Friends with Threats: Credit Risk Under Common Ownership

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Abstract

This paper empirically shows that the cost of bank debt is lower for firms whose large shareholders also hold shares in industry peers. This effect is stronger for firms with poor credit quality and when creditors have less industry expertise, highlighting the monitoring influence of common ownership. Firm investment behavior after loan covenant violations shows that large common owners monitor effectively against managerial discretion and improve investment efficiency, lowering cash low risk and benefiting creditors. Payout patterns after covenant violations suggest that creditors face higher shareholder risk shifting potential as an expense of more effective monitoring over management. Overall results indicate lower credit risk under better governance of common ownership despite this concern.

Keywords: Credit Risk, Common Ownership, Corporate Governance, Cost of Debt

JEL Codes: G23, G32, G34

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1 Introduction

There is an emerging common ownership literature looking at when a firm's shareholders also hold shares in its industry peers. Prior research in this area has uncovered anti-competitive effects of common ownership in the airlines and banking industry (Azar et al., 2018a, 2016), leading to heated debates as other research also provides evidence of positive effects of such ownership on product market competition across different industries (He and Huang, 2017). Follow-up research has investigated theoretically and empirically the implications of common ownership for managers and other shareholders. Anton et al. (2018a) argue that common ownership can make CEO compensation less sensitive to performance as common owners have the interest of their overall industry portfolios in mind, proposing a potential mechanism for the anti-competitive effects. He et al. (2017) show that institutional investors with more holdings in industry peers are more likely to vote against the firm's management in shareholder-sponsored proposals, playing a more active monitoring role. The empirical investigation of Gutiérrez and Philippon (2016) indicates that firms in industries with high common ownership underinvest. Anton et al. (2018b) present evidence that M&A deals which are seemingly value-destroying to regular shareholders might get approved due to large shareholders with common ownership being able to gain from their stakes in non-merging industry rivals.

Does common ownership matter to creditors? Creditors play an essential role in corporate finance. The cost of debt has a large influence on firms as debt financing is the dominant source of external funding. Recent research has shown that creditors are also getting more involved in corporate governance over firm investment, financial, and payout policies (Nini et al., 2012). Yet limited attention has been paid to these important stakeholders in a high common ownership environment. The implications of common ownership for creditors remain unclear. Figure 1 shows that from 1990 to 2010, common ownership of public borrower firms in the U.S. syndicated loan market displays a significant upward trend. The increase in common ownership becomes particularly significant after Year 2000, especially common ownership held

by top shareholders. This paper investigates whether the rise of common ownership influences the cost of debt with a syndicated loan sample ranging from 1987 to 2012.

I investigate whether common owners play a more active and effective monitoring role in corporate governance as posited by recent studies (He et al., 2017, 2018), hypothesizing that common ownership facilitates better monitoring which benefits creditors and in turn lowers the cost of debt. Common owners are more capable monitors thanks to their industry-wide information and expertise. They are also more incentivized monitors since an individual firm's behavior can affect the value of their overall industry portfolios (Hansen and Lott, 1996). I find strong empirical evidence that firm-level common ownership, mainly that held by top 5 shareholders, lowers the cost of debt. Compared to firms with low top shareholder common ownership[1], the annual financing costs for those with high top shareholder common ownership is lowered by 4.27% during the sample period of 1987 to 2012 and 8.03% in the period since 2000, which is when common ownership starts to increase significantly and the effect really comes into place. This relationship is mainly pronounced for firms with poor or no credit rating, as well as when creditors of the loans have lower industry expertise, highlighting the monitoring influence of large common owners.

Next, I use the merger between BlackRock and Barclays Global Investors to create exogenous variation in common ownership in order to mitigate the reverse causality concern. An increase in common ownership due to this merger is unlikely to be due to portfolio fundamental or private information on firm credit risk. The results of this analysis provide strong causal support to the relationship between the cost of debt and top shareholder common ownership. This relationship is also robust to the use of alternative industry definitions and common ownership measures.

A reduction of information asymmetry for creditors and direct monitoring against manage-

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[1]Top shareholder common ownership (*Top5CO*) is measured as the stakes the firm's top 5 largest shareholders have in its industry peers using Equation 2. Borrower firms with *Top5CO* in the bottom quartile among all firms in the 13F database at the quarter end prior to loan initiation are classified as having low top shareholder common ownership, those in the top quartile are classified as having high top shareholder common ownership.

rial discretion are two potential channels through which common ownership can influence the cost of debt. By studying loan syndicate concentration, I show evidence that better information does appear to ease creditor monitoring effort when the syndicate has low industry expertise. However, when the syndicate has some level of industry expertise, the benefit from a reduction of information asymmetry is largely offset, the syndicate becomes more concentrated as creditors recognize the need to monitor against potential risk shifting by the large common owners.

After a new loan covenant violation, acquisitions and capital expenditures only decrease for firms with low top shareholder common ownership while not for those with high top shareholder common ownership, supporting the notion that large common owners monitor effectively against managerial discretion. However, firms with high top shareholder common ownership experience a significant decrease in shareholder payouts while there is no such effect for their counterparts, suggesting that the reduced risk from managerial discretion comes at the expense of higher shareholder risk shifting potential.

Overall, the evidence suggests that better information from common ownership does have an effect on creditors in pricing debt contracts as posited by Massa and Zaldokas (2017), yet it is largely offset by agency concerns over shareholders when creditors have some level of industry expertise. The monitoring against managerial discretion by large common owners lowers cash flow risk and avoids value loss from overinvestment. This effect is accounted for by creditors, which leads to a lower cost of debt. An additional analysis of the credit default swap premiums shows that firms with higher top shareholder common ownership have lower CDS spreads, providing further evidence that large common owners' monitoring lowers firm default risk, which overrides potential shareholder risk shifting concerns for creditors.

Finally, I test the alternative hypothesis that common ownership can indirectly lower the cost of debt due to its anti-competitive effects. Competition has been shown to directly increase the cost of debt as firms face more cash flow uncertainty amid intense rivalry (Valta, 2012). If common ownership has anti-competitive effects, it may be able to moderate the effect

competition has on borrowing costs. The empirical results do not support this hypothesis. It is likely that the anti-competitive effects of common ownership are only at work in certain industries or creditors fail to account for this indirect influence on competition. I also rule out the alternative hypothesis stating that financial conglomerates with both significant equity and debt holdings in the borrower firms are driving the results (Jiang et al., 2010). The possibility of easier access to debt financing and alignment of shareholder creditor incentives from such dual holders can at most explain a very small portion of my main results.

This paper first contributes to the emerging common ownership literature. While many have looked at the implications of common ownership for product market competition (Azar et al., 2018a; He and Huang, 2017), managers (Anton et al., 2018a; Kang et al., 2018), corporate policies (Gutiérrez and Philippon, 2016; He et al., 2017; Edmans et al., 2018; Lopez and Vives, 2016), and concentrated shareholders (Anton et al., 2018b), less attention has been paid to how creditors can be influenced by it. I show that creditors can benefit from more effective monitoring against managerial discretion by large common owners and in turn lower the cost of debt for borrower firms. I also empirically identify channels through which this benefit can occur and the agency threat that comes with it. These findings complement the existing common ownership literature by shedding lights on its largely unexplored influence on creditors, as well as providing further evidence of the more active monitoring engagement from large common owners.

The paper by Massa and Zaldokas (2017) is the most related work to this study, showing evidence that bond lenders in blockheld firms factor in the information on the equity blockholders' other holdings to learn their attitude toward creditors. My study differs from this prior study first in sample construction. Massa and Zaldokas (2017) conduct their analyses using bond ownership while this paper uses syndicated loan ownership, which is much less fluid and more concentrated. This indicates that the creditors in this study tend to be more critical in assessing their borrowers' credit risk, strengthening the implications of my results. I also use a much more extended sample period which enables me to show how the influence evolves over

time including during the crisis period.

Additionally and more importantly, while Massa and Zaldokas (2017) emphasize on the notion that creditors learn critical information about their borrowers' credit risk by observing blockholder behavior in commonly held industry peers, this paper focuses on the direct influence of common owners' incentives and expertise on the focal firms' credit risk. Although I show that better information does have some effect on the lowering of loan spreads as indicated by Massa and Zaldokas (2017), it is unlikely to be the driving force of my findings as it is easily offset by agency concerns if the creditors have some industry expertise. Instead, the direct monitoring against managerial discretion proves to be key to creditors' lowering the cost of debt for the focal firms.

The findings also contribute to the strand of literature on loan contracts. There has been recent empirical evidence relating the cost of debt to new factors such as competition (Valta, 2012), customer concentration (Campello and Gao, 2017), social capital (Hasan et al., 2017), and different forms of firm ownership structure including shareholder debt ownership (Jiang et al., 2010), ownership-control wedge (Lin et al., 2011), and government ownership (Borisova et al., 2015). I show that common ownership is another factor with a statistically and economically significant effect on firm default risk and asset value, which should be taken into consideration in the pricing of financial contracts.

The rest of this paper is organized as follows: Section 2 develops the testable hypotheses. Section 3 provides the detailed empirical analyses of the main hypotheses and the potential channels. Section 4 presents the identification strategy. Section 5 provides robustness checks with alternative industry classifications and common ownership measures, as well as tests of two main alternative hypotheses. Finally, Section 6 provides the concluding remarks.

2 Hypothesis Development

A firm's cost of debt is a function of its default risk and asset liquidation value. Factors affecting these two elements can in turn influence the cost of debt. For example, as shown by Valta (2012), high competition can increase default risk because the firm's ability to generate cash flows is more at risk when facing intense rivalry in the product market. In addition, competition can also affect liquidation value through its influence on the firm's collateral value. Additional new factors have been found to influence the cost of debt such as customer concentration (Campello and Gao, 2017) and social capital (Hasan et al., 2017). The rise of common ownership has stirred up debates over its benefits and threats in both the industrial organization and corporate finance literature. Can it be another factor affecting the cost of debt?

There has been strong evidence supporting a link between different forms of firm ownership structure and the cost of debt in existing literature. When a firm has shareholders who are also its creditors, it gets cheaper access to debt since shareholder creditor incentives are more aligned (Jiang et al., 2010). Lin et al. (2011) show that when there is a wide divergence between the firm's largest ultimate owner's control rights and cash flow rights, the cost of debt is significantly higher. The excess control rights facilitate potential tunneling and other moral hazard activities which increase monitoring costs and credit risk faced by banks. The findings of Borisova et al. (2015) indicate that government ownership also generally raises the cost of debt for public firms due to state-induced investment distortion, yet lowers it during crisis with the benefit of government guarantees.

I hypothesize that common ownership, when a firm's shareholders also hold shares in its industry peers, is another form of ownership structure that can influence the cost of debt. Hansen and Lott (1996) show that for shareholders with diversified portfolios within an industry, the externalities of one individual portfolio firm's behavior are internalized by other industry peers they hold, affecting the value of their whole portfolios. Therefore, common owners should be more incentivized to monitor against manager misbehavior. The recent work of He et al. (2017)

provides empirical evidence that a firm's institutional shareholders with holdings in its industry peers play a more active monitoring role evidenced by a higher likelihood of voting against management on shareholder-sponsored governance proposals.

In addition to stronger incentives, common owners are also better equipped to monitor with their industry-wide information and expertise. Kang et al. (2018) provide evidence that institutional investors with multiple blockholdings conduct more effective monitoring over CEOs and increase firm value. Edmans et al. (2018) also show that common ownership strengthens governance through voice and exit, as it gives investors more flexibility to sell and impound information on stock prices. Investors' incentives to monitor are stronger since "cutting and running" is less profitable and managers' incentives to work are stronger due to better price informativeness. He et al. (2018) provide additional evidence that common ownership can also be a market-based solution to earnings management.

The overall evidence in existing literature supports the notion that common owners play a more active and effective monitoring role against managerial discretion. This effect tends to mainly come from the firm's largest shareholders who hold high common ownership. Such monitoring mitigates the agency cost of cash flow for both shareholders and creditors. Managers are more disciplined from investing in empire-building and value-destroying projects. As a result, the firm's cash flow risk is lower and firm value increases. Creditors face lower default risk and higher asset liquidation value. As posited by Massa and Zaldokas (2017), the reduction of information asymmetry is another channel through which common ownership can influence the cost of debt. Common owners can make the firm more transparent (He et al., 2018), while creditors can also learn more information by observing commonly held industry peers. Therefore, the existence of these two channels supports the idea that common ownership, especially top shareholder common ownership, can directly lower the cost of debt.

3 Empirical Analyses

3.1 Sample Construction and Descriptive Statistics

The full sample of this paper consists of syndicated loan contracts issued to U.S. listed firms from 1987 to 2012. I obtain syndicated loan data from Reuters Loan Pricing Corporation's (LPC) DealScan database. I follow prior literature and start the sample from 1987 since before then there is barely any deal data available. All analyses in this paper are conducted at the loan facility level as a loan can include different facilities tailored for investors with different investment horizons and premium demands. I match the facilities through GVKEY with the COMPUSTAT financial data using the linktable available on DealScan, which provides matching up to August 2012. Industries are defined using the 4-digit SIC code following common practice in the common ownership literature[2]. I drop firms in the finance (6000-6999), utility (4900-4999), and regulated (>9000) industries. Ownership data is obtained from 13F institutional holding database provided by Thomson Reuters and aggregated at the fund family level[3]. I end up with a large sample of 21,175 loan facilities involving 4,060 firms.

Panel A of Table 1 presents summary statistics of the variables used in the empirical analyses. Variable definitions are further explained in the Appendix. Data on *% held by lead arranger* and *Lender HHI* only have 8,635 observations because many values are missing on this information on DealScan. To test the monitoring effect of common ownership, I use firm-level measures developed in Anton et al. (2018a) instead of the industry-level measure used to study product market competition, the Modified Herfindahl Hirschman Index Delta (*MHHID*). The key common ownership measures include *Top*5*CO*, which measures the stakes a firm's top 5 largest shareholders have in its industry peers and *Overall CO*, which measures firm-level overall ownership connectedness of a firm to its industry peers[4].

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[2]In Section 5 I also conduct the baseline analyses using the Hoberg and Phillips (2010, 2016) industry classification and obtain similar results.

[3]Azar et al. (2018b) provides a detailed discussion on the adequacy and importance of such aggregation.

[4]The two firm-level common ownership measures measure the connectedness at the firm pair level, then they

Overall CO is used to measure the overall ownership connectedness of a firm to its industry peers. I first pair up firm j with its industry peers and calculate the ownership connectedness for each firm pair following Anton and Polk (2014). This ownership connectedness measure for all the firm's pairs is then averaged using both market value weights and equal weights as the *Overall CO*. S_{ij} and S_{ik} are investor i's shares in firm j and k, while S_j and S_k are the total shares outstanding for firm j and k. P_j and P_k are the quarter-end stock prices for firm j and k respectively. w_k is the weight of firm k based on its market value over the whole industry market value.

$$Overall\ CO_j = \sum_{k \neq j} w_k \frac{\sum_i (S_{ij}P_j + S_{ik}P_k)}{S_jP_j + S_kP_k}, \tag{1}$$

The main criticism on the Anton and Polk measure is that it cannot highlight the influence and incentives of the largest shareholders of the focal firm[5]. Such shareholders are often the ones with the controlling power and incentives to influence management. The *Top5CO* captures the stakes firm j's 5 largest institutional shareholders have in its industry peers, the ks. w_k is the weight of firm k based on its market value over the whole industry market value. β_{ik} is the ownership shares held by investor i in firm k. I also calculate an equal-weighted *Top5CO*. The two firm-level measures used in the analyses are taken at the end of the quarter prior to the facility start date. Both common ownership measures are rank transformed for comparability across industries.

$$Top5CO_j = \sum_i^5 \sum_{k \neq j} w_k \beta_{ik}, \tag{2}$$

Based on the summary statistics, I conduct a univariate analysis comparing firm and loan characteristics between borrowers with low and high common ownership. Since the effect of common ownership is mostly captured by a firm's largest common owners according to existing literature, I define borrowers with *Top5CO* in the top quartile of each year as hav-

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are both value-weighted and equal-weighted across all pairs the firm has with its industry peers for each firm.

