Friends with Threats:

Credit Risk Under Common Ownership

LUCA X. LIN*

November 28. 2018

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 poorer credit ratings, higher opacity, more entrenched CEOs, a stronger tendency to overinvest, and when lenders have less industry expertise. Firm investment behavior after loan covenant violations shows that common owners monitor effectively against managerial discretion and improve investment efficiency, lowering cash low risk and benefiting creditors. Payout and leverage patterns after covenant violations suggest that creditors face higher shareholder risk shifting potential as an expense of more effective monitoring over management. Overall results on loan spread and additional analyses on CDS premium 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

*Emails: llin@iese.edu. IESE Business School, University of Navarra. Av Pearson, 21, 08034 Barcelona, Spain. I am grateful to Miguel Antón, José Azar, Christian Eufinger, Mireia Gine, Yun Lou, Robert Marquez, Jeremy Ruiz, Stefano Sacchetto, and Phu Thien for helpful comments and suggestions. I thank Amir Sufi for sharing his data on loan covenant violations.

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., 2018, 2016), leading to heated debates as other research also provides evidence of positive influence from such ownership on product market competition across different industries (He and Huang, 2017). Follow-up studies have 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 creditors in a high common ownership environment. 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, while lowering it during crisis with the benefit of government guarantees.

Figure 1 shows that from 1987 to 2016, 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. This paper investigates whether the rise of common ownership influences the cost of debt with a syndicated loan sample ranging from 1987 to 2016.

For shareholders with diversified holdings within an industry, the externalities of one individual portfolio firm's behavior are internalized by other industry peers they hold, affectting the value of their whole portfolio (Hansen and Lott, 1996). Massa and Zaldokas (2017) show a correlation of credit risk among commonly-owned firms. Therefore, common owners should be more incentivized to monitor against managerial misbehvaior since one manager shirking could lead to an increase in credit risk for many other industry rival firms they hold. He et al. (2017) provides empirical evidence that common owners play a more active monitoring role with a higher likelihood of voting against management on shareholder-sponsored proposals. Such increased incentives should also apply to passive index fund investors since they have to hold on to their shares through thick and thin.

In addition to stronger incentives, common owners are also better equipped to monitor with their industry-wide expertise. Kang et al. (2018) provide evidence that institutional investors with multiple blockholdings conduct more effective monitoring over CEOs and increase firm value. For investors who can use the exit mechanism, common ownership strengthens governance as it gives investors more flexibility to sell and impound information on stock prices (Edmans et al., 2018). Even passive investors with high common ownership, who usually can-

not exit, can exert strong influence on governance issues through the voice channel (Appel et al., 2016).

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, creditors face lower cash flow risk and higher asset liquidation value when dealing with commonly-held firms. Massa and Zaldokas (2017) point out another channel and argue that creditors can benefit from common ownership as they are able to observe commonly-held firms and learn more information on potential behavior of influential shareholders. The effect of better monitoring by common owners should be amplified by this latter channel and benefit creditors to an even larger extent.

I find strong empirical evidence that firm-level common ownership lowers the cost of debt at the loan contract level. Compared to firms with low common ownership[1], the annual financing costs for those with high common ownership is lowered by 5.23% during the sample period of 1987 to 2016 and 8.22% in the period since 2000, which is when common ownership starts to increase significantly and the effect really comes into place. Although this relationship is not significant during the 2007-2009 crisis period, it becomes stronger from 2010 till the end of the sample period. The baseline result is robust to the inclusion of a large set of fixed effects including industry$\times$year and firm fixed effects.

As posited above, a reduction of information asymmetry for creditors and direct monitoring against managerial discretion are two potential channels through which common ownership can influence the cost of debt. Dividing the sample into subsamples based on S&P long term issuer credit rating, I show that the effect of common ownership on loan spread is mainly pronounced for firms with speculative grade or no credit ratings. This finding indicates that the baseline result is not driven by large and established firms already enjoying lower borrowing costs, which tend to have more common ownership due to indexing. It also points to the

[1] An interquartile increase in common ownership - Borrower firms with *CO* in the bottom quartile among all firms in the 13F database at the quarter end prior to loan initiation are classified as having low common ownership, those in the top quartile are classified as having high common ownership.

existence of the two potential channels as such financially risky firms tend to be subject to more opacity and managerial misbehavior. I conduct further subsample tests based on information asymmetry and agency cost proxies to test for potential mechanisms driving the relationship. I find the effect to be mainly significant in firms with lower analyst coverage and when creditors have less industry expertise, supporting the information channel. The monitoring channel also appears to be at play as the effect is only significant for firms with longer CEO tenures and a higher tendency to overinvest.

After a new loan covenant violation, creditor control tends to be heightened, inducing violating firms to cut investment, debt, and payout to be more conservative (Nini et al., 2012). In the post-violation period, acquisitions and capital expenditures decrease more significantly for firms with low common ownership than for those with high common ownership, further supporting the notion that common owners monitor effectively against managerial discretion, thus leaving less investment inefficiency for creditors to intervene with. Meanwhile, firms with high common ownership experience a significant decrease in shareholder payouts and total debt while there is minimal such effect for their counterparts, suggesting that free cash flow from wasteful investment could have been shifted toward payout and debt. This also suggests that the reduced risk from managerial discretion could come at the expense of higher shareholder risk shifting potential.

Overall, the evidence suggests that the information channel and the monitoring channel work complementarily with each other to lower the cost of debt. The monitoring against managerial discretion by common owners lowers cash flow risk and avoids value loss from overinvestment. The information channel allows creditors to better account for this effect, leading to a lower cost of debt. An additional analysis of the credit default swap premiums shows that firms with higher common ownership have lower CDS spreads, providing further evidence that common owners' monitoring lowers firm default risk, which overrides potential shareholder risk shifting concerns for creditors.

To address the self-selection concern that active asset managers choose to own industry

peers due to private information on their credit risk, I first use the merger between BlackRock and Barclays Global Investors to create exogenous variation in common ownership in order to further mitigate this 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. Next, I run another two-stage least squares (2SLS) regression using variation in common ownership induced by only the five large index fund families. Finally, I also use pre-2000 quasi-index common ownership to instrument for common ownership from 2000 to 2016. The results of all three analyses 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.

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 growing common ownership literature. While many have looked at the implications of common ownership for market competition (Azar et al., 2018; 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 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 particularly complement the findings of He et al. (2017) on the more active monitoring engagement from common owners by providing further supportive evidence from firm behavior and creditor reaction.

The paper by Massa and Zaldokas (2017) (MZ) is the most related work to this study, arguing that bond lenders in blockheld firms factor in the information on the equity blockholders' other blockholdings to learn their attitude toward creditors. They focus on showing evidence of a significant correlation of credit risk indicators (expected default frequency, yield spread, rating) among commonly-held firms. An increase in credit risk of one firm can lead to an increase in credit risk of its commonly-held peers. This paper focuses on a more direct link between credit risk and the common owners.

While MZ emphasize on the notion that creditors learn critical information about their borrowers' credit risk by observing large shareholder behavior through common ownership, this paper highlights the direct influence of common owners' incentives and expertise on the focal firms' credit risk. I present evidence indicating that managerial misbehavior, which could increase credit risk, is mitigated under common ownership. Although I focus on this direct monitoring channel as the driving force lowering credit risk, the information channel identified by MZ helps explain common owners' incentives to monitor while it also serves as an amplifying mechanism allowing creditors to better account for the effect of common owner monitoring. Therefore, this paper builds upon and complements the findings of MZ by not only proposing a more direct linkage between credit risk and common ownership but also reconciling how the indirect (information) and direct (monitoring) links can work together affecting loan pricing[2].

My findings also contribute to the strand of literature on loan pricing. There has been re-

[2]Sample construction can also be an an important distinction between the two papers as Massa and Zaldokas (2017) conduct their analyses using bond ownership while this paper uses syndicated loan participation, 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 the results. I also use a much more extended sample period which enables me to show how the influence evolves over time.

cent 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 dual 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 contributes to the pricing of loan contracts.

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

2 Empirical Analyses

2.1 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 2016. 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. Industries are defined using the 4-digit SIC code following common practice in the common ownership literature[3]. I drop firms in the finance (6000-6999), utility (4900-4999), and regulated (>9000) industries. Ownership

[3]This is based on the historical COMPUSTAT 4-digit SIC codes. In Section 4 I also conduct the baseline analyses using the Hoberg and Phillips (2010, 2016) industry classifications and historical CRSP 4-digit codes which obtain similar results.

data is obtained from 13F institutional holding database provided by Thomson Reuters[4] and aggregated at the fund family level. The final sample includes 27,638 loan facilities involving 4,560 firms.

Table 1 presents summary statistics of the variables used in the empirical analyses. Variable definitions are further explained in the Appendix. To test the monitoring effect of common ownership, I use firm-level measures instead of the industry-level measure used to study product market competition, the Modified Herfindahl Hirschman Index Delta ($MHHID$). The key common ownership measure in this paper is CO, which measures the ownership firm j's shareholder is have in its industry peers ks. For each firm pair j has with k, β_{ij} is the ownership investor i has in firm j while β_{ik} is the ownership held by i in firm k. The product of the two ownership shares measures how much interest i has in the joint value of the firm pair. The measure is higher when i's interest is more symmetrically spread between j and k. All firm pairs j has with ks are then averaged based on market value of ks (value weight w_k) for the focal firm j. This measure is used in Azar (2012, ch. 5) and recently employed by Anton et al. (2018b) and Lewellen and Lowry (2019).

$$CO_j = \sum_{k=1}^{k} \sum_{i=1}^{I} w_k \beta_{ij} \beta_{ik}, \tag{1}$$

As an alternative check, I also adopt a more simplified model-free measure of common ownership, $Top5CO$, which measures the stakes a firm's top 5 largest shareholders have in its industry peers[5]. This measure simply assumes that firm j's top 5 shareholders are the shareholders with the most incentives and power to influence its managerial decisions. 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. The two measures used in the analyses

[4]Missing ownership data from 2013 is fixed with WRDS SEC Analytics Suite.

