).[10]

The second shareholder governance mechanism considered is exposure to the market for corporate control. We use data on anti-takeover provisions in the firm's charter from Investor Research Responsibility Center (IRRC) publications to construct an anti-takeover index (ATI) that proxies an individual firm's exposure to the market of corporate control. We also confirm our results using the index developed, from the same source, by Gompers, Ishi and Metrick (2003, denoted here by EXT). The IRRC data used to construct these indices are available during our time period for the years 1990, 1993 and 1995. While IRRC does not update all companies in a new edition, Gompers, Ishi and Metrick (2003) argue that there is no reason to suspect systematic biases in this data.

ATI (for a more detailed description, see Cremers and Nair (2004)) uses information on three anti-takeover provisions that the literature has recognized to be critical for takeovers – preferred blank check, staggered boards and restrictions on calling special meetings *and* action through written consent. The existence of the preferred blank check not only implicitly equips the firm with a poison pill, but also enables the management to issue new classes of stock without shareholder approval and significantly reduces takeover probability (see e.g. Ambrose and Megginson (1992)). Further, classified or staggered boards as well as restrictions on calling specials meetings and action through

[8] The 1978 amendment to the Security and Exchange Act of 1934 requires all institutional investors with more than $100 million under management to report their shareholdings to the SEC.

[9] Non-institutional blockholders are omitted in the study, due to the difficulty of collecting reliable data for such a large sample over this time period. However, consistent with our results, Anderson, Mansi and Reeb (2003) find using family ownership data that family ownership reduces the cost of debt by mitigating structures that engender the conflict between equity claimants and debtholders.

[10] The 5% cutoff for blockholding is consistent with a large literature on corporate governance (for a recent article on blockholder data see Dlugosz, Fahlenbrach, Gompers and Metrick (2004)) and is also the cutoff above which owners are required to listed on the proxy by the SEC.

written consent create significant delays in takeover battles (see e.g. Bebchuk, Coates, and Subramanian (2002) and Daines and Klausner (2001)).[11] Therefore, these provisions create barriers to takeovers in addition to the poison pill (or the blank check). In fact, some legal scholars deem classified boards the single most important factor in takeover defense due to the long delay it causes.[12]

These three provisions produce a takeover vulnerability index varying from 1 to 4, adding one point if a provision is not in place. We classify firms with ATI = 1 as having lowest takeover vulnerability, and those with ATI = 4 as being most prone to takeovers. In any year, about 31% of firms have ATI = 1, 32% have ATI = 2, 32% have ATI = 3, and finally about 5% of firms have ATI = 4.

The index based on Gompers, Ishi and Metrick (2003) is termed EXT. The index EXT incorporates 24 different provisions in 5 categories – tactics for delaying hostile bidders, voting rights, director/officer protection, other takeover defenses and state laws – all of which directly affect takeover protection.[13] The index EXT is formed by adding one point if the firm does not have a specific defensive provision in place and zero otherwise, leading to values between 0 and 24. As a result, a larger value of EXT signifies fewer protections against the market for corporate control, and thus greater exposure to takeovers.[14]

C. Firm Characteristics

Firm characteristics such as leverage and market capitalization are obtained from the Compustat / CRSP database. Firm accounting data are from the Compustat Quarterly database. All variables are lagged by 3 months to ensure that the accounting information is public when the yield and the rating analysis is conducted. Leverage is defined as

[11] Daines and Klausner (2002) show that restrictions on calling special meetings coupled with restrictions on acting through written consent can delay the acquirer by 12 to 18 months, depending on state laws.
[12] Bebchuk et al. (2002) find that an effective staggered board doubled the odds of remaining independent for an average target. A classified board can impose a delay of up to 2 years.
[13] For a more detailed description of the 24 provisions, see Gompers, Ishi and Metrick (2003).
[14] Therefore, our external governance index is a linear transformation of the index as used in Gompers, Ishi and Metrick (2003), which is denoted by G, such that EXT = 24 – G. Doing so considerably improves exposition when considering the interaction term BLOCK × EXT, since an increase in either variable now signifies better shareholder governance.

(Total long-term debt + Debt in current liabilities)/Total liabilities and is adjusted for industry median levels using the 48 Fama-French (1997) industry classifications.

III. Shareholder Governance and Bond Prices

In this section, we document the impact of stronger governance on corporate bond spreads. Our sample consists of an average of 1839 bonds from 426 firms per year, or 4.3 bonds per firm. We start by presenting some summary statistics of our data. Table 1 reports the average number of bonds per year and per firm and the quartile percentages of the shareholdings of the largest blockholder and the distribution of the anti-takeover index (ATI) as well as the quartile levels of the shareholders rights index, EXT. Around 63% of firms have a blockholder at any one time and consistent with the evidence on increasing institutional ownership in the 1990s (Gompers and Metrick, 1999), blockholder ownership appears to have increased over this time period. The number of firms in the four ATI groups and the quartile levels of EXT are also reported. As can be seen, the distribution of firms based on the level of their takeover vulnerability (ATI and EXT) is fairly stable. About a quarter of firms have EXT $\leq$ 12 and a quarter of firms have EXT $\geq$ 16. The distribution of ATI is more lopsided, with about 32% of the firms having the lowest takeover vulnerability (ATI = 1) and 5% of the firms most prone to takeover (ATI = 4).

Table 2 reports the correlation matrix of EXT, BLOCK, SIZE, LEVERAGE and RATING. RATING is defined such that a higher value implies a lower probability of bankruptcy. The correlation between RATING and LEVERAGE (-29%) and between RATING and SIZE (56%) suggests, as expected, that smaller firms with higher industry-adjusted leverage have riskier bonds and therefore lower ratings. Incidentally, the presence of blockholders – more likely in smaller firms (correlation of -24% between BLOCK and SIZE) and in firms with higher leverage (correlation of 16% between BLOCK and LEVERAGE) – is also associated with lower ratings. The correlation between takeover vulnerability and rating is, at best, mixed and depends on the proxy used. It appears that EXT is weakly related to ratings but ATI is not. Most other

correlations are relatively small. ATI (EXT) has a low, negative correlation of 4% (6%) with BLOCK, and is uncorrelated with SIZE. Having seen the general associations between the variables of interest, we can now proceed to document the impact of the governance mechanisms on bondholders.

Table 3 reports the results from the pooled panel regression of quarterly corporate bond spreads on the various governance-related variables plus the firm-specific control variables using ATI as the proxy for exposure to takeovers.[15] The bond spreads are bond yields adjusted for the risk-free term structure of interest rates. For each issue, we match by time-to-maturity to get the corresponding Treasury benchmark yield. Quarterly treasury benchmark yields with time-to-maturity of 1 year, 2 years, 3 years, 5 years, 10 years, 20 years and 30 years are retrieved from Salomon Brothers Yield Book. We use linear interpolation to calculate treasury yields with time-to-maturity of other years below 30. For the few observations with time-to-maturity above 30 years, we use the 30-year treasury benchmark. For each observation, the spread is calculated as the difference between the bond yield and its corresponding treasury benchmark.

In these pooled panel regressions, we control for leverage, assets in place, time to maturity, duration[16], seniority, secured characteristics, callability and credit ratings to investigate the impact of shareholder control (BLOCK) and exposure to takeovers (ATI and ATI x BLOCK) on bondholders.[17] As expected, bondholders demand higher yields for smaller issues, firms with higher leverage and issues which are callable by the issuers.[18] Not surprisingly, seniority also reduces the required yields, specially if the issue is secured. The interaction term, ATI x BLOCK, is intended to capture the 'effective' takeover vulnerability since the presence of a blockholder might be necessary to facilitate takeovers even if the firm does not have takeover protection.[19] Thus, a blockholder in

[15] All regression results in the paper are corrected for heteroskedasticity (White) and serial correlation (Newey-West using 1 lag). To account for the correlation among issues of the same firm, we compute the average correlation among issues of the same firm (33%) and crudely adjust for this by dividing the t-stats by the square root of 0.33 x 4.3 = 1.19 (with 4.3 being the average number of issues per firm).

[16] Time to maturity and duration are highly correlated and results using either one are similar to each other. Estimations reported in the table use time to maturity in the controls.

[17] We also looked at controls concerning putability and profitability. The results are similar and are not reported.

[18] Results are similar when the firm's asset size is used instead of issue size.

19 Shleifer and Vishny (1986) argue that even if a firm is exposed to the market for corporate control, disciplinary takeovers are unlikely to occur if the shareholders are dispersed. Thus, a blockholder is

addition to low takeover defenses is essential to make a firm truly vulnerable to takeovers.

Each of the first three models has only one of these three variables; namely BLOCK, ATI and ATI*BLOCK, respectively, in addition to the set of controls. First, we find that shareholder control by itself, as proxied by BLOCK, is not significantly related to bond spreads. A possible reason for this, that we investigate shortly, might be that BLOCK has opposite effects on bondholders depending on firm characteristics and other governance mechanisms in place. This view is further strengthened by observing that both ATI and ATI*BLOCK by themselves have positive and significant coefficients, indicating that increased exposure to the market for corporate control is associated with greater risk for bondholders and higher bond spreads.

Model 4 presents our first main result, where we consider all three variables (ATI, BLOCK and ATI*BLOCK) simultaneously in addition to the set of controls. BLOCK now has a strongly negative and significant coefficient, equal to –0.23 with a t-stat of -3.93, and ATI*BLOCK has a strongly positive and significant coefficient, equal to 0.11 with a t-stat of 4.51. These results show that the presence of a strong shareholder is associated with lower bond risk only if the firm is protected from takeovers. If, on the contrary, the firm is exposed to takeovers, the presence of a strong shareholder is associated with higher yield spreads. Therefore, BLOCK appears to be associated with two opposite effects, and regressions (such as model 1) that consider only shareholder control could be misleading. The above result also corroborates the complementary relationship of firms' takeover provisions and the existence of active shareholders established in Cremers and Nair (2004).