[5]It is possible that the measure provides the same number for when investor i holds 2.5% in firm j and 2.5% in firm k versus when investor i holds only 0.1% in firm j and 4.9% in firm k. Thus, while this measure can help gauge how much firms are connected via ownership, it is too noisy to show that i has the incentive and influence to monitor the focal firm j.

ing high top shareholder common ownership, those in the bottom quartile as having low top shareholder common ownership. Loan facilities to borrowers with high *Top5CO* exhibit significantly lower loan spreads[6], while receiving much larger facility amounts. Borrowers with low *Top5CO* are on average smaller firms with poorer credit ratings. They also have lower market values and profitabilities. Interestingly, there is not a big difference in leverage ratio between the two types of borrowers. The average borrower with low *Top5CO* has also slightly lower Z score. These comparisons suggest that firms with poorer credit quality can benefit the most from an increase in common ownership.

3.2   Common Ownership and the Cost of Debt - Top Shareholder Common Ownership vs. Overall Shareholder Common Ownership

To investigate the relationship between common ownership and the cost of debt. I regress the log of loan spread on *Top5CO* and *Overall CO* respectively, controlling for firm and loan characteristics that may influence loan spread including the Herfindahl Hirschman Index (HHI), log of total assets, leverage, market-to-book ratio, return-on-assets, tangibility, Altman Z score, cash flow volatility, S&P rating, loan size, and the log of loan maturity. i, j, t, and l represent the borrower, its industry, the loan start year, and the loan contract. I include industry (γ_j), time (τ_t), deal purpose (π_l), and loan type (θ_l) fixed effects. Time fixed effect is taken at the start year of the loan. Since the sample consists of loan facility level observations, I cluster standard errors at the firm level instead of including firm fixed effect. The control variables are computed with the fiscal year-end data prior to the loan start year. Common ownership measures are computed with data from the quarter prior to the loan issuance. If common owners play a more active and effective monitoring role in their portfolio firms, creditors should lower the

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[6]The all-in-drawn spread is used to measure the cost of debt because it is the sum of spread the borrower pays in basis points over LIBOR.

loan spread to such firms as their default risks decrease and firm value increase.

$$LoanSpread_{i,j,t} = \beta Top5CO_{i,t-1} + \delta' X_{i,t-1} + \gamma_j + \pi_l + \theta_l + \tau_t + \epsilon_{i,j,t} \tag{3}$$

Table 2 presents the results of these regressions. Column (1) shows that competition does increase loan spread. Firms with a larger size, higher firm value, higher profitability, higher Z score, and more tangible assets enjoy lower loan spreads while those with higher leverage, poorer or no credit rating, and higher cash flow risk have to pay higher debt financing costs. Column (2) and (3) present results for value-weighted and equal-weighted *Top5CO* while Column (4) and (5) present results for value-weighted and equal-weighted *Overall CO*. I control for ownership percentage held by the firm's top 5 institutional shareholders when including *Top5CO*. This helps isolate the potential effect of large shareholder monitoring. The *Overall CO* captures common ownership by the firm's overall shareholder base. I control for total institutional ownership when using this measure since the effect might be from having more institutional investors. The coefficient for value-weighted *Overall CO* has minimal economic and statistical significance. While equal-weighted *Overall CO* does have a significant effect on loan spread, it is important to focus on the value-weighted measures for the main results as they better capture the incentives and influence of the common owners. The results suggest that common ownership mainly affects loan spread when it is held by the firm's top 5 largest shareholders. Having high top 5 ownership appears to increase shareholder bargaining power, which increases wealth transfer risk for creditors and leads to higher loan spread. Therefore, the effect of common ownership is unlikely to be driven by higher ownership by large shareholders.

Therefore, Column (2) presents the baseline results of my analysis, which support a highly significant relationship between loan spread and top shareholder common ownership. The coefficient is -0.082, indicating a 4.27% decrease in annual financing costs if a firm goes from

having low (25th percentile[7]) to high (75th percentile) top 5 common ownership. Based on sample average this means a decrease of 7.47 basis points in loan spread and USD 236,131 in cash terms. This is around half the magnitude of what Valta (2012) finds in high competition's influence on additional annual financing costs (USD 463,500). Given that on average firms with smaller size and poorer or no credit rating tend to have lower *Top5CO*, the reduced financing costs that increased common ownership can bring is also of nontrivial economic significance.

To check for robustness of the baseline results, I first substitute the rank-transformed *Top5CO* with raw *Top5CO* in Column (6). The coefficient is again of high economic and statistical significance. I then define a dummy variable *High Top5CO* equalling one for borrowers with *Top5CO* in the top quartile among all borrowers in each sample year. This measure can mitigate measurement error concerns. Results from Column (7) provide further support to the idea that borrowers with high top shareholder common ownership enjoy lower borrowing costs. While I control for time-invariant industry characteristics by including industry fixed effect, it is possible that some time-varying industry characteristics may affect both common ownership and loan spread. In Column (8) I include industry*year fixed effect to test the robustness of my results against this possibility. The results turn out to be consistent and even better than the baseline results.

3.3 Common Ownership and the Cost of Debt - Time Series Results

Figure 1 shows a significantly stronger increase of both top shareholder and overall shareholder common ownership in borrower firms from 2000, especially top shareholder common ownership. The increase in ownership concentration has been described mostly as the result of the rise of index funds and increased M&A activities between financial institutions. The repeal of the Glass-Steagall Act in 1999 made it possible for many financial institutions to merge. Banks were also able to start holding more equity themselves or through first level subsidiaries. In light of this, I repeat the baseline regression of loan spread on *Top5CO* for the pre-2000 and

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[7]Ranked among all firms in the 13F database at the quarter end prior to loan initiation.

post-2000 periods, as well as for periods before, during, and after the 2007/2008 Financial Crisis. Figure 2 visually shows the comparison of loan spread between firms with low and high top shareholder common ownership. It is apparent that the difference in cost of debt between firms with low and high top shareholder common ownership becomes significantly larger after 1999. The two do converge during the 2007/2008 Financial Crisis but the difference reappears from 2010 on.

The results presented in column (1) and (2) of Table 3 indicate that the effect of top shareholder common ownership on the cost of debt mainly comes into effect in the post-2000 period. Before 2000, the effect of $Top5CO$ on loan spread is significantly smaller in both economic and statistical magnitudes. I then compare this relationship for periods before, during, and after the crisis in column (3), (4), and (5). During the crisis period, the link between $Top5CO$ and loan spread loses significance yet it becomes much stronger than even before the crisis from 2010 to 2012, suggesting that firms with higher common ownership are less risky and favored by creditors coming out of the crisis.

There is strong evidence to argue that the post-2000 period captures the real effect of top shareholder common ownership on the cost of debt. A highly significant coefficient of -0.145 in the post-2000 period indicates a decrease of 8.03% in annual financing costs when a firm goes from having low (25th percentile) to high (75th percentile) top shareholder common ownership. On average this translates into a 15.66 basis points lower loan spread and USD 584,062 of cash saving, a magnitude even slightly stronger than that found by Valta (2012) for the influence of high competition on the cost of debt.

3.4   Common Ownership and the Cost of Debt - Cross-Sectional Tests

I then conduct two sets of cross-sectional tests. First, I take a deeper look at the group of borrower firms that can benefit the most from this reduction in financing costs, firms with poor or no credit rating. I run the regression using subsamples of investment grade firms and non-investment grade firms throughout different periods. A firm is classified as non-investment

grade firm if its S&P credit rating is below BBB- or it does not have a rating. Based on Table 4, the effect of *Top5CO* on loan spread turns out to be mainly significant for risky borrowers, which is consistent throughout different periods. During the crisis, although the coefficient does not have enough statistical power, it appears that risky firms are much more likely to benefit from common ownership and have lower borrowing costs. The effect of common ownership for such risky firms also becomes substantially stronger in the post-crisis period, while remaining non-significant for investment-grade firms. These results highlight the more effective monitoring role of large common owners, as firms with low or no S&P rating are often opaque and subject to a high degree of managerial wealth appropriation. The lower spreads that creditors demand suggest that such issues are mitigated in these firms under the watch of large common owners.

In my next set of cross-sectional tests, I account for creditor heterogeneity. I test whether creditor industry expertise affects the relationship between common ownership and the cost of debt. Following Lin et al. (2012), total syndicate industry expertise is calculated as the sum of the industry expertise ratios of all the lenders in the syndicate. The industry experience ratio of a lender is defined as the total amount of loans it has made over the past five years in the three-digit SIC industry that the borrower belongs to, divided by the total amount of loans issued in the same industry over the same period by all the lenders in Dealscan. In Column (1) and (2) of Table 5, I separate the sample into two subsamples of low and high industry expertise. Loan facilities with total industry expertise in the top quartile of each sample year are classified as having high industry expertise while those in the bottom quartile are classified as having low industry expertise. It is clear that the effect of *Top5CO* on loan spread is mainly pronounced when the creditors have low industry expertise.

From Column (3) to (6) I add industry expertise into the regression and interact it with *Top5CO*. Specifically for non-investment grade firms, who are often opaque and subject to a higher potential of managerial discretion, having high industry expertise mitigates the effect *Top5CO* has on loan spread. This indicates that when the creditors have already made

loans to similar firms in the industry before, the benefit from common owner monitoring diminishes. Overall, these cross-sectional tests support the monitoring hypothesis instead of the other mainstream hypothesis in the current common ownership literature, the anti-competition hypothesis. If common ownership lowers the cost of debt indirectly by moderating the effect competition has on cash flow risk and collateral value, creditor industry expertise should not make such a difference in this relationship.

3.5 Potential Channels

3.5.1 Reduction of Information Asymmetry - Evidence from Loan Syndicate Concentration

The results shown so far strongly support a negative relationship between common ownership and the cost of debt. In this section, I explore the potential channels through which common ownership casts its influence. Firstly, common owners can facilitate the reduction of information asymmetry as they have more flexibility to voice and exit, which more efficiently impounds information on prices. It can make the firm more transparent (He et al., 2018) and lenders can also learn more information about shareholder attitude towards creditors by observing commonly held industry peers (Massa and Zaldokas, 2017). Such information benefit could be contributing to the decrease in the cost of debt. To further investigate this potential channel, I turn to look at loan syndicate structures. Sufi (2007) shows that when borrowers are opaque, the lead arranger retains a larger percentage of the loan and the syndicate tends to be more concentrated among fewer lenders. A higher level of information asymmetry requires stronger monitoring effort from the lenders, especially the lead arranger. If common ownership reduces the information asymmetry between the borrower and its creditors, loan syndicates should then become less concentrated as there is less need for creditor monitoring.

Meanwhile, there is another reason for a more concentrated syndicate. Credit risk can also come from risk shifting by shareholders (Jensen and Meckling, 1976). Such risk shifting activities, such as urging the firm for payouts, can put creditors' investment at risk. Lin et al. (2012)

show that when shareholders have excess control rights due to a large divergence between control rights and cash flow rights, the loan syndicates become more concentrated in order to facilitate enhanced due diligence and monitoring. Gutiérrez and Philippon (2016) argue that tighter governance from institutional investors leads to decreased investment and the excess funds often go to payouts. When a firm's top shareholders have high common ownership, they have a strong influence on managerial decisions over investment and payout policies. To safeguard themselves against such powerful shareholders, creditors can make the syndicate yet again more concentrated in order to monitor against potential shareholder risk shifting.

I regress loan syndicate concentration measures on *Top5CO*, controlling for firm and loan characteristics, as well as the fixed effects included in the baseline analysis. Syndicate concentration is measured as *% held by lead arranger* and *Lender HHI*. The *Lender HHI* is calculated as the sum of the square of each lender's percentage held in the loan. To disentangle the two potential competing forces, I add lender industry expertise into the regression and interact it with *Top5CO*.

Table 6 presents the results of this analysis. Column (1) and (4) show that *Top5CO* has a positive relationship with syndicate concentration, suggesting that there is no effect from reduced information asymmetry or the effect is outweighed by the agency threat that comes with it. Column (2) and (5) add lender industry expertise into the regression for the full sample period while Column (3) and (6) repeat the analysis for the post-2000 period. The results presented show evidence that top shareholder common ownership does decrease syndicate concentration when the syndicate consists of lenders with low industry expertise of the borrower's industry, supporting the notion that common ownership leads to reduced information asymmetry. However, this effect is small and largely offset by an increase in industry expertise. As industry expertise increases, the relationship between *Top5CO* and syndicate concentration reverses since reduced information asymmetry does not necessarily benefit the lenders anymore. The potential threat of shareholder risk shifting requires more monitoring, hence a more concentrated syndicate. The level of industry expertise required to offset the effect of better information is

below sample average[8], indicating that the agency threat outweighs the information benefit for the majority of the sample.

3.5.2 Monitoring Against Managerial Discretion - Evidence from Covenant Violations

Nini et al. (2012) show that after a firm violates a financial covenant on the loan contract, the control rights of the firm shift from shareholders to creditors and creditors tend to pressure management to cut shareholder payout, acquisitions, investments, leverage, adopting more conservative financial and investment policies that ultimately increase firm value. By studying the simultaneous equity holding of creditors (dual holders), Chu (2017) provides empirical evidence that conflicts of interest between creditors and shareholders are strongly reflected in the firm's shareholder payouts. After a firm obtains a dual holder, who aligns interests from both the debt and equity sides, payouts decrease significantly. Examining post covenant change in shareholder payouts in firms with low versus high top shareholder common ownership can shed lights on whether large common owners indeed pose risk shifting threat.

Furthermore, post covenant violation changes can also help understand whether large common owners are playing a better monitoring role. If common owners play a more effective monitoring role against managerial discretion, the investment policy of the firm should be more efficient, leaving less room for wasteful pet projects and empire building. When creditors take control after a violation, they should have less need to intervene in the firm's investment. I obtain covenant violation data from Amir Sufi's website, which gives me complete violation data linked with GVKEY for each quarter from 1997 to 2007[9].

I follow the regression design in Nini et al. (2012) and use the first-difference estimates of the marginal effect of new covenant violation for firms with high *Top5CO* and firms with

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[8]The average of industry expertise for the full sample period is 1.16 and 1.33 for the post-2000 period.

[9]The lack of sample after 2007 can be justified with the reasoning provided by Ferreira et al. (2018): First, the Financial Crisis led to major changes in bank behavior, regulations, credit market conditions, and the financial performance of borrower firms; Second, there was a rapid rise of covenant-light contracts after 2006, which have the same number of covenants but weak enforcement. These two factors can corrupt the effectiveness of post covenant violation behaviors as a vehicle to test my hypotheses.

low *Top5CO* on the log of 1 + shareholder payout, acquisitions scaled by average assets, and capital expenditures scaled by average assets. Firms are classified as having high *Top5CO* if their *Top5CO*s are in the top quartile of the year-quarter group and those with *Top5CO* in the bottom quartile are classified as having a low *Top5CO*. I include all the controls from Nini et al. (2012), as well as industry and year-quarter fixed effects, and cluster standard errors at the firm/quarter level.