[5]The two firm-level common ownership measures measure the connectedness at the firm pair level, then they are both value weighted and equally weighted across all pairs the firm has with its industry peers for each firm.

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.

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

2.2 Common Ownership and the Cost of Debt

To investigate the relationship between common ownership and the cost of debt. I regress the log of loan spread on common ownership 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 loan spread to such firms as their default risks decrease and firm value increase.

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

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 equally weighted *CO* while Column (4) and (5) present results for value weighted and equally weighted *Top*5*CO*. I control for total institutional ownership, ownership percentage held by the firm's top 5 institutional shareholders, and a dummy for having a block holder, because high common ownership could be closely correlated with such ownership variables which also have significant influence on creditors. This helps isolate the potential effect of large shareholder monitoring and risk-shifting, as well as lower information asymmetry induced by a larger institutional ownership base. Having a block holder or 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 from large shareholders.

While using an equally weighted measure and focusing on the top 5 shareholders also yield statistically and economically strong results, I focus on the value weighted *CO* measure for the main results as they better capture the incentives and influence of the common owners. Therefore, Column (2) presents the baseline results of my analysis, which support a highly significant relationship between loan spread and common ownership. The coefficient is -0.102, indicating a 5.23% decrease in annual financing costs for an interquartile increase from having low (25th percentile[6]) to high (75th percentile) common ownership. Based on sample average this means a decrease of 9.94 basis points in loan spread and USD 367,780 in cash terms.

To check for robustness of the baseline results, I define a dummy variable *High CO* (*High Top*5*CO*) equalling one for borrowers with value weighted *CO* (*Top*5*CO*) in the top quartile among all borrowers in each sample year. This measure can mitigate measurement error concerns. Results from Column (6) and (7) provide further support to the idea that borrowers with high 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

[6] *CO* is rank-transformed based on ranking among all firms in the 13F database at the quarter end prior to loan initiation, allowing an interpretation of the effect from an interquartile increase in *CO* by multiplying the coefficient -0.102 by 0.5, then taking the exponential function of it and minusing one to obtain the percentage decrease in loan spread.

industry characteristics may affect both common ownership and loan spread. Furthermore, although my analyses are conducted at the loan contract level, it is possible to include firm fixed effect to rule out potential firm-specific time-invariant variables since firms do take out multiple loans over such an extended sample period. In Column (8) I include industry$\times$year fixed effect, as well as the stricter firm fixed effect to test the robustness of my results against this possibility. The results turn out to be consistent with and even better than the baseline results.

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

Figure 1 shows a significantly stronger increase of common ownership in borrower firms from 2000. 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 value weighted *CO* for the pre-2000 and post-2000 periods, as well as for periods before, during, and after the 2007-2009 Financial Crisis. Figure 2 visually shows the comparison of loan spread between firms with low and high common ownership. It is apparent that the difference in cost of debt between firms with low and high common ownership becomes significantly larger after 1999. The two do converge during the 2007-2009 Financial Crisis yet the difference reappears from 2010 on.

The results presented in column (1) and (2) of Table 3 indicate that the effect of common ownership on the cost of debt mainly comes into effect in the post-2000 period. Before 2000, the effect of *CO* on loan spread is far from having any economic or statistical significance. 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 *CO* and loan spread loses significance yet it becomes significant again and even stronger than before the crisis from 2010 to 2016, 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 common ownership on the cost of debt. A highly significant coefficient of -0.158 in the post-2000 period indicates a decrease of 8.22% in annual financing costs when a firm goes from having low (25th percentile) to high (75th percentile) common ownership. On average this translates into a 17.26 basis points lower loan spread and USD 749,084 of cash saving, a magnitude even stronger than that found by Valta (2012) for the influence of high competition on the cost of debt.

2.4 Common Ownership and the Cost of Debt - Subsample Tests

2.4.1 Credit Worthiness

I then conduct a series of subsample tests in order to better understand the mechanisms driving the baseline results. 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 ratings. I run the regression using subsamples of investment grade (IG) firms and non-investment grade (Non-IG) firms throughout different periods. A firm is classified as non-investment grade firm if its S&P long term domestic issuer credit rating is below BBB- or it does not have a rating. Based on Panel A of Table 4, the effect of *CO* on loan spread turns out to be mainly significant for financially risky borrowers, which is consistent throughout different periods. Although the coefficient for *CO* does not have enough statistical power for either the IG or the non-IG firms during the crisis period, the effect of common ownership for non-IG firms becomes substantially stronger in the post-crisis period, while remaining insignificant for IG firms. These results provide support to the two hypothesized potential channels, information and monitoring. Such evidence rules out the endogeneity concern that large and established firms, which tend to have higher common ownership due to indexing, enjoy lower borrowing costs. Since 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 common owners.

2.4.2 Information Asymmetry

In my next set of subsample tests, I focus on the subsample of non-IG firms during the period from 2000 to 2016 as this is the sample composition and period in which the effect of common ownership on loan spread is mainly pronounced. I first account for creditor heterogeneity by testing whether lender 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) in Panel B of Table 4, I separate the sample into subsamples of loan syndicates with low and high industry expertise. Loan facilities with total industry expertise above (below) sample median are classified as having high (low) industry expertise. It is clear that the effect of *CO* on loan spread is mainly pronounced when lenders in the syndicate have low industry expertise.

I then conduct a subsample test based on analyst coverage. In Column (3) and (4), I split the sample into subsamples of borrowers with low and high analyst coverage. Loan facilities in which borrowers have analyst coverage above (below) sample median are classified as having high (low) analyst coverage. The effect of *CO* on loan spread is again only significant when borrowers have low analyst coverage. The relationship between common ownership and loan spread is only significant when lenders have low industry expertise and for borrowers with higher opacity to the capital market. This supports the information channel that common ownership allows creditors to learn more about borrowers by observing their commonly-held peers for common owner monitoring or wealth transfer behavior.

In addition, the results of these tests also help rule out 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, lender industry expertise and analyst coverage should amplify this relationship. Lenders with more industry expertise should be more able to account for such change in the industry competitive dynamic. It should also be better reflected in borrowers with more analyst coverage.

2.4.3 Agency Cost of Managerial Misbehavior

Next, I conduct two additional sets of subsample tests to examine the monitoring channel. In Column (5) and (6) in Panel B of Table 4, I split the sample into subsamples of borrowers with long and short CEO tenure. Loan facilities in which CEOs of the borrowers have tenures above (below) sample median are classified as having long (short) CEO tenure. I observe only a significant relationship between *CO* and loan spread for borrowers with long CEO tenure. CEOs with longer tenure tend to be more entrentched and are more likely to undertake empire-building projects. Therefore, these results support the notion that common owners lower the cost of debt by monitoring against managerial misbehavior.

In Column (7) and (8), I further look into this channel with another proxy, the overinvesting tendency score. Loan facilities with overinvesting tendency score above (below) sample median are classified as having high (low) overinvesting tendency. The overinvesting tendency score is computed as the following: the cash holdings of sample firms in each year are ranked into deciles then converted into a score of 0 to 1, with 1 being most likely to overinvest in regard of having excess cash in hand; the Q of sample firms in each year are also ranked into deciles then converted into a score of 0 to 1, I use one minus this score so that 0 indicates most likely to overinvest in regard of poor growth opportunities; the two scores are then averaged into the overinvesting tendency score. I only find a significant effect of *CO* on loan spread for borrowers with high tendency to overinvest. This again supports the monitoring channel which states

that common ownership allows common owners to better monitor against manager wealth appropriation behavior, which also benefits creditors.

2.5 The Monitoring Channel - Evidence from Covenant Violations

In this section I provide further evidence on the direct channel through which I hypothesize common ownership affect the cost of debt, monitoring against managerial discretion. 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. Post covenant violation changes can also help understand whether large common owners are indeed 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[7]. I follow the design in Nini et al. (2012) and use the first-difference estimates of the marginal effect of new covenant violation for firms with high *CO* and firms with low *CO* on acquisitions scaled by average assets and capital expenditures scaled by average assets. This quasi-regression discontinuity includes higher-order (the second and third power of the control variables which are financial terms on the covenants) and lagged (four quarters prior to violation) covenant controls, mitigating the concern that firms have already been cutting investments before violations due to declining financial conditions. Firms are classified as having high (low) *CO* if their *CO*s are in the top

[7]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.

(bottom) quartile of the year-quarter group. I include industry, fiscal quarter, and year-quarter fixed effects, with standard errors clustered at the firm level.

The results presented in Column (1) to (4) of Table 5 provide strong support to the monitoring channel. Acquisitions decrease significantly for firms with high *CO* after they violate a covenant for the first time, while there is no significant decrease for firms with low *CO*. While the post-violation decrease is statistically significant for firms with both high and low *CO*, the decrease for firms with high *CO* is 50% smaller than that for those with low *CO*. Investment policies appear to be already efficient under high common ownership so that creditors find less need to intervene after a covenant violation. These results support the notion that high common ownership fosters better monitoring against managers from investing in empire-building or value-destroying projects.

I also test the changes in shareholder payout in Column (5) and (6), as urging managers to divert free cash flow from wasteful investments toward payout allows shareholders to protect themselves from managerial discretion (Jensen, 1986). After a new violation, there is a significant decrease in shareholder payouts for firms with high *CO* and there is minimal decrease for firms with low *CO*. While common owners might indeed be using payout as a mean to discipline managers from overinvesting, this also suggests that the better monitoring over management comes with a threat of higher shareholder risk-shifting potential for creditors. The risk-shifting opportunity of reaping more payouts for common owners is evident by this analysis. I further test this threat by looking at the changes in total debt, since debt issuance, especially for payout, can be another way powerful shareholders discipline managers which also shifts risk to creditors (Jensen, 1986). Based on results presented in Column (7) and (8), there is a significant decrease in total debt for violating firms with high *CO* while there is no such effect for those with low *CO*, supporting the notion that common owner monitoring could come at the expense of more shareholder risk-shifting.

