Managerial Entrenchment and Share Repurchases: The Impact of Creditor-Alignment on the Cost of Debt

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Abstract

This paper empirically examines how creditor-manager (entrenched) incentive alignment affects changes in the firm's long-term cost of debt surrounding open market share repurchase (OMR) announcements. Using the BCF (2009) E-index as our measure of managerial entrenchment, we find that increases in average quarterly yield spreads resulting from repurchase driven increases in default risk are significantly reduced in the presence of entrenched management. Conditional on the presence of a blockholder, the mitigating effects of creditor-manager incentive alignment on the firm's cost of debt are further strengthened as the concentration of blockholder ownership increases. Additionally, we find that actual share repurchases, as opposed to OMR announcements, drive increases in the firm's cost of debt. However, the mitigating effects of creditor-manager incentive alignment appear limited only to firms that repurchase at least 1% of their outstanding equity in the announcement quarter. Overall, our results suggest that creditors regard OMRs conducted by entrenched management as a defensive mechanism that protects their interests as well in the presence of an effective external market for corporate control.

JEL Classification: G34; G35.

Keywords: Payout policy, Managerial entrenchment, Open market share repurchases, Cost of debt, Agency theory, Corporate governance.

1. Introduction

The recent finance literature tends to coalesce around agency theory as the most empirically robust explanation for management's use of open market share (OMR) repurchases (Farre-Mensa, Michaely and Schmalz, 2014). Jensen (1986) argues that the agency theory of free cash flows stems directly from self-interested managers seeking to protect their undiversified human capital by overinvesting in value-destroying, negative NPV projects, i.e. empire building (see e.g. Fama, 1980; and Amihud and Lev, 1981). To address this issue, Jensen (1986) proposes that management bind its commitment to payout future free cash flows, thus avoiding overinvestment, by substituting debt for dividends and using the proceeds to repurchase the firm's outstanding equity.[1] As such, management is seen as realigning its interests with those of external shareholders. However, an agency explanation of share repurchases begs the question of what could possibly drive *entrenched* managers (strong managerial control/weak shareholder rights) to repurchase shares. Farre-Mensa et al. (2014) suggest that the answer may be found in the external market for corporate control (Jensen and Ruback, 1983), as entrenched managers have been found to increase *defensive* share repurchases when faced with an *effective* external threat (see e.g. Berger, Ofek, and Yermack, 1997; Fluck, 1999; Hu and Kumar, 2004; Billet and Xu, 2007; Lambrecht and Myers, 2012).

While several researchers have considered the mitigating effect of share repurchases on agency costs of equity (e.g. Nohel and Tarhan, 1998; Dittmar, 2000; and Grullon and Michaely, 2004), very little empirical research examining the implications for share repurchases on agency costs of debt is found in the literature.[2] Jensen and Meckling (1976) argue that the introduction of risky debt into the firm creates agency conflicts between shareholders and creditors, as managers, acting in the interests of shareholders, engage in risk-shifting behavior (i.e. asset substitution) or enact financial policies that increase leverage and/or result in excessive payouts that are detrimental to the firm's creditors. However, the interests of entrenched managers, by definition, are not closely aligned with those of external shareholders. Therefore, agency conflicts between entrenched managers and creditors are expected to be less severe. In fact, recent empirical evidence suggests that the interests of creditors are closely aligned with those of entrenched managers. For example, both Klock, Mansi, and Maxwell (2005) and Chava, Livdan, and Purnanandam (2009) find

[1] Jensen proposes an exchange of debt for equity. However, the same result, leveraging the firm up, is accomplished by using the proceeds of a new debt issue, in its entirety, to repurchase the firm's shares in the open market.

[2] Billet, Hribar, and Liu (2015) investigate the interactions among the agency costs of debt and equity by examining the effects of dual class equity structures on the cost of debt.

evidence that the cost of debt is lower (seasoned public bonds and bank loans, respectively) in firms where management is shielded from the market for corporate control (entrenched) through charter level anti-takeover provisions. Similarly, Cremers, Nair, and Wei (2007) find that the cost of debt is reduced in the presence of a large external blockholder only if management is protected from takeovers (entrenched). Ji, Mauer, and Zhang (2017) argue that being insulated from the market for corporate control allows entrenched managers to invest in lower risk, negative NPV projects (empire building) that result in reductions in default risk for bondholders through a diversification effect as well as providing additional collateral in the event of default. As such, we suggest that the alignment of creditor interests may have a mitigating effect on changes in the cost of debt around entrenched managements use of defensive share repurchases, as these ultimately protect the interests of both groups of stakeholders. Borrowing from Ji et al. (2017), we refer to this as the *creditor alignment hypothesis*.

On the other hand, traditional structural models of bond pricing imply that increases in either asset risk, leverage, or volatility of earnings can push the firm closer to a default threshold, thereby resulting in increased credit (yield) spreads (Merton, 1974). As share repurchases must ultimately be financed with either assets on hand or through increased borrowing, the expectation is that losses in collateral and/or increases in leverage associated with repurchases will increase default probability (credit risk), and thus, the firm's cost of debt, i.e. the *credit risk hypothesis*. As the *creditor alignment hypothesis* and the *credit risk hypothesis* are not mutually exclusive, the question of how share repurchases affect the cost of debt in the presence of entrenched management is ultimately an empirical one. To answer this question, we examine how entrenched managements use of open market share repurchases interacts with the interests of creditors to affect changes in the firm's cost of existing debt. Specifically, we empirically examine changes in average quarterly yield spreads on matched seasoned public bonds over the three-quarter period [-1, 0, +1] surrounding the announcement of an OMR.

We choose to focus on changes in the firm's cost of existing debt (i.e. its seasoned public bonds) for several reasons. First, by focusing on changes in average yield spreads over the immediate quarters surrounding an OMR announcement quarter instead of using short-term point estimates, we allow the bond market time to *learn* about the firm's actual repurchase activity in the announcement quarter, thereby enabling us to identify which channels drive changes in yield spreads. Lie (2005) argues that inconsistencies in short-term (equity) responses to OMR announcements reveal that markets are unable to discern whether a firm will follow through with *actual* share repurchases. Second, by focusing on changes in average yield spreads on the firm's publically traded bonds, we are able to avoid endogeneity issues associated with the firm's decision to repurchase or to increase leverage.[3] Lastly, as Chen and King (2014) argue, firms rely heavily on current yields on their outstanding publicly traded bonds for estimates of the component cost of long-term debt used in capital budgeting, as publicly traded bonds, with average maturities of over 10 years, typically comprise the firm's largest component of long-term debt capital. Colla, Ippolito, and Li (2013) find that public bonds account for approximately 20.8% of a firm's average long-term debt. Additionally, Sufi (2010) reports that publically traded bonds make up over 19% of a firm's capital structure while the next largest group of creditors, syndicated bank loans, only comprise 13%.

To jointly test the *creditor-alignment* and *credit risk* hypotheses, we examine changes in average quarterly yield spreads ($\Delta\overline{YS}$) over a three (fiscal) quarter period on 5,587 seasoned public bonds matched to 1,251 OMR announcements from July 1, 2002 through Dec. 31, 2015. Using intraday-level bond transaction data from FINRA's TRACE database, we first construct daily trade-weighted average yield spreads for each outstanding bond issue and then average these over each quarter in the event window [-1, 0, +1] to arrive at an average quarterly yield spread (YS) for each issue. Finally, we determine our primary variable of interest, changes in average quarterly yield spreads ($\Delta\overline{YS}$), as the difference in average quarterly yield spreads between the pre [-1] and post [+1] quarters surrounding the announcement quarter [0] of an OMR.

To specifically test the credit risk hypothesis, we create several change (Δ) variables based on changes in levels over the three-quarter (OMR) event window of asset (unlevered) beta, market leverage, cash-to-asset ratios, profitability, earnings volatility, and average credit ratings, as changes in these variables are predicted by structural models to affect changes in default risk. To test our creditor alignment hypothesis, we construct the *E-Index* from Bebchuk, Cohen, and Ferrell (2009) as our primary measure of managerial entrenchment. A firm's management is considered entrenched if it has an E-index value at or above the median E-Index level for all matched firms. Also, as Cremers et al. (2007) find that the cost of debt is reduced in the presence of a large external blockholder only if management is protected from

[3] The firm's decision to repurchase should impact yield spreads on outstanding bonds; however, average changes in yield spreads on outstanding bonds should not drive the firm's decision to repurchase. We require that public bonds have trades in both the quarters before and after the OMR announcement quarter to avoid endogeneity issues surrounding the choice to issue new debt in conjunction with share repurchases.

takeovers, we further include a variable to control for the presence of a blockholder (i.e. an institutional investor acquiring 5% or more of the firm's outstanding equity). While Bhojraj and Sengupta (2003) report that yield spreads decrease as the number of institutional owners increase, in contrast, they find that the cost of debt is increasing in the *concentration* of institutional ownership. Therefore, conditional on the presence of a blockholder, we further control for the concentration of institutional ownership.

As the focus of our study is on the impact of actual repurchases on changes in the cost of debt, we follow Lie (2005) by further segmenting our sample by the actual percentage (%) of outstanding equity repurchased in the OMR announcement quarter (*CSHOPQ*) into three groups: (i) *CSHOPQ>=1%*, (ii) *CSHOPQ=0* and (iii) 0<*CSHOPQ<1%.* Lie (2005) finds significant operational differences between firms that repurchase at least 1% of their outstanding equity during the announcement quarter and those firms that repurchase only small amounts (less than 1%) or no shares at all. Based on this finding, Lie (2005) suggests that firms attempting to convey information to the market through their OMR announcement do so by following through with large actual repurchases (*CSHOPQ>=1%*) in the same quarter. Given this finding, we argue that if entrenched managers announce OMRs as a defensive measure, either to deter takeover or merely to placate external shareholders, then we would expect them to follow through with substantial repurchases during the announcement quarter or suffer disciplinary actions imposed by an effective external market for corporate control.

Our univariate results reveal that the cost of debt ($\Delta\overline{YS}$) increases over the event window surrounding an OMR announcement, as mean $\Delta\overline{YS}$ significantly increase by 14.7 bps for the entire sample of matched bonds. In subsamples segmented by managerial entrenchment, we find $\Delta\overline{YS}$ are somewhat higher for entrenched firms, initially casting doubt on the creditor-alignment hypothesis; however, differences (1.95 bps) are only significant at median levels for the entire sample. Further univariate results reveal that bondholders respond negatively to the presence of blockholder (i.e. a perceived external threat) as well as concentrated blockholder ownership over the OMR event window. Lastly, in support of the credit risk hypothesis, we find that firms repurchasing 1% or more of their shares in the quarter experience significantly higher increases in average yield spreads which is to be expected as larger repurchases are associated with larger increases in leverage and/or losses of collateral.

Next, we interact managerial entrenchment with the presence of a blockholder in univariate (2x2) tables. We find increases in $\Delta\overline{YS}$ are *visually* smaller in the presence of a blockholder when management is protected from takeovers (entrenched) although the differences are not significant. However, we do find indirect support for the creditor alignment hypothesis as $\Delta\overline{YS}$ are significantly higher for firms that are more susceptible to takeovers (non-entrenched) in the presence of a blockholder. Jun, Jun and Walkling (2009) argue that if the interests of bondholders are more aligned with those of entrenched managers then the (short-term) announcement effects of an OMR should be negative (increased yield spreads) as bondholders would view an OMR announcement as a *realignment* of entrenched managers' interests with those of external shareholders. However, Jun et al. (2009) did not explicitly control for the interaction of an external threat (blockholders) with managerial entrenchment. Interestingly, though, we find univariate support for Jun et al.'s *realignment hypothesis* as changes in the cost of debt are significantly higher (19.5 to 24.2 bps) for entrenched firms that announce OMRs (or repurchase shares) in the *absence* of a large external blockholder as compared to non-entrenched firms.

We next turn to multivariate analysis to attempt to disentangle the effects of managerial entrenchment from credit risk. In pooled OLS regressions, we find strong support for the creditor alignment hypothesis as the coefficient on our dummy variable for entrenchment is negative and highly significant (1%) when we control for changes in levels of credit risk as well as other variables shown to influence yield spreads (Chen and King, 2014). We find that increases in average quarterly yield spreads ($\overline{YS}$) resulting from share repurchases are significantly reduced, on average, by 6.3 bps when the firm's management is entrenched. We also find strong joint support for the credit risk hypothesis as the coefficients on all the credit risk (Δ) variables are highly significant and have the predicted sign. When we further segment our panel data by actual repurchases, we find that the effects of managerial entrenchment are only significant (-10.73 bps) for firms that repurchase at least 1% of their shares in the quarter. Based on this finding, we explicitly test for the interaction of managerial entrenchment with the percent of equity repurchased (*CSHOPQ*). Again, in support of the creditor alignment hypothesis, for firms that actively repurchase in the quarter (CSHOPQ>=1%), we find that in the absence of entrenched management $\Delta\overline{YS}$ increase significantly by 14.25 bps. However, when the firm's management is entrenched, the net increase in $\Delta\overline{YS}$ is only 3.29 bps, a significant *reduction* of 10.96 bps (or 76.91%).

We next conduct regressions controlling for the interaction of a blockholder with entrenched management. Supporting the initial findings of Bhojraj and Sengupta (2003), we also find that the presence of a blockholder results in overall reductions in the cost of debt. However, we still find support for the creditor alignment hypothesis as the presence of entrenched management further leads to reductions in $\Delta\overline{YS}$ for firms that repurchase at least 1% of their shares. Next, we condition on the presence of a blockholder to examine how the *concentration* of blockholder ownership (%) interacts with managerial entrenchment. We create a dummy variable, *Large Block*, that takes a value of one if the percentage of blockholder ownership is greater than or equal to the median percentage of blockholder ownership (*BlockPctOwn*) in the sample. We find that, absent managerial entrenchment, the presence of a large blockholder leads to significant increases in $\Delta\overline{YS}$ for both the entire sample (14.97 bps) and the subsample that repurchases at least 1% (20.68 bps). However, in the presence of entrenched management, the effect is significantly reduced by 22.22 bps and 34.25 bps, respectively. As a final test, again conditioning on the presence of a blockholder, we interact the continuous variable, *BlockPctOwn*, with our dummy variable for entrenchment and rerun our panel regressions. We find that significant increases in the cost of debt are directly proportional to the concentration of institutional (blockholder) ownership, further suggesting that creditors view large external blockholders as potential threats to their interests in the firm. However, once again, we find that managerial entrenchment appears to significantly reduce the effects of increased ownership concentration on the firm's cost of debt.

This study contributes to the finance literature in several important ways. First, our study extends the extant literature examining the effects of corporate governance of the firm's cost of debt (e.g. Bhojraj and Sengupta, 2003; Klock et al., 2005; and Cremers et al., 2007). While several studies provide cross-sectional evidence that creditor interests are aligned with those of entrenched management, our study is the first to demonstrate how the interests of creditors and entrenched managers *interact* to reduce the firm's cost of debt in relation to financial policies (e.g. defensive share repurchases) aimed at reducing the threat from an effective external market for corporate control. Next, our study contributes to the existing bond pricing literature as we provide direct support for (traditional) structural models of bond pricing by identifying firm-specific channels that drive increases in credit risk (yield spreads) resulting from share repurchases. Lastly, we contribute to the debate in the bond literature dealing with the effects of OMRs on bondholder wealth. While these studies report mixed (*short-term*) bondholder reactions to the announcement of an OMR (e.g. Maxwell and Stephens, 2003, Jun et al., 2009; and Nishikawa, Prevost, and Rao, 2011; and Teague, 2017), we find that *longer-term* changes in average yields spreads on the firm's bonds (i.e. bondholder wealth) are not the result of OMR announcements, but are instead driven by *actual* share repurchases in the announcement quarter.

The remainder of the paper proceeds as follows. Section 2 provides background and hypothesis development. Section 3 provides details about the data sample and methodology used to calculate changes in quarterly yield spreads. Section 4 provides initial univariate results. Section 5 presents the results of multivariate analysis. Section 6 offers concluding remarks. Appendix A provides variable definitions.

2. Literature Review and Hypothesis Development

To date, relatively few studies have examined the implications for open market share repurchases on the firm's outstanding bonds (e.g. Dann, 1981; Vermaelen, 1981; Maxwell and Stephens, 2003; Eberhart and Siddique, 2004; Jun, Jung, and Walkling, 2009; Nishikawa, Prevost, and Rao, 2011; Billet, Elkamhi, Mauer, and Pungaliya, 2016; and Teague, 2017).[4] With one exception, the focus of these event studies has been on *short-term* bondholder reactions to the announcement of an OMR, primarily as a means to determine if a transfer of wealth takes place between creditors and shareholders.[5] Results of these studies have been somewhat mixed with the majority finding small negative abnormal returns to bondholders within a one-month period surrounding an OMR announcement although no clear consensus exists in this literature as to whether an OMR results in a transfer of wealth. In the current study, instead of focusing on short-term announcement effects, we examine longer-term implications of share repurchases on the firm's cost of debt by examining changes in average yield spreads on the firm's seasoned public bonds in the 3-quarter (nine-months) period surrounding an OMR announcement. We develop the following hypotheses in relation to the changes in average yield spreads.

2.1 Credit risk hypothesis

Bondholders form expectations about the value of the firm's debt based on its financial policies, including capital structure as well as payout. Beyond the retention of earnings to fund investment in operating capital and service the firm's debt, bondholders should expect management to payout (excess)

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[4] Billet et al. (2016) examine changes in syndicated loan values surrounding OMR announcements.

[5] Eberhart and Siddique (2004) consider long-term returns to bondholders following an OMR announcement, but focus on abnormal returns similar to the equity literature and do not focus on changes in the firm's cost of debt capital.

free cash flows to shareholders. Handjinicolaou and Kalay (1984) argue that to do otherwise would constitute a transfer of wealth from shareholders to bondholders. Therefore, to avoid the agency cost of free cash flows (Jensen, 1986), managers faced with reduced investment opportunity sets may simply employ an OMR to return excess cash to shareholders. However, managers, whose interests are more closely aligned with shareholders (stronger external shareholder control), may enact financial policies that increase leverage and/or result in *excessive* payouts that are detrimental to the firm's creditors (agency cost of debt) resulting in an increase in the firm's cost of debt (Jensen and Meckling, 1976).