Also, note that the observed effects are economically important. A firm with both active shareholders (i.e. BLOCK equal to one) and few anti-takeover provisions (ATI = 4) is associated with a yield spread of 21 basis points **higher** (-23 + 4 x 11) than firms without a blockholder. A firm with a blockholder but takeover protection (ATI = 1) is associated with a yield spread of 12 basis points **lower** than a firm without a

essential, in addition to low takeover defense to make a firm truly vulnerable to takeovers. See Ivashina, Nair, Saunders, and Massoud (2004) for supportive evidence.

blockholder. Thus, contingent on the exposure to takeovers, blockholders are associated with contrasting effects on yield spreads, with the difference between ATI = 4 and ATI = 1 being 33 basis points (21 - (-12) bp). The combination of both shareholder governance mechanisms appears to increase bondholder risk.

III.1. Firm Characteristics, Takeover vulnerability and Yield spreads

To further investigate the results in model 4, we consider the importance of size and leverage in the interaction between governance mechanisms and bond spreads due to their impact on takeover vulnerability. Since smaller firms and firms with lower leverage are more likely to be taken over, takeover vulnerability now includes the presence of a blockholder, low takeover defense, a lower size and lower leverage. We sort all firms independently into 3 different groups according to both size (small-medium-large) and leverage (low-medium-high), and create dummies for small and large size as well as low and high leverage. The dummy coefficients should be interpreted relative to the associated medium categories. Here, size is measured as the market capitalization of the outstanding equity, and for leverage we use industry-median-adjusted leverage. The 48 Fama-French (1997) industry classifications are used for industry-adjustments throughout the paper.

In model 5, we add the interaction of ATI*BLOCK with the small and large size dummies to the variables in model 4. The results strongly confirm that stronger shareholder control and the absence of anti-takeover provisions is associated with higher yields especially for smaller firms as the coefficient for ATI*BLOCK for small firms is a significant 0.10 whereas the coefficient for large firms is negligible and insignificant. As a result, the cumulative coefficient for AT*BLOCK for small firms equals 0.20 and is twice as large as for large firms. Put differently, a small firm (lowest third of firms) with a blockholder and complete exposure to takeovers (ATI = 4) is associated with a yield spread of 40 basis points higher than a large firm (highest third of firms) with a blockholder and complete exposure to takeovers (ATI = 4). In small firms, the presence of both governance mechanisms (BLOCK=1 and ATI=4) is associated with an increase of 58 bp (-22 + 20 x 4).

Next, we look at the impact of leverage on the relation between yield spreads and governance mechanisms. We find that conditioning on leverage alone leads to no differences in the effect of shareholder control. Specifically, when we add low and high leverage dummies to the interaction of ATI*BLOCK (model 6), we observe no difference based on leverage. When we interact the complementary measure of takeover vulnerability, ATI*BLOCK, with both the small and large size dummies as well as the low and high leverage dummies simultaneously (model 7), the estimate for small firms and low leverage is weakly insignificant and the pattern in the economic estimates suggests that bondholders of firms that are small and have low leverage view strong shareholders and lack of takeover defenses the most unfavorably. We return to this issue in the next section, when we consider the impact of institutional blockholder appearances and disappearances.

III.2. Blockholder Appearance and Bond spreads

The pooled panel regressions (Table 4) show that bondholders of firms with both governance mechanisms (blockholders and takeover vulnerability) demand higher returns and bondholders of firms with strong shareholders and protection from takeovers demand lower returns than a firm without either governance mechanism. To reduce concerns of endogeneity, we report, in table 4, the impact of changes in shareholder control on yield spreads.[20] We focus on firms with constant ATI, as this allows us to look at how the appearance of a blockholder is related to change in spreads while avoiding the noise in ATI changes that arises due to the infrequent sampling (3 years).[21]

Again, we find that an appearance of a blockholder is associated with lower yield spreads only if the firm is protected from takeovers (-8 bp) and with higher yield spreads if the firm is exposed to takeovers (up to 34 bp).[22] Further, the impact of size and leverage with respect to the coefficient of ATI*BLOCK are stronger with fixed issuer effects. Specifically, the (cumulative) coefficient on ATI*BLOCK is -0.07 for large firms with high leverage, -0.04 for large firms with low leverage, 0.04 for small firms with high

[20] The coefficients on the control variables are omitted in the interest of exposition and are similar to the ones reported in Table 3.
[21] We lose, on an average, 69 firms per year with an average of 4.6 issues per firm per year.
[22] The regressions reported in Table 4 were also run on the entire sample of firms and not just firms with a constant ATI. Results were similar and are available upon request.

leverage, and a striking 0.21 for small firms with low leverage, compared to an average coefficient of 0.14. The appearance of a blockholder is now associated with an increase of 125 basis points (= 37 x 4 - 23) if the firm is exposed to takeovers (ATI = 4), has low leverage and is small in size and only an increase of 13 basis points (= 9 x 4 – 23) if the firm is large, has high leverage and is vulnerable to takeovers (ATI = 4). Finally, with the presence of a blockholder, the yield difference between a firm most prone to takeover (ATI = 4, small size and low leverage) and a firm that is least vulnerable to takeover (ATI = 1, large size and high leverage) is 139 basis points (= 37*4 – 9*1).

As these results indicate, the reaction of bondholders to the appearance of a blockholder is not only a function of the takeover defense and firm size but also the firm's leverage. Since smaller firms with lower leverage are more likely targets, the results indeed suggest that the source of concern for the bondholders is due to takeovers.

III.3. An alternative measure of takeover vulnerability (EXT)

To ensure robustness concerning our proxy for takeover vulnerability, we now use EXT, the broader index of shareholder rights (see Gompers, Ishii and Metrick, 2003) as the measure of the number of provisions related to takeovers. As mentioned earlier, EXT utilizes 24 provisions relating to shareholder rights rather than the 3 most important to takeovers, as in the anti-takeover index (ATI). The results are presented in Table 5 and are qualitatively similar to those using ATI.[23]

In order to compare the economic significance of both sets of results, we can multiply all coefficients for EXT by 3, which is the ratio of the respective standard deviations of EXT and ATI (which are equal to 2.71 and 0.90, respectively). That way, the re-scaled coefficient of EXT*BLOCK in model 4 equals 0.07, which is lower than the impact of ATI, which has a corresponding coefficient of 0.11. As a further example, we take the difference in the re-scaled coefficients of EXT*BLOCK with respect to size, which produces a 5 basis point difference for small relative to large firms. In contrast,

[23] Results using fixed effects are similar and are omitted in the interests of space.

there is a 10 basis point greater impact for an increase in ATI for small as compared to large firms.

It is now useful to discuss the results in Klock, Mansi and Maxwell (2003) in order to highlight the importance of considering different shareholder governance mechanisms. Klock et. al. focus on the direct relationship between bond yields and the Gompers, Ishii and Metrick (2003) index (EXT). In effect, their paper exclusively investigates model 2 in Table 5 in our paper, and does not account for the interaction of EXT with the presence of active shareholders (BLOCK) nor explores the effects of size and leverage on this interaction. However, as regression models 4 - 7 indicate, the interaction between shareholder control and takeover protection is important and varies across firms.

Our results confirm the complementary relationship between active shareholders and direct exposure to the market of corporate control, as documented in Cremers and Nair (2004) for equity prices. Specifically, the coefficient of EXT in model 4 is –0.004 with a t-stat of –0.69, while the coefficient of EXT*BLOCK is 0.023 with a t-stat of 2.85. Furthermore, accounting for BLOCK also increases the economic impact of a one-point increase in EXT – the coefficient of EXT in model 2 is equal to 0.01 as compared to a coefficient of EXT*BLOCK in model 4 equal to 0.023. Therefore, the increase of bond spreads associated with fewer anti-takeover provisions is only existent for firms where there is an active shareholder as well.[24]

III. 4. Shareholder Governance and Credit Ratings

Since there is a possibility that ratings might, correctly or incorrectly, account for the effect of governance mechanisms and the interactions between them, it is important to see how the results presented so far change when ratings are not used as control variables. Table 6 presents results from the fixed-issuer effects regression relating the appearance of a blockholder to the change in yield spreads, similar to III.2, as well as the pooled panel regressions, similar to III.1., but without using rating controls. We find that the

[24] One interpretation might be that blockholders do not facilitate takeovers rather simply appear when takeovers become more likely. We think the results presented here are not likely to be driven by this interpretation as blockholders also appear in firms with high takeover defense. In addition, the yields in these firms reduce on the appearance of a blockholder, suggesting they still play a governance role.

documented complementary relation between controlling shareholders and takeover vulnerability remains and appears stronger. The increase in yield spreads associated with the appearance of a blockholder can be up to 1.64% (41 x 4) for firms that are small, have low leverage and are exposed to takeovers (ATI = 4). The comparable number when ratings were controlled for was 1.25% (37 x 4 - 23). With the complementary relation between BLOCK and ATI getting stronger, the beneficial impact of BLOCK by itself is no longer significant. However, the estimate on BLOCK in the fixed effects regression is still consistent with the main results in both the sign as well as the magnitude.