Overall, Table 5 provides strong evidence that high 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 spread and post-violation behavior suggests that large shareholders with high common ownership monitor management effectively to lower the firm's cash flow risk and avoid value loss from over-investment. As a result, default risk is lower and asset liquidation value is higher, overriding the shareholder risk-shifting concern. Creditors take this into account when pricing financial contracts, which leads to the decrease in loan spread evidenced in the baseline results.

2.6 Effect of Common Ownership by Investor Heterogeneity

Although the alternative measure $Top5CO$ 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. (2018). 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 CO with only those shareholders who are high-churn (low-churn). The rank-transformed COs based on high-/low-churn investors are then used to repeat the baseline regression both separately and simultaneously. The results are presented in Table 6.

Based on the results from Column (1) to (3), 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. The effect found in the main results appear to be 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).

I further examine whether my results are mainly driven by a few very large passive investors. From Column (4) to (6), I compute *CO* for only top indexers including BlackRock, State Street, Vanguard, and Barclays Global Investors, as *CO_Top Indexers*, as well as *CO* for all investors excluding the aforementioned four index fund families. The results indicate that both top indexers and other investors have significant effect on loan spread. The relationship between common ownership and loan spread is not solely driven by a few large index fund families. In addition, this relationship is not just driven by the endogenous choice by active fund managers, as these index funds do not choose their portfolio firms based on private information. Finally, I focus on the firm's largest institutional shareholder. In Column (7) I compute *CO* using only holdings of the sample firms' No.1 shareholders and repeat the baseline regression. The result is again significant, indicating that the institution with the most incentives and abilities to monitor the firm also plays a significant role in the common ownership effect identified in the baseline analysis.

2.7 Further Evidence from Credit Default Swap Spreads

To further 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 common ownership can provide further support to the notion that common owner monitoring makes 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. The spreads for each firm in the CDS universe in the last trading day of each quarter from 2001 to 2016 are used for the analysis. I

also repeat the analysis by curbing 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). *CO* is taken from the prior quarter end and all firm characteristic controls are concurrent. I follow Tang and Yan (2007) and control for option-implied volatility, jump risk, market capitalization, leverage, book-to-market, number of outstanding senior unsecured bonds, and analyst forecast dispersion. To isolate potential effect from institutional ownership, blockholders, and ownership concentration among large shareholders, I also include the three ownership variables as controls.

Table 7 presents the results of regressing the log of the spread over LIBOR for the 5-year CDS contract on the firm's *CO* in the prior quarter. Common ownership does appear to lower the firm's CDS premium, with the effect mainly coming from non-investment grade firms (CDS rating below BBB on Markit). 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 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. The results remain consistent if I only focus on the period before the "Big Bang", as shown in Column (6) and (7). These results provide strong support to the argument that 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 Identification Strategy

3.1 BlackRock-BGI Merger - A Quasi-Natural Experiment

The large set of fixed effects included in the baseline panel regression help mitigate omitted variable concerns. However, one might still argue on reverse causality that lower cost of debt actually leads to higher 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. I have shown in Section 2.6 that common ownership held solely by index funds also has a significant negative association with loan spread, mitigating the endogeneity concern. To further address this self-selection concern, I follow Azar et al. (2018) and use the acquisition of Barclays Global Investors (BGI) by BlackRock in 2009 as a natural experiment to generate exogenenous variation in common ownership. This mega-merger was announced in 2009 Q1 and led to increased 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 common ownership has a causal effect on the cost of debt.

I use an IV design similar to that of Azar et al. (2018). I first build a hypothetical portfolio taking BlackRock and BGI holdings as already together in 2009 Q1, the quarter before the merger announcement. I then calculate the implied change in common ownership by taking the difference between the *CO* based on the hypothetical holdings and the actual holdings in 2009 Q1. The IV regression analyzes loan contracts initiated during the five years after the merger, from 2010 to 2014. The implied change is used as a continuous instrumental variable to instrument *CO* in the period after the merger. In the second stage, the log of loan spread is regressed on the instrumented *CO*, controlling for all the firm and loan characteristics from the

baseline regression, as well as all the fixed effects. I use year-quarter fixed effect instead of year fixed effect in this regression in order to better rule out time-specific shocks that could affect loan spread.

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

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 *CO* 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. (2018), 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 *CO* and the implied change in *CO* are rank transformed for comparability across industries.

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

Table 8 Column (1) to (4) report the results of the two 2SLS regressions based on this merger. Since the earlier results show that the effect mainly comes from financially risky firms, I run these regressions using the subset of firms with non-investment grade S&P rating or no rating. As expected, there is a highly significant positive relationship between *CO* 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 common ownership after the merger. The second stage results provide strong causal support to the baseline results.

The instrumented *CO* has a strong negative effect on loan spread in both cases. The results of the F-test for weak instrument indicate that both IVs are also econometrically strong. Therefore, the merger between BlackRock and BGI provides good evidence that high common

ownership can lead to lower cost of debt. However, the remaining identification concern is that this "shock" might be correlated with omitted variables that could also affect credit risk, especially given that it is during the period right after the Financial Crisis although year-quarter fixed effect helps lessen this concern. Therefore, I adopt additional instrumental variables for external validity.

3.2 Index Fund Ownership and Quasi-Indexer Common Ownership

In addition to the initial analysis focusing on only the biggest index fund families done in Section 2.6, in this section I use index fund ownership as an instrument to obtain variation in common ownership specifically induced by variation in ownership from large index funds. This approach also helps rule out the concern that the effect of common ownership on loan spread is due to active asset managers' stock picking strategies, while not being subject to the same issue the BlackRock-BGI merger IV has as it can be applied to the full sample period. As pointed out by Azar et al. (2016), who also use the same approach, the growth of index funds is mainly due to increased investment from fund investors or value increase in their aggregate holdings. This IV does not affect borrower firms that are not included in an index, which is not uncommon given that we focus on firms with speculative or no S&P credit ratings. Following Azar et al. (2016), ownership by large index funds is defined as percentage of shares outstanding held by the "Big Five" index funds, iShares (BlackRock, formerly Barclays Global Investors), Vanguard index funds, SPDR (State Street), PowerShares (Invesco), and Fidelity index funds. I use index fund ownership as the IV and run the 2SLS regression for firms with non-investment grade or no S&P credit ratings in the 2000 to 2016 period.

Column (5) and (6) in Table 8 present the results of this 2sls regression. There is indeed a strong relationship between common ownership and index fund ownership. The instrumented *CO* has a highly significant effect on loan spread with a similar magnitude to that identified by the previous two 2SLS regressions. The F-statistic is again comfortably large, indicating strong econometric power. Again, no IV is perfect. The identification challenge of using this IV is that

some of the sample firms might get included in certain indices due to having low credit risk throughout the sample period. To address this challenge and obtain further external validity for the robustness of the relationship between common ownership and loan spread, I adopt one last IV following Gutiérrez and Philippon (2018).

I first identify institutional investors classified as quasi-indexers by the Brian Bushee institutional investor classifications. I then calculate the value weighted CO using only ownership by such quasi-indexers, CO_QIX. The CO_QIX for each borrower firm is then averaged to $CO\_QIX - 1999$ across the four quarters in 1999. This variable is used as the IV following the rationale of Gutiérrez and Philippon (2018), who point out that: first, the persistence of quasi-index ownership means that pre-2000 quasi-index common ownership is likely to remain in place for a significant period after Year 2000 and influence credit risk, which is less probable to be induced by investors' changing private information on the firms' credit risk throughout the post-2000 period; furthermore, thanks to the booming economy in 1999, investment decisions made then by such common owners should be less relevant to their abilities to predict firm credit risk in the post-2000 period, which changed drastically after the burst of the dot-com bubble; finally, activism could be a contributing factor to shareholder monitoring against managerial misbehavior yet it did not start increasing substantially until after 2004. Pre-2000 common ownership is then less likely to be related to the rise of activism.

I conduct the 2SLS analysis with CO_QIX in 1999, for firms with non-investment grade or no S&P credit ratings from 2000 to 2016. The results are reported in Column (7) and (8) of Table 8. As expected, $CO\_QIX - 1999$ is highly correlated with common ownership in the post-2000 period. The second stage result again supports the effect of common ownership on loan spread with high statistical and economic magnitudes. The F-test also indicates that the IV is econometrically strong. With the extended sample period ending in 2016, the reverse causality concern is largely mitigated as common ownership decisions made in 1999 could not have foreseen better monitoring against managerial misbehavior or better credit conditions for the next 17 years.

4 Robustness Checks

4.1 Alternative Common Ownership Measures and Industry Classifications

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[8]. Furthermore, to measure the extent of such top shareholder common ownership, I use four additional variables as in He and Huang (2017), *LnNumCommon*, *LnNumConnected*, *LnAvgNum*, and *Ln_Common Ownership*. *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 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 (2.5) 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 4.2% stake in the focal firm and an average of 4.3% stake in each commonly-held peer, while an average borrower firm is connected to 14 industry peers by such common owners.

I repeat the baseline analysis of Equation 3 using these alternative measures. Table A.1 shows the result which are consistent with the baseline results. The effect common ownership has on loan spread 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

[8]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 a 4.2% 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.).

monitoring from common owners.

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) and the historical CRSP 4-digit SIC codes 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 HP FIC-400 classifications start in 1997, limiting the sample to 1997 to 2016 in this case. Table A.2 presents the results based on the alternative industry classifications.