Regardless of the motivation, share repurchases must ultimately be financed either with existing assets (cash on hand or proceeds from asset sales, or both) or through increased borrowing (existing credit lines or new debt issues, or both) or some combination thereof.[6] If the targeted repurchase amount in an OMR announcement exceeds expectations (or availability) of future (or current) free cash flows, the reduction in cash or physical assets (i.e. loss of collateral), along with increases in firm leverage (either occurring mechanically and/or directly through the issuance of new debt), will result in a reduction in expectations about the firm's ability to service its debt, thereby increasing default risk. Any perceived increase in default risk by bondholders will result in an increase in yield spreads (cost of debt) as bondholders demand higher premiums for assuming the additional credit risk. This leads to our first hypothesis:

H1: *Share repurchases (OMR) that increase default risk through either a loss of collateral and/or increases in leverage will have an adverse effect on the firm's cost of debt (increase in yield spreads).*

2.2 Creditor-Alignment (Managerial Entrenchment) hypothesis

While numerous theories have been put forth over the years for managements use of share repurchases,[7] recent research points to agency theory as the most empirically satisfying explanation for why firms buyback their shares (e.g. Farre-Mensa, Michaely, and Schmalz, 2014). Jensen (1986) argues that agency costs of free cash flows stem directly from *self-interested* managers who, seeking to protect their undiversified human capital, *overinvest* in value-destroying projects, i.e. *empire building* (diversifying

[6] Farre-Mensa, Michaely, and Schmalz (2015) report that 32% of aggregate payouts (dividends and share repurchases) are financed through new debt and equity issues during the payout year. However, only 3% of aggregate payouts are funded by "*firm-initiated equity issuances.*" (p.2)

[7] See e.g., Grullon and Ikenberry (2000), Allen and Michaely (2003), DeAngelo, DeAngelo, and Skinner (2007) and Farre-Mensa, Michaely, and Schmaltz (2014) for comprehensive reviews of the motivations put forth in the corporate finance literature dealing with share repurchases.

mergers and acquisitions having negative net present values), to fortify their positions within the firm (see e.g. Amihud and Lev, 1981; Fama, 1980; and Shleifer and Vishny, 1989). Grullon and Michaely (2004) argue that the equity market's positive initial response to the announcement of an open market repurchase (OMR) program is thus a reaction to management's commitment to avoid these agency costs of overinvestment. However, an agency theory of share repurchases begs the question of what drives *entrenched* managers (strong managerial control/weak shareholder rights) to disgorge excess free cash? Farre-Mensa et al. suggest that this "*driving mechanism*" may be found in the external market for corporate control.

The literature suggests that the interests of managers who are more exposed to the external market for control (non-entrenched) are naturally more aligned with those of external shareholders. As such, these managers are expected to payout excess cash to avoid overinvestment. However, empirical evidence suggests that entrenched managers (less susceptible to the external market for control) make defensive and/or consolidating repurchases either to deter unsolicited takeover attempts or simply to *placate* external shareholders in order to maintain the status quo.[8] For example, Fluck (1999) demonstrates that entrenched managers increase payouts when faced with an effective external market for control. Hu and Kumar (2004) find that entrenched managers are more likely to voluntarily commit to payouts to avoid disciplinary actions by outside shareholders. Berger, Ofek, and Yermack (1997) find that entrenched managers commit to defensive restructurings involving increases in leverage financed repurchases. Billet and Xue (2007) argue that OMRs are an effective deterrent against unsolicited takeover attempts. Lastly, Lambrecht and Myers (2012) suggest that in presence of an *effective* external market for control, "*entirely self-interested managers…*, [having] *…no loyalty to outside shareholders,*" choose a total level of payouts (dividends and repurchases) to maximize their own "*flow of rents.*" (pgs.1762-3) [9] If true, these findings should have significant implications for the firms' cost of debt.

Early agency theories of debt focus on the wealth expropriation of creditors by managers, who, acting in the interests of shareholders, either overinvest in excessively risky projects, i.e. *asset substitution* (Jensen and Meckling, 1976), or, when faced with debt overhang, make suboptimal investment decisions,

[8] Golbe and Nyman (2013) report that a repurchase of 1% of the firm's outstanding equity disproportionately reduces ownership concentration among the firm's largest institutional blockholders by approximately one and a half percent (1.5%).

[9] Lambrecht and Myers (2012) define the "*flow of rents*" as the appropriation of firm resources such as "*above-market salaries, job security, generous pensions, and perks*."

i.e. *underinvestment* (Myers, 1977). However, recent empirical work has shown that creditors' interests may actually be more aligned with those of entrenched managers, where the agency costs of equity are expected to be highest. For example, Klock, Mansi, and Maxwell (2005) find that the cost of debt is lower in firms where management is shielded from the market for corporate control through charter level anti-takeover provisions (E-index). Chava, Livdan, and Purnanandam (2009) find that firms with higher takeover defenses (higher GIM-index scores**)** experience significant reductions in credit spreads on new bank loans.[10] Sunder, Sunder and Wongsunwai (2014) find evidence that lenders require higher price protection (in the form of increased loan spreads) for firms that have high *ex-ante* takeover risk as proxied by the absence of a classified (staggered) board[11] or low market-to-value ratios.[12] Ji, Mauer, and Zhang (2017) argue that being insulated from the market for corporate control allows entrenched managers to invest in lower risk, negative NPV projects in order to build *diversified* empires. They suggest that these non-synergistic acquisitions result in reductions in default risk for bondholders through a diversification effect (e.g. Lewellen, 1971) as well as providing additional collateral in the event of default. As such, Ji et al. (2017) propose that agency costs of equity resulting from anti-takeover provisions indirectly align the interest of creditors with those of entrenched managers. However, while creditors may benefit from risk reduction through diversification, evidence suggests that the primary factor aligning creditor and entrenched managerial interests is the protection from takeovers.

Multiple studies have shown that leverage increases dramatically after a takeover, whether solicited or hostile.[13] As such, bondholders stand to lose significantly if the increases in leverage resulting from a takeover increases default risk (e.g., Warga and Welch, 1993; Billet, King, and Mauer (2004), Chava et al., 2009; Klein and Zur, 2011; Sunder et al., 2014). Additionally, bondholders of target firms may suffer from ratings downgrades if the acquiring firm has a lower credit rating or if the time to maturity of the acquirers' debt is less than that of the target, effectively changing the priority schedule of the combined debt. Billet

[10] See Gompers, Ishii, and Metrick (2003) and Bebchuk, Cohen, and Farrell (2009) for a complete discussion of anti-takeover provisions (ATP) and the indices that are constructed in each work, the GIM index and the E-index, respectively, to measure the level of shareholder control (managerial entrenchment) in the firm.

[11] Bebchuk, Coates, and Subramanian (2002) find that the presence of a classified board (or staggered board) effectively insulates management from the market for corporate control as it reduces the odds of a successful takeover by over 50%.

[12] Low (high) values of the market-to-value ratio (Rhodes-Kropf, Robinson, and Vishwanathan, 2005) represent under-valued (over-valued) firms that have high (lower) takeover vulnerability.

[13] Several studies have shown that leverage increases dramatically after a takeover (see e.g. Kim and McConnell, 1977; Cook and Martin, 1991; and Ghosh and Jain, 2000).

et al. (2004) find that, while holders of non-investment grade debt in the target firm react positively to an acquisition (or merger),[14] investment grade bonds in target firms experience significant losses. Specifically, they find that bondholders in target firms that experience increases in asset risk or downgrades in credit ratings experience significant negative returns around the announcement of a takeover. Additionally, in an extreme example of a leverage-induced takeover, i.e. a leveraged buyout (LBO), Billet, Jiang, and Lie (2010) find that bondholders who are unprotected from the effects of increased leverage (susceptible to takeover risks) through the absence of change of control covenants suffer significant losses around the announcement of an LBO.[15]

So, while normal expectations are that bondholders should react negatively to a share repurchase if it increases default risk (*credit risk hypothesis)*, these same bondholders, if their interest are more aligned with entrenched management (*creditor-alignment hypothesis*), may regard the share repurchase as a defensive measure that protects their interests as well, thereby *mitigating* the negative response to an increase in default risk. This leads to our second hypothesis:

H2: *If bondholder (creditor) interests are more aligned with those of entrenched managers, then we expect creditor-alignment to have a mitigating effect (reduction in yield spreads) on the reaction of existing bondholders to an increase in default risk resulting from share repurchases conducted by entrenched managers, thereby reducing the cost of debt relative to firms whose management are more exposed to takeovers.*

Therefore, the real question facing bondholders is whether the reduction in the perceived threat of takeover in the presence of entrenched management *outweighs* the actual increase in default risk resulting from (defensive) share repurchases. If, as we hypothesis, bondholders react less negatively to an actual share repurchase when the firm's management is entrenched, then bondholders must perceive a threat to their interests from the external market for corporate control, either from takeover or from the realignment of entrenched managers interests with those of external shareholders. We argue that as the level of external

[14] Billet, King, and Mauer (2004) argue that non-investment grade bondholders of targeted firms in mergers and acquisitions benefit from a "*co-insurance*" effect (Lewellen, 1971) due to the reduction in credit (default) risk from non-synergistic (or imperfectly correlated) diversification.

[15] In a related study, Barron and King (2010) also find significant negative returns to bondholders around the announcement of a levered buyout; however, they find that negative bondholder returns are limited to those LBOs where the acquirer is considered a "reputable buyout firm." See Asquith and Wizman (1990); Cook, Easterwood, and Martin (1992); and Warga and Welch (1993) for a discussion of bondholder losses in earlier literature surrounding the effects of leveraged buyouts (LBOs).

shareholder control increases through ownership (increased voting rights), bondholders' degree of perceived threat should also increase (e.g. Shleifer and Vishny, 1986; and Grossman and Hart, 1980).[16] Following the corporate governance literature, we proxy for *effective* external shareholder control (external threat of takeover) by the presence of a large institutional investor, i.e. a blockholder owning at least 5% or more of the firm's outstanding equity.[17]

While research has shown that the presence of institutional ownership often provides beneficial monitoring for both shareholders and creditors, the benefits to creditors may become diminished as ownership *concentration* increases, i.e. as large institutional blockholders emerge (Shleifer and Vishny, 1986; and Bhojraj and Sengupta, 2003). For example, Bhojraj and Sengupta (2003) find that the cost of debt is lower for firms with higher institutional ownership (stronger external control) supporting the notion that active monitoring by institutional owners passively benefits creditors. However, they also find that as the concentration of individual institutional ownership increases (blockholders), the yield spread on the firm's debt also increases.[18] Cremers, Nair, and Wei (2007) find that the cost of debt is *reduced* (increased) in the presence of a blockholder if the firm's management is *protected* (unprotected) from takeovers. Sunder et al. (2014) find that when activist hedge funds (identified in 13D filings as blockholders) rely on the market for corporate control by attempting to force takeovers (or mergers) of the target firm, lenders respond by increasing credit spreads on subsequent bank loans by approximately 78 bps. More importantly, Sunder et al. (2014) find that, when hedge fund activism results in increases in either leverage or payouts (including share repurchases), credit spreads on bank loans also increase in the post hedge fund intervention period; however, the increase in credit spreads for payouts is only significant in the subsample of target firms having the *highest takeover risk* as proxied by the absence of a classified board (non-entrenched management). This leads to our third hypothesis:

H3(a): *If bondholder interests are more aligned with those of entrenched managers, then we expect the mitigating effects (reduction in yield spreads) of creditor-alignment (H2) to the announcement of an*

[16] Shleifer and Vishny (1986) argue that large institutional investors, i.e. blockholders, by nature of their large equity holdings, have significant voting control of the firm, thus enabling them to effectively monitor management and take corrective actions if needed, including *facilitating takeovers*.

[17] The Securities and Exchange Commission (SEC), through enforcement of the Securities Exchange Act of 1934, Sections 13(d) and 13(g), requires shareholders to fill form 13D (13G) within 10 days of actively (passively) acquiring 5% or more of a firm's outstanding equity in an effort (while not seeking) to influence control of the issuing firm.

[18] Bhojraj and Sengupta (2003) find that that credit ratings are also inversely related to the concentration of institutional ownership.

OMR to be greater in the presence of a large institutional blockholder (perceived threat) or as the concentration of blockholder ownership increases, thereby further reducing the cost of debt relative to firms whose management are more exposed to the threat of takeover.

However, assuming hypothesis H3(a) is true (or at least we fail to reject), this raises the interesting question of how bondholders will react to the announcement of a share repurchase by entrenched management in the *absence* of a large external threat (large blockholder). Jun, Jung and Walkling (2009) argue that if bondholders' interests are more aligned with those of entrenched managers, then bondholders should respond negatively to an OMR announcement since they may interpret this as a *realignment* of the entrenched managers interests with those of external shareholders. Jun et al. find some univariate evidence that yield spreads are increasing during the event month (short-term) surrounding the announcement of an OMR for firms with the weakest shareholder rights (entrenched management), which they suggest provides evidence for their *realignment* hypothesis.[19] However, Jun et al. (2009) fail to control for the interaction of managerial entrenchment with the presence of concentrated institutional ownership. Still, Jun et al.'s realignment premise does raise the interesting question of why entrenched managers, who enjoy the ability to control firm assets afforded to them through antitakeover provisions, would *voluntarily* choose to transfer these same assets to external shareholders by increasing payouts in the absence of an effective external threat. To control for this situation, we also test the following hypothesis:

H3(b): *If bondholder interests are more aligned with those of entrenched managers (creditor-managerial alignment), then in the absence of a perceived external threat (i.e. a large institutional blockholder) bondholders should react more negatively to the announcement of a share repurchase by entrenched management, as bondholders may perceive this as a realignment of entrenched managers' interest with those of external shareholders.*

2.3 Actual versus Announced Repurchases

While several event studies have examined the short-term impact of OMR *announcements* on bondholder wealth, none of these studies examine the bond market's response to *actual* share repurchases.[20]

[19] Jun et al. (2009) report that bond returns are significantly negative for firms in the highest quartile of the GIM and BCF indices as well as those with staggered (classified) boards. However, in multivariate analysis, Jun et al. report that the coefficient on the entrenchment (dummy) variable is insignificant.

[20] Maxwell and Stephens (2003), Jun, Jung, and Walkling (2009), and Eberhard and Siddique (2004), all use monthly bond data to calculate abnormal returns during the announcement month of an OMR. Nishikawa, Prevost, and Rao (2011) use daily bond data, but due to the infrequency of trades, are forced to use a window of 30 days before and after the announcement date to match bond

As an OMR announcement is not legally binding, managers have the "*flexibility*" to decide when and if they will repurchase their shares (e.g. Stephens and Weisbach, 1998; Fenn and Liang, 2001; and Jagannathan, Stephens and Weisbach, 2000). Due to this inherent flexibility, OMR announcements are often only seen as mere "*authorizations*" and not absolute commitments to repurchase (Chan, Ikenberry, Lee, and Wang, 2010). In fact, research has shown that managers often take several years to complete an OMR program, if at all.[21] For example, in a study of 19,500 OMR announcements over a 30-year period from 1979 to 2010, Bargeron, Bonaimé, and Thomas (2017) find that only 41.5% of firms complete their entire (targeted) repurchase program within three (3) years of the announcement.[22] Thus, in the majority of cases, the *initial* reaction of bondholders (and shareholders) to an OMR announcement is based on *expectations* and not actual repurchases.[23] Unless management gives early guidance of its repurchase activity during the announcement quarter, bondholders (and shareholders) will only be made aware (learn) of the actual share repurchases in subsequent quarterly (annual) financial statements.[24]

While firms may have valid reasons for announcing an OMR and then postponing the actual repurchase of their shares (e.g. share prices initially rise beyond management's expectations, or some other unforeseen financing requirement supplants that of repurchasing shares, etc.), Lie (2005) argues that the information content of a repurchase announcement may be (somewhat) discerned by the firm's actual repurchase activity during the OMR announcement quarter. In a sample of 4,729 OMRs from 1981 to 2000, Lie (2005) finds significant differences in (*relative*) post-announcement operating performance among firms that repurchase a substantial amount of their outstanding equity (at least 1% or more) during

trades. Teague (2017) uses daily TRACE bond data to calculate matched 3-day and 5-day bond cumulative abnormal returns (CARs) around OMR announcements. However, all of these studies only examine 'announcement' effects.

[21] Stephens and Weisbach (1998) find that firms that complete their OMR program often take up to three years and end up repurchasing significantly less shares than originally targeted in their OMR announcement (only 74% to 82%). They find that only 57% of firms repurchase the (stated) targeted share amount during this three-year period, while 10% of firms repurchase less than 5% of their targeted shares with a substantial number of firms failing to repurchase any shares at all.

[22] Of the 19,500 OMR announcements, Bargeron, Bonaimé, and Thomas (2017) are only able to estimate actual share repurchases for 14,710 authorizations. Of these, they "*infer*" that 8,091 (55.0%) complete their programs within three-years which is similar to the 57% reported in Stephens and Weisbach (1998).

[23] Lie (2005) reports that 3-day mean (median) equity CARs for firms that fail to repurchase any shares during the quarter of OMR announcement are 4.2% (2.5%), while firms that repurchase over 1% of their outstanding equity in the announcement quarter only have 3-day mean (median) equity CARs of 2.5% (1.6%). Based on this finding, Lie (2005) suggests that "*there is no evidence that the capital market can predict at the time of the repurchase announcement which firms will actually repurchase shares*." (p.423)

[24] In the first fiscal quarter of 2004, the SEC began requiring firms to report all quarterly repurchase activity, including the number of shares repurchased, the average repurchase price, and the number of shares still available to repurchase under outstanding open market repurchase (OMR) programs in quarterly (and annual) financial statements (10-Qs and 10-Ks). Additionally, any privately negotiated repurchases have to be disclosed in a footnote in the same section.

the announcement quarter and those that only repurchase only a small amount or no shares at all.[25] Based on this finding, Lie (2005) suggests that firms attempting to convey information to the market through their OMR announcement do so by following through with large actual repurchases in the announcement quarter. Given this finding, we argue that if entrenched managers announce OMRs as a defensive measure (either to deter takeover or merely to appease external shareholders), then we would expect them to follow through with substantial repurchases during the announcement quarter. Otherwise, external shareholders (blockholders) would be able to discern management's lack of intent within one quarter and take further disciplinary actions. However, again, as the *credit-risk* and the *creditor-alignment* hypotheses are not mutually exclusive, we also expect that, as the amount of actual share repurchases increases, increases in default risk from larger increases in leverage and/or the loss of collateral will also result in larger increases in the cost of debt (increased yield spreads). This leads us to the following two (joint) hypotheses:

H4(a): *If entrenched managers announce OMRs as a defensive measure against the external market for corporate control, and if creditors' interest are more aligned with entrenched managers, then we expect the mitigating effects of managerial entrenchment on the cost of debt (reduced yield spreads) to be greater for firms that repurchase at least 1% of outstanding equity in the announcement quarter relative to those firms that repurchase only small amounts of equity or no shares at all.*

H4(b): *As the amount of (actual) share repurchases increase during the announcement quarter, we expect the negative impact on credit spreads (default risk) to be greater as larger repurchases result in greater losses of collateral and/or larger increases in leverage.*

3. Data & Methodology

3.1 Data Sample

We collect data on open market repurchase (OMR) announcements from the SDC Platinum Mergers and Acquisitions database over the period from July 01, 2002 thru December 31, 2015. We choose

[25] Lie (2005) finds that, out of 4,729 OMR announcements, only 39% of announcing firms repurchase 1.0% or more of their shares during the announcement quarter. Surprisingly, he finds that 24% (1,119) of the announcing firms fail to repurchase any shares during the announcement quarter. Of the remaining 37% (1,767) of firms, Lie (2005) reports that they either repurchase small amounts (less than 1%) or that the repurchase activity was not verifiable.

our beginning date to coincide with the initial availability of TRACE daily bond data.[26] We next eliminate any (duplicate) announcements occurring within 90 days of the original announcement as well as records flagged as either "*withdrawn*" or "*complete.*"[27] We require that each announcement have detailed information about the program size (targeted equity) as well as matching financial and returns data available through Compustat/CRSP. Additionally, following Hribar, Jenkins and Johnson (2006) we eliminate any repurchase announcements that seek to target 20% or more of the firm's outstanding equity.[28] This results in an initial sample of 5,606 OMR announcements. Lastly, to mitigate the effects of confounding events, we further require that no OMR announcement occur within one quarter before or one quarter after the announcement quarter, effectively creating a (3) three-quarter event window for analysis [-1, 0, +1].[29] This results in the elimination of an additional 228 observations leaving a final sample of 5,378 OMR announcements that we attempt to match with daily bond trades.[30]

Using the 6-digit CUSIP identifier for each OMR firm, we collect all matching daily transaction-level bond data from the Financial Industry Regulatory Authority's (FINRA) Trade Reporting and Compliance Engine (TRACE) over the period extending one fiscal quarter before through one fiscal quarter after the OMR announcement quarter.[31] TRACE contains information on intraday corporate OTC bond trades including price, volume, yield, transaction date and time, and other transaction specific information.[32] Following the methodology outlined in Asquith, Covert, and Pathak (2013), we thoroughly *clean* the

[26] In 2001, the U.S. Securities and Exchange Commission (SEC) adopted rules requiring the National Association of Security Dealers (NASD) to report all over-the-counter (OTC) bond transactions in secondary markets. The NASD began reporting these OTC bond transactions for a limited number of bonds (498) with floats that exceeded $1 billion dollars through its Trade Reporting and Compliance Engine (TRACE) on July 1st, 2002.