The results presented in Table 7 provide strong support to both the agency and monitoring hypotheses. There is a significant decrease in shareholder payouts for firms with high *Top5CO* after these firms violate a covenant for the first time, while there is no such effect for firms with low *Top5CO*. The risk shifting opportunity of reaping more payouts for top shareholders with high common ownership is evident by this analysis. At the same time, column (3), (4), (5), and (6) indicate that acquisitions and capital expenditures only decrease after a new covenant violation if the firms have low *Top5CO*. There is no such effect for firms with high *Top5CO*. Investment appears to be already efficient under high *Top5CO*. These results support the notion that high top shareholder common ownership fosters better monitoring against managers from investing in empire-building or value-destroying projects.

Overall, Table 7 provides strong evidence that high top shareholder common ownership can bring both benefit and threat to creditors, monitoring better against managerial discretion while creating more shareholder risk shifting opportunities. The combined evidence from loan syndicate structure and post covenant violation behaviors suggest that large shareholders with high common ownership neither increase or decrease creditor monitoring costs, yet effectively monitor management to lower the firm's cash flow risk and avoid value loss from overinvestment. As a result, default risk is lower and asset liquidation value is higher. Creditors take this into account when pricing financial contracts, which leads to the decrease in loan spread evidenced in the baseline results.

3.6 Further Evidence from Credit Default Swap Spreads

To directly check whether common ownership leads to a decrease in default risk, I conduct a test using credit default swap (CDS) spreads. CDS pricing provides a cleaner measure of a firm's default risk in comparison to loan or bond pricing as there is no need for consideration on embedded options or covenant restrictions which can be endogenous. The CDS spread is a forward-looking measure aggregating the market's best information on the firm's default risk (Jiang et al., 2010). Therefore, lower CDS premiums for firms with high top shareholder common ownership can provide further support to the notion that large common owners' monitoring makes the firms less risky for creditors, overriding the potential risk-shifting concerns.

I obtain the CDS data from Markit, which started its coverage of daily CDS trading data from 2001. Following Jiang et al. (2010), I focus on the CDS spread over LIBOR for the 5-year contracts which are regarded as the most liquid. I curb the sample in 2009 since the "Big Bang" implemented by the International Swaps and Derivatives Association (ISDA) in April 2009 significantly changed the market practice of CDS (Subrahmanyam et al., 2014). The spreads for each firm in the CDS universe in the last trading day of each quarter from 2001 to 2008 are used for the analysis. *Top5CO* is taken from the prior quarter end and all firm characteristic controls are concurrent. Figure 3 shows that the average firms with high *Top5CO* (75th percentile) consistently exhibit lower CDS premiums than those with low *Top5CO* (25th percentile), even during the 2007-2008 Financial Crisis.

Table 8 presents the results of regressing the log of the spread over LIBOR for the 5-year CDS contract on the firm's *Top5CO* in the prior quarter. Top shareholder common ownership does appear to lower the firm's CDS premium, with the effect mainly coming from non-investment grade firms (S&P rating below BBB or no rating). The high adjusted R-squared indicates that firm and year/quarter fixed effects capture most of the variation of the CDS spread. After controlling for a list of firm characteristics that can affect the firm's default probability, the goodness of fit only improves slightly. Risky firms with high top shareholder common ownership

still have lower CDS premiums even after controlling for firm characteristics. This relationship being most pronounced for firms with lower creditworthiness also mitigates the endogeneity concern that larger and more established firms have more common owners as well as lower default risk. These results provide strong support to the argument that large common owners facilitate more effective monitoring and lower firms' default risk. In addition, the evidence from CDS also further supports the argument that the benefit from lower firm risk overrides the threat from more shareholder risk-shifting opportunities for creditors.

3.7   Effect of Common Ownership by Shareholder Horizon

Although the *Top5CO* measure can capture common owners' incentives and influence as they are institutional investors with the largest stakes in the firm, it is also important to note that influence requires holding shares for a sufficiently long period, as pointed out by Chen et al. (2007) and Azar et al. (2018a). I expect the effect of common ownership on the cost of debt to be mainly driven by long-horizon investors. I follow Gaspar et al. (2005) and compute the churn ratio of the institutional investors in my sample based on their portfolio turnover frequencies. I then define an investor as high-churn (short-horizon) if its churn ratio is in the top tercile among all investors in the given quarter, one whose churn ratio is in the bottom tercile is classified as low-churn (long-horizon). I then compute *Top5CO* with only those top 5 shareholders who are also high-churn (low-churn). The rank-transformed *Top5CO*s based on high-/low-churn investors are then used to repeat the baseline regression, specifically for the post-2000 period during when the effect is most pronounced. The results are presented in Table 9. To mitigate potential measurement error concerns over rank transformation, I follow Table 2 and define dummy variables for high-/low-churn *Top5CO*s in Column (4). A dummy variable *High_Top5CO_Low Churn* is defined as equal to one for borrower firms with *Top5CO_Low Churn* in the top quartile among all sample firms in each loan start year in the sample. *High_Top5CO_High Churn* is defined as equal to one for borrower firms with *Top5CO_High Churn* in the top quartile among all sample firms in each loan start year in the

sample.

Based on the results, low-churn investors appear to be driving the effect of common ownership on the cost of debt, while there is no significant effect from high-churn investors. Consistent with the cross-sectional tests, the effect from low-churn common owners is mainly pronounced for firms with poor or no S&P credit rating. Overall, the effect found in the main results is driven by investors with sufficient incentives and influence to monitor, supporting the key monitoring channel identified above. Common owners' long-term investment horizons are important sources of effective monitoring as they can accumulate better quality industry-wide information and governance experience (Kang et al., 2018).

4 Identification Strategy

The large set of fixed effects included in the baseline panel regression help mitigate omitted variable concerns. However, there is still a reverse causality concern that lower cost of debt actually leads to higher top shareholder common ownership. The use of lagged common ownership in the baseline regression lessens this concern to some extent. Yet it is still possible that financial institutions have private information about a firm's credit risk through holding its peers and decide to invest in it as it will enjoy lower financing costs in the future. To address this self-selection concern, I follow Azar et al. (2018a) and use the acquisition of Barclays Global Investors (BGI) by BlackRock in 2009 as a natural experiment to generate exogenenous variation in top shareholder common ownership. This mega-merger was announced in 2009 Q1 and led to increased top shareholder common ownership in many firms after its completion in 2009 Q4, which was unrelated to portfolio fundamentals or superior information. It is also unlikely that BlackRock and BGI merge because they foresee lower future cost of debt in these firms. Such exogenous variation creates a channel to examine whether top shareholder common ownership has a causal effect on the cost of debt.

I use an IV design similar to that of Azar et al. (2018a). I first build a hypothetical portfo-

lio taking BlackRock and BGI holdings as already together in 2009 Q1, the quarter before the merger announcement. I then calculate the implied change in top shareholder common ownership by taking the difference between the *Top5CO* based on the hypothetical holdings and the actual holdings in 2009 Q1. The IV regression analyzes loan contracts initiated during the three years after the merger, from 2010 to 2012. The implied change is used as a continuous instrumental variable to instrument *Top5CO* in the three periods after the merger. In the second stage, the log of loan spread is regressed on the instrumented *Top5CO*, controlling for all the firm and loan characteristics from the baseline regression, as well as all the fixed effects.

$$Top5CO_{i,j,t} = \beta_1 \Delta Top5CO\_2009Q1_i + \delta' X_{i,t-1} + \gamma_j + \pi_l + \theta_l + \tau_t + \epsilon_{i,j,t} \tag{4}$$

I also conduct a discrete IV regression using a dummy variable *Treat*, which is assigned as one to a firm if its implied change in *Top5CO* in 2009 Q1 is in the top tercile among all the firms listed in that quarter. Those in the bottom tercile are classified as the control group. I repeat the two-stage least squares (2SLS) regression using this discrete IV instead of the continuous IV. As pointed out by Azar et al. (2018a), the discrete IV can mitigate measurement errors while the continuous IV can capture more variation. I use only the treated and control groups in the two 2SLS regressions. Both *Top5CO* and the implied change in *Top5CO* are rank transformed for comparability across industries.

$$Top5CO_{i,j,t} = \beta_1 Treat_i + \delta' X_{i,t-1} + \gamma_j + \pi_l + \theta_l + \tau_t + \epsilon_{i,j,t} \tag{5}$$

Table 10 reports the results of the two 2SLS regressions. Since the earlier results show that the effect mainly comes from risky firms, I run these regressions using the subset of firms with non-investment grade rating or no rating. As expected, there is a highly significant positive relationship between *Top5CO* and both IVs in the period after the merger. Firms that are hypothetically affected more based on BlackRock and BGI's holdings before the merger indeed

show higher top shareholder ownership after the merger. The second stage results provide strong causal support to the baseline results.

The instrumented *Top5CO* has a strong negative effect on loan spread in both cases. For robustness, I conduct these 2SLS regressions using the full sample from 2010 to 2012. The results are less pronounced but still statistically significant. Although the two 2SLS regressions both only involve 1,05 observations due to time period restriction, the key variables of interest are all highly significant, even after controlling for all firm and loan characteristics used in the baseline analysis, including all fixed effects. In addition, the results of the underidentification and weak instrument tests indicate that both IVs are reasonably exogenous and strong. The relationship remaining highly significant with less variation makes the evidence even stronger. Therefore, the merger between BlackRock and BGI provides good evidence that high top shareholder common ownership can lead to lower cost of debt.

5   Robustness Checks

5.1   Alternative Common Ownership Measures

For robustness check, I also adopt alternative measures measuring the firm's top shareholder common ownership. I use a measure similar to that used by He and Huang (2017), a dummy variable *Common* which equals one if the borrower firm has at least one of its top 5 shareholders also being a top 5 shareholder in at least one of its industry peers in the quarter prior to the loan issuance[10]. Furthermore, to measure the extent of such top shareholder common ownership, I use two additional variables, *LnNumCommon* and *LnNumConnected*. *LnNumCommon* is the log of one plus the number of the firm's top 5 shareholders who are also top 5 shareholders in at least one of its industry peers. *LnNumConnected* measures the log of

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[10]I use top 5 shareholders instead of a 5% holding threshold as He and Huang (2017) because it omits many influential observations. The average common owner identified in my sample holds 4.6% stake which is influential yet will be omitted by the 5% threshold. To discipline managers from inefficient investments, such a stake is strong for a voice and exit disciplinary mechanism as proposed by Edmans et al. (2018) (Edmans and Manso (2010) show that even smaller blockholders can carry out intervention through disciplinary trading.).

one plus the number of industry peers that are connected to the firm through these common owners. On average each borrower firm in the sample has close to 3 (2.6) out of its top 5 largest shareholders being among the top 5 shareholders in at least one industry peer. An average common owner of this kind holds 4.6% stake in the focal firm. An average borrower firm is connected to 13 industry peers by such common owners.

I repeat the baseline analysis of Equation 3 using these alternative measures. With Table 11 I report the results based on *LnNumCommon* and *LnNumConnected* since these two measures can help gauge the level of incentives and industry expertise of the common owners. Consistent with the baseline results, top shareholder common ownership reduces loan spread. The effect increases with the number of large common owners in the firms. Common owners appear to have aligned interests in general. The effect also increases with the number of industry peers the firm is connected to through large common owners, providing more support to the idea that industry-wide expertise and incentives lead to more active and effective monitoring from common owners.

The effect of both measures becomes much stronger during the post-2000 period which is also consistent with the baseline results. Although the effect of *LnNumCommon* on loan spread is statistically stronger for risky firms (poor or no S&P rating) than investment-grade firms, the economic magnitude of the difference is small. Meanwhile, the effect of *LnNumConnected* on loan spread is only pronounced for risky firms. This could indicate that compared to an increase in controlling power within the focal firm, an increase in industry expertise by having more experience dealing with more firms in the industry is more important to monitor a risky firm as it is often more opaque (Kang et al., 2018). Having ownership connection with more industry peers also suggests that the incentives to monitor are stronger for common owners of the focal firm as their portfolio value is even more sensitive to externalities of the firm's behavior.

5.2 Alternative Industry Classifications

Since the main results could be subject to the specific way I use to define industries, I use the 10K-text-based industry classifications of Hoberg and Phillips (2010, 2016) (HP) following (Anton et al., 2018a) for robustness check in industry definitions for common ownership. The HP classifications have been used for more accurate and dynamic similarities between firms in product market competition. I repeat the baseline analysis using these classifications. The alternative classifications start in 1997, limiting the sample to 1997 to 2012 in this case. Table 12 presents the results based on the HP classifications.

The HP results are consistent with what I find using the 4-digit SIC classifications. There is a highly significant negative effect between top shareholder common ownership and loan spread. *Top5CO*, *LnNumCommon*, and *LnNumConnected* all have significant negative coefficients. The relationship comes into effect after 2000 and it is mainly pronounced for firms with poor or no credit rating. Figure 4 visually illustrates this relationship, which is again consistent with the 4-digit SIC sample and Figure 2. While the spreads firms with low and high top shareholder common ownership receive do converge during the Financial Crisis, the difference reappears in an obvious pattern from 2010 on. Overall the analyses based on the HP classifications offer consistent results in comparison to those from the baseline analysis using the 4-digit SIC codes. Therefore, the effect of common ownership on loan spread is not likely to be subject to specific industry classifications.

5.3 Alternative Hypothesis - Anti-Competitive Effects of Common Ownership

Since a firm with high common ownership is likely to be in an industry with also high common ownership, it is possible that industry ownership concentration level is at play in the relationship I find between firm-level common ownership and the cost of debt. More specifically, existing literature has argued that common ownership has anti-competitive effects in certain

industries (Azar et al., 2018a, 2016). Such effects can moderate the influence competition has on the cost of debt as shown by Valta (2012). In a high common ownership industry, the positive relationship between competition and loan spread should be mitigated or even reversed. I directly test this alternative hypothesis with the industry-level common ownership measure Modified Herfindahl Hirschman Delta (*MHHID*) used in Azar et al. (2018a). The variable is constructed as below:

$$MHHID = \sum_{j} \sum_{k \neq j} s_j s_k \frac{\sum_i \alpha_{ij} \beta_{ik}}{\sum_i \alpha_{ij} \beta_{ij}}, \tag{6}$$

s_j is the sales of firm j while s_k is the sales of its competitor firm k. α_{ij} is the control shares held by investor i in firm j, β_{ij} is the ownership shares held by investor i in firm j, while β_{ik} is the ownership shares held by investor i in firm k. To test the anti-competition hypothesis, I first split the sample into high and low *MHHID*. If a borrower firm has *MHHID* in the top quartile among all sample firms in the sample year, it is classified as being in a high *MHHID* environment while one in the bottom quartile is labeled as being in a low *MHHID* environment. I then interact *MHHID* with *HHI* in the loan spread regression using the following equation:

$$LoanSpread_{i,j,t} = \beta_1 HHI_{j,t-1} + \beta_2 HHI_{j,t-1} * MHHID_{j,t-1}$$
$$+ \beta_3 MHHID_{j,t-1} + \delta' X_{i,t-1} + \gamma_j + \pi_l + \theta_l + \tau_t + \epsilon_{i,j,t} \tag{7}$$

The key variable of interest here is the interaction between *HHI* and *MHHID*. β_1 should be negative as loan spread should be lower for borrowers in less competitive industries (higher *HHI*). If β_2 is significantly positive, then common ownership is weakening the effect competition has on loan spread, as borrowers in industries with low *HHI* but high *MHHID* will have a smaller spread than those with low *HHI* and low *MHHID*. Table 12 presents the results of these tests. When the competitiveness in two industries increases with the same magnitude (*HHI* decreases), loan spread should increase in a smaller scale for firms in the industry with higher common ownership (*MHHID*). However, the subsample tests in Column (1) and (2) show the opposite result. In addition, *HHI* severely lacks both economic and statistical sig-

nificance. Common ownership does not appear to have a distinct influence in this case as the hypothesis suggests.