The results based on both classifications are consistent with what I find using the COMPUSTAT 4-digit SIC classifications. There is a highly significant negative effect between common ownership and loan spread. CO and $Top5CO$ both have significant negative coefficients regardless of being value weighted or equally weighted. Figure 3 visually illustrates the relationship, which is again consistent with the COMPUSTAT 4-digit SIC sample in 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 two alternative classifications offer consistent results in comparison to those from the baseline analysis. Therefore, the effect of common ownership on loan spread is not likely to be subject to specific industry classifications.

4.2 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., 2018, 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. (2018). 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. Alternatively, I also value weight the firm-level value weighted CO across the industry rivals and obtain industry-level $\overline{CO}$ as a measure of industry ownership concentration. To test the anti-competition hypothesis, I first split the sample into high and low $\overline{CO}(MHHID)$. If a borrower firm has $\overline{CO}$ $(MHHID)$ in the top (bottom) quartile among all sample firms in the sample year, it is classified as being in a high (low) $\overline{CO}$ $(MHHID)$ environment. I then interact $\overline{CO}$ $(MHHID)$ with HHI in the loan spread regression using the following equation:

$$\begin{aligned} LoanSpread_{i,j,t} = \beta_1 HHI_{j,t-1} + \beta_2 HHI_{j,t-1} \times \overline{CO}_{j,t-1} \\ + \beta_3 \overline{CO}_{j,t-1} + \delta' X_{i,t-1} + \gamma_j + \pi_l + \theta_l + \tau_t + \epsilon_{i,j,t} \end{aligned} \tag{7}$$

The key variable of interest here is the interaction between HHI and $\overline{CO}$ $(MHHID)$. 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 $\overline{CO}$ $(MHHID)$ will have a smaller spread than those with low HHI and low $\overline{CO}$ $(MHHID)$. Table 9 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 ($\overline{CO}$ or $MHHID$). However, the subsample tests in Column (1) and (2) show the opposite result. The positive association competition has with loan spread appears to be more statistically and economically pronounced in a high common ownership environment. When $MHHID$ is used to measure industry ownership conceentration in Column (3) and (4), HHI lacks economic and statistical significance in both cases. Common ownership does not appear to have a distinct influence in this case as the hypothesis suggests.

Column (5) to (8) show the results for Equation 6 with time period and sample variation. Based on these results, the interaction terms do have a positive coefficient which can mitigate the effect HHI has on loan spread. However, they all lack statistical power to be significant. While the t statistic for the interaction term in Column (7) indicates that it is not too far from being significant, when I run the regression for the post-2000 period and only firms with non-investment grade or no S&P credit ratings in Column (8), the statistical power of the interaction term becomes extremely small. Since the effect I find in my main results concentrates in financially risky firms during the post-2000 period, the anti-competition hypothesis is then not able to explain it. 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.

4.3 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 abilities 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 **??**. 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 10 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 variable *LnNumDualholder* which is the logarithm of one plus the number of dual holders, measuring how many dual holders the borrower firm has in the loan initiation year. The results in Table 10 first confirm previous findings on dual ownership by showing that it does lower loan spread. The relationship between *CO* and loan spread remains similar (slightly weaker) when controlling for the presence of dual holders, providing evidence that my findings are unlikely to be mainly driven by dual ownership. I then include an interaction between *CO* and *LnNumDualholder*, which yields a coefficient with no economic or statistical significance and the coefficient of *CO* remains similar to that in Table 4, as shown in Column (5). Overall, dual ownership does not appear to drive my main findings.

5 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 behavior 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 mostly driven by firms with poor or no S&P credit ratings in the post-2000 period. Going from having low (25th percentile) to high (75th percentile) common ownership indicates a decrease in annual financing costs of 5.23% in the overall sample of 1987 to 2016 and 8.22% in the post-2000 period during when common ownership substantially increases. 2SLS regressions based on multiple sources of exogenous variation all support a robust causal relationship between common ownership and loan spread.

The relationship identified in the baseline regression is mainly pronounced for firms with speculative-grade or no S&P long term issuer credit ratings, ruling out the concern that firms with high common ownership may be large and established firms, which usually enjoy lower borrowing cost, due to the rise of index funds. Furthermore, the effect of common ownership on loan spread is mainly significant for borrower firms have low analyst coverage and when lenders have low industry expertise. This supports the information channel which allows creditors to learn more information by observing their borrowers' commonly-held peers. Meanwhile, I also find the effect only for firms with more entrenched CEOs and a higher tendency to overinvest, providing evidence to the monitoring channel which states that common owners monitor effectively against managerial discretion, lowering these firms' cash flow risk and avoiding value loss from overinvestment. Combining with the information channel, creditors then account for this and lower the cost of the debt for the focal firms.

Post-covenant violation behavior indicates that common owners indeed appear to mitigate investment efficiency. Yet payout and leverage patterns propose a potential increase of shareholder risk-shifting opportunities as an expense of more the effective monitoring against managerial misbehavior for creditors. Despite this concern, I analyze the relationship between common ownership and CDS premium to show that overall, common ownership lowers credit risk. For creditors in a high common ownership environment, the benefit of more disciplined managers appears to outweigh the threat of higher shareholder risk-shifting potential.

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 and bankruptcy negotiation.

References

Anton, Miguel and Luca Xianran Lin, "The Mutual Friend: Dual Holder Monitoring and Firm Investment Efficiency.," *Available at SSRN 3208242*, 2018.

_ , Florian Ederer, Mireia Gine, and Martin C. Schmalz, "Common ownership, competition, and top management incentives," *Available at SSRN 2802332"*, 2018.

_ , Jose Azar, Mireia Gine, and Luca X. Lin, "Beyond the Target: M&A Decisions and Rival Ownership," *Available at SSRN 3226390*, 2018.

Appel, Ian R., Todd A. Gormley, and Keim Donald B., "Passive investors, not passive owners.," *Journal of Financial Economics*, 2016, *121* (1), 111–141.

Azar, José, "A new look at oligopoly: Implicit collusion through portfolio diversification," *Ph.D. Thesis, Princeton University*, 2012.

Azar, Jose, Martin C. Schmalz, and Isabel Tecu, "Anticompetitive effects of common ownership," *The Journal of Finance*, 2018, *73* (4), 1513–1565.

_ , Sahil Raina, and Martin C. Schmalz, "Ultimate Ownership and Bank Competition.," *Available at SSRN 2710252*, 2016.

Borisova, Ginka, Veljko Fotak, Kateryna Holland, and William L. Megginson, "Government ownership and the cost of debt: Evidence from government investments in publicly traded firms," *Journal of Financial Economics*, 2015, *118* (1), 168–191.

Campello, Murillo and Janet Gao, "Customer concentration and loan contract terms," *Journal of Financial Economics*, 2017, *123* (1), 108–136.

Chava, Sudheer, Rui Wang, and Hong Zou, "Covenants, Creditors' Simultaneous Equity Holdings, and Firm Investment Policies," *Journal of Financial and Quantitative Analysis*, 2017, pp. 1–70.

Chen, Xia, Jarrad Harford, and Kai Li, "Monitoring: Which institutions matter?," *Journal of Financial Economics*, 2007, *86* (2), 279–305.

Chu, Yongqiang, "Shareholder-creditor conflict and payout policy: Evidence from mergers between lenders and shareholders.," *The Review of Financial Studies*, 2017. forthcoming.

Edmans, Alex and Gustavo Manso, "Governance through trading and intervention: A theory of multiple blockholders.," *The Review of Financial Studies*, 2010, *24* (7), 2395–2428.

_ , Doron Levit, and Devin Reilly, "Governance under common ownership," *The Review of Financial Studies*, 2018. forthcoming.

Ferreira, Daniel, Miguel A. Ferreira, and Beatriz Mariano, "Creditor control rights and board independence." The Journal of Finance," *The Journal of Finance*, 2018, *73* (5), 2385–2423.

Gaspar, José-Miguel, Massimo Massa, and Pedro Matos, "Shareholder investment horizons and the market for corporate control.," *Journal of Financial Economics*, 2005, *76* (1), 135–165.

Gutiérrez, Germán and Thomas Philippon, "Investment-less growth: An empirical investigation.," 2016. No. w22897. National Bureau of Economic Research.

_ and _ , "Ownership, Governance and Investment," *AEA Papers and Proceedings*, 2018, *108*, 432–37.

Hansen, Robert G. and John R. Lott, "Externalities and corporate objectives in a world with diversified shareholder/consumers.," *Journal of Financial and Quantitative Analysis*, 1996, *31* (1), 43–68.

Hasan, Iftekhar, Chun Keung Hoi, Qiang Wu, and Hao Zhang, "Social capital and debt contracting: evidence from bank loans and public bonds," *Journal of Financial and Quantitative Analysis*, 2017, *52* (3), 1017–1047.

He, Jie Jack and Jiekun Huang, "Product market competition in a world of cross-ownership: Evidence from institutional blockholdings.," *The Review of Financial Studies*, 2017, *30* (8), 2674–2718.

He, Jie, Jiekun Huang, and Shan Zhao, "Internalizing governance externalities: The role of institutional cross-ownership," *Journal of Financial Economics*, 2017. forthcoming.

Hoberg, Gerard and Gordon Phillips, "Product market synergies and competition in mergers and acquisitions: A text-based analysis.," *The Review of Financial Studies*, 2010, *23* (10), 3773–3811.

_ and _ , "Text-based network industries and endogenous product differentiation.," *Journal of Political Economy*, 2016, *124* (5), 1423–1465.

Jensen, Michael C., "Agency costs of free cash flow, corporate finance, and takeovers," *American Economic Review*, 1986, *76* (2), 323–329.

Jiang, Wei, Kai Li, and Pei Shao, "When shareholders are creditors: Effects of the simultaneous holding of equity and debt by non-commercial banking institutions," *The Review of Financial Studies*, 2010, *23* (10), 3595–3637.