[27] Banyi, Dyl, and Kahle (2008) frequently find duplicate OMR announcements occurring in the SDC database several months after the original announcement, which they attribute to the SDC's reliance on multiple media sources for its (OMR) data.

[28] Hribar et al. (2006) argue that repurchase announcements targeting 20% or more of the firm's equity, while often designated as an OMR, may have implications for the cost of capital that are more synonymous with those of a tender offer.

[29] For robustness, we also extend our analysis to include windows with no confounding OMR announcements occurring within 6-months (2-quarters) and 1-year (4-quarters) before and after the primary OMR announcement; however, this substantially reduces our sample size. Untabulated results for both samples are qualitatively similar and are available upon request.

[30] Following Maxwell and Stephens (2003), Grullon and Michaely (2004), and many others in the literature, we do not exclude financial and other regulated industries because they represent over 28.75% of the sample. As a robustness check, we further eliminate announcements from firms with 4-digit SIC codes classified as financials and/or utilities. Our primary results are qualitatively similar.

[31] To calculate changes in the firm's cost of debt (average yield spreads) surrounding the announcement of an OMR, we require that each matched bond issue have valid trades in both the quarters before [-1] and after [+1] the announcement quarter [0].

[32] The NASD (later merging with the regulatory division of the NYSE to become the FINRA) began reporting over-the-counter (OTC) transactional-level trade data through TRACE on a select group of 498 bonds on July 1, 2002. Since January 9, 2006, TRACE has been providing the immediate dissemination of transaction-level data on 100% of (OTC) trades in over 30,000 U.S. corporate bonds representing approximately 99% of the U.S. Corporate Bond Market (SOURCE: 2015 TRACE Fact Book).

matched TRACE data, eliminating any trades that are (1) later reversed, modified, or cancelled, (2) are duplicates, (3) have incorrectly reported price or volume data, or (4) that could not have occurred based on the reported transaction date.[33] We next match each remaining TRACE transaction-level record to a unique bond issue in the Mergent FISD database, allowing us to obtain bond characteristics such as offering amount, offering date, maturity, amount outstanding, coupon, callability, convertibility, putability, covenants, credit ratings, and all other issue specific details. We further eliminate any issues labeled as *perpetual*, *preferred*, *Yankee*, *Canadian*, *unit deals*, and *Rule 144A private issues* (private placements) as these are outside the scope of our current research. As a final step, using Bessembinder, Kahle, Maxwell and Xu (2009)'s construction of a "*daily trade-weighted price*" as a precept, we construct a *daily trade-weighted yield* for each bond (issue) based on the calculated yield from each intraday trade (reported trade price), using the volume of each trade as a weight.[34] This process ultimately results in a final sample of 1,251 OMR announcements from 576 distinct firms matched with 5,587 (3,031 distinct issues) publicly traded bonds from TRACE.

Table 1 (Panel A) reports the number of matched OMR announcements as well as the number of matched bond issues by year. We see that the number of matched OMRs increases *almost* monotonically from 2002 (33) to a pre-crisis peak in 2007 (155) as TRACE coverage of bond trades became increasingly available over this period. Panel B of Table 1 displays a distribution of OMRs by Fama/French-12 industry classifications. Financials (22.94%) comprise the largest category of firms announcing OMRs, followed by the Wholesale and Retail industry (13.59%). Utilities (2.24%), Consumer Durables (2.24%) and Television and Telecom (2.32%) are (almost) tied as the industries with the lowest number of announced OMRs (with matching bond data) during this period. However, all 12 Fama/French industries are represented.

Table 2 presents summary descriptive statistics for our sample. In Panel A, we see that, on average (median), sample firms target approximately 7.32% (6.27%) of their outstanding equity in an OMR announcement representing a mean (median) dollar amount of \$1.514 billion (\$500.00 million).[35] Most

[33] As TRACE is entirely comprised of self-reported bond trades by FINRA member firms, both buyers and sellers, it often contains duplicate trades, trades that never actually occur and have to later be reversed, and/or trades that have to be later modified or canceled as well as trades containing incorrect dates, prices, and volume data. We refer the reader to Appendix A in Asquith, Covert, and Pathak (2013) for a complete description of the process used to clean the TRACE data.

[34] Bessembinder et al. (2009) suggest calculating a "*daily trade-weighted price*" based on all daily intraday trades found in TRACE for use in the calculation of daily abnormal bond returns. They argue that "this approach puts more weight on the institutional trades that incur lower execution costs and should more accurately reflect the underlying price of the bond." (p.4225)

[35] All dollar amounts have been adjusted for inflation to 2015 (\$) dollars using CPI-U data.

firms in our sample appear to have significant experience repurchasing their shares as the middle 50% of firms have conducted between two and six OMR programs prior to the current OMR announcement.[36] Additionally, we find that, on average (median), firms repurchase approximately 3.85% (2.60%) of their outstanding equity over the (4) four-quarter period prior to the OMR announcement quarter, with repurchases occurring, on average (median), in 2.84 (4.0) out of the prior four quarters. As such, in multivariate analysis, we control for the both the number of prior OMR announcements as well as the recent (prior 4-qtr) repurchase activity. We expect bondholders to have already priced (higher yield spreads) *ex ante* increases in default probability resulting from significant prior repurchase activity. Therefore, we expect negative coefficients on both variables as the bond market may react more strongly to the announcement of an OMR by an infrequent (novice) repurchaser. Additionally, as we argue that actual repurchases, and not merely the announcement of an OMR, is what drives changes in the longer-term cost of debt (average yield spreads), we report that firms repurchase, on average (median), 1.65% (1.11%) of their outstanding shares during the announcement quarter.[37] Following Lie (2005), we further segment our sample of OMR firms into three (3) sub-groups based on the level of actual repurchases in the announcement quarter.[38] In slight contrast to Lie (2005)'s findings, we find that, in our sample, 53.64% of firms make substantial repurchases (CSHOPQ >=1%) during the announcement quarter, while only 9.91% fail to repurchase any shares at all (CSHOPQ=0.0%). The remaining 36.45% of firms only repurchase small share amounts (CSHOPQ<1.0%) during the announcement quarter

We collect all firm-level financial data from Compustat as well as returns data from CRSP. Panel B displays summary financial statistics for OMR announcing firms in *levels* as of the end of the fiscal quarter [-2] just prior to our event window [-1, 0, +1]. While many of the variables in Panel B as used as controls in our multivariate analysis, the focus of our current research is on how several of these accounting variables (ratios) *change* due to the repurchase of firm shares and the resultant impact on default risk (credit

[36] Although our sample period only covers from July 1, 2002 through December 31, 2015, we collect data on all repurchases announcements found in the SDC beginning in 1984, which is the first year the SDC began coding repurchase announcements as "*Open Market.*"

[37] By utilizing a three (3) quarter event window [-1, 0, +1], we assure that the bond market can *learn* of the firm's *actual* repurchase activity during the announcement quarter through (SEC) regulatory filings (10-Q or 10-K) in the subsequent quarter [+1].

[38] We choose to follow Lie (2005)'s definition of substantial repurchases (>=1%) as he finds statistically significant differences in these firms and those who purchase less than 1%. For robustness, we also use median shares repurchased (1.11%) to distinguish between only two groups. We find qualitatively similar results.

risk hypothesis). As such, we defer discussion of changes in these variables until the next section. Appendix A describes the construction of all variables.

Panel C (Table 2) displays summary bond issue characteristics. We find that, as of the time of each OMR announcement, firms have, on average (median), 4.47 (3.0) bond issues outstanding with a mean (median) market value of $644.27 ($460.60) million per issue. The mean (median) seasoning of bonds in our sample is 4.57 (3.24) years with a remaining time to maturity of 9.89 (6.49) years. We follow the bond literature (see e.g., Klock, Mansi, and Maxwell, 2005; and Chen and King, 2014) by assigning numerical values to represent the various character-based credit ratings reported by Credit Reporting Agencies (CRA).[39] The numerical values for the credit ratings start at 1 for (S&P) AAA-rated debt and range up to 20 for CC-rated bonds, as this is the lowest credit rating in our sample. Using this scale, an *increase* in the numerical credit rating represents a *downgrade* in the actual character based rating (increase in default risk). Thus, we expect changes in credit ratings over our event window to be positively related to yield spreads (cost of debt). The average bond in our sample has a numerical credit rating of 7.59 representing a character based rating of slightly between A^- to BBB^+. However, 87.10% of all bonds in the sample are considered investment-grade (BBB^- or above). Also of note, while we find that 69.89% of the bonds are callable, only a relatively small percentage of bonds have options that are valuable to bondholders, i.e. convertible (1.66%) or puttable (1.90%).

Cremers et al. (2007) find protective bond covenants serve to mitigate the agency conflict between shareholder and bondholder interest in the presence of strong external governance (blockholders). As such, we control for the mitigating effects of protective covenants by following Billet, King, and Mauer (2007) in grouping all restrictive bond covenants into (15) distinct categories based on type of restriction (protection). We then form an overall covenant index using all 15 categories as inputs as well as forming three (3) additional sub-group covenant indices involving payouts, financing, and investment restrictions.[40] As the focus of study is on repurchases, we limit our discussion to those covenants directly related to payouts. We find that only 9.41% (5.19%) of bond issues have covenants placing restrictions on share

[39] We use historical credit ratings from the FISD database to assign credit ratings as of the date of the actual bond transaction from the three primary credit ratings agencies: Moody's, Standard and Poor's, and Fitch. We eliminate any bonds that are indicated as in default. We then average the individual reported ratings (if available) to arrive an overall *average* credit rating for each bond.

[40] In untabulated multivariate analysis, we include both individual covenants (all) as well as all group indices. However, we only find significant results among those covenants dealing with payouts. Overall, covenant inclusion is sparse in our sample, possible due to the investment grade nature of the bonds.

repurchase (dividends). Additionally, we find that the total payout covenants per issue (either 0, 1, or 2) is extremely low with a mean (median) number of only 0.146 (0.00) covenants. As such, while we control for the use of covenants, we do not anticipate that our results will be driven by covenant inclusion.

Lastly, Panel D (Table 2) presents descriptive statistics for firm-level managerial entrenchment as well as measures of external and internal governance (shareholder control). We collect data on entrenchment (anti-takeover provisions) and corporate governance from Institutional Shareholder Services (ISS) (formerly RiskMetrics), CDS/Spectrum, and ExecuComp. Borrowing from Bebchuk, Cohen, and Ferrell (2009), we construct their "*E-Index*" of antitakeover provisions as our primary measure of managerial entrenchment. Bebchuk et al. (2009) argue that of the original (24) governance measures used in the much larger GIM-index (Gompers, Ishii, and Metrick, 2003) only six (6) are significantly correlated with losses in firm value.[41] These anti-takeover provisions (ATP) include (1) classified (staggered) boards, (2) poison pills (puts), (3) golden parachutes, (4) supermajority voting rules in mergers and acquisitions, and limits to shareholder amendments of the (5) corporate charter and (6) bylaws. The E-index is uniformly constructed by starting at zero and adding a value of 1 for each anti-takeover provision present at the time of the repurchase announcement, thereby establishing a possible range of index values between 0 and 6, with larger values representing greater takeover protection (managerial entrenchment). Of the 1,251 OMRs in our sample, data on ATPs is only available for 1,168 (93.37%) firms (OMRs). The mean (median) E-index value for these firms is 2.77 (3.0). We segment our sample of OMR-firms by creating a dummy variable, *Entrenchment*, that takes a value of 1 if the E-index is greater than or equal to the median value of 3.0, and zero otherwise. As many of the sample firms with E-index scores are clustered at the median, entrenched firms make up 61.30% of our sample. We next collect data on all institutional ownership to determine the presence of a blockholder. As in Cremers et al. (2007), we create a dummy variable, *Blockholder*, that takes a value of 1 if at least one (1) institutional investor owns 5% or more of the firms outstanding equity, and zero otherwise. Of those firms with available institutional ownership data, 86.87% (986 out of 1,135) have at least one institutional Blockholder present with mean (median) ownership representing 9.22% (7.98%) of the firm's outstanding equity. In fact, we find that overall mean (median) institutional ownership for our sample is 77.27% (80.65%).

[41] We are unable to use the GIM-Index (Gompers et al.,2003) in our current study as ISS discontinues data coverage after 2006 for several of the variables needed to construct the index.

3.2 Methodology to Calculate Changes in Average Yield Spreads

In this paper, we focus on the effects of actual open market repurchases on the firm's cost of debt. As such, we employ an event study methodology; however, in contrast to previous bond (OMR) studies, we focus on changes in the firm's *average* cost of debt over a three-quarter window [-1, 0, +1] to allow the bond market sufficient time to learn of the firm's actual repurchase activity during the quarter of an OMR announcement. Following conventions in the bond literature, we use the yield spread above a maturity matched constant U.S. Treasury rate on the firm's seasoned public bonds as our measure of the cost of debt (see e.g., Chen and King, 2014; Cremers et al., 2007; Jun et al., 2009; and Klock et al., 2005).[42] However, instead of focusing on point estimates, we differentiate our study by averaging yield spreads over each quarter and then calculating the *change* in average quarterly yield spreads over the three-quarter period to measure the impact of share repurchases on the firm's cost of debt.[43] By focusing on changes in the yield spreads of *seasoned* bonds over the fiscal quarters surrounding the announcement of an OMR, we further avoid the endogeneity issues associated with the firm's decision to repurchase or issue new debt.

To calculate our primary dependent variable of interest, $\Delta\overline{YS}_{j,[-1,+1]}$, we begin by using our calculated daily trade-weighted yield from TRACE transaction data to calculate a *daily trade-weighted yield spread (YS)* for each bond issue by subtracting the interpolated daily treasury rate (yield) matched by the bond's remaining time to maturity. We closely follow the methodology outlined in Jun et al. (2009) to extrapolate daily constant maturity U.S. treasury rates.[44] Next, we simply average the treasury-adjusted yield spreads for each bond issue across *each* of the (3) three fiscal quarters to arrive at an average quarterly yield spread ($\overline{YS}_{j,Qtr[i]}$) for each bond j, $(i = -1, 0, +1)$. Finally, we calculate the change in average quarterly yield spreads as:

$$\Delta\overline{YS}_{j,[-1,+1]} = \overline{YS}_{j,Qtr[+1]} - \overline{YS}_{j,Qtr[-1]} \quad (1)$$

3.2 Credit Risk Variables: changes in levels

[42] Historical daily constant U.S. Treasury rates are obtained from the *H.15 Selected Interest Rates* table published by the Board of Governors of the Federal Reserve System.

[43] We choose to focus on average quarterly yield spreads due to the infrequent nature of bond trades. Bessembinder et al. (2009) report that for 2006, the first full year of TRACE implementation, "*the average bond only trades 52 days a year, and conditional on trading, only 4.62 times per day*." (pg. 4225)

[44] To conserve space, we refer the reader to Jun et al. (2009) for a complete description of the interpolation methodology (pg. 217).

Next, we examine *changes* in levels of several of the accounting variables (ratios) presented in Panel B of Table 2 over the three-quarter event period surrounding the announcement of an OMR. Specifically, we seek to identify which channels (i.e. increased leverage, loss of collateral, asset risk, etc.) lead to changes in the firm's cost of (existing) debt capital resulting from actual repurchases of firm shares. Structural models of bond pricing suggest that increases in default risk (driven by increases in leverage, volatility of earnings, or asset risk) push the firm closer to a default threshold, the result of which is an increase in yield spreads, i.e. the firm's cost of debt (Merton, 1974). Therefore, to test our credit-risk hypothesis, we create variables for *changes in levels* of asset (unlevered) beta, market leverage, book leverage, cash-to-assets, earnings volatility, profitability, and credit ratings. All change variables are calculated by subtracting the values taken from Compustat (or calculated) at the end of fiscal quarter [-2] from the reported values at the end of quarter [+1], thus representing *changes in levels* across the entire event window [-1, 0, +1]. We discuss the univariate analysis of these change variables in Table 5 and further employ these change variables as regressors throughout multivariate analysis.

4. Univariate Results

4.1 Changes in average yield spreads (cost of debt)

Table 3 reports changes in the average yield spreads ($\Delta\overline{YS}$) for the bonds in our sample over the three-quarter period [-1, 0, +1] surrounding the announcement of an OMR. Throughout the various panels in Table 3, we provide results for all OMRs as well as subsets based on actual repurchases (*CSHOPQ*) in the announcement quarter [0]. To conserve space, we limit the subsets to only those OMRs in which the firm (1) repurchases at least 1% or more of its equity (CSHOPQ>=1%), i.e. *large repurchases*, and (2) those that repurchase less than 1% of firm shares (0<=CSHOPQ<1%), i.e. *small repurchases*.[45] In Panel A, we find that, overall, the cost of debt increases surrounding OMR repurchases as the mean (median) change in average quarterly yield spreads ($\Delta\overline{YS}$) for all bonds in the sample is 14.70 bps (0.91 bps). Additionally, providing some initial support for hypothesis H4(b), we find that firms that repurchase at least 1% or more

[45] In untabulated results, we find that the differences in $\Delta\overline{YS}$ between the two subgroups (0<CSHOPQ<1%) and (CSHOPQ=0.0%) are not statistically significant, while $\Delta\overline{YS}$ between the group (CSHOPQ>=1%) and the two remaining groups are, each, significantly different. Therefore, to conserve space and make the analysis easier to understand, we group the two subgroups, (0<CSHOPQ<1%) and (CSHOPQ=0.0%), into one group (0<=CSHOPQ<1%) for comparison in Tables 3 & 4.

of their outstanding equity during the announcement quarter experience significant increases in (mean) $\Delta\overline{YS}$ (18.80 bps) that are 97.3% higher than firms that make small or no repurchases at all (9.53 bps).[46]

In Panel B, we follow normal conventions in the bond literature by investigating differences in $\Delta\overline{YS}$ based on the credit rating of the firm's debt. We divide the sample into investment grade and non-investment grade debt. While only 12.73% of our sample (event) bonds (711 of 5,587) are considered non-investment grade, we find highly significant differences in $\Delta\overline{YS}$ for all OMRs as well as both subsets of repurchase activity. For the entire sample of bonds, we find that the mean (median) increase in $\Delta\overline{YS}$ for non-investment grade debt is approximately 49.66 bps (19.82 bps) (significant at the 1% level) higher than that of investment grade debt. Again, we find that the increases in the cost of debt ($\Delta\overline{YS}$) are more pronounced for firms that make large repurchases versus those that only buy back small amounts (or no shares at all); however, the differences between the two groups is only significant for investment grade bonds.