Column (3) to (5) show the results for Equation 7 with time period and sample variation. Based on Column (3), the interaction term does have a positive coefficient which can mitigate the effect HHI has on loan spread. Although it lacks statistical power, the t statistic indicates that it is not too far from being significant. However, when I run the regression for the post-2000 period and only firms with non-investment grade or no S&P credit rating, the statistical power of the interaction term becomes extremely small. Since the effect I find in my main results concentrates in risky firms during the post-2000 period, the anti-competition hypothesis is then not able to explain it. I further repeat these tests using the Hoberg & Phillips Industry Classifications in Column (6) to (8) and obtain consistent results. In conclusion, the anti-competition hypothesis cannot explain my main results. The relationship between common ownership and the cost of debt should be mainly driven by the more effective monitoring against managerial discretion from large common owners.

5.4 Alternative Hypothesis - Dual Ownership

It is possible that some large common owners are financial conglomerates with affiliated lenders who also have business with the focal firm. It has been shown that when shareholders are also creditors of the same firm (dual holders), the firm can borrow at a lower cost (Jiang et al., 2010). Follow-up research provides further evidence that dual holders foster alignment of shareholder creditor incentives and possess better capabilities to discipline firms from inefficient investments (Anton and Lin, 2018). Chava et al. (2017) show that after a loan covenant violation, there is no reduction in capital expenditures for firms with dual holders since it is likely to be already efficient for creditors. Therefore, one could argue that the results found on loan spread and post covenant violation investment patterns in Section 3 could be driven by such dual holders who also happen to be common owners since they are large conglomerates.

Dual ownership leads to easier access to debt financing and more effective monitoring based

on aligned shareholder creditor interests. However, my findings on payout patterns after a new loan covenant violation point to a potential heightening of shareholder creditor conflicts which is opposite to the main argument of the dual holder literature. Payout level should be more acceptable for creditors with the presence of dual holders (Chu, 2017) and not have the decrease after a violation when creditors exert intervention, as shown in Section 3.5.2. Therefore, the common owners who are driving my main results are unlikely to be dual holders. Furthermore, I repeat the baseline analysis factoring in the existence of dual holders in Table 13 to address this possibility.

I obtain the data on dual holder presence from Anton and Lin (2018) who match DealScan institutions to 13F asset managers by manually checking SEC filings and Bloomberg for parent and subsidiary relationships, as well as mergers between institutions over the years. Dual holder is defined as participant in the syndicated loan who also hold equity of the borrower with greater than 1% or $2 million. I first repeat the baseline regression including a dummy variable *Dualholder* which equals one if a borrower firm has at least one dual holder in the loan initiation year. I then also use an alternative measure, *LnNumDualholder* which measures how many dual holders the borrower firm has in the loan initiation year.

The results in Table 13 first confirm previous findings on dual ownership by showing that it does lower loan spread. The relationship between *Top*5*CO* and loan spread remains the same when controlling for *Dualholder*, providing evidence that my findings are unlikely to be driven by dual ownership. An interaction between *Top*5*CO* and *Dualholder* yields a coefficient with no economic or statistical significance and the coefficient of *Top*5*CO* remains similar to that in Table 4, as shown in Column (7). The coefficient of *Top*5*CO* does decrease by a small degree when controlling for *LnNumDualholder*. The interaction between *Top*5*CO* and *LnNumDualholder* in Column (8) also indicates some level of diminishing effect on common ownership's relationship with loan spread. This makes intuitive sense since when there are multiple dual holders in the firm, there is less inefficiency for common owners' monitoring to improve. This diminishing effect is of a small magnitude based on the results and is unlikely

to be driving my main findings.

6   Conclusion

When a firm's shareholders also hold shares in its industry peers, their incentives and abilities to monitor against managerial discretion are stronger. A high level of such common ownership equips shareholders with superior industry-wide information and expertise. Meanwhile, they are also more incentivized to play a monitoring role as the firm's behaviors can have externalities on their overall industry portfolios.

This paper empirically shows that creditors benefit from this common ownership monitoring and account for it when pricing financial contracts, leading to a decrease in the cost of debt for firms with higher common ownership. This result is mainly pronounced when the firm's top 5 largest shareholders have high common ownership, and it is mostly driven by firms with poor or no credit rating in the post-2000 period. Going from having low (25th percentile) to high (75th percentile) top shareholder common ownership indicates a decrease in annual financing costs of 4.82% in the overall sample of 1987 to 2012 and 9.03% in the post-2000 period during when common ownership substantially increases.

Creditors with low industry expertise can benefit from a decrease in information asymmetry when a firm has high top shareholder common ownership, yet on average this benefit tends to be outweighed by higher shareholder risk shifting potential. This agency threat is evidenced by a significant decrease in shareholder payouts after a new covenant violation for firms with high top shareholder common ownership whereas there is no such effect for those with low top shareholder common ownership. Post covenant investment patterns support the notion that top shareholder common ownership effectively monitor against managerial discretion which lowers the firm's cash flow risk and avoids value loss from overinvestment. Creditors then account for this and lower the cost of debt for the firm. Compared to enabling better information, common owners' direct monitoring against managerial discretion appears to be the key

driving force of the main results. Lower CDS spreads at the presence of high top shareholder common ownership also indicate that the benefit of reduced firm default risk overrides the agency threat of powerful shareholders for creditors.

While this paper shows that firms and creditors can benefit from common ownership, the results also point to a potential heightening in the conflict of interest between creditors and shareholders in a high common ownership environment. Further studies are called for to examine the potential bargaining dynamic between creditors and large shareholders with high common ownership in situations such as loan renegotiation, shareholder litigation, and bankruptcy negotiation.

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A Appendices

A.1 Variable Definitions

Variables	
Log.Loan Spread	The log of the all-in-drawn spread, which is the spread the borrower pays over the LIBOR.
Loan Size	Loan facility amount scaled by the borrower's total assets at the prior fiscal year end.
Log.Maturity	The log of the total maturity (in months) of the loan facility.
S&P Rating	A score based on the S&P credit rating. "AAA" level has a value of 1, 2 if "AA", 3 if "A", 4 if "BBB", 5 if "BB", 6 if "CCC" or worse, 7 if no rating.
Log(Asset)	The log of total assets of the borrower at the prior fiscal year end.
Leverage	The sum of debt in current liabilities and long term debt divided by total assets at the prior fiscal year end.
Market-to-Book	The sum of debt in current liabilities, long term debts, preferred stocks, deferred taxes, and market value, divided by total assets at prior fiscal year end.
ROA	Return on assets as net income divided by total assets at the prior fiscal year end
Tangibility	Net property, plant, and equipment divided by total assets at the prior fiscal year end
Altman Z Score	Firm distance to default measure. Z=1.2*(working capital/total assets)+1.4*(retained earnings/total assets)+3.3*(EBIT/total assets)+0.6*(shareholder equity/debt)+1.0*(sales/total assets).
Cash Flow Volatility	Ratio of the standard deviation of the past eight earnings changes to the average book asset size over the past eight quarters.
Ind.Exp	Sum of the industry expertise ratios of all lenders in the syndicate, calculated as the total amount of loans the lender has made over the past five years in the 3-digit SIC industry that the borrower belongs to, divided by all loans issued in the same industry over the same period by all lenders.
% Held by Lead Arranger	Percentage of the loan facility amount held by the lead arranger of the loan
Lender HHI	The sum of the squares of percentage held in the loan facility by each lender
HHI	The level of concentration of the industry based on sales market share, taken at the prior fiscal year end, calculated as the sum of square of market shares within the 4-digit SIC industry.
MHHID	Industry level measure measuring the level of ownership connection among all firms within the same 4-digit SIC group, taken at the prior fiscal year end. Calculated using Equation 6.
Top 5 CO	Firm level measure measuring the level of a firm's top 5 largest shareholders' (based on control shares held) ownership in its industry peers from the same 4-digit SIC group. Calculated using Equation 2. The Top 5 CO used in the analyses is rank transformed for comparability across industries.
Overall CO	Firm level measure measuring the level of connectedness a firm has with its industry peers from the same 4-digit SIC group through its overall shareholder base. Calculated using Equation 1. The one used in the baseline analysis is rank transformed for comparability across industries.
Ln(Shareholder Payout)	The log of (1 + the sum of dividend paid and share buybacks in the fiscal quarter).
Acquisitions	Acquisitions divided by average total assets in the fiscal quarter.
Capital Expenditures	Capital expenditures divided by average total assets in the fiscal quarter.

B   Figures

Figure 1. Trend of Common Ownership in Borrower Firms 1990-2010. The first figure shows the average top shareholder common ownership, as measured by value-weighted and equal-weighted *Top5CO* (calculated using Equation 3), for all borrower firms in the sample in 1990, 1995, 2000, 2005, and 2010 respectively. The second figure shows the average overall shareholder common ownership, as measured by value-weighted and equal-weighted *Overall CO* (*Anton&Polk CO* calculated using Equation 2), for all borrower firms in the sample in 1990, 1995, 2000, 2005, and 2010 respectively.
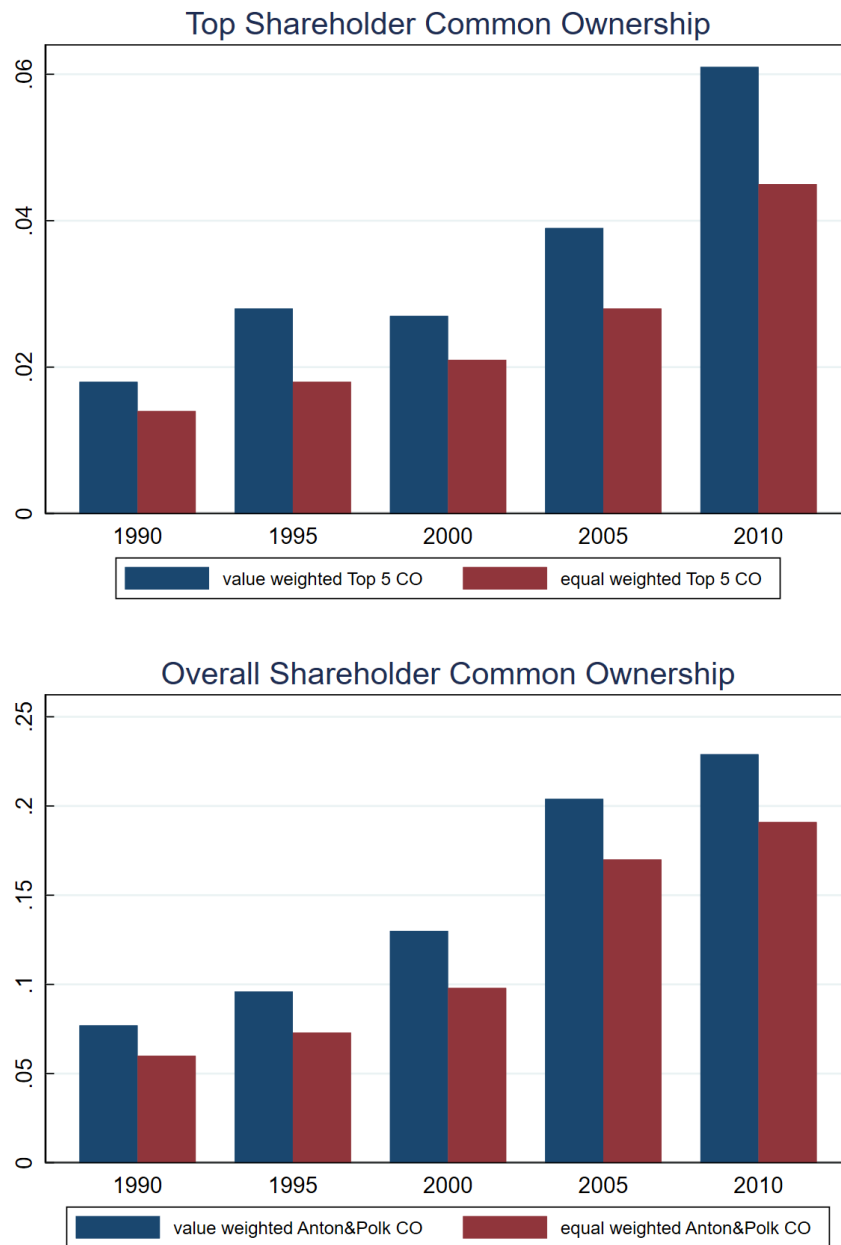
Figure 2. Loan Spreads for Borrower Firms with Low vs. High Top Shareholder Common Ownership 1987-2012. This figure shows the annual average log.loan spread for firms with low vs. high top shareholder common ownership, as measured by value weighted and equal weighted *Top5CO* (calculated using Equation 3). If the firm's *Top5CO* is in the top quartile among all firms' in the loan issuance year then it is classified as having high top shareholder common ownership, while one with *Top5CO* in the bottom quartile is classified as having low top shareholder common ownership.
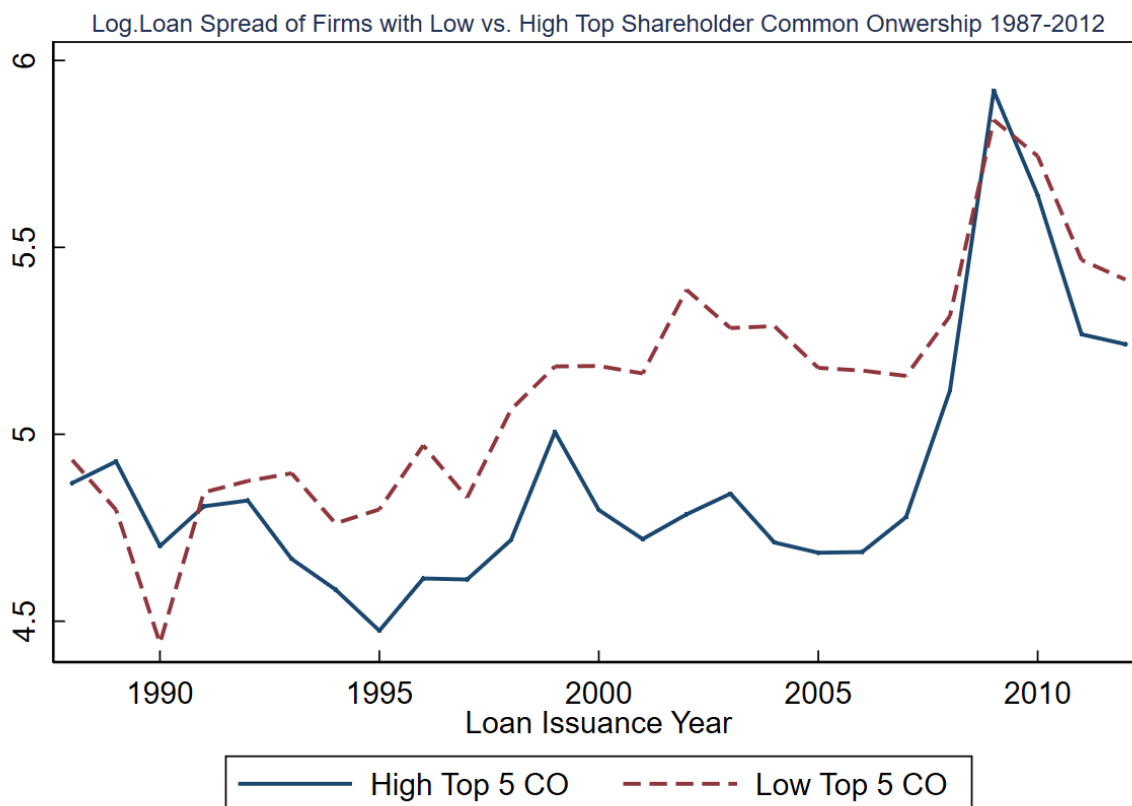
Figure 3. CDS Premium for Borrower Firms with Low vs. High Top Shareholder Common Ownership 2001-2008. This figure shows the quarterly average log 5-year CDS spread over LIBOR for firms with low vs. high top shareholder common ownership, as measured by value weighted and equal weighted *Top5CO* (calculated using Equation 3). If the firm's *Top5CO* is in the top quartile among all sample firms' in the fiscal quarter then it is classified as having high top shareholder common ownership, while one with *Top5CO* in the bottom quartile is classified as having low top shareholder common ownership.
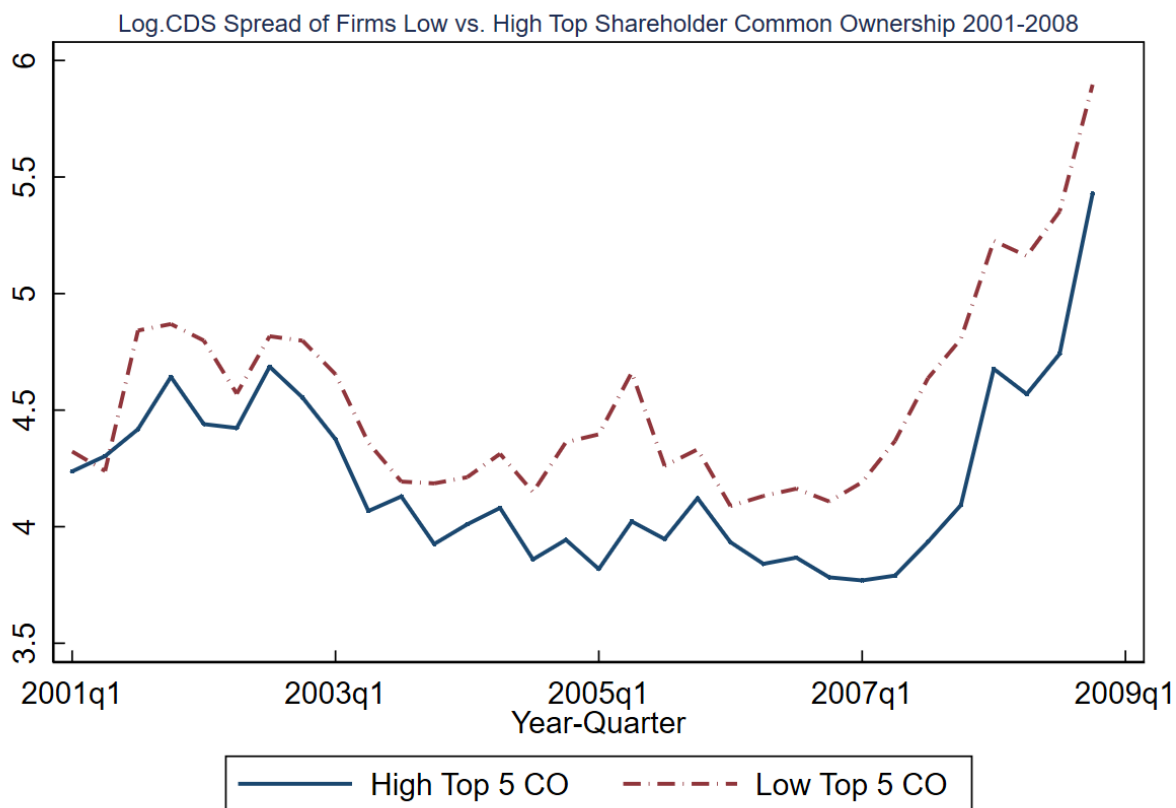
Figure 4. Loan Spreads for Borrower Firms with Low vs. High Top Shareholder Common Ownership - Hoberg&Phillips Industry Classifications 1997-2012. This figure shows the annual average log.loan spread for firms with low vs. high top shareholder common ownership, as measured by value weighted and equal weighted *Top5CO* (calculated using Equation 3), using the alternative H&P industry classifications in Section 5. If the firm's *Top5CO* is in the top quartile among all firms' in the loan issuance year then it is classified as having high top shareholder common ownership, while one with *Top5CO* in the bottom quartile is classified as having low top shareholder common ownership.