Kang, Jun-Koo, Juan Luo, and Hyun Seung Na, "Are institutional investors with multiple blockholdings effective monitors?," *Journal of Financial Economics*, 2018, *128* (3), 576–602.

Lewellen, Katharina and Michelle Lowry, "Does Common Ownership Really Increase Firm Coordination?," *Available at SSRN 3336343*, 2019.

Lin, Chen, Yue Ma, Paul Malatesta, and Yuhai Xuan, "Ownership structure and the cost of corporate borrowing," *Journal of Financial Economics*, 2011, *100* (1), 1–23.

_ , _ , _ , and _ , "Corporate Ownership structure and bank loan syndicate structure," *Journal of Financial Economics*, 2012, *104* (1), 1–22.

Lopez, Angel L. and Xavier Vives, "Cross-Ownership, RD Spillovers, and Antitrust Policy.," *Available at SSRN 2805398*, 2016.

Massa, Massimo and Alminas Zaldokas, "Information transfers among co-owned firms.," *Journal of Financial Intermeidation*, 2017, *31*, 77–92.

Nini, Greg, David C. Smith, and Amir Sufi, "Creditor control rights, corporate governance, and firm value," *The Review of Financial Studies*, 2012, *25* (6), 1713–1761.

Subrahmanyam, Marti G., Dragon Yongjun Tang, and Sarah Qian Wang, "Does the tail wag the dog?: The effect of credit default swaps on credit risk.," *The Review of Financial Studies*, 2014, *27* (10), 2927–2960.

Tang, D. Y. and H. Yan, "Liquidity and credit default swap spreads.," *Available at SSRN 1008325*, 2007.

Valta, Philip, "Competition and the cost of debt," *Journal of Financial Economics*, 2012, *105* (3), 661–682.

A Figures

Figure 1. Trend of Common Ownership in Borrower Firms 1987-2016. The first figure shows the average common ownership, as measured by value weighted *CO* (calculated using Equation 3), for all borrower firms in each sample year.

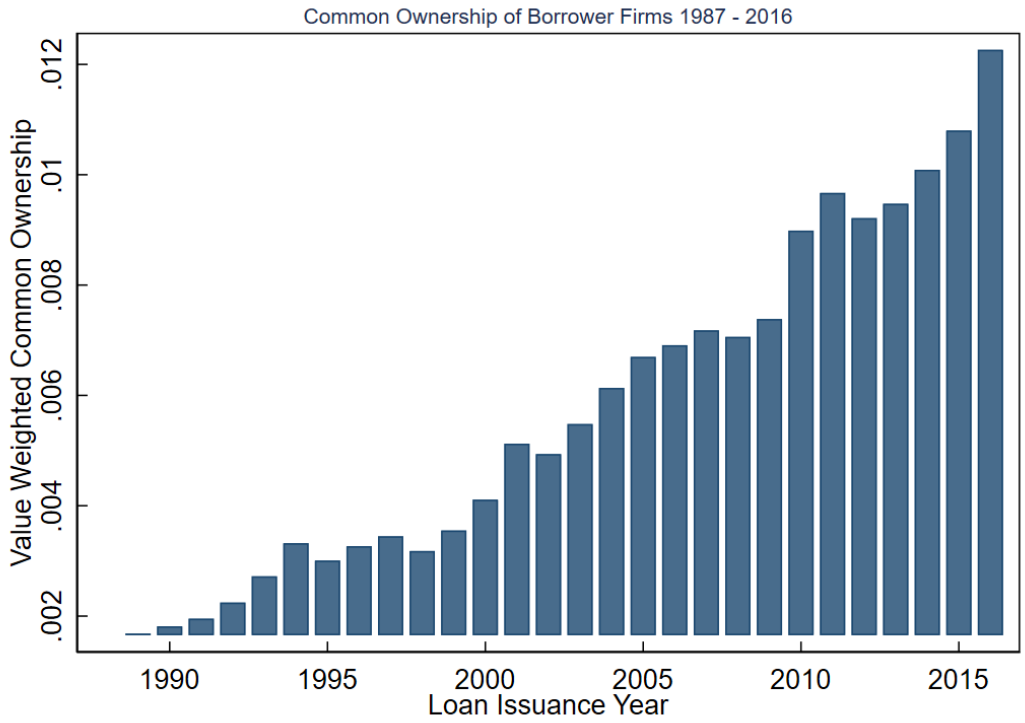


Figure 2. Loan Spreads for Borrower Firms with Low vs. High Top Shareholder Common Ownership 1987-2016. This figure shows the annual average log.loan spread for firms with low vs. high top shareholder common ownership, as measured by value weighted *CO* (calculated using Equation 3). If the firm's *CO* is in the top quartile among all firms' in the loan issuance year then it is classified as having high common ownership, while one with *CO* in the bottom quartile is classified as having low common ownership.

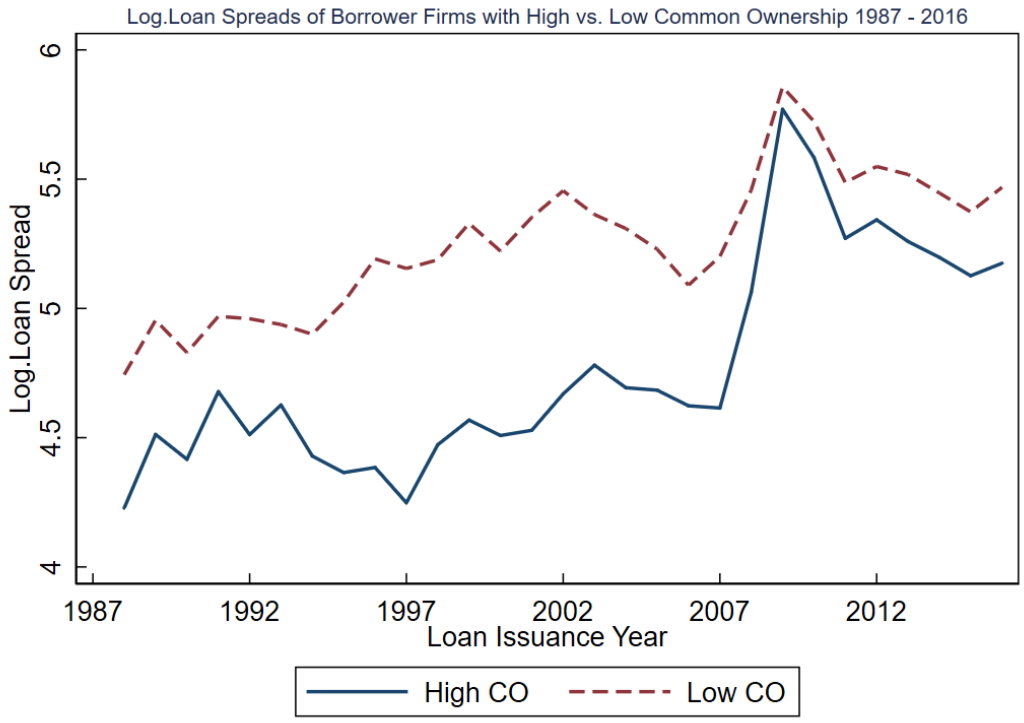
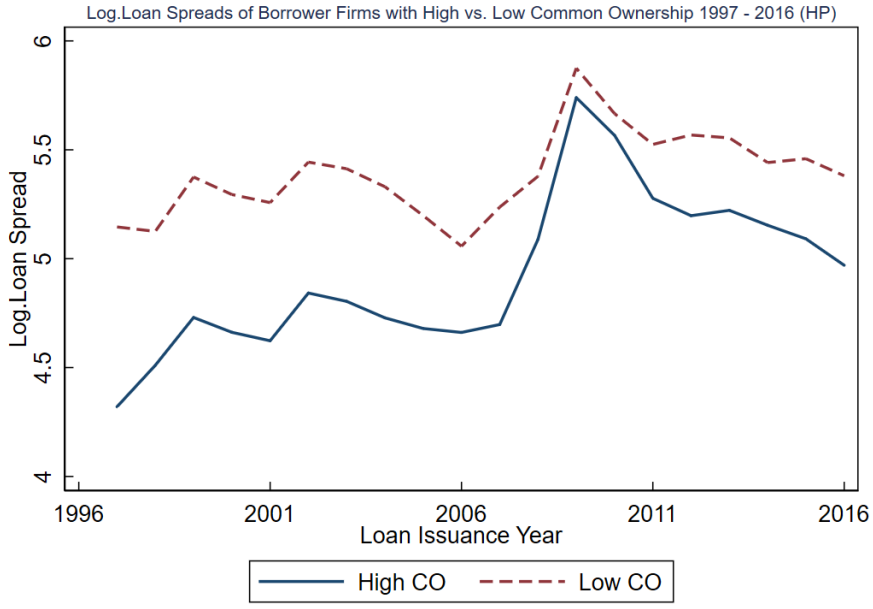
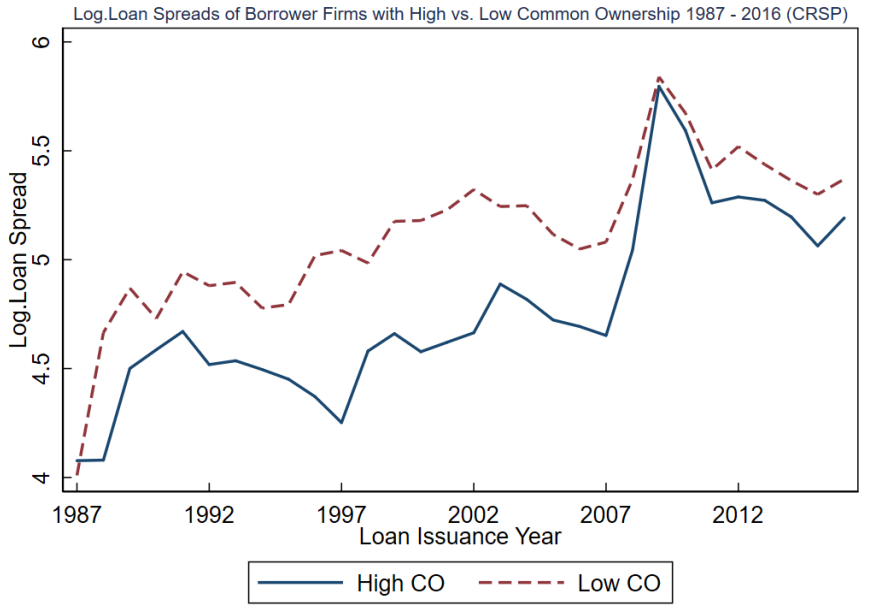


Figure 3. Loan Spreads for Borrower Firms with Low vs. High Top Shareholder Common Ownership - Alternative Industry Classifications. This figure shows the annual average log.loan spread for firms with low vs. high top shareholder common ownership, as measured by value weighted *CO* (calculated using Equation 3), using the alternative Hoberg&Phillips FIC-400 and historical CRSP 4-digit SIC industry classifications in Section 5. If the firm's *CO* is in the top quartile among all firms' in the loan issuance year then it is classified as having high common ownership, while one with *CO* in the bottom quartile is classified as having low common ownership. The Hoberg&Phillips sample starts from 1997 due to data availability restriction.