In Panel C, we start to investigate the effects of managerial entrenchment on changes in the cost of debt. We find that, overall, $\Delta\overline{YS}$ appear to be slightly larger for firms with entrenched managers, however; differences are only significant for the entire sample of bonds (OMRs) at the median level (1.95 bps). This is basically the result that led Jun et al. (2009) to suggest that in the presence of managerial entrenchment OMR announcements lead to increases in yield spreads (bondholder losses). However, again, here we are only considering entrenchment by itself and not the interaction with an effective external market for control. We also find support for the notion that larger actual repurchases lead to greater increases in the cost of debt, H4(b), as mean $\Delta\overline{YS}$ are significantly higher for both entrenched and non-entrenched firms that repurchase at least 1% of shares.

As we argue that bondholders should react more negatively (larger increase in the cost of debt) to a perceived threat from the external market for control if institutional ownership is concentrated (3(a)), in Panel D, we segregate our sample of OMRs by the presence of a blockholder. We find that mean $\Delta\overline{YS}$ are

[46] Using individual bond-level transactions may lead to upwardly biased t-statistics due to the cross correlation of errors for firms with multiple bond issues, i.e. cluster-correlated data problem (Williams, 2000). Bessembinder et al. (2009) suggest aggregating bond-level transactions at the firm level to mitigate the issue of cluster-correlation. As the purpose of our study is to identify specific factors that influence bond yields (cost of debt), we focus our examination at the bond-level. However, for robustness and to address this issue, we also aggregate all changes in average yield spreads ($\Delta\overline{YS}$) at the firm-level using the relative dollar amounts of each outstanding issue as weights. In untabulated results, we find that aggregating at the firm level substantially increases the reported changes in average yield spreads and further strengthens our results. For example, at the firm-level (1,251 obs.), we find mean (median) $\Delta\overline{YS}$ of 24.03 bps (2.69 bps) versus 14.70 bps (0.91 bps) at the bond-level, still significant at the 1% level. All results are available upon request.

significantly larger in the presence of a blockholder across all three groups. Again, we find that the increase in average yield spreads is significantly larger for firms that repurchase at least 1% of firm shares in the quarter [0]. However, interestingly, we find that in the *absence* of a blockholder (Blockholder=0), the median cost of debt ($\Delta\overline{YS}$) is significantly reduced (-4.87 bps) in firms that repurchase less than 1% of shares (or no shares at all).

Bhojraj and Sengupta (2003) find that, while increased institutional ownership results in a reduction in the cost of debt, yield spreads increase as the *concentration* of institutional ownership increases. As such, in Panel E, conditional on the presence of a blockholder, we further examine differences in $\Delta\overline{YS}$ by focusing on the concentration of blockholder ownership. We create a dummy variable, *Large Block*, which takes a value of one if the percentage of blockholder ownership is greater than or equal to median blockholder ownership. We find that, conditional on the presence of a blockholder, mean $\Delta\overline{YS}$ are significantly higher (5.55 bps) for all firms with above median levels of concentrated institutional ownership. Again, the difference is more pronounced for firms that make significant repurchases.

While the results in Table 3 clearly reveal that the cost of debt increases in both the presence of entrenched management as well as that of a blockholder (concentrated ownership), our primary interest lies in how the *interaction* between entrenched management and creditor-alignment affects the cost of debt when share repurchases occur in the presence (or absence) of an effective external market for control. Therefore, in Table 4, we focus on how the $\Delta\overline{YS}$ are affected by interacting managerial entrenchment with the presence (absence) of a blockholder in 2x2 analyses. Again, we segment our results based on actual repurchases as well as how the cost of debt is affected (conditional on the presence of a blockholder) as the concentration of blockholder ownership increases (*Large Block*).

This analysis reveals several interesting interactions. First, providing some limited support for our hypothesis H3(a), we find that, while the mean cost of debt increases significantly (in almost all cases) in the presence of a blockholder for both entrenched and non-entrenched management, the mean increase in the cost of debt ($\Delta\overline{YS}$) visually appears to be less when management is entrenched in (5) of the (6) panels although the mean differences are not statistically significant. In somewhat confounding results, we find that in three of the panels, the median increases in $\Delta\overline{YS}$ are slightly higher and statistically significant for entrenched firms. However, providing indirect support of H3(a), we find highly significant evidence that bondholders react more negatively to share repurchases in the presence of an effective external market for control (blockholder=1) when the managers are more susceptible to takeovers (entrenched=0). In this case, we find mean increases in $\Delta\overline{YS}$ are approximately 16.8 to 26.5 bps higher (significant at 1%) in (5) of the (6) panels. Next, in support of hypothesis H3(b), Jun et al. (2009)'s *managerial realignment hypothesis*, we find increases in mean yield spreads are significantly higher (19.5 to 24.2 bps) when entrenched managers repurchase shares (announce OMRs) in the *absence* of a significant external threat (blockholder=0). Also of note, while we don't explicitly develop a hypothesis about bondholder reactions to share repurchases when managerial interest are expected to be more aligned with those of external shareholders (entrenched=0) in the absence of a large perceived external threat (blockholder=0), we find that, in Panel C, the cost of debt is significantly reduced at both the mean and median levels (-3.4 bps and -4.96 bps respectively) when the firm only makes small (or no) share repurchases during the OMR announcement quarter. This finding provides some support for the notion that *non-entrenched* managers are simply returning excess free cash to avoid agency costs of overinvestment.

4.2 Changes in levels of financial variables: univariate results

Next, in univariate tests of the *credit-risk hypothesis* (H1), we turn to a discussion of *changes in levels* of several financial variables (firm-level) that have been shown in the literature to affect yield spreads. Table 5 displays summary statistics for the changes in levels of these variables over the three-quarter OMR event as well as *levels* of these (and other) variables just prior to the OMR event window for comparison. Here, our interests lie in how these variables change in relation to actual share repurchases. Additionally, by examining differences in how these variables change among entrenched and non-entrenched firms, we hope to identify whether the change in these variables is driving the differences we find in yield spread changes between these two groups. Also, we compare the differences in these variables for firms that repurchase significant amounts of shares (CSHOPQ>1%) in the announcement quarter versus those who only purchase small amounts or no shares (0<=CSHOPQ<1%).

In Table 5, for all firms that announce OMRs, we find slight (significant) decreases in median asset risk over the event window (-0.0041) along with significant increases in mean (0.41%) and median (0.13%) market leverage. We also find that share repurchases are associated with significant decreases in available cash (i.e. loss of collateral) at both the mean and median levels. However, we find that changes in average credit ratings are slow to react to share repurchases. In fact, mean changes in credit ratings are slightly negative (-0.0171), i.e. average credit ratings are slightly improving at the mean level. While median changes in both earnings (operating) volatility and profitability are statistically significant, we find very little economic significance in either, 0.01% and -0.11%, respectively.

When we compare entrenched to non-entrenched firms, only mean changes in asset beta are significantly different (0.0174 significant at 10% level). We find that mean asset beta decreases significantly for entrenched firms (-0.0110) around an OMR, while the change is slightly positive (but insignificant) for non-entrenched firms. This finding may be indicative of the reduction in asset risk resulting from empire building among entrenched managers (Ji et al., 2017). When we compare entrenched and non-entrenched firms prior to the OMR event window, we find that entrenched firms are significantly smaller in terms of mean total assets (difference of $58.914 billion) as well as (mean) market capitalization (difference of $20.462 billion). We also find that entrenched firms tend to have slightly smaller investment opportunity sets as both mean and median market-to-book values are significantly smaller than those of non-entrenched firms. Interestingly, we find that non-entrenched firms, while only comprising 38.7% of our sample (452 of 1,168), have a significantly higher concentration of *Large Blockholders* as compared to entrenched firms (53.81% vs. 45.20%), representing a significant (1%) difference of 8.61%. While this difference could be due to any number of factors, it is possible that firms in which the management is more insulated from takeover (entrenched) are not attractive targets for the external takeover market. Overall, though, we don't find that the differences in $\Delta\overline{YS}$ (cost of debt) among entrenched and non-entrenched firms are being driven by (significant) differences in changes in leverage or in the loss of collateral associated with share repurchases.

However, in Table 5, we do find support for hypothesis H4(b), in that firms that repurchase large amounts of equity in the announcement quarter (CSHOPQ>=1%) have significantly higher increases in market leverage, along with significantly larger reductions in cash, as compared to firms that only conduct relatively small repurchases. Again, we find that these same (CSHOPQ>=1%) firms also experience significantly larger decreases in median values of unlevered (asset) beta. These results are not surprising as larger repurchases should require a larger commitment of firm resources, either cash on hand (loss of collateral) or increased leverage, both of which are expected to increase default risk. Also, we find that firms that repurchase more shares have significantly lower levels of market leverage (-2.31%) prior to the repurchase event window as compared to small repurchasers. However, surprisingly, we find no significant difference in the percentage of entrenched management in large repurchasers (61.48%) versus small

(61.09%). However, the concentration of institutional ownership (Large Block) appears to be greater in firms that make large repurchases (51.22% vs. 48.65%) although the difference is not statistically significant.

While univariate results provide several initial insights into how actual share repurchases affect the firm's cost of debt when creditor interests are aligned with those of entrenched management, in the next section we extend this analysis to a multivariate setting in a further attempt to isolate the effects of these various interactions.

5. Multivariate Analysis

5.1 Methodology

In this section, we examine how entrenched managements' use of open market share repurchases interacts with the interests of bondholders to affect changes in the firm's cost of debt in a multivariate setting. As structural models of bond pricing imply that changes in yield spreads are driven by increases in default risk, we jointly test the credit risk hypothesis (H1) along with several hypotheses dealing with creditor alignment (H2, H3(a), and H3(b)). Specifically, we test H1 by including the set of credit risk (Δ) variables (see Section 4.2) that are directly associated with increases in yield spreads (e.g. Merton, 1974; Longstaff and Schwartz, 1995; Collin-Dufresne and Goldstein, 2001). Additionally, following Chen and King (2014), we also include a complete set of control variables that have been shown in the literature to influence yield spreads. These are grouped into firm specific variables (levels), repurchase related activity, bond characteristics, and systematic risk factors.

At the firm level, we control for firm size using the log of total assets. As firm size has been shown to be inversely related to financial constraints (Hadlock and Pierce, 2010), we expect larger firms with greater financial slack to have a lower cost of debt (lower credit spreads). We control for a firm's growth opportunities using the market-to-book ratio. Greater future growth opportunities should lead to increases in cash flows (profitability) that reduce the probability of default and thus reduce credit spreads (Pastor and Veronesi, 2003). However, as Chen and King (2014) point out, firms with greater growth prospects suffer from greater agency conflicts often resulting in an increased cost of debt. Last, at the firm level, we control for whether the firm pays regular dividends. Empirical results suggest that dividend paying firms typically use repurchases to payout fluctuations in excess cash flows or as a substitute for dividend increases (e.g.

Grullon and Michaely, 2002; Skinner, 2008). If bondholders share this view, then we expect little to no increase in yield spreads as unexpected dividend increases have been shown to have only minimal (asymmetric) effects on bond prices (e.g. Handjinicolaou and Kalay, 1984; Benartzi, Michaely, and Thaler, 1997). However, bondholders may view payouts (repurchases) beyond current dividend levels as a transfer of wealth to shareholders, thus resulting in increased yield (spreads) (Maxwell and Stephens, 2003).

In relation to repurchase activity, we control for the percent of equity sought in an OMR announcement as Maxwell and Stephens (2003) find that short-term abnormal bond returns are negatively related to the OMR program size (%). As discussed in Section 3.2, we further control for the prior number of announced OMR programs (A*nnounced frequency*) as well as the most recent repurchase activity. We create a dummy variable, *Frequent_Rep*, that takes a value of one if the firm conducted repurchases in all 4-quarters prior to the OMR event window, and zero otherwise. We also include a variable for repurchases in the lead quarter (*CSHOPQ_Lead*), as information about repurchase activity in quarter [+1] may be disseminated prior to the filing of subsequent quarterly reports further affecting yield spreads.

At the bond level, we control for investment-grade, coupon rate, bond age, changes in levels of duration and convexity, option features, and payout related covenants. While we examine changes (Δ) in levels of actual credit ratings as they relate to the credit risk hypothesis, we also include an indicator variable for investment grade debt as we expect $\Delta\overline{YS}$ to be significantly reduced for investment grade debt. We include coupon rate to control for tax-related effects on yields (Elton, Gruber, Agrawal, and Mann, 2001; Chen and King, 2014). Bond age is used to proxy for liquidity risk. We also measure changes over the event window in modified duration (convexity) to control for changes in the linear (non-linear) price-yield relationship (Klock et al., 2005). We also include dummy variables for both callability and convertibility as these option features should be priced by bondholders. Finally, we include payout related protective covenants as these have been shown to alleviate creditor-shareholder agency conflicts (Cremers et al., 2007, Billet, King, and Mauer, 2007).

Lastly, we also compute changes in levels of systematic risk factors (over the three-quarter event window) that have been shown in the literature to affect yield (credit) spreads. As an overall factor to account for the systematic impact of economic conditions on credit spreads, we use the market credit premium, defined as the differential in yields between Moody's Aaa and Baa rated debt. As economic activity improves (deteriorates), the market credit premium should narrow (widen) as recovery rates on debt improve (worsen). We include changes in both spot rates as well as the slope of the yield curve to control for the effects of term structure on credit spreads. Longstaff and Schwartz (1995) find that changes in spot rates are inversely related to credit spreads (see also Duffee, 1998). As spot rates rise, the probability of default is reduced as higher reinvestment rates result in increased firm values. To proxy for spot rates, we use the 10-year constant maturity Treasury rates. Additionally, as the slope of the yield curve predicts changes in future spot rates, and thus credit spreads, we proxy for changes in the slope by calculating changes in the differential between 10-year and 2-year constant maturity Treasury rates. Form the expectations theory, a steepening of the yield curve implies increases in future spot rates, which should as before, lead to decreases in expected default probability, and thus, reductions in credit spreads. Additionally, as increases in the slope of the yield curve portend improvements in overall economic activity, this should also lead to reductions in credit risk (Fama and French, 1989). However, from a different perspective, an increase in future spot rates implied by a steepening of the yield curve increases the firm's cost of capital, and thus, may result in a reduced investment opportunity set as previously positive NPV projects are no longer acceptable. This results in a reduction in expected future cash flows, and therefore firm valuation, leading to increased credit spreads (Avramov, Jostova, and Philipov, 2007). Finally, we also include changes in the Fama and French (1993) equity market risk factors (equity market premium, HML and SMB) as these have also been shown to affect bond yields (e.g. Elton, Gruber, Agrawal, and Mann, 2001; Campbell and Taksler (2003); and King and Khang, 2005).[47]

5.2 Multivariate Results

We jointly test the creditor-alignment (H2) and credit risk (H1) hypotheses using pooled OLS regressions on our unbalanced panel set. The dependent variable in all specifications is the change in average yield spreads ($\Delta\overline{YS}$) over the three-quarter event window. In our first set of regressions (Table 6), the primary variables of interest are the dummy variable for managerial entrenchment, *Entrenched,* as well as the complete set of credit risk (Δ) variables described in Section 4.2. As our baseline specification, we estimate the following regression:

[47] We thank Eugene Fama and Kenneth French for providing data on equity market risk factors through Ken French's website at Dartmouth: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

$$\Delta\overline{YS}_{j,[-1,+1]} = \alpha_t + \alpha_i + \beta_1 Entrenched_{jt} + \beta_2 \Delta Beta\_asset_{j,[-1,+1]} + \beta_3 \Delta Market\ leverage_{j,[-1,+1]} + \beta_4 \Delta Cash/Assets_{j,[-1,+1]} + \beta_5 \Delta Credit\ ratings_{j,[-1,+1]} + \beta_6 \Delta Earnings\ volatility_{j,[-1,+1]} + \beta_7 \Delta Profitability_{j,[-1,+1]} + \gamma X_{it} + \varepsilon_{it} \quad (2)$$

where j indexes bond issue, α_t and α_i are year and industry fixed effects, and X_{it} is the set of control variables. We control for biased (inflated) t-statistics resulting from the cross correlation of standard errors among bonds from firms with multiple outstanding issues by adjusting standard errors to control for both heteroskedasticity and correlation-clustering as described in Williams (2000). Table 6 displays the results from our regressions. In models (1) through (4), we estimate the above specification by incrementally adding each of the four subsets of control variables described in Section 5.1. Providing strong support for the creditor-alignment hypothesis (H2), we find that, in all four models, the coefficient on *Entrenched* is negative and highly significant at the 1% level, indicating that the presence of entrenched management has a *mitigating* effect on the firm's cost of debt around open market share repurchases, resulting in a reduction in $\Delta\overline{YS}$ of between 6.3 bps and 6.8 bps. The results also provide strong (joint) support for the credit risk hypothesis (H1), as all of the coefficients on the credit risk (Δ) variables are highly significant with the predicted sign. In models (5) thru (7), we subdivide our sample based on the actual shares repurchases in the announcement quarter (*CSHOPQ*). In support of hypothesis H4(a), we find that managerial entrenchment only has a mitigating effect on $\Delta\overline{YS}$ for firms that repurchase at least 1% of their outstanding equity. For this group, we find that the presence of entrenched management results in a significant (1% level) reduction in $\Delta\overline{YS}$ of 10.73 bps. For firms that repurchase less than 1% of their shares or no shares at all, entrenchment appears to have no significant effect on changes in the cost of debt.

As the effects of managerial entrenchment appear to be driven by the percent of shares repurchased, we further test hypotheses H2 and H4(a) by examining the *interaction* of managerial entrenchment with levels of repurchase activity. Specifically, in Table 7, we interact our dummy variable for entrenchment with both the continuous variable for shares repurchased in the announcement quarter (*CSHOPQ*) as well as three (3) indicator variables for subgroups based on repurchase activity: (i) *CSHOPQ>=1%*, (ii) *CSHOPQ=0*, and (iii) *0<CSHOPQ<1%*. As in Table 6, we include the entire set of our credit risk (Δ) variables as well as the complete set of control variables (X_{it}), year (α_t) and industry (α_i) fixed effects. To conserve space, we only display the results for our primary variables of interest as well as our credit risk (Δ) variables. We estimate the following specification:

$$\Delta\overline{YS}_{j,[-1,+1]} = \alpha_t + \alpha_i + \beta_1 Entrenched_{jt} + \beta_2 CSHOPQ_{j,[0]} + \beta_3(Entrenched_{jt} \times CSHOPQ_{j,[0]}) + \delta\Delta Y_{j,[-1,+1]} + \gamma X_{it} + \varepsilon_{it} \quad (3)$$

where $\Delta Y_{j,[-1,+1]}$ represents the set of credit risk (change) variables. In models (3) thru (8), we substitute (as indicated) dummy variables for the three subgroups based on repurchase activity for $CSHOPQ_{j,[0]}$. In model (1), we find the coefficient on entrenched is negative and highly significant when we control for the percentage of shares repurchased in the quarter, although the continuous variable (*CSHOPQ*), itself, is not significant. However, in model (2), when we interact managerial entrenchment with the percent of shares purchased, we find that, in the *absence* of managerial entrenchment, the percent of shares purchased in the quarter significantly increases the cost of debt (albeit just barely at the 10%). However, in the presence of entrenched management, we find that the effect is no longer significant.[48] In model (3) we find that the cost of debt significantly increases for those firms that repurchase at least 1% of shares ($\Delta\overline{YS}$ increases by 7.98 bps), while the presence of entrenched management continues to be a mitigating factor (-6.75 bps) on changes in the cost of debt. In model (4), when we interact *Entrenched* with our dummy variable for large repurchases (*CSHOPQ>=1%*), we find, again, that in the absence of entrenched management, $\Delta\overline{YS}$ increase significantly by 14.25 bps, almost double the amount for the entire sample. However, while we find that $\Delta\overline{YS}$ still *increase* in the presence of entrenched management, the net increase is only 3.29 bps, a significant reduction of 10.96 bps (or 76.91%). Here again, we find significant evidence that managerial entrenchment mitigates increases in credit risk (cost of debt) resulting from large share repurchases providing support for hypothesis H4(a).