The robustness of the complementary interaction suggests that, relative to the yield results, the rating agencies may underestimate the interaction of the two governance mechanisms. The weakening of the beneficial effect of BLOCK, on the other hand, suggests that the rating agencies are perhaps too pessimistic and overreact to the appearance of a blockholder. We now directly investigate how shareholder control and takeover vulnerability affects the likelihood that a firm falls in a particular S&P rating category. The main motive for doing so is to see whether the rating agencies indeed capture these relations. If they do, removing the rating controls would make our results economically even stronger. On the other hand, if the rating agencies capture these governance mechanisms in a direction opposite to the yield spread results, then the removal of rating dummies would weaken our results.[25]

An Ordered PROBIT model is used to relate the different rating categories to the governance and control variables (see Blume, Lim and MacKinlay, 1998 and Bhojraj and Sengupta, 2003, for other papers using an Ordered PROBIT for this purpose). Following

[25] Note that ratings are determined by an agency. If bondholders, on the other hand, had determined both ratings and yield spreads, a two-stage regression would be more appropriate. Nevertheless, a two-stage regression in this case produces results that are fully consistent with our main findings. For example, using ATI as a proxy for takeover vulnerability, for a hypothetical firm with all the variables (except for BLOCK) set at the sample median level (e. g. the sample median of ATI is 2), the appearance of a blockholder (BLOCK changes from 0 to 1) is associated with an overall yield increase of 5.7 basis points. Specifically, BLOCK affects rating through the PROBIT model in the first step, which translates into a yield change of 2.4 basis points in the second step yield regression. The remaining 3.3 basis points in the yield increase reflect the extra effect of BLOCK which is not captured in the rating agency model. The effect of BLOCK becomes significantly larger when the firm has high takeover vulnerability (ATI=4), in which case an overall yield increase of 27.4 basis points is observed when a blockholder appears. The change is further decomposed into a rating effect of 4.4 bp and a non-rating effect of 23 basis points. The analysis above uses an extended framework of Winship and Mare (1984) and Wu (1993), and detailed results are available upon request.

Fama and French (2001), we first estimate the PROBIT regressions across firms for each quarter separately and then, in the spirit of Fama and MacBeth (1973), report the time series averages of the coefficients. This allows for correlation of the regression residuals across bonds. We define a six-way classification representing S&P ratings (closest to) AAA, AA, A, BBB, BB, B, respectively. The model is set up such that it is modeling the probability of the highest rating level. Finally, the models are exactly analogous to those used for the bond-spread regressions in the previous section to facilitate a direct comparison.

First, the marginal effects of BLOCK, ATI and ATI*BLOCK individually are again considered in the first three models (Table 7), and all three are once more combined in model 4. We find that the existence of an institutional blockholder, as a proxy for an active shareholder, strongly decreases ratings by itself. This is evidenced by a coefficient of BLOCK equal to –0.48 (t-stat of –15.1) in model 1, confirming one of the main results in Bhojraj and Sengupta (2003). However, as we will later see, the negative impact on ratings is mostly due to the interaction of BLOCK with ATI, and not of BLOCK by itself.

Interestingly, ATI by itself in model 2 has a positive and significant coefficient of 0.11 (t-stat of 8.41). This separate effect of ATI is clearly stronger and much more robust than the corresponding effect in the yield spread regressions, where the effect of ATI by itself is only very marginally significant for fixed issuer effects and disappears when ATI*BLOCK is included as well. This is the first paper documenting the effect of takeover vulnerability on ratings, and our results confirm that the rating agencies indeed take takeover protection provisions into account.

We also find that ratings react to the interaction of BLOCK and ATI in the same direction as yield spreads do. ATI*BLOCK by itself in model 3 has a negative and significant coefficient of –0.15 (t-stat of –10.5). Combining BLOCK, ATI and ATI*BLOCK all three in model 4 increases the economic significance of ATI (coefficient of 0.20 with t-stat of 9.22) as well as the complementary interaction of ATI with BLOCK (coefficient of –0.18 with t-stat of –5.8). In contrast with the spread regressions where BLOCK was found to have opposite effects depending on whether a firm is prone to takeovers or not, here BLOCK's coefficient is consistently negative

though hardly significant.[26] Thus as the yield spread results without rating controls suggested, ratings indeed appear to underestimate the complementary relation between takeover vulnerability and blockholders, while overestimating the harmful impact of blockholders. As a result, the combined effect of a high takeover vulnerability and high shareholder control are even higher than what the yield-spread regressions that include rating controls suggest.

Next, the effect of size on the impact of takeover vulnerability as measured by ATI*BLOCK appears to be particularly significant for ratings. In model 5, a greater takeover vulnerability (low takeover defense and the presence of a blockholder) has almost no effect on the rating for the largest third of firms. In sharp contrast, the marginal effect for the smallest third of firms is strongly negative or decreasing ratings. In order to interpret the economic significance of the coefficients of ATI, BLOCK and ATI*BLOCK for bond of firms of different sizes, we calculate the marginal effect of the appearance of a blockholder (BLOCK changes from 0 to 1) on the model (predicted) probabilities, conditional on the takeover vulnerability proxied by ATI and size, while keeping other control variables at their sample median levels (e.g. the sample median of ATI is 2 for a firm of median size). For a hypothetical bond rated at the sample median rating of A, the presence of a blockholder (BLOCK = 1) is associated with a decrease of 19.5% in the model probability of receiving an upgrade, and an increase of 1.5% in the model probability of receiving a downgrade. However, when the firm is highly vulnerable to takeover, i.e., a small firm with ATI = 4, having a blockholder is associated with a decrease of 80.3% in the model probability of receiving an upgrade, and a corresponding increase of 31.4% in the model probability of receiving a downgrade. Finally, when the issuer is large with low takeover vulnerability (ATI = 1), the presence of a blockholder has virtually no impact on the model probabilities of receiving either an upgrade or a downgrade. Relative to the size effect, the role of leverage is limited. Leverage by itself has no discernable impact on the coefficient of ATI*BLOCK (see model 6), and only a small effect once combined with size in model 7.

[26] However, this result became marginally significant for ATI and disappeared for EXT for fixed issuer-effects.

These results show that the rating agencies view shareholder control harmful for a firm's bondholders, especially if the firm is exposed to takeovers and is small. The results in this section are therefore consistent with the fact that rating agencies take an overly pessimistic view of the appearance of a blockholder, account for takeover defenses correctly and either underestimate the complementary relation between shareholder control and takeover vulnerability or do not update the ratings quickly enough. Further lending support to the view that delayed updating might be important is the fact that for the variables that rarely change over time, e.g., ATI/EXT, the ratings capture all the effect leaving no residual effects for the yield spreads.

IV. Shareholder Governance and Bond Returns

In the previous section, we have seen that bondholders demand a significantly higher yield for bonds of firms that have both a large shareholder and low takeover defense than for bonds of firms that have neither governance mechanism (BLOCK and ATI). These results suggest that bondholders consider firms with a strong shareholder and high takeover vulnerability to be riskier than firms without either shareholder governance mechanism. In this section, we investigate whether risk differences exist between bonds based on the issuer's shareholder governance characteristics by comparing the returns of a portfolio of firms with both a large shareholder and high takeover vulnerability to a portfolio of firms with neither a large blockholder nor a high vulnerability to takeovers. By using realized bond returns, we can also see to the extent that the expectations inherent in yield spreads are reflected in realized returns.

Our sample consists of 75 monthly returns from 1991:1 to 1997:3. At the beginning of each quarter, we independently sort all firms on BLOCK and on either ATI or EXT. Using BLOCK, we form two groups (with and without an institutional blockholder) while using ATI and EXT, we form three groups - ATI = 1, ATI = 2, ATI >2 and EXT $\leq$ 11, 11 < EXT $\leq$ 15, EXT > 15. The cutoffs for both ATI and EXT were chosen to get the most even distribution of firms over three portfolios.[27] Thus, we create 2 x 3 = 6 portfolios by a two-way sort on ATI (or EXT) and BLOCK. For all portfolios, we

[27] See Table 1 for the distribution of firms over both ATI and EXT categories.

compute both the equally-weighted and the value-weighted (using the market value of each bond issue) excess return of all firms' bond issues.

We find that a portfolio that buys bonds of firms that have a blockholder and high takeover vulnerability (ATI > 2) and shorts bonds of firms that have no blockholders and low exposure to takeovers (ATI = 1) generates an annualized return of 1.53%. While this does suggest difference in risk between these issuers with different shareholder governance characteristics, the difference might be due to differences in other sources of systematic risk. To account for systematic differences in the portfolios, we use the Elton, Gruber and Blake (1995) four-factor model: including an equity market factor (S&P 500 excess returns), a corporate bond market factor (Salomon Brothers (SB) corporate bond index excess returns), a default risk factor (the difference between returns from the SB High Yield bond market index and the SB Treasury market index), and finally a factor capturing option features (the difference between returns from the SB Medium Term Mortgage index and the SB Medium Term Treasury index).

This bond-pricing model does not generate any significant abnormal returns for a portfolio that uses all the bonds in our sample. However, this bond-pricing model, and others in the literature, ignores corporate governance control variables. Therefore, if the expectations inherent in the yields are correct, bonds of firms with high shareholder control and high takeover vulnerability would generate an abnormal return relative to this bond-pricing model by increasing credit risk. The spread and rating results suggests that BLOCK and ATI are complements in being associated with higher yields, particularly for firms that are small and have a low industry-adjusted leverage, reflecting higher takeover vulnerability. As a result, for bonds with both a high BLOCK and high ATI, we would expect positive abnormal bond returns for the current bond-pricing models.

In Table 8, we report the annualized abnormal returns or alphas of several long-short portfolios. First, we estimate the alphas accruing to four portfolios that each buy bonds of firms with a blockholder and sell bonds of firms without a blockholder - one portfolio considers all firms unconditionally and the other three portfolios consider firms conditional on one of the three levels of takeover vulnerability (using ATI or EXT groups). Second, we estimate the alphas accruing to three portfolios that each buys bonds

of firms in the highest ATI or EXT category and sell bonds of firms in the lowest ATI or EXT category: again one portfolio considers all firms unconditionally and the other two portfolios consider firms conditional on one of the two groups of shareholder control (using BLOCK). The results are presented in Panel A for ATI and Panel B for EXT.