Log.Loan Spread of Firms Low vs. High Top Shareholder Common Ownership 1997-2012 H&P
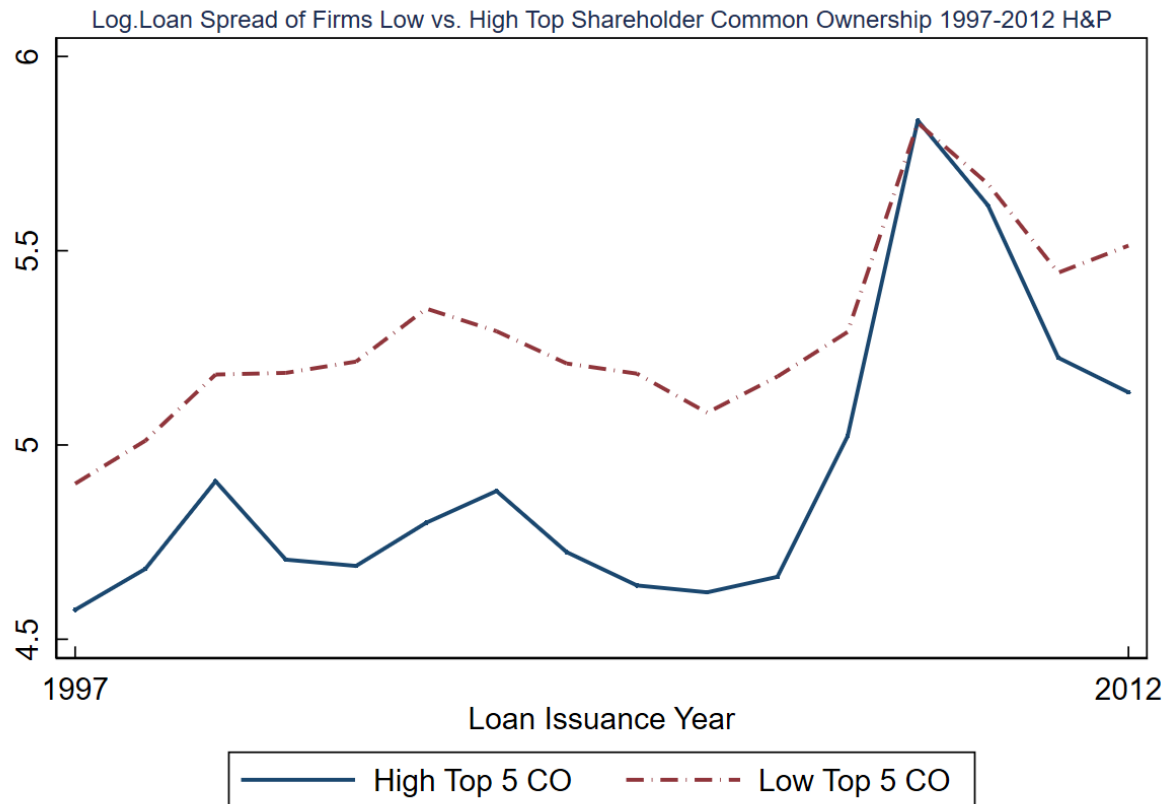
C Tables

Table 1. Summary Statistics and Univariate Analysis.

Panel A provides summary statistics of the variables used in the analyses. All non-log variables are winsorized at the 1% and 99% level. Detailed variable definitions can be referred to Appendix A.1. Panel B provides a univariate analysis between borrower firms with low (bottom quartile of each year in the sample) and high (top quartile of each year in the sample) *Top5CO*. ***, **, and * indicate p-values of 1%, 5%, and 10%,

(A) Panel A: Summary Statistics

	Obs	Mean	S.D.	Min	25%	Median	75%	Max
Log.Loan Spread	21,175	4.88	0.84	0.99	4.32	5.01	5.52	7.28
All in Drawn Spread	21,175	176.63	127.10	0.00	75.00	150.00	250.00	1450.00
Loan Size	21,175	0.23	0.24	0.01	0.08	0.15	0.29	1.47
Facility Amount ($million)	21,175	350	820	0.11	45	130	350	3000
Log.Maturity	21,175	3.67	0.69	0.00	3.50	3.97	4.09	5.89
S&P Rating	21,175	5.84	1.53	1.00	5.00	7.00	7.00	7.00
HHI	21,175	0.26	0.19	0.04	0.12	0.21	0.34	0.99
MHHID	21,175	0.20	0.12	0.00	0.12	0.19	0.27	1.00
Top 5 CO	21,175	0.05	0.04	0.00	0.02	0.04	0.07	0.17
Overall CO	21,175	0.18	0.11	0.00	0.09	0.17	0.25	0.45
Top 5 Ownership	21,175	0.23	0.11	0.02	0.16	0.22	0.29	0.59
Total Institutional Ownership	21,175	0.58	0.26	0.03	0.39	0.61	0.78	1.00
Log(Asset)	21,175	6.72	1.76	0.83	5..45	6.67	7.89	12.50
Leverage	21,175	0.30	0.21	0.00	0.15	0.27	0.41	1.10
Market-to-Book	21,175	1.42	0.96	0.35	0.81	1.12	1.68	5.91
ROA	21,175	0.14	0.08	-0.14	0.09	0.13	0.18	0.41
Tangibility	21,175	0.32	0.23	0.01	0.14	0.27	0.46	0.91
Cash Flow Volatility	21,175	0.03	0.04	0.00	0.01	0.01	0.03	0.23
Altman Z Score	21,175	2.42	1.49	-1.68	1.48	2.31	3.24	7.10
Industry Expertise	19,410	0.90	1.07	0.00	0.15	0.54	1.24	5.52
Percentage Held by Lead Arranger	8,635	0.43	0.32	0.05	0.17	0.31	0.60	1.00
Lender HHI	8,635	0.34	0.34	0.03	0.09	0.19	0.50	1.00

(B) Panel B: Univariate Analysis

	Common Ownership by Top 5 Shareholders				
	Low		High		
Loan & Firm Characteristics	Obs	Mean	Obs	Mean	Difference
Log.Loan Spread	5,307	5.13	5,282	4.50	0.64***
All in Drawn Spread	5,307	210.07	5,282	131.33	78.74***
Facility Amount ($million)	5,307	178	5,282	627	-449***
Maturity	5,307	48.31	5,282	45.34	2.98***
S&P Rating	5,307	6.38	5,282	5.05	1.33***
Log(Asset)	5,307	6.01	5,282	7.70	-1.70***
Leverage	5,307	0.31	5,282	0.28	0.03***
Market-to-Book	5,307	1.34	5,282	1.55	-0.20***
ROA	5,307	0.13	5,282	0.15	-0.02***
Tangibility	5,307	0.30	5,282	0.33	-0.03***
Altman Z Score	5,307	2.35	5,282	2.50	-0.15***

Table 2. Loan Spread and Common Ownership.

This table presents the regression of loan spread on *Top5CO* and *Overall CO* using Equation 3 in Section 3.2. *Top5CO* and *Overall CO* are rank transformed in Column (2) - (5) and (8). *Top5CO* and *Overall CO* are value-weighted in Column (2), (4), and (8) while equal-weighted in (3) and (5). *HighTop5CO* is a dummy variable which equals one for borrowers with *Top5CO* in the top quartile among all borrowers in each sample year. Column (8) includes industry*year fixed effect. *HHI* is rank transformed. Detailed variable definition can be referred to Appendix A.1. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:				Log. Loan Spread				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Top 5 CO		-0.082***	-0.073***			-0.705***		-0.094***
		(-3.995)	(-3.640)			(-4.165)		(-3.681)
Overall CO				-0.031	-0.125***			
				(-0.884)	(-3.203)			
High Top 5 CO							-0.051***	
							(-4.127)	
Top 5 Ownership		0.271***	0.276***			0.278***	0.285***	0.303***
		(5.093)	(5.170)			(5.220)	(5.345)	(5.075)
Total Institutional Ownership				0.042	0.087**			
				(1.306)	(2.570)			
HHI	-0.082**	-0.090**	-0.089**	-0.083**	-0.091**	-0.086**	-0.084**	-0.091
	(-2.058)	(-2.268)	(-2.234)	(-2.091)	(-2.301)	(-2.154)	(-2.119)	(-0.663)
Log(Asset)	-0.169***	-0.166***	-0.169***	-0.169***	-0.166***	-0.165***	-0.167***	-0.178***
	(-26.56)	(-25.66)	(-26.78)	(-24.61)	(-24.14)	(-25.38)	(-26.10)	(-25.04)
Leverage	0.644***	0.635***	0.637***	0.646***	0.642***	0.633***	0.634***	0.710***
	(16.38)	(16.28)	(16.34)	(16.44)	(16.38)	(16.25)	(16.30)	(15.51)
Market-to-Book	-0.084***	-0.080***	-0.082***	-0.085***	-0.084***	-0.079***	-0.080***	-0.081***
	(-11.89)	(-11.35)	(-11.70)	(-11.71)	(-11.62)	(-11.30)	(-11.37)	(-10.20)
ROA	-0.974***	-0.976***	-0.985***	-0.980***	-0.979***	-0.976***	-0.972***	-0.982***
	(-11.50)	(-11.65)	(-11.76)	(-11.64)	(-11.64)	(-11.67)	(-11.63)	(-9.508)
Tangibility	-0.257***	-0.248***	-0.248***	-0.253***	-0.248***	-0.250***	-0.252***	-0.258***
	(-5.552)	(-5.374)	(-5.374)	(-5.446)	(-5.348)	(-5.426)	(-5.455)	(-4.873)
Altman Z Score	-0.038***	-0.038***	-0.038***	-0.038***	-0.037***	-0.038***	-0.038***	-0.044***
	(-6.007)	(-6.023)	(-6.029)	(-5.967)	(-5.812)	(-6.049)	(-6.117)	(-6.150)
Cash Flow Volatility	0.778***	0.742***	0.753***	0.780***	0.770***	0.740***	0.749***	0.590***
	(5.552)	(5.340)	(5.407)	(5.560)	(5.497)	(5.321)	(5.380)	(3.626)
S&P Rating	0.110***	0.107***	0.107***	0.110***	0.110***	0.107***	0.106***	0.109***
	(16.65)	(16.25)	(16.28)	(16.62)	(16.60)	(16.23)	(16.20)	(14.22)
Loan Size	-0.121***	-0.117***	-0.118***	-0.121***	-0.122***	-0.115***	-0.115***	-0.186***
	(-5.471)	(-5.268)	(-5.345)	(-5.474)	(-5.517)	(-5.193)	(-5.186)	(-8.007)
Log(Maturity)	-0.029**	-0.031***	-0.032***	-0.030***	-0.030***	-0.031***	-0.032***	-0.019
	(-2.574)	(-2.751)	(-2.796)	(-2.659)	(-2.648)	(-2.782)	(-2.827)	(-1.565)
Observations	21,161	21,161	21,161	21,161	21,161	21,161	21,161	19,824
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year FE	No	No	No	No	No	No	No	Yes
Adjusted R-squared	0.67	0.68	0.68	0.67	0.67	0.68	0.68	0.73

Table 3. Loan Spread and Common Ownership - Time-Series Tests.