In models (7) and (8) of Table 7, where the firm has positive, but small repurchases, we find that the coefficient on our dummy variable, (*0<CSHOPQ<1%*), is *negative* and highly significant. Thus, bondholders react favorably (reduction in the $\Delta\overline{YS}$ of 6.51 bps) upon learning the firm didn't actually repurchase a large percentage of shares during the quarter. In model (8), we see that in the *absence* of entrenched management, the reduction in $\Delta\overline{YS}$ is almost 48% larger (-9.63 bps) when the firm only makes

[48] An F-test of the joint significance of the coefficients β_2 and β_3 fails to reject the null hypothesis that ($\beta_2 = \beta_3 = 0$).

small repurchases. However, again, in the presence of entrenched management, we find that $\Delta\overline{YS}$ are further significantly reduced by an additional 8.69 bps (total reduction of 18.32 bps). In model (6), surprisingly, we find that, absent entrenched management, the bond market reacts very positively to firms that announce an OMR, but that fail to repurchase shares in the announcement quarter (significant reduction in $\Delta\overline{YS}$ of 20.39 bps). However, if management is entrenched and fails to repurchase shares after announcing an OMR, it appears as if bondholders *punish* entrenched management with increases in the cost of debt, as the differential between entrenched and non-entrenched management is significantly positive. While overall in model (6), $\Delta\overline{YS}$ are still reduced by 4.44 bps in the presence of entrenched management, this represents an *increase* in $\Delta\overline{YS}$ above non-entrenched management of 15.95 bps (or 78.22%).

So far, we have found significant evidence that managerial entrenchment mitigates increases in the cost of debt due to increases in credit risk from open market share repurchases. Next, we turn our attention to why bondholders react favorably (*less negatively*) to share repurchases conducted by entrenched managers. In hypothesis H3(a), we argue that the presence of a large institutional investor may represent a credible threat for the firm's bondholders. As such, we expect the mitigating effect of managerial entrenchment to be greater as the level of (perceived) threat increases. In the next three series of regressions, Tables 8, 9, and 10, we test this hypothesis by examining the interaction of entrenched management with an institutional blockholder. We begin our investigation in Table 8 by broadly defining a blockholder as any institutional investor owning at least 5% of a firm's outstanding equity. We estimate the following specification:

$$\Delta\overline{YS}_{j,[-1,+1]} = \alpha_t + \alpha_i + \beta_1 Entrenched_{jt} + \beta_2 Blockholder_{j,t} + \beta_3(Entrenched_{jt} \times Blockholder_{j,t}) + \delta\Delta Y_{j,[-1,+1]} + \gamma X_{it} + \varepsilon_{it} \quad (4)$$

As in Table 7, we again include the complete set of credit risk (Δ) variables ($\Delta Y_{j,[-1,+1]}$), the set of control variables (X_{it}), and year (α_t) and industry (α_i) fixed effects. We find that, in contrast to our initial assumptions in H3(a), the singular presence of a blockholder results in a decrease in the cost of debt. For our entire sample, while the coefficient on entrenchment is still significantly negative (-6.97 bps), we find that the introduction of a blockholder significantly reduces $\Delta\overline{YS}$ by an additional 6.34 bps. In model (3), when we consider those firms that repurchase at least 1% of their shares, we find that in the absence of entrenched management the reduction in $\Delta\overline{YS}$ from the presence of a blockholder is much larger (a reduction in $\Delta\overline{YS}$ of 11.69 bps). However, when an external blockholder is present with entrenched management, the overall reduction in $\Delta\overline{YS}$ increases to 28.81 bps. In model (4), for those firms that announce an OMR, but who fail to follow through with share repurchases, we find that the presence of a blockholder significantly *increases* the cost of debt as $\Delta\overline{YS}$ increase whether management is entrenched (83.23 bps) or not (89.56 bps), although the increase is slightly less for entrenched management (-6.33 bps). We fail to find any significant impact for the interaction of a blockholder with (or without) entrenched management for the group that only makes small repurchases in the quarter, model (5).

While our results are somewhat mixed in Table 8, they confirm the initial finding of Bhojraj and Sengupta (2003) that the presence of institutional ownership results in reductions in the cost of debt.[49] However, Bhojraj and Sengupta (2003) also report that increases in the cost of debt are directly proportional to the *concentration* of individual (blockholder) institutional ownership. Therefore, in Tables 9 & 10, we test for the impact of an increase in concentration of institutional ownership on the change in yield spreads around share repurchases. In Table 9, we follow the same regression specification found in equation (4) although conditional on the presence of a blockholder, we substitute a dummy variable for above (or equal to) median blockholder ownership, *Large Block*, to capture the effects of a greater concentration of blockholder ownership. From model (2) of Table 9, we now find that the presence of a large institutional blockholder actually leads to significant increases of 14.97 bps in $\Delta\overline{YS}$ in the absence of entrenched management. However, in strong support of H3(a), we find that the presence of managerial entrenchment significantly reduces (mitigates) the effects of concentrated institutional ownership by 22.22 bps for a net effect of an *overall reduction* in $\Delta\overline{YS}$ of 7.25 bps. Additionally, in model (3), we find significant support for H4(a) as the effects of the interaction between concentrated institutional ownership and managerial entrenchment are much larger in the sample of firms that actively repurchase in the quarter. For this group, we find that, absent entrenched management, $\Delta\overline{YS}$ increase significantly by 20.68 bps (an increase of 37.9% as opposed to the entire sample average). However, again, we find that the presence of entrenched management results in a significant reduction in $\Delta\overline{YS}$ in the magnitude of 25.40 bps, for a net reduction of 4.72 bps. Also, for those firms that announce but fail to repurchase, we find that in the presence of entrenched management, $\Delta\overline{YS}$ increase significantly by 22.0 bps as bondholders seem to react very

[49] In untabulated results, we also control for the level of institutional ownership and find that it is also significantly negatively correlated with changes in yield spreads.

negatively to entrenched management's lack of follow through in the presence of a significant external threat.

In Table 10, we find similar results when we replace the *Blockholder* dummy variable from equation (4) with the continuous variable for the percent of blockholder equity ownership (*BlockPctOwn*). This allows us to examine the effects of a 1% increase in ownership (minimum base of 5%) on changes in average yield spreads. For the entire sample, we find that a 1% increase in ownership concentration increases $\Delta\overline{YS}$ significantly by 0.44 bps. In model (2), we see that the effect is much more pronounced in the absence of entrenched management. Here a 1% increase in ownership results in a 1.5 bps increase in $\Delta\overline{YS}$, representing over a three-fold increase. However, again in support of H3(a), we find that, while the overall effect of an increase in blockholder ownership results in an increased cost of debt, the presence of entrenched management significantly mitigates the increase in yield spreads (reduction of 1.44 bps for every 1% increase in ownership concentration, almost completely offsetting the increase, for a net increase in $\Delta\overline{YS}$ of only 0.063 bps). Again, in support of H3(a) and H4(a), we find the same basic, though much larger, result in model (3) for firms that repurchase a significant percent of shares. However, in all three tables (8, 9, and 10), we find that $\Delta\overline{YS}$ for those firms that only repurchase a small number of shares in the quarter (0<CSHOPQ<1%) are not significantly affected by the interaction of managerial entrenchment and blockholder ownership (or concentration of blockholder ownership).

6. Conclusion

In this study, we examine how the use of share repurchases by entrenched management interacts with the interests of creditors to affect changes in the firm's cost of debt from 2002 to 2015. Empirical research has found that the interests of creditors are more aligned with those of entrenched managers (i.e. those less susceptible to the external market for control), as both the reduced threat of takeover and the diversification benefits of empire building (i.e. risk reduction and increased physical collateral) afforded through managerial entrenchment result in a reduction in the cost of debt. The finance literature also reveals that entrenched managers often conduct defensive open market share repurchases in an effort to deter unsolicited takeover attempts or simply to placate the external market for control in an attempt to maintain the status quo. As such, we suggest that the alignment of creditor interests should have a *mitigating effect* on changes in the cost of debt around entrenched managements use of defensive repurchases, as these ultimately protect the interests of both groups of stakeholders (i.e. the *creditor-alignment hypothesis*). However, traditional structural models of bond pricing predict that any increase in default probability resulting from shares repurchases (through increased leverage or loss of collateral) should result in higher credit spreads (i.e. the *credit risk hypothesis*). As the *creditor-alignment* and the *credit risk hypotheses* are not mutually exclusive, we suggest that repurchase driven increases in credit risk may be mitigated in the presence of managerial entrenchment. To jointly test these hypotheses, we examine changes in average quarterly yield spreads on the firm's public bonds in the three-quarter period surrounding the announcement of an OMR.

Using an unbalanced panel of 5,587 seasoned public bonds matched to 1,251 OMR announcements, we find that the reaction of creditors to open market share repurchases is dependent not only on whether or not the firm's management is entrenched, but also on the *concentration* of external shareholder (blockholder) ownership (proxy for the perceived external threat of takeover). Using the BCF (2009) E-index as our measure of managerial entrenchment, we find that increases in the firm's cost of debt (average quarterly yield spreads) resulting from repurchase driven increases in default risk are significantly reduced in the presence of entrenched management. Conditional on the presence of a blockholder owning at least 5% of the firm's equity, we further find that the mitigating effects of managerial entrenchment are directly proportional to the ownership concentration of the firm's largest external blockholder. However, reductions in the cost of debt stemming from managerial entrenchment are primarily concentrated in firms where management follows through with significant share repurchases (CSHOPQ>=1%) in the same fiscal quarter as the OMR announcement. Additionally, our study reveals that long-term changes in average yields spreads on the firm's bonds are not the result of OMR announcements, but are instead driven by *actual* share repurchases.

Overall, the results in this study provide strong support for both the *creditor-alignment* and the *credit risk hypotheses*. While several studies provide cross-sectional evidence that creditor interests are aligned with those of entrenched management, the current study contributes to the literature by demonstrating how the *interaction* of creditor interests with those of entrenched managers serve to mitigate the negative effects of increased credit risk resulting from financial policies (in this case, defensive share repurchases) enacted by entrenched management in response to an effective external market for corporate control.

References

Allen, Franklin, Michaely, Roni, 2003, Payout policy. In: Constantinides, G., Harris, M., Stultz, R. (Eds.), Handbook of the Economics of Finance, vol. 1a. Elsevier Science, North-Holland, 337–429.

Amihud, Y., and B. Lev, 1981, Risk reduction as a managerial motive for conglomerate mergers, Bell Journal of Economics 12, 605-617.

Avramov, Doron, Gergana Jostova, and Alexander Philipov, 2007, Understanding changes in corporate credit spreads, Financial Analyst Journal 63, 90-105.

Asquith, Paul, and Thierry A. Wizman, 1990, Event risk, covenants, and bondholder returns in leveraged buyouts, Journal of Financial Economics 27, 195-213.

Asquith, Paul, Thom Covert, and Parag Pathak, 2013, The effects of mandatory transparency in financial market design: evidence from the corporate bond market, National Bureau of Economic Research No. w19417, 1-67.

Banyi, Monica L., Edward A. Dyl, Kathleen M. Kahle, 2008, Errors in estimating share repurchases. Journal of Corporate Finance 14, 460-474.

Baran, Lindsay C. and Tao-Hsien Dolly King, 2010, Going private transactions, bondholder returns, and wealth transfer effects, Journal of Banking & Finance 34, 1856-1872.

Bargeron, Leonce, Alice Bonaimé, and Shawn Thomas, 2017, The timing and source of long-run returns following repurchases, Journal of Financial and Quantitative Analysis 52, 491-517.

Bebchuk, Lucian Arye, John C. Coates, and Guhan Subramanian, 2002, The powerful antitakeover force of staggered boards: theory, evidence, and policy. No. w8974. National Bureau of Economic Research.

Bebchuk, Lucian, Alma Cohen, and Allen Ferrell, 2009, What matters in corporate governance? Review of Financial Studies 22, 783-827.

Benartzi, Shlomo, Roni Michaely, and Richard Thaler, 1997, Do changes in dividends signal the future or the past? The Journal of Finance 52, 1007-1034.

Berger, P., E. Ofek, and D. Yermack, 1997, Managerial entrenchment and capital structure decisions, Journal of Finance 52, 1411-1438.

Bessembinder, Hendrik, Kathleen M. Kahle, William F. Maxwell, and Danielle Xu, 2009, Measuring Abnormal Bond Performance, Review of Financial Studies, 4219-4258.

Bhojraj, Sanjeev, and Partha Sengupta, 2003, Effect of corporate governance on bond ratings and yields: The role of institutional investors and outside directors, The Journal of Business 76, 455-475.

Billett, Matthew T., Zhan Jiang, and Erik Lie, 2010, The effect of change-in-control covenants on takeovers: Evidence from leveraged buyouts, Journal of Corporate Finance 16, 1–15.

Billett, Matthew T., Tao-Hsien Dolly King, and David C. Mauer, 2004, Bondholders wealth effects in mergers and acquisitions: New evidence from the 1980s and 1990s, Journal of Finance 59, 107-135.

Billett, Matthew T., Tao-Hsien Dolly King, and David C. Mauer, 2007, Growth Opportunities and the Choice of Leverage, Debt Maturity, and Covenants, Journal of Finance 58, 895-919.

Billett, Matthew T., Paul Hribar, and Yixin Liu, 2015, Shareholder-Manager Alignment and the Cost of Debt, Working paper, Indiana University.

Billet, Matthew T., Redouane Elkamhi, David C. Mauer, and Raunaq S. Pungaliya, 2016, Bank Loan Price Reactions to Corporate Events: Evidence from Traded Syndicated Loans, Working paper, Indiana University.

Billet, Matthew T., and Hui Xue, 2007, The takeover deterrent effect of open market share repurchases, The Journal of Finance 62, 1827-1850.

Campbell, John Y., and Glen B. Taksler, 2003, Equity volatility and corporate bond yields, The Journal of Finance 58, 2321-2350.

Chan, Konan, David L. Ikenberry, Inmoo Lee, and Yanzhi Wang (2010). "Share Repurchases as a Potential Tool to Mislead Investors." Journal of Corporate Finance 16: 137-158.

Chava, S., D. Livdan, and A. Purnanandam, 2009, Do shareholder rights affect the cost of bank loans, Review of Financial Studies 22, 2973-3004.

Chen, Jun, and Tao-Hsien Dolly King, 2014, Corporate hedging and the cost of debt, Journal of Corporate Finance 29, 221–245.

Colla, Paolo, Filippo Ippolito, and Kai Li, 2013, Debt specialization, The Journal of Finance 68, 2117-2141.

Collin-Dufresne, Pierre, Robert S. Goldstein, and J. Spencer Martin, 2001, The determinants of credit spread changes, The Journal of Finance 56, 2177-2207.

Cook, Douglas O., John C. Easterwood, and John D. Martin, 1992, Bondholder wealth effects of management buyouts, Financial management, 102-113.

Cook, Douglas 0., and John D. Martin, 1991, The coinsurance and leverage effects on target firm bondholder wealth, Research in Finance 9, 107-129.

Cremers K. J. M., V. B. Nair, and C. Wei, 2007, Governance mechanisms and bond prices, Review of Financial Studies 20, 1359-1388. 37

Dann, Larry, 1981, Common stock repurchases: An analysis of returns to bondholders and stockholders, Journal of Financial Economics 9, 113-138.

DeAngelo, Harry, Linda DeAngelo, and Douglas J. Skinner, 2009, Corporate payout policy, Foundations, and Trends in Finance 3, 95-287.

Dittmar, Amy K., 2000, Why do firms repurchase stock? Journal of Business 73, 331-356.

Duffee, Gregory R, 1998, The relation between treasury yields and corporate bond yield spreads, Journal of Finance 53, 2225-2242.

Eberhart, Allan C., and Akhtar R. Siddique, 2004, Why are stock buyback announcements good news? Working paper, Georgetown University, Washington, D.C.

Elton, Edwin J., Martin J. Gruber, Deepak Agrawal, and Christopher Mann, 2001, Explaining the rate spread on corporate bonds, The Journal of Finance 56, 247-277.

Fama, Eugene F., 1980, Agency problems and the theory of the firm, Journal of Political Economy 88, 288-307.

Fama, Eugene F., and Kenneth R. French, 1989, Business conditions and expected returns on stocks and bonds, Journal of Financial Economics 25, 23-49.

Fama, Eugene F., and Kenneth R. French, 1993, Common risk factors in the returns on stocks and bonds, Journal of Financial Economics 33, 3-56.

Farre-Mensa, Joan, Roni Michaely, and Martin Schmalz, 2014, Payout Policy, Annual Review of Financial Economics 6, 75–134.

Farre-Mensa, Joan, Roni Michaely, and Martin C. Schmalz, 2015, Financing payouts, Working paper, Harvard University.

Fenn, George W., and Nellie Liang, 2001, Corporate payout policy and managerial stock incentives, Journal of Financial Economics 60, 45-72.

Fluck, Zsuzsanna, 1999, The dynamics of the management-shareholder conflict, The Review of Financial Studies 12, 379-404.

Golbe, Devra L. and Ingmar Nyman, 2013, How do share repurchases affect ownership concentration, Journal of Corporate Finance 20. 22-40.

Gompers, P., J. Ishii, and A. Metrick, 2003, Corporate governance and equity prices, Quarterly Journal of Economics 118, 107-155.

Ghosh, Aloke, and Prem C. Jain, 2000, Financial leverage changes associated with corporate mergers, Journal of Corporate Finance 6, 377-402.

Grossman, Sanford J., and Oliver D. Hart, 1980, Takeover bids, the free-rider problem, and the theory of the corporation, The Bell Journal of Economics, 42-64.

Grullon, Gustavo, and Ikenberry, David, 2000, What do we know about stock repurchases? Journal of Applied Corporate Finance, 13, 31-51.

Grullon, Gustavo, and Roni Michaely, 2002, Dividends, share repurchases, and the substitution hypothesis, Journal of Finance 62, 1649-1684.

Grullon, Gustavo, Roni Michaely, and Bhaskaran Swaminathan, 2002, Are dividend changes a sign of firm maturity? Journal of Business 75, 387-424.

Grullon, Gustavo, and Roni Michaely, 2004, The information content of share repurchase programs, Journal of Finance 59, 651-680.

Hadlock, Charles J. and Joshua R. Pierce, 2010, New evidence on measuring financial constraints: Moving beyond the KZ index, The Review of Financial Studies 23, 1909-1940.

Handjinicolaou, George, and Avner Kalay,1984 Wealth redistributions or changes in firm value: An analysis of returns to bondholders and stockholders around dividend announcements, Journal of Financial Economics 13, 35-63.

Hu, Aidong, and Praveen Kumar, 2004, Managerial entrenchment and payout policy, Journal of Financial and Quantitative Analysis 39, 759-790.