The long-short portfolio that holds firms with and shorts firms without a blockholder produces a clearly statistically significant annualized abnormal return of 1.25% for the equally-weighted portfolio (t-stat of 3.44) and of 0.67% for the value-weighted portfolio (t-stat of 2.74). Interestingly, the long-short portfolios conditional on ATI/EXT show that these abnormal returns are driven by bonds of firms vulnerable to takeovers, providing strong evidence for a complementary relation of BLOCK with ATI/EXT. For the equally-weighted portfolios, the mean returns and the alphas are increasing in the level of both ATI and EXT. For example, the annualized alpha of the long-short portfolio that buys bonds of firms with a blockholder and shorts those without a blockholder equals 0.77% (t-stat of 1.67) for firms with the lowest level of EXT and equals 1.63% (t-stat of 2.94) for firms with the highest level of EXT. As a result, the equally-weighted portfolios suggest that blockholding seems only associated with higher abnormal bond returns for firms in the highest ATI or EXT categories.

For ATI, the value-weighted portfolios are fully consistent with the equally-weighted portfolios. However, the value-weighted portfolios using EXT show no pattern in either mean bond returns or alphas. The difference between equal and value-weighted results is suggestive of a size effect, similar to that found for yields spreads. Before we investigate the role of size in more detail, we consider the importance of ATI and EXT by looking at the returns to a portfolio that buys bonds of firms in the highest ATI or EXT category and shorts those in the lowest category.

The results for using ATI and EXT are presented in Panel C and D, respectively, of Table 8. We find no evidence for any abnormal returns for ATI at all. For EXT, the equal-weighted portfolios show an abnormal return, but only for those firms where there is also a blockholder present, again confirming complementarity. For example, the annualized alpha of such long-short portfolio for firms without a blockholder is 0.27% (t-stat of 0.57), and of the portfolio with only firms with a blockholder is 1.13% (t-stat of

2.32). However, there is no discernible pattern using value-weighted portfolios and EXT, which is, once more, suggestive of a size effect.

IV.1. Abnormal returns and the role of firm size and leverage

We have seen in section III that the increase in yield spreads associated with the appearance of a blockholder is the highest for firms that are small. Consistent with this, we also find in the previous subsection that the abnormal returns are strongest for the equally weighted portfolios. We now directly investigate the role of firm size in generating abnormal returns associated with shareholder control and takeover vulnerability. As the yield results also suggest different bondholder reactions with different leverage levels, we also investigate if the abnormal returns vary by leverage. To investigate how the documented effects of takeover vulnerability and active shareholders on bond abnormal returns are affected by firm-level characteristics such as leverage and firm size, we use the 2-step weighted least squares methodology developed in Cremers and Nair (2004). We briefly describe the procedure below.

The weighted least squares methodology proposed in Cremers and Nair (2004) could be used as an alternative to a panel data approach for the general case of investigating the relationship between alphas and firm characteristics and consists of two steps. The first step consists of the estimation of the portfolio alphas using the four-factor bond-pricing model described above, as well as the variance-covariance matrix of these alphas. We form 54 portfolios by sorting all firms independently in four dimensions: ATI (EXT), BLOCK, industry-adjusted leverage (LEV) and the market value of equity (SIZE). We get 54 portfolios by sorting firms into 3 leverage categories and 3 size categories in addition to the pre-existing three categories of ATI (EXT) and two categories of BLOCK (3 x 2 x 3 x 3 = 54). For each of the 54 groups, we calculate the abnormal returns of the equally-weighted portfolio of all bonds issued by the firms in the group.[28]

[28] On average, less than 1.5% of the portfolios are empty. Further, we also compute value-weighted portfolios, whose results are generally similar to the equally-weighted portfolios, though occasionally with reduced significance.

In the second step, these alphas are regressed on characteristics using the variance-covariance matrix of the alphas as the weighting matrix. Due to the noise in estimating the alphas of individual bond issues, the sorting of bonds into portfolios along all relevant dimensions greatly increases the methodology's power by reducing idiosyncratic risk. Further, the methodology explicitly accounts for the estimation risk and covariance of the alphas by weighting the alphas by their variance-covariance matrix in the second-step regression. Another important advantage of this method is that it uses the information contained in all 54 alphas, rather than only focusing on the extreme portfolios along a particular dimension. That way, we are still able to detect significant relationships between these alphas, even though the additional sorts on LEV and SIZE reduce the number of bonds in each portfolio. Finally, the quarterly sorts should reduce the noise in each proxy and also override the concern of standard panel methods that typically estimate bond (or firm) alphas that are constant over time. This is problematic when the relevant firm characteristics (e.g. ATI) change.

Before we proceed to investigate the effect of firm size and leverage on how shareholder control is associated with bond returns, we first check – abstracting from issues of corporate governance – if the bond pricing model employed generates any abnormal returns along portfolios based on size and leverage. If the pricing model employed here generates abnormal returns for a sample of firms based on size and leverage, it is then important that these characteristics are first directly controlled before we look at the effect of size and leverage in the interaction of bond returns and shareholder governance mechanisms. To this end, in Table 9 we first present the results of regressing alphas on the size and leverage dummies only, without using any governance variables at all.[29] These results indeed point toward a systematic role of size and leverage with respect to these alphas. The mispricing of the bonds of small, highly leveraged firms is most severe, with a coefficient of 2.34 (t-stat of 2.3) using ATI and a coefficient of 5.18 (t-stat of 6.9) using EXT. The alphas for these categories of firms, highlighted in table 8, are statistically different from the average alphas. We correct for

[29] Here, no intercept can be included in the regressions, in contrast to all regressions using corporate governance variables, where an intercept is included in the regressions but is not reported in the tables.

this mispricing by adding the relevant size-leverage dummies separately to the regressions.[30]

IV.1.1. The importance of size

We separately investigate the role of SIZE in how ATI, EXT and BLOCK affect the bond portfolio alphas, by running the second-step regression of alphas on the level of either ATI, EXT or BLOCK using three size dummies.[31] The results using ATI and EXT can be found in Panel B of Table 9. The regressions indicate it is critical to incorporate size. Specifically, we find that fewer anti-takeover provisions, measured by ATI or EXT, as well as the existence of a blockholder are all associated with higher abnormal bond returns. However, this relation is clearly strongest for the group of smallest firms, is generally still apparent for the group of firms of medium size, and is absent for the group of largest firms. For example, the coefficient of ATI equals 0.77 (t-stat of 2.98) for the smallest firms, equals 0.16 (t-stat of 2.1) for the medium size firm, and equals 0.04 (t-stat of 0.56) for the largest firms. Also, the existence of a blockholder generally increases bond alphas especially for the smallest third of firms (by 1.35) in our sample.

Next, we consider the interaction of the existence of large shareholders with the takeover provisions and incorporate both size and leverage. To detect the dependence of these two shareholder governance mechanisms, we employ the Min() function, and to detect independence we use the Max() function. Here, min and max denote the minimum and maximum, respectively, among each of the 54 portfolios of their levels of BLOCK and ATI/EXT. These functional forms capture in a simple manner the main difference between the two possibilities.[32] First, if the two mechanisms were interdependent or complements with respect to the bond abnormal returns, an increase in the level of either mechanism keeping the other fixed, would not change alphas. In that case, the Max-coefficient would be insignificant, and the Min-coefficient would be positive and significant. We find that the coefficient on the Max function is insignificant while the

[30] Various combinations of size and leverage controls produce similar results.
[31] There are two regressions for BLOCK, both for the ATI x BLOCK x SIZE x LEV and the EXT x BLOCK x SIZE x LEV sorted sets of 54 portfolios.
[32] Cremers and Nair (2004) use similar functional forms. The results using ATI/EXT and BLOCK instead of the Min-function are similar and available upon request.

coefficient on the Min form is significant – confirming our earlier results that ATI and BLOCK are complements in generating abnormal returns. In what follows we present regressions only using the Min function.

IV.1.2. The importance of size and leverage

The results for the interaction of the shareholder control and exposure to takeovers contingent on firm size and leverage is presented in Table 10. We find that BLOCK and ATI/EXT are strong complements in being associated with higher bond alphas mostly for small firms with some evidence that the complementary relation is stronger in small firms with low leverage.

Considering the impact of size in isolation on the interaction between takeover vulnerability and shareholder control, we find no evidence of a complementary relation between these two governance mechanisms for large firms.[33] Specifically, using ATI the coefficient on the Min-function for small firms equals 1.19 (t-stat of 2.6). If we use EXT, the coefficient on the Min-function is equal to 2.33 (t-stat of 3.5) for small firms. For large firms both these coefficients are insignificant. The minor economic significance for the larger firms is no surprise, given our previous finding that the impact of the two mechanisms is strongest for the smallest third of firms (as documented in Table 9). Overall, this confirms our findings of the yield spread regressions and the ratings analysis in the previous section. Furthermore, these results can also reconcile the differences between the value- and equally-weighted portfolios in Table 8 as the largest firms dominate the returns of the value-weighted portfolios.

When considering leverage along with size, we find that the coefficient on the Min function (1.33 with a t-stat of 4) is significant only for firms that are small and have low leverage. These results using ATI show that a portfolio that buys bonds of firms with both low takeover protection and high shareholder control and sells bonds of firms without either governance mechanism generates abnormal returns only when the firm is small and has low leverage. Leverage, however, is not very important when EXT is used.

[33] Results presented in Table 9 consider both size and leverage.

Specifically, the Min-coefficient for small, low leveraged firms equals 1.38 (t-stat of 3.9) and for small, high leveraged firms equals 3.20 (t-stat of 2.64). The t-statistic of the null hypothesis of both these coefficient being equal is 1.5, such that this difference is not statistically significant.