B Tables

Table 1. Summary Statistics.

This table provides summary statistics of the variables used in the analyses. Common ownership variables are set to missing if the borrower firm is in a monopolistic industry with only one firm. VW means the variable is value weighted based on market value while EW indicates that the variable is equally weighted by number of rival firms. All non-log variables are winsorized at the 1% and 99% level. Detailed variable definitions can be referred to Appendix C.1.

	Obs	Mean	S.D.	Min	25%	Median	75%	Max
Common Ownership Measures:								
CO_vw (raw*10000)	27,166	60.09	48.48	0.43	19.78	49.13	90.26	210.20
CO_ew (raw*10000)	27,166	45.93	38.17	0.42	16.18	35.11	67.26	177.08
Top 5 CO_vw (raw*100)	27,166	5.47	3.98	0.00	2.23	4.80	8.00	17.11
Top 5 CO_ew (raw*100)	27,166	4.31	3.08	0.00	1.98	3.74	6.00	14.32
CO_vw (rank-transformed)	27,166	0.66	0.23	0.00	0.50	0.70	0.85	1.00
CO_ew (rank-transformed)	27,166	0.65	0.23	0.00	0.49	0.69	0.84	1.00
Top 5 CO_vw (rank-transformed)	27,166	0.59	0.28	0.01	0.37	0.62	0.83	1.00
Top 5 CO_ew (rank-transformed)	27,166	0.58	0.27	0.01	0.36	0.60	0.81	1.00
Loan Characteristics:								
Log.Loan Spread	27,636	4.98	0.81	0.99	4.61	5.16	5.52	7.28
All in Drawn Spread	27,638	189.62	125.37	17.50	100.00	175.00	250.00	650.00
Loan Size	27,638	0.22	0.23	0.00	0.07	0.14	0.28	1.34
Facility Amount ($million)	27,638	369.96	600.32	3.00	50.00	150.00	400.00	3700.00
Log.Maturity	27,637	3.74	0.66	0.00	3.58	4.09	4.09	5.89
S&P Rating	27,638	5.80	1.52	1.00	5.00	7.00	7.00	7.00
Firm Characteristics:								
HHI	27,638	0.28	0.21	0.04	0.12	0.22	0.36	1.00
Blockholder Dummy	27,638	0.85	0.35	0.00	1.00	1.00	1.00	1.00
Top Ownership Concentration	27,638	0.25	0.11	0.03	0.18	0.24	0.31	0.64
Total Institutional Ownership	27,638	0.61	0.26	0.03	0.43	0.65	0.82	1.00
Log(Asset)	27,638	6.97	1.78	0.83	5.70	6.93	8.18	12.91
Leverage	27,638	0.30	0.21	0.00	0.15	0.28	0.41	1.03
Market-to-Book	27,638	1.43	0.96	0.36	0.83	1.15	1.70	5.91
ROA	27,638	0.14	0.08	-0.12	0.09	0.13	0.18	0.41
Tangibility	27,638	0.31	0.23	0.01	0.13	0.25	0.44	0.91
Cash Flow Volatility	27,638	0.03	0.04	0.00	0.01	0.01	0.03	0.22
Altman Z Score	27,638	2.38	1.46	-1.40	1.42	2.27	3.19	7.00
Industry Expertise	25,828	0.99	1.13	0.00	0.17	0.62	1.39	5.60
Log_Tenure	16,096	1.84	0.69	0.00	1.39	1.95	2.30	3.09
Overinvest	27,634	0.50	0.18	0.05	0.40	0.50	0.60	0.95
Analyst Coverage	27,638	9	8	0	3	7	14	34

Table 2. Common Ownership and Loan Spread.

This table presents the regression of loan spread on common ownership using Equation 3 in Section 2.2. *CO* and *Top*5*CO* are rank transformed for comparability across industries in Column (1) - (5) and (8). *CO* and *Top*5*CO* are value weighted in Column (1), (2), and (4) while equally weighted in (3) and (5). *HighCO* is a dummy variable which equals one for borrowers with *CO* in the top quartile among all borrowers in each sample year. *HighTop*5*CO* is a dummy variable which equals one for borrowers with *Top*5*CO* in the top quartile among all borrowers in each sample year. Column (8) includes industry×year as well as firm fixed effects. Detailed variable definition can be referred to Appendix C.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)
CO_vw	-0.091***	-0.102***						-0.123**
	(-3.772)	(-3.519)						(-2.571)
CO_ew			-0.077***					
			(-2.708)					
Top 5 CO_vw				-0.080***				
				(-4.256)				
Top 5 CO_ew					-0.076***			
					(-4.134)			
High CO						-0.037***		
						(-3.269)		
High Top 5 CO							-0.055***	
							(-4.715)	
Top Ownership Concentration		0.416***	0.428***	0.418***	0.433***	0.436***	0.446***	0.455***
		(6.632)	(6.841)	(6.719)	(6.938)	(7.010)	(7.172)	(5.377)
Blockholder Dummy		0.043***	0.042***	0.037**	0.038**	0.036**	0.036**	0.062***
		(2.675)	(2.580)	(2.327)	(2.347)	(2.284)	(2.271)	(2.917)
Total Institutional Ownership		-0.161***	-0.178***	-0.215***	-0.223***	-0.194***	-0.223***	-0.335***
		(-4.245)	(-4.883)	(-6.368)	(-6.607)	(-5.692)	(-6.664)	(-6.170)
HHI	-0.140***	-0.147***	-0.145***	-0.146***	-0.145***	-0.124***	-0.128***	0.115
	(-2.974)	(-3.105)	(-3.073)	(-3.089)	(-3.066)	(-2.987)	(-3.076)	(0.593)
Log(Asset)	-0.149***	-0.142***	-0.144***	-0.141***	-0.144***	-0.145***	-0.141***	-0.130***
	(-24.75)	(-22.88)	(-23.48)	(-22.59)	(-23.39)	(-23.57)	(-22.76)	(-8.663)
Leverage	0.569***	0.546***	0.547***	0.545***	0.546***	0.546***	0.544***	0.374***
	(16.32)	(15.64)	(15.67)	(15.64)	(15.67)	(15.72)	(15.74)	(5.544)
Market-to-Book	-0.069***	-0.061***	-0.063***	-0.061***	-0.063***	-0.062***	-0.061***	-0.050***
	(-10.12)	(-8.880)	(-9.094)	(-8.845)	(-9.176)	(-9.052)	(-8.895)	(-4.612)
ROA	-0.915***	-0.879***	-0.883***	-0.876***	-0.882***	-0.892***	-0.882***	-0.871***
	(-11.87)	(-11.55)	(-11.59)	(-11.53)	(-11.61)	(-11.78)	(-11.68)	(-7.033)
Tangibility	-0.254***	-0.257***	-0.260***	-0.258***	-0.260***	-0.265***	-0.265***	-0.279***
	(-5.420)	(-5.540)	(-5.587)	(-5.541)	(-5.572)	(-5.704)	(-5.734)	(-3.198)
Altman Z Score	-0.034***	-0.035***	-0.035***	-0.035***	-0.035***	-0.036***	-0.036***	-0.020*
	(-5.933)	(-6.203)	(-6.218)	(-6.211)	(-6.222)	(-6.391)	(-6.336)	(-1.862)
Cash Flow Volatility	0.806***	0.740***	0.747***	0.745***	0.749***	0.770***	0.768***	0.284
	(6.219)	(5.725)	(5.759)	(5.765)	(5.780)	(5.983)	(5.971)	(1.557)
S&P Rating	0.087***	0.085***	0.085***	0.084***	0.084***	0.083***	0.082***	0.061***
	(15.03)	(14.70)	(14.71)	(14.58)	(14.63)	(14.43)	(14.31)	(7.041)
Loan Size	-0.193***	-0.190***	-0.191***	-0.189***	-0.191***	-0.188***	-0.186***	-0.228***
	(-9.074)	(-8.962)	(-9.036)	(-8.921)	(-8.994)	(-8.986)	(-8.898)	(-10.55)
Log(Maturity)	-0.018*	-0.016	-0.017	-0.016	-0.016	-0.020*	-0.020*	0.005
	(-1.705)	(-1.545)	(-1.571)	(-1.506)	(-1.509)	(-1.878)	(-1.870)	(0.402)
Observations	27,152	27,152	27,152	27,152	27,152	27,626	27,626	24,575
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
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
Firm FE	No	No	No	No	No	No	No	Yes
Industry×Year FE	No	No	No	No	No	No	No	Yes
Adjusted R-squared	0.645	0.647	0.647	0.647	0.647	0.646	0.646	0.799

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

This table presents the regression of loan spread on *CO* across different periods using Equation 3 in Section 2.3. *CO* is value weighted and rank transformed for comparability across industries. The same control variables from Table 2 Column (2) are included. Detailed variable definition can be referred to Appendix C.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	2000-2016	2000-2006	2007-2009	2010-2016
CO	0.004	-0.158***	-0.156***	-0.066	-0.176***
	(0.070)	(-4.553)	(-2.959)	(-0.632)	(-3.442)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	8,849	18,286	8,871	2,345	7,026
Industry FE	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.623	0.659	0.686	0.670	0.591

Table 4. Common Ownership and Loan Spread - Firm Heterogeneity.