This table presents the regression of loan spread on *Top5CO* across different periods using Equation 3 in Section 3.3. *Top5CO* and *HHI* are rank transformed. *Top5CO* is value weighted. Detailed variable definition can be referred to Appendix A.1. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:	Log. Loan Spread				
	(1)	(2)	(3)	(4)	(5)
Sample Period	1987-1999	2000-2012	2000-2006	2007-2009	2010-2012
Top 5 CO	-0.051	-0.145***	-0.149***	-0.077	-0.215***
	(-1.636)	(-5.667)	(-4.622)	(-1.095)	(-3.653)
Top 5 Ownership	0.117	0.432***	0.552***	0.576***	0.189*
	(1.445)	(6.681)	(6.899)	(3.817)	(1.776)
HHI	-0.0692	-0.0876	-0.213**	0.228	-0.144
	(-1.006)	(-1.495)	(-2.330)	(0.719)	(-0.892)
Log(Asset)	-0.210***	-0.136***	-0.149***	-0.167***	-0.089***
	(-21.77)	(-17.46)	(-14.87)	(-10.88)	(-7.388)
Leverage	0.754***	0.581***	0.677***	0.532***	0.275***
	(11.51)	(12.30)	(11.06)	(5.070)	(3.571)
Market-to-Book	-0.068***	-0.082***	-0.077***	-0.107***	-0.038**
	(-5.767)	(-9.847)	(-7.992)	(-4.778)	(-1.972)
ROA	-1.058***	-0.829***	-0.978***	-0.362	-0.735***
	(-7.401)	(-8.411)	(-7.899)	(-1.603)	(-3.114)
Tangibility	-0.281***	-0.205***	-0.264***	0.042	-0.011
	(-3.697)	(-3.817)	(-3.929)	(0.346)	(-0.146)
Altman Z Score	-0.017*	-0.053***	-0.052***	-0.085***	-0.061***
	(-1.659)	(-7.173)	(-5.367)	(-5.098)	(-4.472)
Cash Flow Volatility	0.828***	0.618***	0.777***	-0.504	0.488**
	(3.667)	(3.766)	(3.389)	(-1.139)	(2.218)
S&P Rating	0.084***	0.120***	0.134***	0.117***	0.056***
	(8.765)	(15.21)	(13.39)	(7.154)	(5.541)
Loan Size	-0.072**	-0.196***	-0.204***	-0.227***	-0.125**
	(-2.255)	(-6.897)	(-5.594)	(-4.021)	(-2.479)
Log(Maturity)	-0.049***	-0.003	0.001	0.044	-0.036
	(-3.091)	(-0.173)	(0.042)	(1.198)	(-1.029)
Observations	8,642	12,506	8,297	2,097	2,052
Industry FE	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	No	No	Yes	No	No
Loan Type FE	No	No	Yes	No	No
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.64	0.71	0.72	0.71	0.64

Table 4. Loan Spread and Common Ownership - Investment vs. Non-Investment Grade Firms.

This table presents the regression of loan spread on *Top5CO* using Equation 3 for subsamples in Section 3.4. *Top5CO* and *HHI* are rank transformed. *Top5CO* is value weighted. The Investment Grade (IG) sample includes only firms with S&P credit rating of BBB or above. The Non-Investment Grade (Non-IG) sample includes only firms with S&P credit rating of BB or worse, as well as those with no credit rating. Detailed variable definition can be referred to Appendix A.1. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:				Log. Loan Spread				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample Composition	IG	Non-IG	IG	Non-IG	IG	Non-IG	IG	Non-IG
Sample Period	1987-1999	1987-1999	2000-2012	2000-2012	2007-2009	2007-2009	2010-2012	2010-2012
Top 5 CO	-0.075	-0.075***	-0.082	-0.143***	0.484	-0.073	-0.024	-0.212***
	(-1.570)	(-3.560)	(-1.587)	(-5.413)	(1.271)	(-1.041)	(-0.114)	(-3.540)
Top 5 Ownership	0.329**	0.122**	0.204	0.247***	0.786	0.320**	0.498	0.0816
	(2.312)	(2.295)	(1.162)	(3.955)	(1.161)	(2.042)	(1.506)	(0.681)
HHI	0.042	-0.101**	-0.071	-0.093	-0.102	0.478	-0.607	-0.257*
	(0.529)	(-2.445)	(-0.605)	(-1.560)	(-0.0744)	(1.514)	(-1.604)	(-1.677)
Log(Asset)	-0.129***	-0.161***	-0.125***	-0.124***	-0.221***	-0.145***	-0.167***	-0.073***
	(-8.126)	(-23.54)	(-6.733)	(-15.82)	(-3.155)	(-9.083)	(-4.327)	(-5.645)
Leverage	0.189*	0.534***	0.167	0.479***	0.770	0.370***	-0.264	0.234***
	(1.655)	(13.84)	(1.082)	(10.57)	(1.248)	(3.652)	(-1.133)	(2.841)
Market-to-Book	-0.090***	-0.068***	-0.080***	-0.070***	-0.119**	-0.098***	-0.187***	-0.051**
	(-5.522)	(-9.458)	(-4.557)	(-8.072)	(-2.375)	(-3.911)	(-3.535)	(-2.564)
ROA	-0.508*	-0.991***	-0.968***	-0.815***	0.179	-0.412*	-0.408	-0.545**
	(-1.831)	(-11.88)	(-3.064)	(-8.474)	(0.179)	(-1.815)	(-0.636)	(-2.255)
Tangibility	-0.281**	-0.164***	-0.250**	-0.103*	-1.167***	0.144	-0.382*	2.49e-05
	(-2.549)	(-3.440)	(-1.965)	(-1.856)	(-2.727)	(1.065)	(-1.766)	(0.000279)
Altman Z Score	-0.014	-0.035***	0.001	-0.053***	-0.107	-0.091***	-0.014	-0.068***
	(-0.666)	(-5.671)	(0.0497)	(-7.341)	(-1.023)	(-5.368)	(-0.358)	(-4.839)
Cash Flow Volatility	0.879**	0.858***	1.417***	0.704***	-3.768	-0.032	1.414*	0.539**
	(2.003)	(6.428)	(2.640)	(4.447)	(-1.284)	(-0.0676)	(1.850)	(2.300)
S&P Rating	0.337***	-0.050***	0.440***	-0.035***	0.149	-0.026	0.285***	-0.010
	(15.48)	(-6.405)	(16.04)	(-3.904)	(1.414)	(-1.258)	(4.563)	(-0.768)
Loan Size	-0.077	-0.120***	-0.252**	-0.165***	-0.067	-0.197***	-0.038	-0.087*
	(-0.800)	(-5.684)	(-2.208)	(-6.288)	(-0.283)	(-3.878)	(-0.196)	(-1.787)
Log(Maturity)	0.034	-0.045***	-0.042	-0.021	-0.096	0.037	-0.119**	-0.051
	(1.161)	(-3.808)	(-1.108)	(-1.255)	(-0.989)	(0.917)	(-2.184)	(-1.299)
Observations	4,923	16,217	3,085	9,402	358	1,700	381	1,609
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.71	0.51	0.77	0.52	0.79	0.59	0.73	0.58

Table 5. Loan Spread and Common Ownership - Syndicates with Low vs. High Industry Expertise.

This table presents the regression of loan spread on *Top5CO* using Equation 3 for subsamples in Section 3.4. *Top5CO* and *HHI* are rank transformed. *Top5CO* is value weighted. Industry expertise is calculated as the sum of the industry expertise ratios of all the lenders in the syndicate. The industry experience ratio of a lender is defined as the total amount of loans it has made over the past five years in the three-digit SIC industry that the borrower belongs to, divided by the total amount of loans issued in the same industry over the same period by all the lenders in Dealscan. In Column (1) and (2), the sample is split into two subsamples of low and high industry expertise. Loan facilities with industry expertise in the top quartile of each sample year are classified as having high industry expertise while those in the bottom quartile are classified as having low industry expertise. The Investment Grade (IG) sample includes only firms with S&P credit rating of BBB or above. The Non-Investment Grade (Non-IG) sample includes only firms with S&P credit rating of BB or worse, as well as those with no credit rating. Detailed variable definition can be referred to Appendix A.1. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:	Log. Loan Spread					
	(1)	(2)	(3)	(4)	(5)	(6)
Sample Composition	Low Ind.Exp	High Ind.Exp	All	All	IG	Non-IG
Sample Period	1987-2012	1987-2012	1987-2012	2000-2012	2000-2012	2000-2012
Top 5 CO	-0.070*	-0.042	-0.081***	-0.131***	-0.100	-0.192***
	(-1.851)	(-0.981)	(-3.157)	(-3.988)	(-1.173)	(-5.534)
Top 5 CO * Ind.Exp			-0.005	-0.014	0.020	0.071**
			(-0.317)	(-0.615)	(0.549)	(2.237)
Ind.Exp			-0.028*	-0.052***	-0.060*	-0.119***
			(-1.944)	(-2.863)	(-1.881)	(-5.581)
Top 5 Ownership	0.221***	0.310**	0.299***	0.443***	0.234	0.257***
	(2.711)	(2.332)	(5.390)	(6.784)	(1.347)	(4.089)
HHI	0.029	-0.249***	-0.087**	-0.090	-0.078	-0.088
	(0.378)	(-2.689)	(-2.048)	(-1.523)	(-0.656)	(-1.464)
Log(Asset)	-0.153***	-0.176***	-0.159***	-0.122***	-0.115***	-0.103***
	(-14.06)	(-10.64)	(-22.94)	(-14.75)	(-6.132)	(-12.47)
Leverage	0.564***	0.637***	0.642***	0.570***	0.200	0.463***
	(8.770)	(6.489)	(15.68)	(11.84)	(1.270)	(10.06)
Market-to-Book	-0.051***	-0.128***	-0.079***	-0.082***	-0.081***	-0.069***
	(-4.749)	(-6.639)	(-10.90)	(-9.743)	(-4.603)	(-7.862)
ROA	-0.797***	-0.749***	-0.950***	-0.800***	-1.005***	-0.775***
	(-6.376)	(-2.960)	(-10.81)	(-8.001)	(-3.164)	(-8.023)
Tangibility	-0.207***	-0.371***	-0.255***	-0.218***	-0.266**	-0.111**
	(-3.007)	(-3.376)	(-5.265)	(-4.001)	(-2.085)	(-1.989)
Altman Z Score	-0.033***	-0.059***	-0.040***	-0.055***	0.005	-0.055***
	(-3.913)	(-2.803)	(-6.130)	(-7.391)	(0.189)	(-7.477)
Cash Flow Volatility	0.714***	0.663	0.744***	0.598***	1.430**	0.705***
	(3.354)	(1.543)	(5.154)	(3.598)	(2.578)	(4.431)
S&P Rating	0.089***	0.129***	0.106***	0.117***	0.441***	-0.041***
	(5.825)	(10.95)	(15.33)	(14.69)	(15.97)	(-4.561)
Loan Size	-0.147***	-0.071	-0.132***	-0.162***	-0.204*	-0.127***
	(-3.993)	(-1.377)	(-5.827)	(-5.638)	(-1.883)	(-4.813)
Log(Maturity)	0.038*	-0.054	-0.037***	0.002	-0.031	-0.017
	(1.907)	(-1.584)	(-2.914)	(0.096)	(-0.826)	(-0.998)
Observations	5,014	4,544	19,393	12,256	3,071	9,165
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.49	0.76	0.68	0.71	0.77	0.52

Table 6. Loan Syndicate Structure and Common Ownership.

This table presents the regression of % held by lead arranger and lender HHI respectively on *Top5CO* in Section 3.5.1. *Top5CO* and *HHI* are rank transformed. *Top5CO* is value weighted. Industry expertise is calculated as the sum of the industry expertise ratios of all the lenders in the syndicate. The industry experience ratio of a lender is defined as the total amount of loans it has made over the past five years in the three-digit SIC industry that the borrower belongs to, divided by the total amount of loans issued in the same industry over the same period by all the lenders in Dealscan. Detailed variable definition can be referred to Appendix A.1. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:	% Held by Lead Arranger			Lender HHI		
	(1)	(2)	(3)	(4)	(5)	(6)
Top 5 CO	0.035**	-0.040**	-0.119***	0.028**	-0.056***	-0.150***
	(2.467)	(-2.089)	(-3.275)	(1.990)	(-2.929)	(-4.275)
Top 5 CO * Ind.Exp		0.068***	0.093***		0.068***	0.100***
		(6.172)	(3.381)		(6.715)	(4.129)
Ind.Exp		-0.090***	-0.144***		-0.081***	-0.136***
		(-9.866)	(-6.834)		(-9.559)	(-7.225)
Top 5 Ownership	-0.154***	-0.163***	-0.0640	-0.160***	-0.164***	-0.0836
	(-4.018)	(-4.215)	(-1.131)	(-3.895)	(-3.969)	(-1.452)
Leverage	-0.039	-0.007	0.032	-0.073***	-0.039	-0.014
	(-1.628)	(-0.303)	(0.862)	(-2.936)	(-1.590)	(-0.367)
Tangibility	-0.010	0.016	0.030	-0.012	0.011	0.026
	(-0.330)	(0.521)	(0.528)	(-0.390)	(0.349)	(0.477)
Log(Asset)	-0.133***	-0.113***	-0.084***	-0.143***	-0.126***	-0.109***
	(-33.61)	(-25.91)	(-11.13)	(-35.78)	(-29.40)	(-14.92)
ROA	-0.209***	-0.182***	-0.194**	-0.255***	-0.241***	-0.249***
	(-4.081)	(-3.506)	(-2.283)	(-4.890)	(-4.630)	(-2.942)
Market-to-Book	0.000	-0.000	0.004	0.008*	0.007	0.011
	(0.003)	(-0.053)	(0.571)	(1.660)	(1.632)	(1.585)
Cash Flow Volatility	0.331***	0.244**	0.468***	0.364***	0.272**	0.564***
	(2.956)	(2.120)	(2.661)	(3.236)	(2.352)	(3.293)
S&P Rating	-0.038***	-0.035***	0.150*	-0.036***	-0.034***	0.095*
	(-4.946)	(-4.645)	(1.870)	(-4.811)	(-4.840)	(1.832)
No-Rating Dummy	0.098***	0.078***	-0.311*	0.088***	0.071***	-0.217**
	(4.545)	(3.629)	(-1.962)	(4.379)	(3.764)	(-2.133)
Loan Size	-0.334***	-0.298***	-0.185***	-0.372***	-0.341***	-0.250***
	(-19.97)	(-17.17)	(-6.313)	(-22.41)	(-19.93)	(-9.044)
Log(Maturity)	-0.079***	-0.083***	-0.044***	-0.080***	-0.086***	-0.056***
	(-10.06)	(-9.807)	(-2.842)	(-10.07)	(-10.14)	(-3.799)
Observations	7,974	6,779	2,418	7,974	6,779	2,418
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.53	0.55	0.46	0.59	0.60	0.51

Table 7. Post Covenant Violation Behaviors.