In conclusion, the realized bond returns are consistent with the expectations inherent in the yield results and suggest that bondholders require a higher rate of return in the presence of shareholder control when the firm has low takeover defense and is small in size.

V. Bondholder Governance: The Importance of Event risk

We have documented that bondholders require a higher yield when shareholder governance is strong. The required yield is higher for exposure to shareholder control especially when the firm has low takeover defenses, is small in size and has low leverage. These results suggest that bondholders are concerned with takeover risk - perhaps due to the likelihood of increased leverage, restructuring and/or asset substitution that can frequently accompany (hostile) takeovers. In either case, if takeovers are indeed the cause of concern, one would expect bondholders to use covenants, a form of bondholder governance, to protect themselves against such expected losses. Thus, we would expect issues protected from event risk to benefit more from improvements in shareholder governance.[34]

To check this, we create an issue-specific protection index (PROTECTION) using three covenants – covenants restricting firm leverage, covenants on net worth restrictions, and the poison put covenant. Covenants restricting firm leverage place limits on issuing funded debt and place restrictions on leverage levels while net worth covenants restrict the firm's liabilities.[35] Asquith and Wizman (1990) show that these covenants are often violated in takeovers and thus provide protection to bondholders in even extreme

[34] A following question is why all issues do not have such covenants. One reason is that such covenants are relatively new (see, e.g., Asquith and Wizman (1990)) and several bonds were issued before such covenants were prevalent. This creates an interesting natural experiment for us to test whether shareholder governance and bondholder governance converge.

[35] Asquith and Wizman (1990) provide a detailed discussion about the relevance of each category regarding protecting bondholder from leverage-increasing LBO takeover.

examples of hostile takeovers such as Leveraged Buyouts. Specifically, Asquith and Wizman find that issues protected by these covenants do not lose and often gain on LBO announcements. The poison put covenant gives bondholders the option of selling the issue back to the issuer at par or at a premium upon a change of control in the issuer (Cook and Easterwood, 1994, Crabbe, 1991), thus providing reasonable protection from takeovers.[36] We simply add a point for the presence of each of these three covenants to obtain a protection index of 0, 1, 2 or 3. Therefore, the PROTECTION takes value between 0 and 3, with 0 indicating the weakest and 3 the strongest bondholder protection.

We retrieve information on bond indentures (covenants) from the FISD database and focus on firms whose takeover vulnerability remains constant during the sample period.[37] From the original sample, we are left with 1861 unique issues by 447 unique firms, with an annual average of 3.18 issues per firm, for which this data is available. The protection index is positively correlated with the existence of a blockholder (25%) as well with seniority (25%) but negatively correlated with the existence of the senior secured provision (-45%). It therefore appears that senior unsecured issues in firms with a blockholder are more likely to be protected. Table 11 documents the importance of event risk in the impact of shareholder governance mechanisms on bondholders by interacting the variables of interest (BLOCK and ATI*BLOCK) with the protection index (PROTECTION). The fixed effects results using ATI as an index of takeover vulnerability are presented. Results using EXT are similar and are not reported.

We find that the appearance of a blockholder increases the yields of issues without any protection by 26 basis points but benefits issues with protection. This is consistent with the findings of Asquith and Wizman (1990). For example, if the measure for protection is highest (PROTECTION = 3), then the estimates from regression I suggest that the appearance of a blockholder will be associated with a reduction in the yield spreads of 52 bp. The complementary effect of shareholder control and takeover vulnerability is also reversed with protection (regression II). Issues that are protected

[36] Such a covenant will not protect bondholders from losses accompanying unsuccessful takeover attempts. An example of such a loss is the increase in leverage as a defensive tactic.

[37] As earlier, we choose to focus on firms with constant ATI, as this allows us to look at how the appearance of a blockholder is related to change in spreads while avoiding the noise in ATI changes that arises due to the infrequent sampling (3 years).

from event risk, are associated with lower yields on the appearance of a blockholder. In fact, the reduction in yields is now higher as the takeover vulnerability increases. Both these findings are borne out in regression III, where we disentangle the effects of the blockholders in isolation and of blockholders contingent on takeover vulnerability. We find that issues protected by covenants gain substantially from the appearance of a blockholder, and even more so with higher takeover vulnerability. Even though the coefficient on ATI x BLOCK x PROTECTION is significant at only the 10% level, the estimate is economically very important. On the appearance of a blockholder, the yield spreads can reduce up to 123 basis points for firms that have protection through covenants (PROTECTION = 3).

These results suggest that having more covenants increasingly protects bondholders and reduces their concerns of shareholder governance through strong shareholder control and few takeover defenses. In fact, with complete protection, bondholders unambiguously welcome the appearance of a blockholder with reduced yield spreads. Therefore, this confirms that takeovers are indeed the cause of concern for the unprotected bondholders. Some possible reasons are that higher leverage, spin-offs and other asset substitution might become more likely with a takeover or even an attempt.[38] More importantly, the results show that covenants play an important role in the convergence of shareholder and bondholder interests.

VI. Conclusion

We investigate if shareholder governance and bondholder governance converge. We first look at the effect of shareholder governance mechanisms on bondholder wealth. Using the presence of an institutional blockholder to proxy for shareholder control and

[38] In the 80's, due to the predominance of LBOs, an increase in leverage was an obvious concern. However, this is less obvious in the 1990's and so we document how leverage changes for hostile targets in the more recent period of 1990-2001. Using SDC and excluding open market purchases, we detect 100 hostile takeovers in our sample. To classify the bid as hostile, we use the same algorithm used by Lehn and Mitchell (1989). Out of these, we consider the 26 completed hostile takeovers only, as we are interested in leverage changes after the takeover. Further, we are able to detect the acquirer and get quarterly leverage data for only 16 of these completed deals. Although our sample is small, we find that for each one of these 16 cases, the leverage increases after the takeover. The graph for average leverage around the takeover announcement quarter is shown in Figure 1. The average increase is significant and the expectation of higher leverage post takeovers could drive ex-ante bondholders' expectations.

firm-level anti-takeover provisions to proxy for takeover vulnerability, we find that stronger shareholder governance is associated with higher yields, lower ratings and higher returns. The increase in credit risk is associated with the presence of strong shareholders and takeover vulnerability is the highest for firms that are small and have low leverage. The magnitude of these effects is strikingly large. For example, in the presence of shareholder control, the difference in bond yields due to differences in takeover vulnerability can be as high as 139 basis points.

We then investigate whether bond covenants help align the interest of shareholders and bondholders. Indeed, we find that, in the presence of bond covenants, shareholder governance reduces bondholder concerns. With covenants protecting bondholders from event risk, shareholder governance is associated with lower yields, higher ratings and lower returns.

Results in this paper suggest at least two avenues for future research. The findings in this paper suggest that the impact of shareholder governance on a firm is likely to be a function of firm leverage and bond covenants. Consequently, the paper encourages an investigation into the role of leverage and covenants on the implications of shareholder governance for firm value. If for firms without bond covenants, a complementary design of two shareholder governance mechanisms - shareholder control and takeover exposure – increases the cost of debt, the design of different governance mechanisms might be related to the capital structure of the firm. Another avenue of future research is to investigate the role of governance related event risk in explaining bond returns, especially since portfolios that long firms with both strong shareholder control and high takeover vulnerability and short firms without either shareholder control or takeover vulnerability generate economically large annualized abnormal returns of 1% to 1.6%, depending on the proxies used.

To sum, the results in this paper show that strengthening shareholder governance does not automatically benefit all bondholders. Only those bondholders who protect themselves through event risk covenants benefit from strong shareholder governance.

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Table 1. Number of firms and issues, percentiles of BLOCK, EXT and ATI

The table presents the following summary statistics for the first quarters of the years 1991 to 1997 as found in our sample: the average number of firms and bond issues; the 25%, 50% and 75% percentiles of the percentage of shares held by the largest institutional blockholder (minimum 5%, BLOCK); the 25%, 50% and 75% percentiles of the shareholder rights index EXT (see Gompers, Ishi and Metrick (2003)); and finally the percentages of firms in the four anti-takeover index (ATI) groups.

Year	1991	1992	1993	1994	1995	1996	1997
Number of Firms	365	431	473	402	452	449	411
Number of Issues	1596	2003	2141	1717	1895	1863	1655
Issues/firm	4.37	4.65	4.53	4.27	4.19	4.15	4.03
25% percentile of largest block	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
50% percentile of largest block	5.35%	5.20%	5.47%	5.22%	5.42%	5.81%	6.11%
75% percentile of largest block	8.78%	7.74%	7.99%	7.84%	8.73%	9.02%	9.25%
25% percentile of % EXT	12	13	12	12	13	12	12
50% percentile of % EXT	14	15	15	14	14	15	14
75% percentile of % EXT	16	17	17	16	17	16	16
% of firms with ATI = 1	32.0%	29.2%	30.6%	31.9%	31.6%	34.0%	33.6%
% of firms with ATI = 2	26.4%	27.5%	28.5%	34.0%	33.5%	35.8%	37.0%
% of firms with ATI = 3	37.1%	38.6%	35.8%	30.5%	30.8%	24.9%	24.4%
% of firms with ATI = 4	4.6%	4.6%	5.1%	3.6%	4.1%	5.3%	5.0%

Table 2. Correlation matrix of EXT, ATI, BLOCK, LEV

The table presents the pairwise Spearman correlations of the following six variables, all pooled across time and firms: the shareholder rights indices ATI and EXT; the existence of an institutional blockholder BLOCK-holder; the large/median/small dummy for market capitalization (SIZE); and the high/median/low dummy for industry-adjusted leverage (LEV); and the firm's RATING. SIZE and LEV are defined using the 33% and 67% percentiles from sorting firms every quarter on market capitalization and on industry-adjusted leverage, respectively. The higher the value of RATING, the lower the expected bankruptcy probability. Specifically, we use S&P ratings categories on a scale from 22 to 2, with e.g. AAA = 22, BB+ = 12 and C = 2.