This table presents the regression of loan spread on *CO* using Equation 3 for subsamples in Section 2.4. *CO* is value weighted and rank transformed for comparability across industries. 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. Panel B focuses on the subsample of loans to non-IG borrowers in the period from 2000. 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. Loan facilities with industry expertise above (below) sample median are classified as having high (low) industry expertise. Loan facilities with analyst coverage above (below) sample median are classified as having high (low) analyst coverage. Loan facilities with borrower firm CEO tenure in loan issuance year above (below) sample median are classified as having long (short) CEO tenure. Loan facilities with overinvest score above (below) sample median are classified as having high (low) overinvesting tendency. The overinvesting tendency score is computed as the following: the cash holdings of sample firms in each year are ranked into deciles then converted into a score of 0 to 1, with 1 being most likely to overinvest in regard of having excess cash in hand; the Q of sample firms in each year are also ranked into deciles then converted into a score of 0 to 1, I use one minus this score so that 0 indicates most likely to overinvest in regard of poor growth opportunities; the two scores are then averaged into the overinvesting tendency score. The same control variables from Table 2 Column (2) are included. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Panel A: S&P Long Term Credit Rating

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	2000-2016	2000-2016	2007-2009	2007-2009	2010-2016	2010-2016
CO	-0.092	-0.061**	-0.119	-0.103***	-0.266	-0.035	-0.074	-0.190***
	(-1.199)	(-2.107)	(-1.291)	(-3.026)	(-0.657)	(-0.336)	(-0.551)	(-3.408)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,459	20,677	4,542	13,730	436	1,867	1,611	5,396
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	0.700	0.516	0.712	0.512	0.751	0.581	0.612	0.555

Panel B: Information Asymmetry and Agency Cost for Non-Investment Grade Firms in Post-2000 Period

Dependent Variable:	*Log. Loan Spread*							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample Composition	High Ind. Expertise	Low Ind. Expertise	High Analyst Coverage	Low Analyst Coverage	Long CEO Tenure	Short CEO Tenure	High Overinvest	Low Overinvest
CO	-0.056	-0.158***	-0.063	-0.116***	-0.176**	-0.058	-0.129***	-0.067
	(-1.346)	(-3.144)	(-1.045)	(-2.858)	(-2.304)	(-0.787)	(-2.622)	(-1.542)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,415	7,000	5,726	7,982	3,785	4,018	6,162	7,537
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	0.608	0.446	0.563	0.484	0.625	0.535	0.463	0.577

Table 5. Post-Covenant Violation Behavior.

This table presents the first-difference estimates of the marginal effect of new covenant violation on Ln(shareholder payouts), Ln(total debt), acquisitions, and capital expenditures during 1997 to 2007 from Section 2.5. Detailed variable definition can be referred to Appendix C.1. New covenant violation is a dummy that equals one if in the given quarter the firm violates a debt covenant for its first time. The Low *CO* sample includes only firms with *CO* in the bottom quartile among all COMPUSTAT firms in the quarter. The High *CO* sample includes only firms with *CO* in the top quartile among all COMPUSTAT firms in the quarter. 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 level. T-statistics are displayed in parentheses. ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Dependent Variable:	$\Delta Acquisitions$		$\Delta CapitalExpenditures$		$\Delta Ln(ShareholderPayout)$		$\Delta Ln(TotalDebt)$	
	(1) Low CO	(2) High CO	(3) Low CO	(4) High CO	(5) Low CO	(6) High CO	(7) Low CO	(8) High CO
New Covenant Violation	-0.006*	-0.005	-0.009***	-0.006***	-0.041*	-0.247***	-0.028	-0.097**
	(-1.770)	(-1.281)	(-3.726)	(-3.013)	(-1.776)	(-3.071)	(-0.591)	(-2.239)
Operating cash flow/average assets	0.007	0.008	0.006	0.016***	0.126***	0.856***	-0.065	-0.564**
	(1.333)	(0.692)	(1.385)	(2.687)	(2.617)	(4.253)	(-0.446)	(-2.510)
Leverage ratio	-0.036***	-0.170***	-0.018***	-0.041***	-0.018	-0.237	-1.474***	-2.912***
	(-4.976)	(-8.632)	(-3.278)	(-5.750)	(-0.400)	(-0.660)	(-6.988)	(-7.119)
Interest expense/average assets	0.160	0.782***	0.285**	0.037	0.110	3.005	-0.333	10.68***
	(0.961)	(3.313)	(2.158)	(0.321)	(0.0892)	(0.665)	(-0.0842)	(3.085)
Net worth/assets	-0.000	-0.027*	-0.008*	-0.012**	0.112***	1.466***	-0.318**	0.535**
	(-0.0426)	(-1.768)	(-1.755)	(-2.122)	(2.632)	(5.158)	(-1.990)	(2.486)
Current ratio	0.000**	0.003***	0.001***	0.001***	0.001	0.006	-0.005	-0.014
	(2.475)	(5.101)	(2.733)	(5.420)	(1.332)	(1.490)	(-0.797)	(-1.594)
Market-to-book ratio	0.005***	0.007***	-0.000	0.004***	0.018	0.228***	0.161***	0.082**
	(4.045)	(5.036)	(-0.128)	(5.563)	(1.644)	(7.596)	(4.031)	(2.442)
Observations	26,410	32,509	26,410	32,509	26,432	32,523	20,503	27,299
Higher-order covenant controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lagged covenant controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fiscal Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Cluster	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.02	0.04	0.02	0.04	0.01	0.04	0.06	0.06

Table 6. Effect of Common Ownership by Investor Heterogeneity.

This table presents the baseline regressions in Section 2.2, based on common ownership calculated with investor heterogeneity. The churn ratio measures investor horizon and is calculated as in Gaspar et al. (2005). A high (low) churn investor generally has high (low) portfolio turnovers and short (long) investment horizons. 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. *CO_Low Churn* is calculated with only holdings of shareholders who are classified as low churn investors. *CO_High Churn* is calculated with only holdings of shareholders who are classified as high churn investors. Top indexers include the four largest passively managed index fund families, BlackRock, Barclays Global Investors, State Street, and Vanguard. *CO_Top Indexers* measures common ownership held by these four investors while *CO_All Other Investors* measures common ownership held by all other investors outside of these four indexers. *CO_Largest Shareholder* is common ownership calculated with only holdings of the focal firm's largest shareholder measured by shares with voting power. All common ownership variables are rank transformed for comparability across industries. The same control variables from Table 2 Column (2) are included. 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)
	Investor Horizon			Top Indexers/All Other Investors			Largest Shareholder
CO_Low Churn	-0.113***		-0.112***				
	(-4.324)		(-4.294)				
CO_High Churn		-0.021	-0.010				
		(-0.914)	(-0.436)				
CO_Top Indexers				-0.066**		-0.053*	
				(-2.159)		(-1.707)	
CO_All Other Investors					-0.102***	-0.096***	
					(-3.799)	(-3.523)	
CO_Largest Shareholder							-0.035**
							(-2.149)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,178	27,178	27,178	27,178	27,178	27,178	27,178
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	0.647	0.646	0.647	0.647	0.647	0.647	0.647

Table 7. 5-Year CDS Spread and Common Ownership .

This table presents regressions of CDS spread on common ownership in Section 2.7. The dependent variable is the log of the CDS premium over LIBOR for the standard 5-year contract. *CO* is the rank-transformed value weighted common ownership taken from the prior quarter end. Option-implied volatility (OIV) is the quarterly average at-the-money option implied volatility. Option-implied jump is option implied jump risk (at-the-money OIV - 10% in-the-money OIV). Number of senior unsecured bonds is the number of senior unsecured bonds outstanding issued by the firm. Analyst forecast dispersion is analysts forecast dispersion (standard deviation over mean) over annual earnings. All control variables are measured quarterly and winsorized at the 1% and 99% level. The Investment Grade (IG) sample includes only firms with CDS credit rating of BBB or above. The Non-Investment Grade (Non-IG) sample includes only firms with CDS credit rating of BB or worse. Standard errors are clustered at the firm level to obtain robust P-value. 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 Composition	All	All	All	IG	Non-IG	IG	Non-IG
Sample Period	2001-2016	2001-2016	2001-2016	2001-2016	2001-2016	2001-2008	2001-2008
CO	-0.044	-0.174**	-0.162**	-0.069	-0.359***	-0.096	-0.453**
	(-1.564)	(-2.319)	(-2.058)	(-0.772)	(-2.619)	(-0.800)	(-2.581)
Top Ownership Concentration			0.470***	0.291	0.626***	0.184	0.434*
			(3.201)	(1.498)	(2.991)	(0.672)	(1.657)
Blockholder Dummy			0.100	0.066	0.023	0.101	0.595
			(0.538)	(0.294)	(0.079)	(0.357)	(1.505)
Total Institutional Ownership			0.033	0.055*	0.003	0.004	-0.044
			(1.339)	(1.948)	(0.0542)	(0.128)	(-0.658)
Option-Implied Volatility			0.017***	0.018***	0.016***	0.018***	0.018***
			(12.40)	(10.61)	(8.433)	(8.109)	(6.820)
Option-Implied Jump			0.000	-0.002	0.002	-0.000	0.004
			(0.271)	(-1.452)	(1.007)	(-0.061)	(1.097)
Ln (Market Capitalization)			-0.244***	-0.192***	-0.320***	-0.241***	-0.301***
			(-6.332)	(-4.036)	(-5.995)	(-3.756)	(-4.219)
Leverage			0.824***	1.004***	0.363	1.469***	0.998***
			(5.852)	(5.836)	(1.430)	(5.695)	(2.829)
Book-to-Market			0.203***	0.209***	0.184***	0.193***	0.197***
			(7.060)	(5.187)	(4.824)	(2.653)	(3.507)
Ln (Number of Senior Unsecured Bonds)			0.051**	0.046*	0.121**	0.045	0.124
			(2.225)	(1.781)	(2.523)	(1.133)	(1.409)
Analyst Forecast Dispersion			0.100***	0.097***	0.068**	0.064*	0.201***
			(5.255)	(4.207)	(2.131)	(1.738)	(3.247)
Observations	30,180	30,155	14,367	10,410	3,928	4,215	1,366
Firm FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating FE	No	No	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.000	0.796	0.869	0.805	0.842	0.834	0.891

Table 8. IV Estimation.