This table presents the first-difference estimates of the marginal effect of new covenant violation on Ln(shareholder payouts), acquisitions, and capital expenditures during 1997 to 2007 from Section 3.5.2. Detailed variable definition can be referred to Appendix A.1. New covenant violation is a dummy that equals one if the firm violates a debt covenant for its first time in the given quarter. The Low *Top5CO* sample includes only firms with *Top5CO* in the bottom quartile among all firms in the quarter of loan initiation. The High *Top5CO* sample includes only firms with *Top5CO* in the top quartile among all firms in the quarter of loan initiation. Higher-order covenant controls are the second and third power of the control variables. Lagged covenant controls are the control variables lagged four quarters. All control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm/quarter level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:	$\Delta Ln(ShareholderPayout)$		$\Delta Acquisitions$		$\Delta Capital Expenditures$	
	(1) Low Top 5 CO	(2) High Top 5 CO	(3) Low Top 5 CO	(4) High Top 5 CO	(5) Low Top 5 CO	(6) High Top 5 CO
New Covenant Violation	0.009	-0.069**	-0.004**	-0.001	-0.002*	0.000
	(0.420)	(-2.041)	(-2.056)	(-0.268)	(-2.018)	(0.181)
Operating cash flow/average assets	0.251***	0.359***	0.007**	0.006**	0.013***	0.016***
	(6.175)	(7.667)	(2.553)	(2.486)	(5.438)	(5.040)
Leverage ratio	-0.091	-0.226**	0.015	0.013	-0.005	-0.011*
	(-1.364)	(-2.638)	(1.169)	(0.961)	(-1.164)	(-1.974)
Interest expense/average assets	2.206	7.730**	-0.303**	-0.431***	0.005	0.160
	(1.325)	(2.324)	(-2.510)	(-4.294)	(0.058)	(1.631)
Net worth/assets	-0.032	-0.124*	0.004	-0.001	-0.003	-0.003
	(-0.758)	(-1.723)	(0.935)	(-0.224)	(-1.503)	(-1.012)
Current ratio	0.005*	0.003	-0.000	-0.000	-0.000	-0.000
	(1.738)	(1.637)	(-1.101)	(-1.222)	(-0.852)	(-0.512)
Market-to-book ratio	0.003	-0.004	0.000	0.002***	0.001	0.000
	(0.299)	(-0.215)	(0.855)	(4.028)	(1.367)	(0.243)
Observations	31,926	34,230	31,916	34,224	31,916	34,224
Higher-order covenant controls	Yes	Yes	Yes	Yes	Yes	Yes
Lagged covenant controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.13	0.19	0.05	0.06	0.38	0.43

Table 8. 5-Year CDS Spread and Top Shareholder Common Ownership .

This table presents regressions of CDS spread on top shareholder common ownership in Section 3.6. The dependent variable is the log of the CDS premium over LIBOR for the standard 5-year contract. *Top5CO* is taken from the prior quarter end. Quick ratio is current assets minus inventories divided by current liabilities. Interest coverage is quarterly EBIT divided by quarterly interest expenses, and winsorized at the 5% and 95% level. Other detailed variable definition can be referred to Appendix A.1. All other control variables are measured quarterly and winsorized at the 1% and 99% level. The Investment Grade (IG) sample includes only firms with S&P credit rating of BBB or above. The Non-Investment Grade (Non-IG) sample includes only firms with S&P credit rating of BB or worse, as well as those with no credit rating. Standard errors are clustered at the firm/quarter level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:	Log. 5-Year CDS Spread						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sample	All	IG	Non-IG	All	All	IG	Non-IG
Top 5 CO	-0.117*	-0.034	-0.169*		-0.086	-0.039	-0.176*
	(-2.015)	(-0.608)	(-1.723)		(-1.599)	(-0.679)	(-1.994)
ROA				-10.66***	-1.388*	-1.690**	-1.678**
				(-22.86)	(-1.941)	(-2.566)	(-2.537)
Log(Asset)				-0.231***	0.007	0.077	-0.178*
				(-27.04)	(0.103)	(1.135)	(-1.798)
Interest Coverage				-0.022***	-0.005*	-0.004*	0.000
				(-14.77)	(-1.837)	(-1.777)	(0.103)
Quick Ratio				-0.130***	0.001	0.024	-0.040
				(-7.081)	(0.021)	(0.669)	(-1.253)
Cash/Asset				1.489***	-0.296	-0.385	-0.231
				(11.01)	(-1.193)	(-1.491)	(-0.750)
Leverage				1.376***	1.890***	1.473***	2.206***
				(16.82)	(6.679)	(4.604)	(6.331)
Sales Growth				-0.084	-0.021	-0.051	-0.005
				(-1.491)	(-0.338)	(-0.780)	(-0.065)
Retained Earnings/Asset				-1.094***	-0.132	-0.068	0.057
				(-20.40)	(-0.908)	(-0.419)	(0.261)
Inventories/Costs of Goods Sold				-0.136***	0.031	-0.022	0.122**
				(-9.729)	(0.666)	(-0.445)	(2.197)
Altman Z Score				0.181***	-0.013	-0.040	0.094
				(5.897)	(-0.212)	(-0.517)	(1.304)
Constant				6.450***			
				(64.23)			
Observations	11,610	8,493	3,102	9,032	9,006	6,627	2,361
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year/Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.85	0.80	0.83	0.46	0.88	0.83	0.84

Table 9. Effect of Common Ownership by Shareholder Horizon.

This table presents the baseline regressions in Section 3 with the post-2000 period, assuming control is exercised only by high (low) churn investors. A high churn investor generally has high portfolio turnovers and short investment horizons. The churn ratio is calculated as in Gaspar et al. (2005). An investor is classified as low churn investor if its churn ratio is in the bottom tercile of all investors in the given quarter, while one in the top tercile is classified as high churn investor. *Top5CO_Low Churn* is calculated with holdings of top 5 shareholders who are classified as low churn investors. *Top5CO_High Churn* is calculated with holdings of top 5 shareholders who are classified as high churn investors. In Column (4), a dummy variable *High_Top5CO_Low Churn* is defined as equal to one for borrower firms with *Top5CO_Low Churn* in the top quartile among all sample firms in each loan start year in the sample. *High_Top5CO_High Churn* is defined as equal to one for borrower firms with *Top5CO_High Churn* in the top quartile among all sample firms in each loan start year in the sample. *Top5CO_Low Churn*, *Top5CO_High Churn*, and *HHI* are rank transformed. The Investment Grade (IG) sample includes only firms with S&P credit rating of BBB or above. The Non-Investment Grade (Non-IG) sample includes only firms with S&P credit rating of BB or worse, as well as those with no credit rating. Detailed variable definition can be referred to Appendix A.1. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:	Log. Loan Spread						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sample Composition	All	All	All	All	All	IG	Non-IG
Top 5 CO_Low Churn	-0.114***		-0.113***	-0.529**		-0.023	-0.079**
	(-3.357)		(-3.327)	(-2.024)		(-0.396)	(-2.079)
Top 5 CO_High Churn		0.016	0.007	-0.277		0.003	-0.031
		(0.663)	(0.302)	(-0.790)		(0.0788)	(-1.162)
High_Top 5 CO_Low Churn					-0.044***		
					(-2.924)		
High_Top 5 CO_High Churn					0.002		
					(0.149)		
Top 5 Ownership	0.440***	0.470***	0.439***	0.458***	0.448***	0.209	0.267***
	(6.781)	(7.231)	(6.778)	(7.062)	(6.921)	(1.210)	(4.268)
HHI	-0.080	-0.078	-0.079	-0.078	-0.078	-0.063	-0.090
	(-1.361)	(-1.315)	(-1.345)	(-1.323)	(-1.337)	(-0.540)	(-1.516)
Log(Asset)	-0.142***	-0.146***	-0.142***	-0.143***	-0.143***	-0.129***	-0.131***
	(-18.60)	(-18.92)	(-18.51)	(-18.46)	(-18.67)	(-6.985)	(-16.86)
Leverage	0.585***	0.588***	0.585***	0.585***	0.586***	0.163	0.487***
	(12.35)	(12.44)	(12.35)	(12.35)	(12.37)	(1.054)	(10.70)
Market-to-Book	-0.085***	-0.086***	-0.086***	-0.084***	-0.085***	-0.082***	-0.072***
	(-10.30)	(-10.14)	(-10.21)	(-10.03)	(-10.18)	(-4.645)	(-8.117)
ROA	-0.836***	-0.848***	-0.836***	-0.842***	-0.842***	-0.972***	-0.824***
	(-8.490)	(-8.599)	(-8.497)	(-8.550)	(-8.549)	(-3.051)	(-8.576)
Tangibility	-0.210***	-0.209***	-0.210***	-0.209***	-0.208***	-0.261**	-0.109*
	(-3.922)	(-3.895)	(-3.921)	(-3.892)	(-3.873)	(-2.055)	(-1.960)
Altman Z Score	-0.054***	-0.054***	-0.054***	-0.054***	-0.054***	0.000	-0.054***
	(-7.258)	(-7.314)	(-7.259)	(-7.306)	(-7.247)	(0.011)	(-7.418)
Cash Flow Volatility	0.641***	0.655***	0.643***	0.638***	0.644***	1.435***	0.721***
	(3.898)	(3.985)	(3.907)	(3.877)	(3.912)	(2.664)	(4.546)
S&P Rating	0.120***	0.122***	0.120***	0.121***	0.120***	0.438***	-0.0337***
	(15.26)	(15.41)	(15.25)	(15.36)	(15.19)	(15.90)	(-3.774)
Loan Size	-0.196***	-0.196***	-0.196***	-0.196***	-0.194***	-0.256**	-0.165***
	(-6.923)	(-6.892)	(-6.922)	(-6.899)	(-6.845)	(-2.245)	(-6.315)
Log(Maturity)	-0.006	-0.005	-0.006	-0.005	-0.006	-0.044	-0.023
	(-0.369)	(-0.291)	(-0.373)	(-0.323)	(-0.374)	(-1.179)	(-1.382)
Observations	12,506	12,506	12,506	12,506	12,506	3,085	9,402
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.71	0.71	0.71	0.71	0.71	0.77	0.52

Table 10. IV Regression Using BlackRock-BGI Merger .

This table presents the IV regressions for firms with poor or no S&P rating from 2010 to 2012 in Section 4. Column (1) and (3) follow Equation 4 and 5. Column (2) and (4) follow Equation 5 using the predicted *Top5CO*s. *Implied* $\Delta Top5CO$ is computed as a firm's hypothetical *Top5CO* taking the holdings of BlackRock and BGI as already together minus the actual *Top5CO* of the firm in 2009 Q1. Treat is a dummy that equals one if a firm's 2009 Q1 *Implied* $\Delta Top5CO$ is in the top tercile. Detailed variable definition can be referred to Appendix A.1. *Top5CO* and *Implied* $\Delta Top5CO$ are rank transformed. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are robust to heteroskedasticity. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

	Continuous IV		Discrete IV	
	(1) First Stage Top 5 CO	(2) Second Stage Log. Loan Spread	(3) First Stage Top 5 CO	(4) Second Stage Log. Loan Spread
Implied $\Delta Top5CO$-2009 Q1	0.245***			
	(8.705)			
Treat			0.166***	
			(10.05)	
Top 5 CO (Instrumented)		-0.377**		-0.324**
		(-2.401)		(-2.373)
Top 5 Ownership	-0.287***	0.032	-0.272***	0.047
	(-3.818)	(0.310)	(-3.614)	(0.466)
HHI	-0.004	-0.011	0.027	-0.012
	(-0.122)	(-0.225)	(0.829)	(-0.240)
Log(Asset)	0.045***	-0.071***	0.043***	-0.075***
	(5.629)	(-5.085)	(5.526)	(-5.619)
Leverage	-0.023	0.167***	-0.008	0.169***
	(-0.554)	(2.627)	(-0.202)	(2.671)
Market-to-Book	0.036***	-0.051***	0.036***	-0.053***
	(3.824)	(-2.798)	(3.825)	(-2.965)
ROA	-0.101	-0.310	-0.102	-0.303
	(-0.913)	(-1.497)	(-0.930)	(-1.480)
Tangibility	-0.083**	-0.074	-0.070*	-0.069
	(-2.230)	(-1.357)	(-1.916)	(-1.287)
Cash Flow Volatility	-0.182	0.656***	-0.187	0.664***
	(-1.134)	(3.014)	(-1.176)	(3.064)
Altman Z Score	0.019***	-0.058***	0.021***	-0.059***
	(2.999)	(-5.228)	(3.272)	(-5.443)
S&P Rating	0.009	0.001	0.006	0.000
	(1.104)	(0.084)	(0.740)	(0.033)
Loan Size	-0.027	-0.152***	-0.027	-0.150***
	(-0.664)	(-2.918)	(-0.677)	(-2.900)
Log(Maturity)	0.056**	-0.056	0.052**	-0.059
	(2.331)	(-1.347)	(2.221)	(-1.439)
Constant	0.062	7.755***	0.120	7.747***
	(0.322)	(23.67)	(0.610)	(23.98)
Observations	1,105	1,105	1,105	1,105
Industry FE	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes
Adj.R-squared	0.33	0.49	0.35	0.49

	Underidentification Test		Weak Instrument Test	
Instumental Variables	Kleibergen-Paap rk LM Stat.	Prob > F	Cragg-Donald Wald F Stat.	Kleibergen-Paap Wald rk F Stat.
Implied $\Delta Top5CO$-2009 Q1	75.81	0.0000	96.33	75.78
Treat	85.85	0.0000	125.81	100.92

Table 11. Baseline Regression with Alternative Common Ownership Measures.

This table presents regressions based on Equation 3 using alternative measures described in Section 5.1. *LnNumCommon* is the log of one plus the number of the firm's top 5 shareholders who are also top 5 shareholders in at least one of its industry peers, at the quarter end prior to the loan issuance. *LnNumConnected* measures the log of one plus the number of industry peers that are connected to the firm through these common owners. The Investment Grade (IG) sample includes only firms with S&P credit rating of BBB or above. The Non-Investment Grade (Non-IG) sample includes only firms with S&P credit rating of BB or worse, as well as those with no credit rating. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:				Log. Loan Spread				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample Composition	All	All	All	All	IG	Non-IG	IG	Non-IG
Sample Period	1987-2012	1987-2012	2000-2012	2000-2012	2000-2012	2000-2012	2000-2012	2000-2012
LnNumCommon	-0.049***		-0.081***		-0.060*	-0.060***		
	(-3.664)		(-5.121)		(-1.902)	(-3.881)		
LnNumConnected		-0.024***		-0.051***			-0.009	-0.0373***
		(-2.975)		(-5.030)			(-0.379)	(-3.745)
Top 5 Ownership	0.280***	0.273***	0.458***	0.448***	0.216	0.276***	0.212	0.269***
	(5.236)	(5.088)	(7.111)	(6.923)	(1.230)	(4.448)	(1.196)	(4.322)
HHI	-0.099**	-0.103**	-0.097*	-0.123**	-0.093	-0.095	-0.073	-0.116*
	(-2.490)	(-2.554)	(-1.664)	(-2.100)	(-0.790)	(-1.592)	(-0.597)	(-1.951)
Log(Asset)	-0.169***	-0.170***	-0.142***	-0.143***	-0.126***	-0.131***	-0.130***	-0.131***
	(-26.69)	(-26.89)	(-18.51)	(-18.70)	(-6.932)	(-16.81)	(-7.066)	(-16.91)
Leverage	0.636***	0.636***	0.583***	0.584***	0.169	0.484***	0.164	0.485***
	(16.27)	(16.26)	(12.38)	(12.40)	(1.096)	(10.64)	(1.061)	(10.72)
Market-to-Book	-0.082***	-0.083***	-0.085***	-0.088***	-0.080***	-0.073***	-0.081***	-0.075***
	(-11.62)	(-11.68)	(-10.30)	(-10.54)	(-4.576)	(-8.438)	(-4.667)	(-8.582)
ROA	-0.985***	-0.981***	-0.850***	-0.839***	-0.978***	-0.834***	-0.979***	-0.827***
	(-11.75)	(-11.72)	(-8.623)	(-8.526)	(-3.103)	(-8.689)	(-3.105)	(-8.627)
Tangibility	-0.249***	-0.250***	-0.203***	-0.205***	-0.254**	-0.103*	-0.261**	-0.105*
	(-5.401)	(-5.421)	(-3.793)	(-3.839)	(-2.010)	(-1.855)	(-2.058)	(-1.893)
Altman Z Score	-0.038***	-0.038***	-0.053***	-0.053***	0.002	-0.053***	0.001	-0.053***
	(-6.031)	(-6.074)	(-7.149)	(-7.180)	(0.0609)	(-7.338)	(0.0185)	(-7.384)
Cash Flow Volatility	0.750***	0.753***	0.637***	0.641***	1.434***	0.725***	1.435***	0.727***
	(5.393)	(5.430)	(3.900)	(3.958)	(2.699)	(4.592)	(2.671)	(4.631)
S&P Rating	0.107***	0.107***	0.121***	0.122***	0.440***	-0.034***	0.439***	-0.033***
	(16.29)	(16.30)	(15.38)	(15.40)	(16.06)	(-3.799)	(15.92)	(-3.720)
Loan Size	-0.119***	-0.119***	-0.197***	-0.197***	-0.257**	-0.165***	-0.255**	-0.166***
	(-5.371)	(-5.355)	(-6.966)	(-6.933)	(-2.257)	(-6.319)	(-2.232)	(-6.314)
Log(Maturity)	-0.032***	-0.032***	-0.005	-0.005	-0.042	-0.023	-0.043	-0.023
	(-2.826)	(-2.801)	(-0.313)	(-0.335)	(-1.113)	(-1.392)	(-1.163)	(-1.415)
Observations	21,161	21,161	12,506	12,506	3,085	9,402	3,085	9,402
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.68	0.68	0.71	0.71	0.77	0.52	0.77	0.52

Table 12. Alternative Industry Classifications with Hoberg & Phillips Classifications.