	EXT	ATI	BLOCK	SIZE	LEVERAGE
ATI	65.77%				
BLOCK	-6.73%	-3.99%			
SIZE	-0.13%	-1.34%	-24.50%		
LEVERAGE	-3.26%	-3.60%	15.22%	-1.04%	
RATING	1.15%	0.18%	-29.69%	56.64%	-26.18%

Table 3. Shareholder Governance Mechanisms and Bond Spreads: ATI

Reported are the pooled OLS regression coefficients (with t-statistics) of regressing quarterly corporate bond spreads on the governance variables ATI and BLOCK (see Table 1 for a description), a constant (omitted), plus a set of controls, where TTM denotes the bond's time to maturity in years, LN AMT is log of the issue's amount outstanding, C is a dummy for callability, SENIOR is a dummy for being senior (but not secured), SENIOR SECURED is a dummy for being senior secured, and CR2 to CR6 are dummies for rating categories AA to B, including the "+" and "-" modified categories. Dummies indicating the 33% of largest/smallest firms are I_{large} and I_{small}, those indicating the 33% of firms with highest and lowest leverage are $I_{highlev}$ and I_{lowlev}. Our sample includes an average of 1,839 bonds per year from 1990 to 1997, with on average 4.3 corporate bond issues per firm. The t-statistics are corrected for heteroskedasticity, serial correlation and contemporaneous correlation among bonds issued by the same issuer (see footnote 12 for a detailed description).

MODEL	**1**	**2**	**3**	**4**	**5**	**6**	**7**
BLOCK	0.00			**-0.23**	**-0.22**	**-0.23**	**-0.23**
	(0.14)			**(-3.93)**	**(-3.76)**	**(-3.88)**	**(-3.75)**
ATI		**0.05**		-0.01	-0.01	-0.01	-0.01
		(3.78)		(-0.47)	(-0.65)	(-0.46)	(-0.57)
ATI*BLOCK			**0.03**	**0.11**	**0.10**	**0.11**	**0.11**
			(2.87)	**(4.51)**	**(4.27)**	**(3.60)**	**(4.17)**
ATI*BLOCK*I_{large}					-0.01		
					(-0.97)		
ATI*BLOCK*I_{small}					**0.10**		
					(2.65)		
ATI*BLOCK*$I_{highlev}$						0.01	
						(0.31)	
ATI*BLOCK*I_{lowlev}						-0.00	
						(-0.01)	
ATI*BLOCK*$I_{large,\ highlev}$							-0.02
							(-1.10)
ATI*BLOCK*$I_{large,\ lowlev}$							-0.01
							(-1.07)
ATI*BLOCK*$I_{small,\ highlev}$							0.05
							(0.84)
ATI*BLOCK*$I_{small,\ lowlev}$							0.09
							(1.60)
LN AMT	-0.09	-0.10	-0.09	-0.10	-0.08	-0.10	-0.09
	(-3.06)	(-3.33)	(-3.02)	(-3.22)	(-2.40)	(-3.11)	(-2.69)
LEVERAGE	0.31	0.30	0.30	0.32	0.35	0.30	0.34
	(4.30)	(4.40)	(4.21)	(4.53)	(5.02)	(2.63)	(3.78)
TTM	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(-0.85)	(-0.57)	(-0.87)	(-0.90)	(-0.78)	(-0.91)	(-0.84)
C	0.69	0.69	0.70	0.69	0.69	0.69	0.69
	(24.43)	(24.24)	(24.39)	(24.54)	(24.61)	(24.48)	(24.57)
SENIOR	-0.02	-0.01	-0.02	-0.01	-0.00	-0.01	-0.00
	(-0.40)	(-0.25)	(-0.35)	(-0.13)	(-0.05)	(-0.14)	(-0.07)
SENIOR SECURED	-0.29	-0.31	-0.28	-0.31	-0.29	-0.30	-0.30
	(-5.81)	(-6.39)	(-5.78)	(-6.16)	(-5.77)	(-6.17)	(-6.01)
CR2	0.15	0.15	0.15	0.16	0.16	0.16	0.16
	(3.07)	(3.06)	(3.23)	(3.42)	(3.38)	(3.38)	(3.41)
CR3	0.37	0.39	0.37	0.40	0.39	0.40	0.39
	(7.73)	(7.95)	(7.78)	(8.41)	(8.28)	(8.17)	(8.21)
CR4	0.77	0.79	0.76	0.79	0.76	0.79	0.77
	(15.68)	(15.64)	(15.51)	(16.21)	(15.12)	(15.67)	(15.67)
CR5	2.18	2.20	2.17	2.21	2.13	2.21	2.17
	(23.49)	(23.45)	(23.86)	(23.33)	(22.00)	(23.32)	(22.16)
CR6	4.38	4.40	4.36	4.40	4.25	4.40	4.32
	(16.80)	(17.18)	(16.97)	(16.83)	(15.15)	(16.82)	(14.93)
Adj. R^2	35.0%	35.1%	35.1%	35.2%	35.4%	35.2%	35.3%
No. of Observations	39641	39641	39641	39641	39641	39641	39641

Table 4. Effect of shareholder control on bond spreads: ATI + fixed issuer effects

Reported are the pooled OLS regression coefficients plus their t-statistics in parentheses of regressing quarterly corporate bond spreads on the governance variables ATI and BLOCK (see Table 1 for a description), a constant, a set of controls (see Table 3 for a description), plus issuer dummies. Only the results for the governance variables are reported. Dummies indicating the 33% of largest/smallest firms are I_{large} and I_{small}, those indicating the 33% of firms with highest and lowest leverage are $I_{highlev}$ and I_{lowlev}. After excluding firms whose ATI measure changes during the sample period (see discussion in III.2 in the text and footnote 15), our sample includes an average of 1,381 bonds per year from 1990 to 1997, with on average 4.1 corporate bond issues per firm. The t-statistics are corrected for heteroskedasticity, serial correlation and contemporaneous correlation among bonds issued by the same issuer (see footnote 12 for a description).

MODEL	**1**	**2**	**3**	**4**	**5**	**6**
BLOCK	0.06		**-0.22**	**-0.24**	**-0.21**	**-0.23**
	(1.40)		**(-2.34)**	**(-2.58)**	**(-2.33)**	**(-2.46)**
ATI*BLOCK		**0.05**	**0.14**	**0.19**	**0.14**	**0.16**
		(2.20)	**(3.03)**	**(3.78)**	**(2.62)**	**(3.17)**
ATI*BLOCK*I_{large}				**-0.11**		
				(-4.04)		
ATI*BLOCK*I_{small}				**0.21**		
				(2.62)		
ATI*BLOCK*$I_{highlev}$					-0.03	
					(-0.82)	
ATI*BLOCK*I_{lowlev}					0.02	
					(0.71)	
ATI*BLOCK*$I_{large,\ highlev}$						**-0.07**
						(-2.66)
ATI*BLOCK*$I_{large,\ lowlev}$						-0.04
						(-1.90)
ATI*BLOCK*$I_{small,\ highlev}$						0.04
						(0.48)
ATI*BLOCK*$I_{small,\ lowlev}$						**0.21**
						(2.56)
Adj. R^2	9.3%	9.3%	9.0%	10.0%	9.0%	10.0%
No. of Observations	31368	31368	31368	31368	31368	31368

Table 5. Shareholder Governance Mechanisms and Bond Spreads: EXT

Reported are the pooled OLS regression coefficients plus their t-statistics in parentheses of regressing quarterly corporate bond spreads on the governance variables EXT and BLOCK (see Table 1 for a description), a constant, a set of controls (see Table 3 for a description). Only the results for the governance variables are reported. Dummies indicating the 33% largest/smallest firms are I_{large} and I_{small}, those indicating the 33% of firms with highest and lowest leverage are $I_{highlev}$ and I_{lowlev}. Our sample includes an average of 1,839 bonds per year from 1990 to 1997, with on average 4.3 corporate bond issues per firm. The t-statistics are corrected for heteroskedasticity, serial correlation and contemporaneous correlation among bonds issued by the same issuer (see footnote 12 for a description).

Model	**1**	**2**	**3**	**4**	**5**	**6**	**7**
BLOCK	0.00			**-0.27**	**-0.31**	**-0.27**	**-0.27**
	(0.14)			**(-2.56)**	**(-3.00)**	**(-2.56)**	**(-2.66)**
EXT		**0.01**		-0.00	-0.00	-0.00	-0.00
		(2.26)		(-0.69)	(-0.98)	(-0.69)	(-0.82)
EXT*BLOCK			0.00	**0.02**	**0.02**	**0.02**	**0.02**
			(0.78)	**(2.85)**	**(3.29)**	**(2.68)**	**(2.93)**
EXT*BLOCK*Ilarge					**-0.00**		
					(-2.05)		
EXT*BLOCK*Ismall					0.01		
					(1.91)		
EXT*BLOCK*Ihighlev						-0.00	
						(-0.16)	
EXT*BLOCK*Ilowlev						0.00	
						(0.65)	
EXT*BLOCK*Ilarge, highlev							**-0.01**
							(-2.58)
EXT*BLOCK*Ilarge, lowlev							-0.00
							(-0.12)
EXT*BLOCK*Ismall, highlev							0.01
							(0.52)
EXT*BLOCK*Ismall, lowlev							0.01
							(1.42)
Adj. R^2	35.0%	35.1%	35.1%	35.1%	35.2%	35.1%	35.1%
Number of Obs.	39641	39641	39641	39641	39641	39641	39641

Table 6. Shareholder Governance Mechanisms and Bond Spreads:

ATI, no rating dummies

Reported are the pooled OLS regression coefficients plus their t-statistics in parentheses of regressing quarterly corporate bond spreads on the governance variables ATI and BLOCK (see Table 1 for a description), a constant, size and leverage dummies, a set of controls (see Table 3 for a description). Only the results for the governance variables are reported. Model specifications investigated include model 4 and 7 in Table 3 with rating dummies removed. The t-statistics are corrected for heteroskedasticity, serial correlation and contemporaneous correlation among bonds issued by the same issuer (see footnote 12 for a description).