Hribar, Paul, Nicole T. Jenkins, and W. Bruce Johnson, 2006, Stock repurchases as an earnings management device, Journal of Accounting and Economics 41, 3-27.

Jagannathan, Murali, Clifford P. Stephens, and Michael S. Weisbach, 2000, Financial flexibility and the choice between dividends and stock repurchases, Journal of Financial Economics 57, 355-384.

Jensen, Michael C., 1986, Agency costs of free cash flow, corporate finance, and takeovers, American Economic Review 76, 323-329.

Jensen, Michael C., and Richard S. Ruback, 1983, The market for corporate control: The scientific evidence, Journal of Financial Economics 11, 5-50.

Jensen, Michael C., and William H. Meckling, 1976, Theory of the firm: Managerial behavior, agency costs and ownership structure, Journal of Financial Economics 3 (4), 305-360.

Ji, Shuangshuang, David C. Mauer, and Yilei Zhang, 2017, Managerial Entrenchment and Capital Structure: The Effect of Diversification, Working paper, University of North Carolina at Charlotte.

Jun, S., M. Jung., and Ralph Walkling, 2009, Share repurchase, executive options and wealth changes to stockholders and bondholders, Journal of Corporate Finance 15, 212-229.

Kim, E. Han, and John J. McConnell, 1977, Corporate mergers and the co-insurance of corporate debt, Journal of Finance 32, 349-365.

King, Tao-Hsien Dolly, and Kenneth Khang, 2005, On the importance of systematic risk factors in explaining the cross-section of corporate bond yield spreads, Journal of Banking & Finance 29, 3141-3158.

Klein, April, and Emanuel Zur, 2011, The impact of hedge fund activism on the target firm's existing bondholders, The Review of Financial Studies 24, 17335-1771.

Klock, M. S., S. A. Mansi, and W. F. Maxwell, 2005, Does corporate governance matter to bondholders, Journal of Financial and Quantitative Analysis 40, 693-719.

Lambrecht, Bart M., and Stewart C. Myers, 2012, A Lintner model of payout and managerial rents, The Journal of Finance 67, 1761-1810.

Lewellen, W. G., 1971, A pure financial rationale for the conglomerate merger, Journal of Finance 26, 521-537.

Lie, Erik, 2005, Operating performance following open market share repurchase announcements, Journal of Accounting and Economics 39, 411-436.

Longstaff, Francis A., and Eduardo S. Schwartz, 1995, A simple approach to valuing risky fixed and floating rate debt, The Journal of Finance 50, 789-819.

Maxwell, William, and Clifford Stephens, 2003, The wealth effects of repurchases on bondholders, Journal of Finance 58, 895-919.

Merton, Robert C., 1974, On the pricing of corporate debt: The risk structure of interest rates, Journal of Finance 29 (2), 449-470.

Myers, Stewart C., 1977, Determinants of corporate borrowing, Journal of Financial Economics 5, 147-175.

Nishikawa, T., A. Prevost, and R. Rao, 2011, Bond market reactions to stock repurchases, Journal of Financial Research 34, 503-522.

Nohel, Tom, and Vefa Tarhan, 1998, Share repurchases and firm performance: new evidence on the agency costs of free cash flow, Journal of Financial Economics 49, 187-222.

Pastor, Lubos, and Pietro Veronesi, 2003, Stock valuation and learning about profitability, Journal of Finance 58 (5), 1749-1790.

Rhodes-Kropf, Matthew, David T. Robinson, and S. Viswanathan, 2005, Valuation waves and merger activity: The empirical evidence, Journal of Financial Economics 77, 561-603.

Shleifer, Andrei, and Robert W. Vishny, 1986, Large shareholders and corporate control, Journal of Political Economy 94, 461-488.

Shleifer, Andrei, and Robert W. Vishny, 1989, Management entrenchment: The case of manager-specific investments, Journal of Financial Economics 25, 123-139.

Skinner, Douglas J., 2008, The evolving relationship between earnings, dividends, and stock repurchases, Journal of Financial Economics 87, 582-609.

Stephens, Clifford, and Michael Weisbach, 1998, Actual share reacquisitions in open-market repurchase programs, Journal of Finance 53, 313-333.

Sufi, Amir, 2007, Information asymmetry and financing arrangements: Evidence from syndicated loans, The Journal of Finance 62, 629-668.

Sunder, Jayanthi, Shyam V. Sunder, and Wan Wongsunwai, 2014, Debtholder responses to shareholder activism: Evidence from hedge fund interventions, The Review of Financial Studies 27, 3318-3342.

Teague, Charles E., 2017, Open market repurchases and bondholder wealth: to expropriate or not to expropriate - that is the question? Working paper, University of North Carolina at Charlotte.

Vermaelen, Theo, 1981, Common stock repurchases and market signaling, Journal of Financial Economics 9, 139-183.

Warga, Arthur, and Ivo Welch, 1993, Bondholder losses in leveraged buyouts, Review of Financial Studies 6, 959-982.

Williams, R., 2002, A note on robust variance estimation for cluster-correlated data, Biometrica 56, 645-646.

Appendix A: Variable construction

Variable name	Description
$\Delta\overline{YS}$	Change in average quarterly yields spreads ($\overline{YS}$)
ΔBeta unlevered	Change in unlevered beta over the 3-qtr event window - calculated by subtracting the ending value in quarter [-2] from the ending value in quarter [+1]
ΔMarket leverage	Change in market leverage over the 3-qtr event window - calculated by subtracting the ending value in quarter [-2] from the ending value in quarter [+1]
ΔCash/Assets	Change in cash/assets over the 3-qtr event window - calculated by subtracting the ending value in quarter [-2] from the ending value in quarter [+1]
ΔCredit ratings	Change in average credit ratings over the 3-qtr event window - calculated by subtracting the ending value in quarter [-2] from the ending value in quarter [+1]
ΔEarnings volatility	Change in earnings volatility over the 3-qtr event window - calculated by subtracting the ending value in quarter [-2] from the ending value in quarter [+1]
ΔProfitability	Change in quarterly return on equity (ROE) over the 3-qtr event window - calculated by subtracting the ending value in quarter [-2] from the ending value in quarter [+1]
Repurchase variables	
Percent equity sought	Percent of equity targeted in OMR announcement
Announced frequency	Number of prior OMR announcement (1984 to present)
CSHOPQ	Common shares outstanding purchased in quarter
CSHOPQ>=1.0%	Dummy variable equal to one if firm repurchased 1% or more of it outstanding equity during the announcement quarter, and zero otherwise
0<CSHOPQ<1.0%	Dummy variable equal to one if firm had positive repurchases of less than 1% of it outstanding equity during the announcement quarter, and zero otherwise
CSHOPQ=0.0%	Dummy variable equal to one if firm repurchased no shares during the announcement quarter, and zero otherwise
CSHOPQ (Total_Prior4qtrs)	Cumulative percentage of outstanding equity repurchased in the 4-quarters prior to the event window
ActiveRepQtrs (Prior4qtrs)	Cumulative number of quarters in which the firm had positive repurchase activity in the 4-quarters prior to the event window
Frequent_Rep	Dummy variable equal to one if the value of ActiveRepQtrs is greater than or equal to the median value of ActiveRepQtr, and zero otherwise
Firm-level variables	
Total assets	Book value of total assets (ATQ) adjusted to 2015 dollars (CPI)
Market value of equity	Calculated as common shares outstanding (CSHOQ) multiplied by fiscal quarter-end closing share price (PRCC_Q) adjusted to 2015 dollars (CPI)

Market-to-book	Calculated as the market value of assets (common shares outstanding quarter (CSHOQ) multiplied by fiscal quarter-end closing price (PRCC_Q) plus total assets (ATQ) minus common equity (CEQQ) minus book value of deferred taxes (TXDBQ)) divided by the book value of total assets (ATQ).
Market leverage	Calculated as long-term debt (DLTTQ) divided by long-term debt (DLTTQ) plus market value of equity (CSHOQ x PRCC_Q)
Cash/Assets	Calculated as cash and cash equivalents (CHE) divided by total assets (AT).
EBIT/Sales	Operating profit margin - calculated as operating income after depreciation and amortization (OIADPQ) divided by sales (SALEQ)
Profitability	Return on equity - calculated as net income before extraordinary items (IBQ) divided by book equity (BEQ)
Earnings volatility	Standard deviation of operating profit margin after tax over the four quarters prior to the event window
Beta unlevered	Calculated using Hamada's equation as market levered Beta divided by one plus (one minus the marginal corporate tax rate multiplied by the debt-to-equity ratio).
Beta levered	Measure of systematic market risk estimated from the market model over the 255 trading days before the event window
Dividend payer	Dummy variable equal to one if the firm paid common dividends during the four quarters prior to the event window, and zero otherwise
Bond variables	
Market value outstanding	Calculated as amount outstanding (issue id) multiplied by the daily trade-weighted price on the last business day in the fiscal quarter [-2] adjusted to 2015 dollars (CPI)
Time to maturity	Remaining time to maturity (years) of the outstanding issue as of the beginning of the event window
Bond age	The number of years elapsed from the original issue date until the last day before the beginning of the event window
Average rating	The simple average of the credit ratings of the three CRA(s): Moody's, Standard and Poor's, and Fitch. Character based ratings are converted to numeric values starting at 1 for AAA rated debt and ending at 22 for CC. The average rating is calculated as of the end of each quarter in the event window.
Coupon rate	Annual interest rate as of the date of the bond transaction used to establish coupon payments
ΔDuration	Change in modified duration (calculated using conventional methodology) over the 3-qtr event window
ΔConvexity	Change in convexity (calculated using conventional methodology) over the 3-qtr event window
Investment grade	Dummy variable equal to one if the average credit rating is equal to BBB- or higher, and zero otherwise
Callable	Dummy variable equal to one if the bond issue is flagged as redeemable, and zero otherwise
Convertible	Dummy variable equal to one if the bond issue is flagged as convertible or exchangeable, and zero otherwise

Putable	Dummy variable equal to one if the bond issue is flagged as putable, and zero otherwise
Total payout covenants	Total number of payout related covenants in bond indenture (0-2)
Dividend restrictive covenants	Dummy variable equal to one if bond indenture includes covenants restricting dividend payments made to shareholders or other entities may be limited, and zero otherwise
Repurchase restrictive covenants	Dummy variable equal to one if bond indenture includes covenants restricting issuer's freedom to make payments (other than dividends) to shareholders and others, and zero otherwise
Governance variables	
E-Index	Bebchuk, Cohen, and Ferrell (2009) "*entrenchment index*" - constructed by adding one (initial value of zero) for each of the following (6) anti-takeover provisions present: staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes, and supermajority requirements for mergers and charter amendments.
Entrenched	Dummy variable equal to one if the E-index value is greater than or equal to the median E-index value for all firms, and zero otherwise
Blockholder	Dummy variable equal to one if at least one external shareholder owns at least 5% of the firms outstanding equity, and zero otherwise
Large block	Dummy variable equal to one if blockholder ownership is greater than or equal to median sample BlockPctOwn, and zero otherwise
BlockPctOwn	Conditional on the presence of a Blockholder, the percentage of Blockholder equity ownership
Staggered board	Anti-takeover provision that divided the directors into separate classes (typically three) and limits the election of directors in any one year to one class with overlapping terms (also referred to as a classified board)
Poison pill	Anti-takeover provision that is triggered in the event of an unauthorized takeover that gives creditors the right to demand redemption of all outstanding debt or that dilutes the acquirers' effective voting power
Systematic risk variables	
ΔMkt credit premium	Change in market credit premium (defined as the difference in yields on Moody's Baa-rated and Aaa-rated corporate bonds) over the 3-qtr event window
ΔInterest rate	Change in spot interest rates (defined as the constant maturity 10-yr Treasury yield) over the 3-qtr event window
ΔSlope	Change in the slope of the Treasury yield curve (defined as the difference in yields between the 10-yr and 2-yr constant maturity Treasury yields) over the 3-qtr event window
ΔEquity market premium	Change in the equity market premium (from Fama and French 3-factor model-obtained from Ken French's website) over the 3-qtr event window
ΔSMB	Change in SMB (from Fama and French 3-factor model-obtained from Ken French's website) over the 3-qtr event window
ΔHML	Change in HML (from Fama and French 3-factor model-obtained from Ken French's website) over the 3-qtr event window

Table 1: OMR distribution by year announced and Fama-French industry classification.

The sample contains 1,251 distinct open market repurchase (OMR) announcements over the period from July 01, 2002 thru December 31, 2015 that have matching public bond data available through the Financial Industry Regulatory Authority's (FINRA) Trade Reporting and Compliance Engine (TRACE) database. All OMR announcements are obtained from the Thomson Reuters SDC Platinum Mergers & Acquisitions database and have no concurrently announced OMR in the same quarter, or in the quarter preceding or subsequent to quarter of announcement. Panel A reports both the number of OMR announcements by year and the number of associated (matched) bond issues per year. Panel B reports the distribution of OMRs by Fama-French 12-Industry classifications.

Panel A: OMR announcements by year

Year	OMR No.	%	Bond No.	%
2002	33	2.64	101	1.81
2003	42	3.36	129	2.31
2004	65	5.20	267	4.78
2005	112	8.95	398	7.12
2006	97	7.75	462	8.27
2007	155	12.39	628	11.24
2008	111	8.87	399	7.14
2009	51	4.08	208	3.72
2010	80	6.39	378	6.77
2011	128	10.23	560	10.02
2012	98	7.83	522	9.34
2013	81	6.47	463	8.29
2014	104	8.31	537	9.61
2015	94	7.51	535	9.58
Total	1,251	100.00	5,587	100.00

Panel B: OMR announcements by Fama-French 12-Industries

Ind_Code	Fama-French Industry	OMR No.	%
1	Consumer non-durables	93	7.43
2	Consumer durables	28	2.24
3	Manufacturing	139	11.11
4	Energy	37	2.96
5	Chemicals	78	6.24
6	Business Equipment	131	10.47
7	Television and telecom	29	2.32
8	Utilities	28	2.24
9	Wholesale and retail	170	13.59
10	Healthcare	96	7.67
11	Finance	287	22.94
12	Other	135	10.79
	Total	1,251	100.00

Table 2: Sample descriptive statistics

This table reports descriptive statistics for a sample of 1,251 OMR announcements over the period from July 1, 2002 to December 31, 2015 matched with bond data from FINRA's TRACE database over a 3-quarter period [-1, 0, +1]. Panel A displays OMR program characteristics. Panel B displays firm characteristics in levels as of the end of the fiscal quarter [-2] prior to our event window. Panel C displays bond-level descriptive characteristics, and Governance (Panel D) characteristics. Appendix A describes the construction of all variables. All continuous variables have been winsorized at the 1% level to mitigate the effect of outliers. All dollar amounts have been adjusted to 2015 dollars (U-CPI) to account for inflation.

Panel A: OMR program characteristics (N=1,251)

	Mean	Std. Dev.	Q1	Median	Q3
Repurchase Authorization Amt ($mil)	1,514.64	3,474.41	200.00	500.00	1,100.00
Percent Equity Sought	0.073	0.042	0.042	0.063	0.099
Announced Frequency (No.)	4.40	4.37	2.00	4.00	6.00
CSHOPQ (Announcement Qtr.)	0.017	0.020	0.003	0.011	0.021
CSHOPQ>=0.01 (%)	0.536				
CSHOPQ<0.01 (%)	0.365				
CSHOPQ=0.00 (%)	0.099				
CSHOPQ (Total_Prior4qtrs)	0.039	0.045	0.002	0.026	0.057
Active Repurchase Qtrs. (Prior4qtrs)	2.84	1.53	2.00	4.00	4.00
Bond Issues (per OMR)	4.47	5.33	1.00	3.00	6.00

Panel B: Firm characteristics (N=1,251)

	Mean	Std. Dev.	Q1	Median	Q3
Total assets ($bil)	58.79	182.70	4.02	10.27	31.32
Market value of equity ($bil)	24.43	48.05	3.45	9.56	22.42
Market-to-book	3.153	3.841	1.319	2.096	3.394
Market leverage	0.240	0.170	0.114	0.195	0.329
Cash/Assets	0.103	0.111	0.028	0.063	0.140
EBIT/Sales	0.175	0.148	0.086	0.144	0.222
Profitability	0.046	0.124	0.020	0.035	0.055
Earnings volatility	0.032	0.066	0.011	0.018	0.033
Beta unlevered	0.418	0.273	0.211	0.368	0.565
Beta levered	1.030	0.384	0.764	0.986	1.250
Dividend payer	0.747				

Table 2: Sample descriptive statistics (*continued*)

Panel C: Bond issue characteristics (N=5,587)

	Mean	Std. Dev.	Q1	Median	Q3
Market value outstanding ($mil)	644.27	627.12	272.95	460.60	780.14
Time to maturity (yrs.)	9.89	10.77	3.20	6.49	10.46
Bond age (yrs.)	4.57	4.30	1.42	3.24	6.48
Average rating	7.59	2.74	5.67	7.33	9.00
Coupon rate (%)	5.697	1.797	4.750	5.875	6.875
Duration	6.13	4.12	2.91	5.29	8.03
Convexity	76.87	102.02	10.34	33.96	78.28
Investment grade (%)	87.10				
Callable (%)	69.89				
Convertible (%)	1.66				
Putable (%)	1.90				
Total payout covenants (0-2)	0.146	0.470	0.000	0.000	0.000
Dividend restrictive covenants (%)	5.19				
Repurchase restrictive covenants (%)	9.41				

Panel D: Governance characteristics (1,251 OMRs)

	N	Mean	Std. Dev.	Q1	Median	Q3
E-Index (0-6)	1,168	2.77	1.44	2.00	3.00	4.00
Entrenched (%)	1,168	61.30				
Blockholder (%)	1,135	86.87				
Blockholder ownership (%)	1,135	9.22	6.83	5.79	7.98	10.69
Staggered board (%)	1,168	43.58				
Poison pill (%)	1,168	26.80				

Table 3: Average yield spread changes ($\Delta\overline{YS}$) over the quarters surrounding an OMR

This table reports changes in average yield spreads ($\Delta\overline{YS}$) for the outstanding publically traded bonds of firms announcing 1,251 open market repurchase (OMR) programs over the period from June 30, 2002 thru Dec 31, 2015 for the immediate quarters surrounding the announcement quarter [-1, 0, +1]. All OMR announcements are taken from the SDC Mergers and Acquisition database. Yield spreads are calculated using daily bond transaction data taken from FINRA's Trade Reporting and Compliance Engine (TRACE) database and are averaged (bond-level) over each quarter. Following Lie (2005), we further disaggregate OMRs into groups based on the percentage of common equity purchased (CSHOPQ) in the announcement quarter: (1) CSHOPQ>=1.0% and (2) 0.0%<CSHOPQ<1.0%. Panel A displays bond-level yield spread changes (ΔYS) for all 5,587 bonds in the sample. Panel B reports bond-level ΔYS further segmented by investment grade. Panel C reports bond-level ΔYS segmented by managerial entrenchment. A firm is considered "entrenched" if its E-Index score (BCF, 2009) is greater than or equal to the median score of 3. Panel D reports bond-level ΔYS segmented by the presence of a blockholder, defined as an external (institutional) shareholder that has accumulated 5.0% or more of the firm's equity. Panel E reports bond-level ΔYS segmented by the presence of a large blockholder, defined as a blockholder whose ownership is greater than or equal to the median percent of equity owned by all blockholders. All yield spreads have been winsorized at the 1% level to mitigate the effect of outliers. Significance of means (medians) are determined using standard t-tests (Wilcoxon signed rank test). We use *, **, and *** to denote significance at the 10%, 5%, and 1% level (two-sided), respectively.