This table presents the baseline regressions in Section 3 and 5.1 using the Hoberg & Phillips Industry Classifications, with the same set of control variables. *Top5CO* and *HHI* are rank transformed. *LnNumCommon* is the log of one plus the number of the firm's top 5 shareholders who are also top 5 shareholders in at least one of its industry peers, at the quarter end prior to the loan issuance. *LnNumConnected* measures the log of one plus the number of industry peers that are connected to the firm through these common owners. The Investment Grade (IG) sample includes only firms with S&P credit rating of BBB or above. The Non-Investment Grade (Non-IG) sample includes only firms with S&P credit rating of BB or worse, as well as those with no credit rating. Detailed variable definition can be referred to Appendix A.1. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:				Log. Loan Spread				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample Composition	All	All	IG	Non-IG	All	All	IG	Non-IG
Sample Period	1987-2012	2000-2012	2000-2012	2000-2012	1987-2012	1987-2012	2000-2012	2000-2012
Top 5 CO	-0.062***	-0.085***	-0.083	-0.074***				
	(-2.824)	(-3.436)	(-1.487)	(-2.912)				
LnNumCommon					-0.047***			
					(-3.208)			
LnNumConnected						-0.022**	0.010	-0.020**
						(-2.451)	(0.450)	(-2.058)
Top 5 Ownership	0.364***	0.498***	0.227	0.323***	0.377***	0.365***	0.251*	0.332***
	(6.146)	(7.726)	(1.539)	(5.254)	(6.391)	(6.185)	(1.705)	(5.390)
HHI	-0.087**	-0.073*	-0.069	-0.017	-0.089**	-0.093**	-0.045	-0.0210
	(-2.218)	(-1.729)	(-0.901)	(-0.379)	(-2.284)	(-2.355)	(-0.595)	(-0.477)
Log(Asset)	-0.128***	-0.109***	-0.102***	-0.100***	-0.131***	-0.132***	-0.108***	-0.104***
	(-17.56)	(-14.01)	(-7.425)	(-12.52)	(-18.13)	(-18.31)	(-8.169)	(-13.17)
Leverage	0.677***	0.645***	0.234**	0.554***	0.678***	0.680***	0.245**	0.559***
	(14.87)	(12.86)	(2.220)	(11.40)	(14.94)	(14.96)	(2.328)	(11.57)
Market-to-Book	-0.072***	-0.078***	-0.064***	-0.070***	-0.073***	-0.074***	-0.064***	-0.072***
	(-9.579)	(-9.372)	(-3.770)	(-8.166)	(-9.715)	(-9.873)	(-3.748)	(-8.384)
ROA	-1.101***	-0.925***	-0.591**	-0.949***	-1.114***	-1.109***	-0.620**	-0.959***
	(-11.30)	(-8.781)	(-2.282)	(-9.640)	(-11.42)	(-11.37)	(-2.419)	(-9.779)
Tangibility	-0.134***	-0.143***	-0.247***	-0.0612	-0.133***	-0.134***	-0.252***	-0.062
	(-3.121)	(-3.135)	(-2.849)	(-1.313)	(-3.090)	(-3.110)	(-2.890)	(-1.322)
Altman Z Score	-0.030***	-0.044***	-0.010	-0.041***	-0.029***	-0.029***	-0.010	-0.041***
	(-4.231)	(-5.760)	(-0.524)	(-5.634)	(-4.176)	(-4.208)	(-0.536)	(-5.622)
Cash Flow Volatility	0.943***	0.849***	1.628***	0.969***	0.941***	0.948***	1.650***	0.975***
	(6.161)	(5.257)	(3.597)	(6.248)	(6.151)	(6.225)	(3.677)	(6.310)
S&P Rating	0.127***	0.137***	0.469***	-0.0190**	0.128***	0.128***	0.468***	-0.0181**
	(17.35)	(17.91)	(18.76)	(-2.149)	(17.44)	(17.47)	(18.54)	(-2.053)
Loan Size	-0.130***	-0.156***	-0.173*	-0.126***	-0.130***	-0.130***	-0.173*	-0.127***
	(-5.262)	(-5.432)	(-1.930)	(-4.545)	(-5.277)	(-5.280)	(-1.934)	(-4.564)
Log(Maturity)	-0.042***	-0.029**	-0.032	-0.045***	-0.042***	-0.042***	-0.032	-0.046***
	(-3.220)	(-1.982)	(-0.982)	(-2.926)	(-3.254)	(-3.256)	(-0.987)	(-2.991)
Observations	16,928	13,195	3,695	9,473	16,928	16,928	3,695	9,473
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.68	0.70	0.76	0.51	0.68	0.68	0.76	0.51

Table 13. Common Ownership, Competition, and Loan Spread

This table presents regressions based on Equation 7 in Section 5.3. Detailed variable definition can be referred to Appendix A.1. *HHI* and *MHHID* are rank transformed. If a borrower firm has *MHHID* in the top quartile among all sample firms in the sample year, it is classified as being in a high *MHHID* environment while one in the bottom quartile is labeled as being in a low *MHHID* environment. The Non-Investment Grade (Non-IG) sample includes only firms with S&P credit rating of BB or worse, as well as those with no credit rating. The HP samples use the Hoberg & Phillips Industry Classifications instead of 4-digit SIC. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:				Log. Loan Spread				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample Composition	Low MHHID	High MHHID	All	All	Non-IG	HP_All	HP_All	HP_Non-IG
Sample Period	1987-2012	1987-2012	1987-2012	2000-2012	2000-2012	1997-2012	2000-2012	2000-2012
MHHID			-0.105**	-0.055	-0.036	-0.044	-0.055	-0.006
			(-2.152)	(-0.942)	(-0.629)	(-0.706)	(-0.807)	(-0.080)
MHHID * HHI			0.141	-0.041	0.019	0.112	0.105	-0.007
			(1.488)	(-0.302)	(0.148)	(1.040)	(0.881)	(-0.054)
HHI	-0.011	-0.035	-0.171***	-0.078	-0.103	-0.085	-0.102	-0.018
	(-0.148)	(-0.278)	(-2.735)	(-0.927)	(-1.283)	(-1.166)	(-1.255)	(-0.220)
Log(Asset)	-0.176***	-0.178***	-0.168***	-0.143***	-0.130***	-0.130***	-0.114***	-0.108***
	(-13.97)	(-15.02)	(-26.47)	(-18.32)	(-16.57)	(-18.13)	(-14.72)	(-13.19)
Leverage	0.674***	0.631***	0.642***	0.600***	0.491***	0.703***	0.675***	0.578***
	(8.923)	(7.534)	(16.36)	(12.57)	(10.79)	(16.19)	(14.11)	(12.46)
Market-to-Book	-0.072***	-0.088***	-0.085***	-0.091***	-0.076***	-0.077***	-0.086***	-0.074***
	(-4.397)	(-7.071)	(-11.95)	(-10.67)	(-8.540)	(-10.51)	(-10.53)	(-8.911)
ROA	-1.197***	-0.740***	-0.973***	-0.855***	-0.835***	-1.138***	-0.968***	-0.967***
	(-6.761)	(-4.341)	(-11.47)	(-8.598)	(-8.665)	(-11.65)	(-9.047)	(-9.792)
Tangibility	-0.293***	-0.258***	-0.256***	-0.215***	-0.111**	-0.112**	-0.113**	-0.046
	(-3.332)	(-2.979)	(-5.530)	(-3.972)	(-1.981)	(-2.577)	(-2.451)	(-0.998)
Altman Z Score	-0.043***	-0.032**	-0.037***	-0.052***	-0.053***	-0.029***	-0.044***	-0.043***
	(-3.538)	(-2.508)	(-5.945)	(-7.044)	(-7.298)	(-4.288)	(-5.914)	(-5.995)
Cash Flow Volatility	0.978***	0.570**	0.758***	0.681***	0.747***	0.995***	0.957***	1.039***
	(3.736)	(2.033)	(5.440)	(4.123)	(4.731)	(6.859)	(6.233)	(7.007)
S&P Rating	0.090***	0.131***	0.110***	0.127***	-0.032***	0.133***	0.143***	-0.025***
	(7.624)	(10.12)	(16.63)	(15.75)	(-3.590)	(18.20)	(18.59)	(-2.812)
Loan Size	-0.115***	-0.143***	-0.119***	-0.204***	-0.167***	-0.126***	-0.160***	-0.133***
	(-2.857)	(-3.253)	(-5.415)	(-7.189)	(-6.382)	(-5.313)	(-5.838)	(-4.995)
Log(Maturity)	-0.071***	-0.024	-0.029**	-0.001	-0.022	-0.035***	-0.024*	-0.040***
	(-3.316)	(-1.045)	(-2.548)	(-0.0734)	(-1.301)	(-2.763)	(-1.693)	(-2.616)
Observations	5,332	5,156	21,161	12,506	9,402	18,430	14,436	10,332
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.67	0.72	0.67	0.71	0.52	0.68	0.69	0.51

Table 14. Dual Ownership and Loan Spread

This table presents the baseline regression based on Equation 3, controlling for the presence of dual holders as posited in Section 5.4. *Dualholder* is a dummy variable which equals one if the borrower firm has at least one creditor also being its shareholder (>1% or $2million holding) in the loan initiation year. *LnNumDualholder* is the log of one plus the number of dual holders the borrower firm has in the loan initiation year. *Top5CO* and *HHI* are rank transformed. Detailed variable definition can be referred to Appendix A.1. The Non-Investment Grade (Non-IG) sample includes only firms with S&P credit rating of BB or worse, as well as those with no credit rating. All non-log control variables are winsorized at the 1% and 99% level. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:				Log. Loan Spread				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample Composition	All	All	All	All	Non-IG	Non-IG	Non-IG	Non-IG
Sample Period	1987-2012	1987-2012	2000-2012	2000-2012	2000-2012	2000-2012	2000-2012	2000-2012
Top 5 CO	-0.080***	-0.074***	-0.143***	-0.136***	-0.136***	-0.131***	-0.140***	-0.173***
	(-3.926)	(-3.648)	(-5.615)	(-5.330)	(-5.168)	(-4.984)	(-3.904)	(-5.145)
Dualholder	-0.042***		-0.023		-0.096***		-0.100***	
	(-3.235)		(-1.370)		(-6.367)		(-3.479)	
Top 5 CO * Dualholder							0.007	
							(0.155)	
LnNumDualholder		-0.038***		-0.039***		-0.075***		-0.107***
		(-3.937)		(-3.401)		(-6.798)		(-5.197)
Top 5 CO * LnNumDualholder								0.054*
								(1.835)
Top 5 Ownership	0.283***	0.261***	0.439***	0.424***	0.262***	0.226***	0.262***	0.227***
	(5.315)	(4.879)	(6.793)	(6.568)	(4.279)	(3.654)	(4.281)	(3.660)
HHI	-0.090**	-0.088**	-0.086	-0.077	-0.082	-0.076	-0.082	-0.077
	(-2.259)	(-2.199)	(-1.474)	(-1.305)	(-1.379)	(-1.288)	(-1.377)	(-1.304)
Log(Asset)	-0.159***	-0.152***	-0.133***	-0.121***	-0.107***	-0.096***	-0.107***	-0.095***
	(-23.60)	(-21.19)	(-16.12)	(-13.90)	(-12.82)	(-11.08)	(-12.82)	(-10.99)
Leverage	0.634***	0.632***	0.581***	0.580***	0.476***	0.475***	0.476***	0.478***
	(16.30)	(16.25)	(12.31)	(12.34)	(10.57)	(10.58)	(10.59)	(10.70)
Market-to-Book	-0.078***	-0.076***	-0.081***	-0.078***	-0.066***	-0.063***	-0.066***	-0.063***
	(-11.09)	(-10.83)	(-9.709)	(-9.279)	(-7.683)	(-7.230)	(-7.681)	(-7.221)
ROA	-0.956***	-0.947***	-0.817***	-0.794***	-0.762***	-0.758***	-0.762***	-0.752***
	(-11.42)	(-11.37)	(-8.253)	(-8.124)	(-7.951)	(-7.972)	(-7.952)	(-7.907)
Tangibility	-0.250***	-0.254***	-0.207***	-0.211***	-0.113**	-0.114**	-0.114**	-0.115**
	(-5.408)	(-5.500)	(-3.848)	(-3.919)	(-2.046)	(-2.038)	(-2.047)	(-2.060)
Altman Z Score	-0.038***	-0.038***	-0.053***	-0.053***	-0.053***	-0.053***	-0.053***	-0.053***
	(-6.032)	(-6.060)	(-7.183)	(-7.252)	(-7.411)	(-7.473)	(-7.410)	(-7.416)
Cash Flow Volatility	0.727***	0.727***	0.609***	0.602***	0.676***	0.689***	0.676***	0.697***
	(5.221)	(5.242)	(3.700)	(3.676)	(4.260)	(4.381)	(4.260)	(4.422)
S&P Rating	0.106***	0.103***	0.119***	0.115***	-0.037***	-0.043***	-0.037***	-0.042***
	(16.08)	(15.41)	(15.16)	(14.41)	(-4.203)	(-4.715)	(-4.198)	(-4.692)
Loan Size	-0.112***	-0.108***	-0.194***	-0.188***	-0.154***	-0.150***	-0.154***	-0.149***
	(-5.053)	(-4.862)	(-6.816)	(-6.582)	(-5.920)	(-5.768)	(-5.919)	(-5.740)
Log(Maturity)	-0.028**	-0.029***	-0.001	-0.000	-0.014	-0.014	-0.014	-0.014
	(-2.465)	(-2.585)	(-0.065)	(-0.007)	(-0.863)	(-0.888)	(-0.861)	(-0.864)
Observations	21,161	21,161	12,506	12,506	9,402	9,402	9,402	9,402
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.68	0.68	0.71	0.71	0.52	0.53	0.52	0.53