	Panel		**Fixed Effect**	
	Model 4	**Model 7**	**Model 4**	**Model 7**
BLOCK	0.04	0.00	-0.14	-0.15
	(0.55)	(0.01)	(-1.43)	(-1.55)
ATI	0.02	-0.01		
	(0.73)	(-0.49)		
ATI*BLOCK	**0.14**	**0.15**	**0.12**	**0.14**
	(4.31)	**(4.21)**	**(2.38)**	**(2.56)**
ATI*BLOCK*$I_{large,\ highlev}$		**-0.21**		**-0.08**
		(-8.47)		**(-2.91)**
ATI*BLOCK*$I_{large,\ lowlev}$		**-0.14**		-0.03
		(-8.48)		(-1.64)
ATI*BLOCK*$I_{small,\ highlev}$		**0.64**		0.08
		(9.67)		(0.81)
ATI*BLOCK*$I_{small,\ lowlev}$		**0.40**		**0.27**
		(4.38)		**(2.89)**
Adj. R^2	11.3%	15.8%	5.0%	5.0%
No. of Observations	31368	31368	31368	31368

Table 7. Shareholder Governance Mechanisms and Ratings: ATI

Reported are the results from an Ordered PROBIT model relating corporate bond ratings to the governance variables ATI and BLOCK (see Table 1 for a description), a constant (omitted), plus a set of controls, where TTM denotes the bond's time to maturity in years, LN AMT is log of the issue's amount outstanding, C is a dummy for callability, SENIOR is a dummy for being senior (but not secured), and SENIOR SECURED is a dummy for being senior secured. Dummies indicating the 33% of largest/smallest firms are I_{large} and I_{small}, those indicating the 33% of firms with highest and lowest leverage are $I_{highlev}$ and I_{lowlev}. Following Fama and MacBeth (1973), we first estimate the Ordered PROBIT model across bonds per quarter and then report the time series average of the coefficients and their t-statistics between parentheses. We use a 6-way classification representing S&P ratings (closest to) AAA, AA, A, BBB, BB, B. Our sample includes an average of 1,839 bonds per year from 1990 to 1997, with on average 4.3 corporate bond issues per firm.

MODEL	**1**	**2**	**3**	**4**	**5**	**6**	**7**
BLOCK	**-0.48**			**-0.11**	**-0.19**	**-0.11**	**-0.21**
	(-15.1)			**(-1.79)**	**(-2.87)**	**(-1.69)**	**(-3.00)**
ATI		**0.11**		**0.20**	**0.22**	**0.20**	**0.22**
		(8.41)		**(9.22)**	**(8.91)**	**(9.21)**	**(9.19)**
ATI*BLOCK			**-0.15**	**-0.18**	**-0.23**	**-0.31**	**-0.22**
			(-10.5)	**(-5.80)**	**(-6.78)**	**(-8.25)**	**(-6.16)**
ATI*BLOCK*I_{large}					**0.33**		
					(17.51)		
ATI*BLOCK*I_{small}					**-0.43**		
					(-21.3)		
ATI*BLOCK*$I_{highlev}$						**0.16**	
						(4.82)	
ATI*BLOCK*I_{lowlev}						**0.24**	
						(7.45)	
ATI*BLOCK*$I_{large,\ highlev}$							**0.41**
							(12.23)
ATI*BLOCK*$I_{large,\ lowlev}$							**0.39**
							(10.51)
ATI*BLOCK*$I_{small,\ highlev}$							**-0.46**
							(-14.6)
ATI*BLOCK*$I_{small,\ lowlev}$							**-0.32**
							(-8.05)
LN AMT	0.19	0.23	0.22	0.18	-0.01	0.18	0.05
	(7.64)	(8.60)	(8.65)	(6.43)	(-0.21)	(6.52)	(1.85)
LEVERAGE	-1.61	-1.76	-1.69	-1.64	-1.67	-1.63	-1.71
	(-12.1)	(-13.0)	(-12.7)	(-12.1)	(-12.0)	(-13.6)	(-13.8)
TTM	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	(9.04)	(10.64)	(9.11)	(10.94)	(12.87)	(10.28)	(11.81)
C	-0.32	-0.31	-0.32	-0.32	-0.27	-0.33	-0.27
	(-7.68)	(-7.81)	(-7.36)	(-7.93)	(-9.42)	(-7.84)	(-8.58)
SENIOR	0.34	0.35	0.31	0.35	0.29	0.37	0.29
	(4.08)	(3.66)	(3.73)	(4.01)	(3.64)	(4.10)	(3.17)
SENIOR SECURED	0.41	0.48	0.48	0.38	0.21	0.42	0.25
	(4.28)	(5.03)	(5.27)	(3.96)	(2.64)	(4.51)	(2.87)
Model χ^2	3511.64	3570.97	3533.33	3488.44	3260.39	3438.94	3272.88
No. of Observations	39641	39641	39641	39641	39641	39641	39641

Table 8. Abnormal returns of long-short bond portfolios differing in shareholder governance characteristics

Reported are the annualized mean excess returns and the annualized abnormal return of several long-short bond portfolios. We use the Elton, Gruber and Blake (1995) four-factor bond-pricing model to calculate abnormal returns. In Panel A (B), the portfolios buy all bonds of firms with and short bonds of firms without a blockholder, either unconditional or conditional on the level of ATI (EXT). Here, the levels of ATI and EXT refer to the levels of their categories, not their precise respective values. Further, in Panel C (D), the portfolios buy all bonds of firms with the highest category of ATI (EXT) and short bonds of firms in the lowest ATI (EXT) category, either unconditional or conditional on the existence (BLOCK = 1) or the absence (BLOCK = 1) of a blockholder. Both equally weighted and value-weighted portfolios are used.

EW long-short portfolios				***VW long-short portfolios***			
Panel A: Long blockholder, short no blockholder, using ATI							
Mean	*Alpha*	*t-stat*	*ATI*	*Mean*	*Alpha*	*t-stat*	*ATI*
1.19	**1.25**	**3.44**	**All**	**1.10**	**0.67**	**2.74**	**All**
0.81	**0.82**	1.31	1	0.57	0.55	1.33	1
1.15	**1.36**	**3.25**	**2**	0.94	0.43	1.41	2
1.49	**1.34**	**2.35**	**3**	**1.65**	**0.91**	**1.99**	**3**
Panel B: Long blockholder, short no blockholder, using EXT							
Mean	*Alpha*	*t-stat*	*EXT*	*Mean*	*Alpha*	*t-stat*	*EXT*
0.65	0.77	1.67	1	**1.23**	**0.84**	**2.24**	**1**
1.05	**1.27**	**2.66**	**2**	0.70	0.55	1.45	2
1.80	**1.63**	**2.94**	**3**	1.37	0.69	1.56	3
Panel C: Long high ATI, short low ATI							
Mean	*Alpha*	*t-stat*	*BLOCK*	*Mean*	*Alpha*	*t-stat*	*BLOCK*
0.39	-0.01	-0.02	All	-0.31	-0.35	-1.24	All
0.05	-0.22	-0.35	0	-0.83	-0.51	-1.60	0
0.73	0.30	0.51	1	0.24	-0.15	-0.29	1
Panel D: Long high EXT, short low EXT							
Mean	*Alpha*	*t-stat*	*BLOCK*	*Mean*	*Alpha*	*t-stat*	*BLOCK*
0.04	0.27	0.57	0	-0.10	0.04	0.13	0
1.19	**1.13**	**2.32**	**1**	0.04	-0.12	-0.21	1

Table 9. The impact of firm characteristics - Regressing bond alphas on size, leverage, levels of ATI, EXT and BLOCK

Reported are the results for the weighted-least-squares regressions of annualized bond alphas on size-leverage dummies (in panel A), and on the level of the governance variables ATI, EXT and BLOCK (denoted by 'BL') conditional on size and leverage (in panel B). For a description of these governance variables, see Table 1. The dummies indicating the 33% of largest/medium/smallest size firms are I_{large}, I_{med} and I_{small}, and the dummies indicating the 67% and 33% of firms with lowest and highest leverage are I_{low} and I_{high}. The levels of ATI and EXT refer to the levels of their categories, not their precise respective values. We use the Elton, Gruber and Blake (1995) four-factor bond-pricing model to calculate alphas. The alphas are those of the 54 portfolios of bond issues created by 3 x 2 x 3 x 3 sorts on ATI (or EXT) x BLOCK x SIZE x LEV. All portfolio returns are equally-weighted. Finally, we report the regression coefficients plus their t-statistics between parentheses, and the R^2 and the adjusted R^2 are given for each regression as well.