	All-OMRs			CSHOPQ>=1% (a)			0<=CSHOPQ<1% (b)			Differences (a-b)	
Sample	N	Mean	Median	N	Mean	Median	N	Mean	Median	Mean	Median
Panel A: Change in average yield spreads ($\Delta\overline{YS}$) - all publicly traded bonds (%)											
All bonds	5587	0.1470***	0.0091***	3114	0.1880***	0.0247***	2473	0.0953***	-0.0101	0.0927***	0.0348***
		(0.0000)	(0.0000)		(0.0000)	(0.0000)		(0.0000)	(0.4461)	(0.0002)	(0.0000)
Panel B: Change in average yield spreads ($\Delta\overline{YS}$) by investment grade (%)											
Investment	4876	0.0833***	0.0018***	2741	0.1204***	0.0187***	2135	0.0359**	-0.0158*	0.0845***	0.0345***
Grade (c)		(0.0000)	(0.0003)		(0.0000)	(0.0000)		(0.0130)	(0.0892)	(0.0000)	(0.0000)
Non-Investment	711	0.5830***	0.2000**	373	0.6847***	0.1841***	338	0.4708***	0.2267***	0.2140	-0.0426
Grade (d)		(0.0000)	(0.0000)		(0.0000)	(0.0000)		(0.0000)	(0.0000)	(0.1081)	(0.3706)
Differences	5587	-0.4966***	-0.1982***		-0.5644***	-0.1654***		-0.4349***	-0.2425***		
(c-d)		(0.0000)	(0.0000)		(0.0000)	(0.0000)		(0.0000)	(0.0000)		
Panel C: Change in average yield spreads ($\Delta\overline{YS}$) by entrenchment (%)											
Entrenched=1	3022	0.1547***	0.0188***	1745	0.1935***	0.0385***	1277	0.1016***	-0.0183	0.0920***	0.0568***
(c)		(0.0000)	(0.0003)		(0.0000)	(0.0000)		(0.0005)	(0.5258)	(0.0091)	(0.0000)
Entrenched=0	2433	0.1166***	-0.0007*	1312	0.1571***	0.0086**	1121	0.0691***	-0.0068	0.0880***	0.0154
(d)		(0.0000)	(0.0005)		(0.0000)	(0.0136)		(0.0002)	(0.9360)	(0.0067)	(0.1642)
Differences	5455	0.0381	0.0195**		0.0364	0.0299		0.0324	-0.0115		
(c-d)		(0.1147)	(0.0200)		(0.2857)	(0.3006)		(0.3469)	(0.6193)		

Table 3: Average yield spread changes ($\Delta\overline{YS}$) over the quarters surrounding an OMR (*continued*)

Sample	All-OMRs			CSHOPQ>=1% (a)			0<=CSHOPQ<1% (b)			Differences (a-b)	
	N	Mean	Median	N	Mean	Median	N	Mean	Median	Mean	Median
Panel D: Change in average yield spreads ($\Delta\overline{YS}$) by blockholder (%)											
Blockholder=1	3807	0.1653***	-0.0009***	2241	0.2076***	0.0128***	1566	0.1048***	-0.0209	0.1028***	0.0337***
(c)		(0.0000)	(0.0000)		(0.0000)	(0.0000)		(0.0000)	(0.5451)	(0.0028)	(0.0000)
Blockholder=0	1177	0.0707***	-0.0090	632	0.1195***	0.0271**	545	0.0141	-0.0487***	0.1054***	0.0758***
(d)		(0.0007)	(0.8918)		(0.0003)	(0.0133)		(0.5577)	(0.0024)	(0.0096)	(0.0007)
Differences	4984	0.0946***	0.0081*		0.0881**	-0.0143		0.0907**	0.0278		
(c-d)		(0.0004)	(0.0571)		(0.0243)	(0.4083)		(0.0124)	(0.2041)		
Panel E: Change in average yield spreads ($\Delta\overline{YS}$) by large blockholder (%)											
Large block=1	1914	0.1929***	0.0016***	1169	0.2513***	0.0211***	745	0.1014**	-0.0369	0.1499***	0.0580***
(c)		(0.0000)	(0.0009)		(0.0000)	(0.0000)		(0.0133)	(0.7318)	(0.0051)	(0.0008)
Large block=0	1893	0.1374***	-0.0022***	1072	0.1600***	0.0045***	821	0.1079***	-0.0102	0.0521	0.0147***
(d)		(0.0000)	(0.0088)		(0.0000)	(0.0001)		(0.0028)	(0.6431)	(0.2361)	(0.0078)
Differences	3807	0.0555*	0.0038		0.0913**	0.0166		-0.0065	-0.0267		
(c-d)		(0.0968)	(0.6964)		(0.0290)	(0.5516)		(0.9048)	(0.6353)		

Table 4: Average yield spread changes (ΔYS): entrenchment vs. blockholder (2x2) analysis

This table display changes in average yield spreads (ΔYS) for the interaction of managerial entrenchment and the presence of a blockholder (or active blockholder) over the immediate quarters [-1, 0, +1] surrounding the announcement of 1,251 open market repurchase (OMR) programs over the period from June 30, 2002 thru Dec 31, 2015. All OMR announcements are taken from the SDC Mergers and Acquisition database. Yield spreads are calculated from daily bond transaction data taken from FINRA's Trade Reporting and Compliance Engine (TRACE) database and are averaged (bond-level) over the quarter(s). Entrenched is an indicator variable equal to 1 if the firm's Entrenchment Index (E-Index) score (BCF, 2009) is greater than or equal to the median score of 3.0, otherwise Entrenched equals 0. Blockholder is an indicator variable that takes a value of 1 if an external (institutional) shareholder holds at least 5.0% of the firm's outstanding equity at the time of announcement, otherwise Blockholder equals 0. Large Block is an indicator variable that takes a value of 1 if the Blockholder owns a percent of outstanding equity greater than or equal to the median percent of equity owned by all blockholders. Panel A (C) displays yield spread changes (ΔYS) for the interaction of our Entrenched and Blockholder (Large Block) variables for all OMRs (bonds) in the sample. Panel B (D) displays yield spread changes (ΔYS) for the interaction of our Entrenched and Blockholder (Large Block) variables for firms that repurchase at least 1.0% of their outstanding equity during the announcement quarter (CSHOPQ>=1.0%). All yield spreads have been winsorized at the 1% level to mitigate the effect of outliers. Significance of means (medians) are determined using standard t-tests (Wilcoxon signed rank test). We use *, **, and *** to denote significance at the 10%, 5%, and 1% level (two-sided), respectively.

Panel A: ΔYS (%) - Entrenched x Blockholder: All OMRs

	Entrenched=1			Entrenched=0			Differences	
	N	Mean	Median	N	Mean	Median	Mean	Median
Blockholder=1	2190	0.1353***	0.0004***	1528	0.1866***	-0.0019**	-0.0513	0.0023***
		(0.0000)	(0.0017)		(0.0000)	(0.0154)	(0.1260)	(0.0061)
Blockholder=0	472	0.2061***	-0.0078**	689	-0.0242	-0.0140*	0.2304***	0.0062**
		(0.0000)	(0.0180)		(0.1141)	(0.0782)	(0.0000)	(0.0160)
Differences		-0.0708	0.0082		0.2108***	0.0121***		
		(0.1641)	(0.4880)		(0.0000)	(0.0053)		

Panel B: ΔYS (%) - Entrenched x Blockholder: CSHOPQ>=1.0%

	Entrenched=1			Entrenched=0			Differences	
	N	Mean	Median	N	Mean	Median	Mean	Median
Blockholder=1	1255	0.1876***	0.0351***	948	0.2128***	-0.0045*	-0.0252	0.0396***
		(0.0000)	(0.0000)		(0.0000)	(0.1284)	(0.5638)	(0.0061)
Blockholder=0	312	0.2292***	0.0154***	312	-0.0124	0.0283	0.2416***	-0.0129
		(0.0000)	(0.0083)		(0.6556)	(0.3526)	(0.0002)	(0.1501)
Differences		-0.0415	0.0197		0.2252***	-0.0328		
		(0.5078)	(0.5461)		(0.0000)	(0.9752)		

Panel C: ΔYS (%) - Entrenched x Blockholder: 0<=CSHOPQ<1.0%

	Entrenched=1			Entrenched=0			Differences	
	N	Mean	Median	N	Mean	Median	Mean	Median
Blockholder=1	935	0.0650*	-0.0647**	580	0.1437***	0.0056*	-0.0787	-0.0703***
		(0.0813)	(0.0236)		(0.0000)	(0.0507)	(0.1191)	(0.0003)
Blockholder=0	160	0.1613**	-0.0420	377	-0.0340**	-0.0496***	0.1953***	0.0076
		(0.0171)	(0.9986)		(0.0339)	(0.0005)	(0.0050)	(0.1556)
Differences		-0.0962	-0.0227		0.1778***	0.0552***		
		(0.2099)	(0.1182)		(0.0000)	(0.0002)		

Table 4: Average yield spread changes (ΔYS): entrenchment x (large) blockholder (*continued*)

Panel D: ΔYS (%) - Entrenched x Large Block: All OMRs

	Entrenched=1			Entrenched=0			Differences	
	N	Mean	Median	N	Mean	Median	Mean	Median
Large block=1	1450	0.1755***	0.0058***	972	0.2154***	-0.0084	-0.0399	0.0142
		(0.0000)	(0.0002)		(0.0000)	(0.1557)	(0.3934)	(0.5703)
Large block=0	1212	0.1148***	-0.0116	1245	0.0474***	-0.0011	0.0674**	-0.0105
		(0.0000)	(0.1249)		(0.0011)	(0.7307)	(0.0236)	(0.7772)
Differences		0.0607	0.0174		0.1679***	-0.0073		
		(0.1145)	(0.1707)		(0.0000)	(0.5879)		

Panel E: ΔYS (%) - Entrenched x Large Block: CSHOPQ>=1.0%

	Entrenched=1			Entrenched=0			Differences	
	N	Mean	Median	N	Mean	Median	Mean	Median
Large block=1	821	0.2405***	0.0684***	602	0.2957***	-0.0045*	-0.0552	0.0729**
		(0.0000)	(0.0000)		(0.0000)	(0.0993)	(0.3875)	(0.0175)
Large block=0	746	0.1469***	0.0035***	658	0.0302	0.0112	0.1167***	-0.0077
		(0.0000)	(0.0046)		(0.1195)	(0.2690)	(0.0011)	(0.2869)
Differences		0.0936**	0.0649***		0.2654***	-0.0157		
		(0.0434)	(0.0098)		(0.0000)	(0.6479)		

Panel F: ΔYS (%) - Entrenched x Large Block: 0<=CSHOPQ<1.0%

	Entrenched=1			Entrenched=0			Differences	
	N	Mean	Median	N	Mean	Median	Mean	Median
Large block=1	412	0.0824	-0.0535	293	0.0582	-0.0212	0.0242	-0.0323
		(0.1343)	(0.6099)		(0.2716)	(0.7548)	(0.7508)	(0.6300)
Large block=0	523	0.0513	-0.0657***	287	0.2311***	0.0325***	-0.1797***	-0.0982***
		(0.3116)	(0.0083)		(0.0000)	(0.0011)	(0.0065)	(0.0000)
Differences		0.0311	0.0122		-0.1729**	-0.0537***		
		(0.6791)	(0.3502)		(0.0108)	(0.0077)		

Table 5: Firm-level variables: changes in levels (prior levels) surrounding open market share repurchases (OMR)

This table displays summary statistics for both (Panel A) changes (Δ) in levels and (Panel B) absolute levels (at the end of prior quarter [-2]) of financial variables shown to affect credit (yield) spreads of publicly traded corporate bonds based on the structural model of bond pricing. All variables are described in detail in Appendix A. Changes in levels as the difference between the value at the end of fiscal quarter [+1] and the value in levels as of the end of fiscal quarter [-2] just prior to the OMR event window [-1, 0, +1]. Variables have been winsorized at the 1% level to mitigate the effect of outliers. Significance of means (medians) are determined using standard t-tests (Wilcoxon signed rank test). Statistical significance of changes in levels as well as all differences at the 1%, 5%, and 10% levels are indicated by ***, **, and * respectively.

Variable		All OMRs (1)	Entrenched (2)	Non-Entrenched (3)	Differences (3) - (2)	CSHOPQ>=1% (4)	CSHOPQ<1% (5)	Differences (5) - (4)
Panel A: Changes in levels of firm-level financial variables								
Beta unlevered [-1, +1]	Mean	-0.0026	-0.0110**	0.0064	0.0174*	-0.0092	0.0051	0.0143
	Median	-0.0041*	-0.0058***	0.0009	0.0067	-0.0125***	(0.0051)	0.0176***
Market leverage [-1, +1]		0.0086***	0.0069***	0.0078**	0.0008	0.0160***	0.0002	-0.0158***
		0.0013***	0.0019**	0.0002*	-0.0017	0.0048***	-0.0013	-0.0061***
Book leverage [-1, +1]		0.0036*	0.0059**	0.0009	-0.0053	0.0154***	-0.0097***	-0.0252***
		0.0000	-0.0001	-0.0008	-0.0007	0.0061***	-0.0080***	-0.0141***
Cash/Assets [-1, +1]		-0.0030**	-0.0025	-0.0037	-0.0012	-0.0075***	0.0022	0.0096***
		-0.0008*	-0.0008	-0.0007	0.0001	-0.0021***	0.0008	0.0029***
Credit ratings [-1, +1]		-0.0171*	-0.0183	-0.0178	0.0004	-0.0221*	-0.0113	0.0107
		0.0000***	0.0000**	0.0000*	0.0000	0.0000**	0.0000	0.0000
Earnings volatility [-1, +1]		0.0025	0.0024	0.0028	0.0004	0.0000	0.0054*	0.0054
		0.0001*	0.0003*	0.0001	-0.0002	-0.0001	0.0007**	0.0008
Profitability [-1, +1]		-0.0029	-0.0045	0.0002	0.0047	-0.0019	-0.0042	-0.0023
		-0.0011**	-0.0011*	-0.0009	0.0002)	-0.0006	-0.0015**	-0.0009
Panel B: Firm financial variables in levels								
Total assets ($bil)	Mean	58.792	39.292	98.206	58.914***	51.573	67.143	15.570
	Median	10.272	10.505	11.313	0.8080	10.114	10.392	0.278
Market-to-book		3.1527	3.0158	3.4004	0.3846*	3.1948	3.1037	-0.0911
		2.0963	1.9925	2.3828	0.3903***	2.1294	2.0672	-0.0622
Market value equity ($bil)		24.426	17.901	38.363	20.462***	22.627	26.507	3.8795
		9.555	9.585	12.645	1.3192***	10.139	8.587	-1.552
Market leverage		0.2402	0.2278	0.2298	0.0021	0.2295	0.2526	0.0231**
		0.1954	0.1926	0.1810	-0.0116	0.1868	0.2053	0.0185**

(*continued*)

Table 5: Firm-level variables: changes in levels (prior levels) surrounding open market share repurchases (OMR) (*continued*)

Variable		All OMRs (1)	Entrenched (2)	Non-Entrenched (3)	Differences (3) - (2)	CSHOPQ>=1% (4)	CSHOPQ<1% (5)	Differences (5) - (4)
Panel B: Firm financial variables in levels (as of the end of prior fiscal quarter [-2]) (*continued*)								
Cash/Assets	Mean	0.1030	0.1016	0.1054	0.0037	0.1042	0.1017	-0.0025
	Median	0.0628	0.0644	0.0645	0.0001	0.0637	0.0614	-0.0023
EBIT/Sales		0.1747	0.1700	0.1782	0.0082	0.1753	0.1741	-0.0013
		0.1442	0.1406	0.1466	0.0060	0.1455	0.1435	-0.0020
Return on equity		0.0456	0.0438	0.0534	0.0097	0.0498	0.0408	-0.0090
		0.0353	0.0337	0.0420	0.0083***	0.0362	0.0340	-0.0022*
Earnings volatility		0.0319	0.0322	0.0290	-0.0032	0.0312	0.0329	0.0017
		0.0184	0.0181	0.0183	0.0002	0.0181	0.0191	0.0010
Beta unlevered		0.4182	0.4172	0.4227	0.0055	0.4198	0.4164	-0.0034
		0.3677	0.3700	0.3813	0.0113	0.3785	0.3509	-0.0276
Entrenched			1.0000	0.0000	NA	0.6148	0.6109	-0.0034
Large block			0.4520	0.5381	0.0861***	0.5122	0.4865	-0.0257
Observations		1,251	716	452		671	580	

Table 6: Pooled OLS regressions of changes in yield spreads (ΔYS) around OMR announcements

This table reports results from pooled OLS regressions. The dependent variable in all specifications is the change in yield spreads (ΔYS) over the three quarters [-1, 0, +1] surrounding the announcement of 1,251 open market repurchase programs from 2002 through 2015. Our primary variables of interest include (managerial) entrenchment as well as changes (Δ) over the same three-quarter period in levels of asset (unlevered) beta, market leverage, cash-to-assets, credit ratings, earnings volatility, and profitability. Firm level control variables as well as variables that have previously been shown in the literature to influence changes in yield spreads are also included. All variable definitions as well as the construction and source of data are described in Appendix A. Industry level as well as calendar year fixed effects are also included in all specifications. All variables have been winsorized at the 1% level to mitigate the effect of outliers. Reported T-statistics (in parentheses) are corrected for (correlation) clustering and heteroskedasticity as described by Williams (2000). Significance levels of 1%, 5%, and 10% are indicated by ***, **, and * respectively.