Panel A – Mispricing

Using ATI x BLOCK x SIZE x LEV sorted bond portfolios

$I_{small,low}$	$I_{med,low}$	$I_{large,low}$	$I_{small,high}$	$I_{med,high}$	$I_{large,high}$	*R2*	*adj. R2*
0.79	0.47	0.14	**2.34**	0.20	0.25	23.90%	15.97%
(2.20)	(1.54)	(0.53)	**(2.33)**	(0.66)	(0.95)		

Using EXT x BLOCK x SIZE x LEV sorted bond portfolios

$I_{small,low}$	$I_{med,low}$	$I_{large,low}$	$I_{small,high}$	$I_{med,high}$	$I_{large,high}$	*R2*	*adj. R2*
0.92	0.83	0.33	**5.18**	0.66	0.68	42.06%	36.03%
(3.05)	(3.85)	(1.82)	**(6.89)**	(2.49)	(2.66)		

Panel B – The effect of Size

Using ATI x BLOCK x SIZE x LEV sorted bond portfolios

$ATI*I_{small}$	$ATI*I_{med}$	$ATI*I_{large}$	$I_{small,low}$	$I_{small,high}$	*R2*	*adj. R2*
0.77	**0.16**	0.04	-0.49	1.07	26.44%	18.78%
(2.98)	**(2.10)**	(0.56)	(-1.11)	(1.06)		

$BL*I_{small}$	$BL*I_{med}$	$BL*I_{large}$	$I_{small,low}$	$I_{small,high}$	*R2*	*adj. R2*
1.35	**0.25**	0.02	-1.25	1.45	37.24%	30.71%
(5.08)	**(2.08)**	(0.19)	(-3.07)	(1.64)		

Using EXT x BLOCK x SIZE x LEV sorted bond portfolios

$EXT*I_{small}$	$EXT*I_{med}$	$EXT*I_{large}$	$I_{small,low}$	$I_{small,high}$	*R2*	*adj. R2*
1.08	0.08	-0.08	-1.28	3.25	*45.65%*	*39.99%*
(3.67)	(1.15)	(-1.28)	(-2.70	4.07)		

$BL*I_{small}$	$BL*I_{med}$	$BL*I_{large}$	$I_{small,low}$	$I_{small,high}$	*R2*	*adj. R2*
0.89	0.10	0.04	-0.55	3.05	*42.49%*	*36.50%*
(3.04)	(0.81)	(0.33)	(-1.32	3.51)		

Table 10. Complementarity of shareholder control and takeover defense :

Regressing bond alphas on the Minimum (ATI/EXT, BLOCK)

Reported are the results for the weighted-least-squares regressions of annualized bond alphas on the Minimum of the level of ATI and BLOCK (in Panel A) or of EXT and BLOCK (in Panel B), conditional on size and leverage. For a description of these governance variables, see Table 1. The dummies indicating the 33% of largest/medium/smallest size firms are I_{large}, I_{med} and I_{small}, and the dummies indicating the 67% and 33% of firms with lowest and highest leverage are I_{low} and I_{high}. The levels of ATI and EXT refer to the levels of their categories, not their precise respective values. We use the Elton, Gruber and Blake (1995) four-factor bond-pricing model to calculate alphas. The alphas are those of the 54 portfolios of bond issues created by 3 x 2 x 3 x 3 sorts on ATI (or EXT) x BLOCK x SIZE x LEV. All portfolio returns are equally-weighted. Finally, we report the regression coefficients plus their t-statistics between parentheses, and the R^2 and the adjusted R^2 are given for each regression as well.

Panel A: Using ATI x BLOCK x SIZE x LEV sorted bond portfolios

$Min*I_{small,low}$	$Min*I_{med,low}$	$Min*I_{large,low}$	$Min*I_{small,high}$	$Min*I_{med,high}$	$Min*I_{large,high}$	$I_{small,low}$	$I_{small,high}$	*R2*	*adj. R2*
0.65	0.23	-0.09	0.79	0.05	-0.09		1.44	28.36%	17.46%
(3.15)	(1.73)	(-0.82)	(0.61)	(0.28)	(-0.69)		(0.65)		

$Min*I_{small,low}$	$Min*I_{med,low}$	$Min*I_{large,low}$	$Min*I_{small,high}$	$Min*I_{med,high}$	$Min*I_{large,high}$	$I_{small,low}$	$I_{small,high}$	*R2*	*adj. R2*
1.33	0.18	-0.13	1.09	0.16	-0.07	-1.03	1.88	37.68%	26.60%
(3.99)	(1.41)	(-1.21)	(0.89)	(1.00)	(-0.54)	(-2.51)	(0.89)		

Panel B: Using EXT x BLOCK x SIZE x LEV sorted bond portfolios

$Min*I_{small,low}$	$Min*I_{med,low}$	$Min*I_{large,low}$	$Min*I_{small,high}$	$Min*I_{med,high}$	$Min*I_{large,high}$	$I_{small,low}$	$I_{small,high}$	*R2*	*adj. R2*
0.62	0.33	-0.13	**2.97**	0.22	0.09		0.74	45.04%	36.68%
(2.84)	(3.17)	(-1.51)	**(2.30)**	(1.66)	(0.90)		(0.40)		

$Min*I_{small,low}$	$Min*I_{med,low}$	$Min*I_{large,low}$	$Min*I_{small,high}$	$Min*I_{med,high}$	$Min*I_{large,high}$	$I_{small,low}$	$I_{small,high}$	*R2*	*adj. R2*
1.38	0.22	**-0.22**	**3.20**	0.21	0.02	-1.09	0.86	49.02%	39.95%
(3.94)	(2.13)	**(-2.53)**	**(2.64)**	(1.68)	(0.23)	(-2.67)	(0.50)		

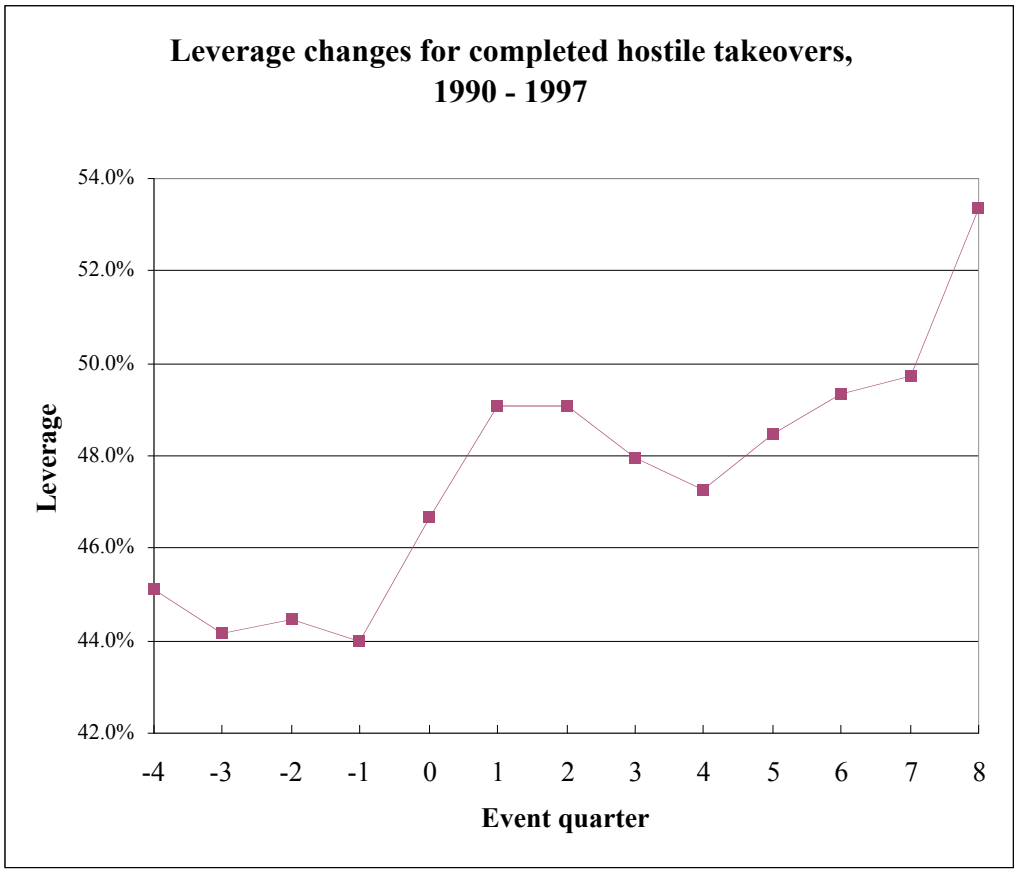
Table 11. Congruence of Shareholder Governance and Bondholder Governance - Takeover Risk and Bond Covenants

Reported are the pooled OLS regression coefficients plus their t-statistics in parentheses of regressing quarterly corporate bond spreads on the governance variables ATI and BLOCK (see Table 1 for a description), the bond PROTECTION index (see Section V for a description), a set of controls (see Table 3), plus issuer dummies. Only the results for the governance and PROTECTION variables are reported. Our sample includes bonds which have valid covenant information in FISD and are issued by firms with constant ATI during the sample period. There are an average of 934 bonds per year from 1990 to 1997, with on average 3.18 corporate bond issues per firm. The t-statistics are corrected for heteroskedasticity, serial correlation and contemporaneous correlation among bonds issued by the same issuer (see footnote 12 for a description).

Model	**I**	**II**	**III**
BLOCK	**0.26**		-0.06
	(3.15)		(-0.58)
BLOCK*PROTECTION	**-0.26**		-0.09
	(-2.21)		(-0.85)
ATI*BLOCK		**0.14**	**0.16**
		(3.30)	**(2.76)**
ATI*BLOCK*PROTECTION		**-0.13**	**-0.09**
		(-2.23)	**(-1.59)**
Adj. R^2	7.3%	7.3%	7.3%
No. of Observations	21660	21660	21660

Figure 1. Leverage changes for completed hostile takeovers

The graph below shows the average leverage of firms that were hostile targets. Time 0 signifies the quarter during which the takeover-announcement was made. We use a sample of 16 completed hostile takeovers in our time period of 1990 – 1997 for which we were able to get all relevant leverage data.



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