Specification	Pred. Sign	All Bonds (1)	All Bonds (2)	All Bonds (3)	All Bonds (4)	Rep>=1.0% (5)	Rep=0.0% (6)	0<Rep<1% (7)
Entrenched	+/-	-0.0683***	-0.0641***	-0.0647***	-0.0631***	-0.1073***	0.1175	-0.0277
		(-2.82)	(-2.69)	(-2.68)	(-2.84)	(-3.25)	(0.86)	(-0.76)
ΔBeta unlevered [-1, +1]	+	0.4279***	0.4951***	0.4388**	0.4598***	0.7616***	0.0041	0.1068
		(2.59)	(2.90)	(2.52)	(2.77)	(3.32)	(0.01)	(0.51)
ΔMarket leverage [-1, +1]	+	3.2674***	3.2457***	3.2469***	2.4442***	2.5410***	4.7536***	2.0353***
		(10.98)	(10.86)	(10.83)	(9.00)	(5.40)	(3.25)	(6.98)
ΔCash/Assets [-1, +1]	-	-0.7128**	-0.7501**	-0.7918***	-0.5838**	-0.3073	1.6985	-0.7621
		(-2.42)	(-2.51)	(-2.59)	(-2.00)	(-0.69)	(1.19)	(-1.13)
ΔCredit ratings [-1, +1]	+	0.2242***	0.1959***	0.1819***	0.1663***	0.1731***	0.3021***	0.0903
		(6.22)	(5.56)	(4.86)	(5.10)	(3.74)	(2.77)	(1.34)
ΔEarnings volatility [-1, +1]	+	0.8433***	0.8103***	0.6779**	0.4793**	0.7863*	-1.2829	0.2918
		(2.72)	(2.84)	(2.45)	(2.23)	(1.84)	(-1.49)	(1.31)
ΔProfitability [-1, +1]	-	-0.6983**	-0.7363**	-0.6632**	-0.5756*	-1.1285***	3.0671***	-0.6602
		(-2.10)	(-2.22)	(-2.01)	(-1.94)	(-3.75)	(3.21)	(-1.57)
Total assets	-	-0.0298***	-0.0184**	-0.0095	0.0133	0.0101	0.0366	-0.0114
		(-3.54)	(-2.27)	(-1.02)	(1.52)	(0.77)	(0.81)	(-0.81)
Market-to-book	+/-	0.0007	0.0031	0.0038	0.0024	0.0092**	-0.0073	-0.0019
		(0.24)	(0.89)	(1.05)	(0.76)	(2.18)	(-0.54)	(-0.63)
Dividend payer	+/-	-0.0837	-0.0708	-0.0553	-0.0461	-0.2001***	0.2552	0.1585**
		(-1.58)	(-1.37)	(-1.17)	(-1.02)	(-3.03)	(1.13)	(2.44)
Percent equity sought	+		0.3278	0.3161	0.0101	-0.0060	4.8185***	0.0954
			(1.50)	(1.40)	(0.059)	(-0.02)	(3.30)	(0.25)
Announced frequency	-		-0.0055**	-0.0035	-0.0046	-0.0063	-0.0161	-0.0063
			(-1.99)	(-1.22)	(-1.58)	(-1.57)	(-0.99)	(-1.36)

Table 6: Pooled OLS regressions of changes in yield spreads (ΔYS) around OMR announcements (cont'd)

Specification	Pred. Sign	All Bonds (1)	All Bonds (2)	All Bonds (3)	All Bonds (4)	Rep>=1.0% (5)	Rep=0.0% (6)	0<Rep<1% (7)
Frequent_Rep	-		-0.0901***	-0.0732***	-0.0663***	-0.0876***	-0.2015	-0.0269
			(-4.05)	(-3.30)	(-3.11)	(-2.72)	(-1.30)	(-0.73)
CSHOPQ_Lead	+		1.7734**	1.4873*	1.6968**	2.0426**	-5.1114***	-3.1467***
			(2.16)	(1.77)	(2.39)	(2.20)	(-2.35)	(-2.83)
Investment-grade	-			-0.1496***	-0.1227**	-0.0783	-0.4994***	-0.1482*
				(-3.02)	(-2.50)	(-1.12)	(-2.82)	(-1.88)
Coupon	+			0.0282***	0.0283***	0.0361***	0.0297	0.01685*
				(3.44)	(3.62)	(2.98)	(1.23)	(1.76)
Bond age	+			0.0026	0.0020	0.0028	-0.0174*	0.0001
				(0.89)	(0.72)	(0.67)	(-1.80)	(0.04)
ΔModified duration [-1, +1]	-			-0.5487***	-0.6003***	-0.6065***	0.0834	-0.4965***
				(-8.96)	(-9.95)	(-7.49)	(0.24)	(-5.59)
ΔConvexity [-1, +1]	-			0.0083***	0.0091***	0.0094***	-0.0048	0.0077***
				(5.01)	(5.50)	(4.07)	(-0.60)	(3.29)
Callable	+			-0.0124	-0.0252	-0.0476	-0.3130**	-0.0111
				(-0.42)	(-0.90)	(-1.14)	(-2.45)	(-0.25)
Convertible	-			-0.1347	-0.1389	0.1669	-0.6311	-0.0584
				(-0.41)	(-0.45)	(0.44)	(-0.86)	(-0.09)
Total payout covenants (0-2)	-			-0.0750*	-0.0354	-0.0340	-0.0428	-0.0664
				(-1.65)	(-1.05)	(-0.73)	(-0.41)	(-1.49)
ΔMkt credit premium [-1, +1]	+				0.7529***	0.8149***	1.3367***	0.5031***
					(8.01)	(7.48)	(3.97)	(2.74)
ΔInterest rate [-1, +1]	-				-0.1441***	-0.1445***	-0.2289	-0.2099***
					(-4.58)	(-3.98)	(-1.62)	(-3.29)
ΔSlope [-1, +1]	+/-				0.7898**	0.4811	-1.2562	1.2112**
					(2.44)	(1.29)	(-0.76)	(2.06)
ΔEquity mkt premium [-1, +1]	-				0.1064	-0.1730	-3.0538*	0.0424
					(0.36)	(-0.44)	(-1.95)	(0.07)
ΔSMB [-1, +1]	-				-0.2704	-0.3325	-4.2237**	0.6360
					(-0.77)	(-0.74)	(-2.25)	(1.01)

Table 6: Pooled OLS regressions of changes in yield spreads (ΔYS) around OMR announcements (*continued*)

Specification	Pred. Sign	All Bonds (1)	All Bonds (2)	All Bonds (3)	All Bonds (4)	Rep>=1.0% (5)	Rep=0.0% (6)	0<Rep<1% (7)
HML [-1, +1]	-				-0.8580*	-0.8047	4.4598**	-1.0464
					(-1.89)	(-1.21)	(2.08)	(-1.31)
Constant		-0.0772	-0.1956**	-0.4226***	-0.6344***	-0.6582***	0.4653	-0.3321
		(-0.85)	(-2.11)	(-3.16)	(-4.67)	(-3.04)	(0.76)	(-1.46)
Industry & year controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-square		0.4098	0.4135	0.4292	0.5061	0.5533	0.7473	0.4296
Observations		5,170	5,170	4,981	4,962	2,746	325	1,891

Table 7: Pooled OLS regressions of changes in yield spreads (ΔYS): common shares outstanding purchased in announcement quarter (CSHOPQ)

This table reports results from pooled OLS regressions. The dependent variable in all specifications is the change in yield spreads (ΔYS) over the three quarters [-1, 0, +1] surrounding the announcement of 1,251 open market repurchase programs from 2002 through 2015. In these regressions, our primary focus is on the interaction of CSHOPQ (percent of common shares outstanding purchased in the announcement quarter) with our indicator variable for (managerial) entrenchment, as well as changes (Δ) over the same three-quarter period in levels of asset (unlevered) beta, market leverage, cash-to-assets, credit ratings, earnings volatility, and profitability. As in Table 6, all control variables (not reported to conserve space) as well as firm and year fixed effects are included. All variable definitions are described in Appendix A. All variables have been winsorized at the 1% level to mitigate the effect of outliers. Reported T-statistics (in parentheses) are corrected for (correlation) clustering and heteroskedasticity as described by Williams (2000). Significance levels of 1%, 5%, and 10% are indicated by ***, **, and * respectively.

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Entrenched	-0.0636***	-0.0404	-0.0675***	-0.0043	-0.0624***	-0.0785***	-0.0674***	-0.0869***
	(-2.85)	(-1.40)	(-3.00)	(-0.14)	(-2.82)	(-3.53)	(-2.98)	(-3.08)
CSHOPQ	0.7649	1.6441*						
	(1.23)	(1.66)						
Entrenched x CSHOPQ		-1.4268						
		(-1.14)						
CSHOPQ>=1%			0.0798***	0.1425***				
			(3.61)	(4.90)				
Entrenched x (CSHOPQ>=1%)				-0.1096***				
				(-2.86)				
CSHOPQ=0%					-0.0634	-0.2039***		
					(-1.46)	(3.40)		
Entrenched x (CSHOPQ=0%)						0.2380***		
						(2.83)		
0<CSHOPQ<1%							-0.0651***	-0.0963***
							(-3.07)	(3.43)
Entrenched x (0<CSHOPQ<1%)								0.0550
								(1.39)
ΔBeta unlevered	0.4767***	0.4750***	0.4982***	0.5027***	0.4635***	0.4538***	0.4874***	0.4919***
	(2.83)	(2.82)	(2.96)	(2.98)	(2.78)	(2.70)	(2.91)	(2.93)
ΔMarket leverage	2.4231***	2.4246***	2.4036***	2.4093***	2.4415***	2.4399***	2.4138***	2.4171***
	(8.88)	(8.92)	(8.92)	(8.94)	(9.00)	(8.97)	(8.92)	(8.94)
ΔCash/Assets	-0.5531*	-0.5758*	-0.4865*	-0.5122*	-0.5760**	-0.6294**	-0.5124*	-0.5194*
	(-1.87)	(-1.94)	(-1.65)	(-1.72)	(-1.97)	(-2.15)	(-1.75)	(-1.74)

Table 7: Pooled OLS regressions of changes in yield spreads (ΔYS): common shares outstanding purchased in announcement quarter (CSHOPQ) (*cont'd*)

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Credit ratings [-1, +1]	0.1654***	0.1640***	0.1817***	0.1839***	0.1666***	0.1645***	0.1786***	0.1801***
	(5.08)	(5.06)	(5.51)	(5.58)	(5.11)	(5.03)	(5.44)	(5.47)
Earnings volatility [-1, +1]	0.4869**	0.4859**	0.5028**	0.4979**	0.4898**	0.4918**	0.4877**	0.4849**
	(2.26)	(2.24)	(2.35)	(2.30)	(2.28)	(2.27)	(2.28)	(2.25)
Profitability [-1, +1]	-0.6017**	-0.6186**	-0.5968**	-0.5870**	-0.5776*	-0.5859**	-0.5909**	-0.5840**
	(-2.01)	(-2.05)	(-2.01)	(-1.99)	(-1.96)	(-1.97)	(-1.98)	(-1.96)
Constant	-0.6461***	-0.6593***	-0.6305***	-0.6648***	-0.6259***	-0.6059***	-0.5748***	-0.5653***
	(-4.72)	(-4.84)	(-4.63)	(-4.95)	(-4.60)	(-4.42)	(-4.26)	(-4.17)
Industry & year controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-square	0.5062	0.5063	0.5076	0.5084	0.5063	0.5072	0.5071	0.5072
Observations	4,962	4,962	4,962	4,962	4,962	4,962	4,962	4,962

Table 8: Pooled OLS regressions of changes in yield spreads (ΔYS): Entrenchment interacted w/Blockholder

This table reports results from pooled OLS regressions. The dependent variable in all specifications is the change in yield spreads (ΔYS) over the three quarters [-1, 0, +1] surrounding the announcement of 1,251 open market repurchase programs from 2002 through 2015. Our primary focus is on the interaction of (managerial) entrenchment and the presence of a Blockholder, as well as changes (Δ) over the same three-quarter period in levels of asset (unlevered) beta, market leverage, cash-to-assets, credit ratings, earnings volatility, and profitability. As in Table 6, all control variables (not reported to conserve space) as well as firm and year fixed effects are included. All variable definitions are described in Appendix A. All variables have been winsorized at the 1% level to mitigate the effect of outliers. Reported T-statistics (in parentheses) are corrected for (correlation) clustering and heteroskedasticity as described by Williams (2000). Significance levels of 1%, 5%, and 10% are indicated by ***, **, and * respectively.

Specification	All Bonds (1)	All Bonds (2)	Rep>=1% (3)	Rep=0.0% (4)	0<Rep<1% (5)
Entrenched	-0.0697***	-0.03567	-0.1712***	0.8733***	0.0950
	(-2.82)	(-0.97)	(-3.38)	(3.47)	(0.97)
Blockholder	-0.0634***	-0.0409	-0.1169***	0.8956***	-0.0196
	(-2.70)	(-1.56)	(-3.02)	(3.26)	(-0.43)
Entrenched x Blockholder		-0.0446	0.0595	-0.9366***	-0.1247
		(-1.01)	(0.92)	(-3.42)	(-1.13)
ΔBeta unlevered [-1, +1]	0.4471**	0.4474**	0.6900***	-0.0733	0.0636
	(2.57)	(2.57)	(2.98)	(-0.12)	(0.25)
ΔMarket leverage [-1, +1]	2.4321***	2.4281***	2.3417***	4.2236***	2.2441***
	(8.71)	(8.71)	(4.84)	(2.61)	(7.25)
ΔCash/Assets [-1, +1]	-0.5037	-0.5265*	-0.2320	0.8540	-0.9134
	(-1.58)	(-1.64)	(-0.46)	(0.53)	(-1.22)
ΔCredit ratings [-1, +1]	0.1654***	0.1662***	0.1691***	0.3359***	0.0845
	(4.91)	(4.94)	(3.52)	(2.82)	(1.10)
ΔEarnings volatility [-1, +1]	0.6705*	0.6599*	0.8322*	-1.2166	-0.7227
	(1.94)	(1.91)	(1.85)	(-1.38)	(-1.42)
ΔProfitability [-1, +1]	-0.7379**	-0.7379**	-1.2857***	3.0962**	-0.9476*
	(-2.00)	(-2.00)	(-3.58)	(2.45)	(-1.68)
Constant	-0.4854***	-0.5138***	-0.4303*	-1.2769	-0.1886
	(-2.96)	(-3.13)	(-1.70)	(-1.44)	(-0.63)
Industry & year controls	Yes	Yes	Yes	Yes	Yes
Adjusted R-square	0.5117	0.5117	0.5608	0.7550	0.4288
Observations	4,442	4,442	2,556	310	1,576

Table 9: Pooled OLS regressions of changes in yield spreads (ΔYS): Entrenchment interacted w/Large Block

This table reports results from pooled OLS regressions. The dependent variable in all specifications is the change in yield spreads (ΔYS) over the three quarters [-1, 0, +1] surrounding the announcement of 1,251 open market repurchase programs from 2002 through 2015. Our primary focus is on the interaction of (managerial) entrenchment with the presence of a large blockholder, Large Block, defined as a blockholder whose percentage of equity ownership is greater than or equal to the sample median blockholder ownership (%). Also of interest are the changes (Δ) over the same three-quarter period in levels of asset (unlevered) beta, market leverage, cash-to-assets, credit ratings, earnings volatility, and profitability. As in Table 6, all control variables (not reported to conserve space) as well as firm and year fixed effects are included. All variable definitions are described in Appendix A. All variables have been winsorized at the 1% level to mitigate the effect of outliers. Reported T-statistics (in parentheses) are corrected for (correlation) clustering and heteroskedasticity as described by Williams (2000). Significance levels of 1%, 5%, and 10% are indicated by ***, **, and * respectively.

Specification	All Bonds (1)	All Bonds (2)	Rep>=1% (3)	Rep=0.0% (4)	0<Rep<1% (5)
Entrenched	-0.0837***	0.0565	0.0885*	-0.4472*	0.0145
	(-2.69)	(1.32)	(1.67)	(-1.86)	(0.15)
Large block	0.0088	0.1497***	0.2068***	0.0259	0.1137
	(0.33)	(3.75)	(3.66)	(0.15)	(1.52)
Entrench x Large block		-0.2222***	-0.3425***	0.6672***	-0.1464
		(-4.01)	(-4.78)	(2.64)	(-1.24)
ΔBeta unlevered [-1, +1]	0.6131***	0.6089***	0.7443***	-0.1850	0.2128
	(3.26)	(3.24)	(2.87)	(-0.23)	(0.79)
ΔMarket leverage [-1, +1]	2.4659***	2.4689***	1.6640***	7.1952***	2.5247***
	(7.06)	(7.09)	(3.21)	(4.33)	(6.07)
ΔCash/Assets [-1, +1]	-0.4054	-0.3907	-0.1100	1.9050	-0.4221
	(-1.05)	(-1.01)	(-0.20)	(0.97)	(-0.48)
ΔCredit ratings [-1, +1]	0.1930***	0.1921***	0.1124	0.2837**	0.1477
	(4.07)	(4.06)	(1.62)	(2.32)	(1.48)
ΔEarnings volatility [-1, +1]	0.4650	0.4502	0.7713*	-1.3238	-1.4271**
	(1.40)	(1.40)	(1.70)	(-1.49)	(-2.27)
ΔProfitability [-1, +1]	-0.5662	-0.6015	-1.3562***	3.1333**	-1.0146*
	(-1.52)	(-1.63)	(-3.81)	(2.33)	(-1.65)
Constant	-0.5162***	-0.6285***	-0.3914	-1.1156	-0.6612*
	(-2.68)	(-3.22)	(-1.26)	(-1.18)	(-1.77)
Industry & year controls	Yes	Yes	Yes	Yes	Yes
Adjusted R-square	0.5072	0.5093	0.5418	0.7655	0.4529
Observations	3,361	3,361	1,965	242	1,154

Table 10: Pooled OLS regressions of changes in yield spreads (ΔYS): Entrenchment interacted w/BlockPctOwn

This table reports results from pooled OLS regressions. The dependent variable in all specifications is the change in yield spreads (ΔYS) over the three quarters [-1, 0, +1] surrounding the announcement of 1,251 open market repurchase programs from 2002 through 2015. Our primary focus is on the interaction of (managerial) entrenchment with the percent of blockholder equity ownership (BlockPctOwn) conditional on the presence of a blockholder, as well as changes (Δ) over the same three-quarter period in levels of asset (unlevered) beta, market leverage, cash-to-assets, credit ratings, earnings volatility, and profitability. As in Table 6, all control variables (not reported to conserve space) as well as firm and year fixed effects are included. All variable definitions are described in Appendix A. All variables have been winsorized at the 1% level to mitigate the effect of outliers. Reported T-statistics (in parentheses) are corrected for (correlation) clustering and heteroskedasticity as described by Williams (2000). Significance levels of 1%, 5%, and 10% are indicated by ***, **, and * respectively.

Specification	All Bonds (1)	All Bonds (2)	Rep>=1% (3)	Rep=0.0% (4)	0<Rep<1% (5)
Entrenched	-0.0809***	0.0574	0.0444	0.2298	0.0204
	(-2.65)	(1.44)	(0.76)	(0.68)	(0.15)
BlockPctOwn	0.4369***	1.5005***	1.8643***	5.4783*	0.2068
	(2.15)	(5.20)	(4.93)	(1.71)	(0.49)
Entrenched x BlockPctOwn		-1.4379***	-1.7774***	-4.8109	-1.1489
		(-4.27)	(-3.82)	(-1.45)	(-0.78)
ΔBeta unlevered [-1, +1]	0.6063***	0.6100***	0.7671***	0.1387	0.1882
	(3.22)	(3.25)	(2.98)	(0.17)	(0.68)
ΔMarket leverage [-1, +1]	2.4884***	2.5362***	1.7610***	5.1011***	2.4244***
	(7.18)	(7.33)	(3.44)	(3.11)	(5.93)
ΔCash/Assets [-1, +1]	-0.2924	-0.2781	0.0099	0.1381	-0.4107
	(-0.73)	(-0.70)	(0.02)	(0.05)	(-0.47)
ΔCredit ratings [-1, +1]	0.1930***	0.1892***	0.1218*	0.2697**	0.1328
	(4.10)	(4.02)	(1.75)	(2.07)	(1.30)
ΔEarnings volatility [-1, +1]	0.4636	0.4676	0.7882*	-0.9968	-1.3905**
	(1.40)	(1.42)	(1.67)	(-1.18)	(-2.26)
ΔProfitability [-1, +1]	-0.5818	-0.6646*	-1.4565***	3.1834**	-1.000772
	(-1.56)	(-1.80)	(-4.12)	(2.26)	-1.65
Constant	-0.6150***	-0.7823***	-0.5311*	-0.1106	-0.5495
	(-3.24)	(-4.04)	(-1.75)	(-0.11)	(-1.51)
Industry & year controls	Yes	Yes	Yes	Yes	Yes
Adjusted R-square	0.5081	0.5103	0.5414	0.7547	0.4524
Observations	3,361	3,361	1,965	242	1,154