This table presents the IV regressions using different instrumental variables for firms with poor or no S&P ratings as described in Section 3. The first IV-regression is for the 2010 to 2014 period using the BlackRock-BGI merger. The second IV-regression is for the 2000 to 2016 period using ownership by large index funds as an instrument. The last IV-regression is for the 2000 to 2016 period using pre-2000 common ownership by quasi-indexer institutional investors as an instrument. Column (1) and (3) follow Equation 4 and 5. Column (2) and (4) follow Equation 5 using the predicted value weighted *CO*s. *Implied* ΔCO is computed as a firm's hypothetical *CO* taking the holdings of BlackRock and BGI as already together minus the actual *CO* of the firm in 2009 Q1. Treat is a dummy that equals one if a firm's 2009 Q1 *Implied* ΔCO is in the top tercile. If a firm's 2009 Q1 *Implied* ΔCO is in the bottom tercile then it is classified into the control sample. The IV-regression for Column (1) to (4) includes only borrower firms in the treatment and control sample. *CO* and *Implied* ΔCO are rank transformed. The IV-regression for Column (5) and (6) uses index fund ownership as the IV. Ownership by large index funds is defined as percentage of shares outstanding held by the "Big Five" index funds, iShares (BlackRock, formerly Barclays Global Investors), Vanguard index funds, SPDR (State Street), PowerShares (Invesco), and Fidelity index funds. The IV-regression for Column (7) and (8) uses value weighted *CO* computed with only pre-2000 quasi-indexer institutional investors' ownership as the IV, $CO\_QIX - 1999$. It is computed as the borrower's average CO_QIX in 1999. $CO\_QIX - 1999$ is then used to instrument for *CO* for the borrower firm from 2000 to 2016. As other common ownership measures, $CO\_QIX - 1999$ is rank-transformed. Rank transformation makes the regression results easier to interpret. I repeat all IV-regressions with raw common ownership measures and still obtain highly significant results. The same control variables from Table 2 Column (2) are included. 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.

Instrument:	BlackRock-BGI Merger				Index Fund Ownership		CO_QIX	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Time Period:	2010-2014		2010-2014		2000-2016		2000-2016	
2SLS:	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage	First Stage	Second Stage
CO (Instrumented)		-0.404***		-0.452***		-0.425***		-0.686***
		(-2.830)		(-3.047)		(-4.060)		(-4.526)
Implied $\Delta CO - 2009Q1$	0.263***							
	(15.35)							
Treat			0.162***					
			(15.10)					
Index Fund Ownership					1.476***			
					(24.49)			
CO_QIX-1999							0.156***	
							(16.48)	
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,239	2,239	2,239	2,239	13,743	13,744	9,177	9,177
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-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-statistic (weak instrument test)	235.73		228.10		599.67		271.73	
Adj.R-squared	0.668	0.504	0.665	0.501	0.550	0.473	0.537	0.453

Table 9. Common Ownership, Competition, and Loan Spread.

This table presents regressions based on Equation 6 in Section 4.2. Detailed variable definition can be referred to Appendix C.1. HHI, $\overline{CO}$ and $MHHID$ are rank transformed. $\overline{CO}$ is the value weighted average CO across all firms within the industry and measures industry level common ownership. $MHHID$ provides a similar measure while it accounts for controlling shares and it is weighted by market shares. If a borrower firm has $\overline{CO}$ in the top quartile among all sample firms in the sample year, it is classified as being in a high $\overline{CO}$ environment while one in the bottom quartile is labeled as being in a low $\overline{CO}$ environment. 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 same control variables from Table 2 Column (2) are included except for the three ownership variables (*Top Ownership Concentration*, *Blockholder Dummy*, and *Total Institutional Ownership*). 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 $\overline{CO}$	High $\overline{CO}$	Low MHHID	High MHHID	All	Non-IG	All	Non-IG
Sample Period	1987-2016	1987-2016	1987-2016	1987-2016	1987-2016	2000-2016	1987-2016	2000-2016
HHI	-0.065	-0.179**	-0.080	0.040	-0.123**	-0.128*	-0.186***	-0.128**
	(-1.077)	(-2.381)	(-1.386)	(0.364)	(-2.350)	(-1.920)	(-3.422)	(-2.038)
$\overline{CO}$					-0.0571	-0.077*		
					(-1.447)	(-1.666)		
$\overline{CO} \times HHI$					0.026	0.063		
					(0.344)	(0.679)		
MHHID							-0.098**	-0.048
							(-2.274)	(-1.022)
MHHID $\times HHI$							0.125	0.054
							(1.475)	(0.541)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,812	6,726	6,859	6,644	27,152	13,730	27,171	13,742
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	0.630	0.665	0.650	0.704	0.645	0.505	0.645	0.506

Table 10. Common Ownership, Dual Holders and Loan Spread.

This table presents the baseline regression based on Equation 3, controlling for the presence of dual holders as posited in Section 4.3. Dual holder is defined as when the borrower firm has at least one syndicated loan creditor also being its shareholder (>1% or $2million holding) in the loan initiation year. $Log(1 + Number\ of\ Dualholders)$ is the log of one plus the number of dual holders the borrower firm has in the loan initiation year. *CO* is rank transformed. Detailed variable definition can be referred to Appendix C.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. The dual holder data is taken from Anton and Lin (2018) and the sample stops at 2012. The same control variables from Table 2 Column (2) are included. 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	All	All	Non-IG	Non-IG	Non-IG	Non-IG
Sample Period	1987-2012	2000-2012	2000-2012	2010-2012	2000-2012	2010-2012
CO	-0.084***	-0.151***	-0.091**	-0.142*	-0.101**	-0.156*
	(-2.734)	(-3.965)	(-2.356)	(-1.854)	(-2.275)	(-1.738)
$Log(1 + Number\ of\ Dualholders)$	-0.048***	-0.062***	-0.061***	-0.043**	-0.071***	-0.054
	(-4.727)	(-4.992)	(-5.625)	(-2.480)	(-2.601)	(-1.136)
CO $\times Log(1 + Number\ of\ Dualholders)$					0.014	0.017
					(0.405)	(0.258)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	22,996	14,129	10,592	2,240	10,592	2,240
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	0.652	0.675	0.519	0.553	0.519	0.553

C Appendices

C.1 Variable Definitions

Variables	
CO	Firm level measure on the level of ownership overlap between the focal firm and its industry peers, measuring the interest the firm's shareholders have in both its rivals' and its own values.
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.
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).
Total Institutional Ownership	Percentage of shares outstanding held by institutional investors in the quarter prior to loan issuance.
Top Ownership Concentration	Percentage of shares held by the firm's top 5 largest shareholders in the quarter prior to loan issuance.
Blockholder Dummy	A dummy that equals one if the borrower firm has a blockholder in the quarter prior to loan issuance.
HHI	The level of industry concentration based on sales market shares, 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.
$\overline{CO}$	Industry level measure of common ownership as the market value weighted average of firm level CO.
Ln(Shareholder Payout)	The log of (1 + the sum of dividend paid and share buybacks).
Ln(Total Debt)	The log of (long term debt + debt in current liabilities)
Acquisitions	Acquisitions divided by average total assets.
Capital Expenditures	Capital expenditures divided by average total assets.

C.2 Robustness Check Tables

Table A.1. Baseline Regression with Alternative Common Ownership Measures.

This table presents regressions based on Equation 3 using alternative measures described in Section 4.1. *Common* is a dummy variable that equals one if the focal firm has at least one of its top 5 shareholders being among the top 5 shareholders in one of its industry peers (common owner). *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 such common owners. *LnAvgNum* measures the average number of industry peers held by each of the focal firm's common owners. *Ln_Common Ownership* measures the percentage of equity held by common owners in the focal firm. The same control variables from Table 2 Column (2) are included. 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)
Common	-0.046***				
	(-2.754)				
LnNumCommon		-0.050***			
		(-4.137)			
LnNumConnected			-0.023***		
			(-2.987)		
LnAvgNum				-0.015*	
				(-1.677)	
Ln_Common Ownership					-0.015*
					(-1.957)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	27,626	27,626	27,626	27,626	25,178
Industry FE	Yes	Yes	Yes	Yes	Yes
Deal Purpose FE	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.646	0.646	0.646	0.646	0.650

Table A.2. Alternative Industry Classifications.

This table presents the baseline regression in Section 2.2 using the Hoberg & Phillips (HP) Fixed Industry Classifications (FIC-400), as well as the historical CRSP 4-digit SIC codes, with the same set of control variables from Table 2 Column (2). The HP classifications are only available from 1997. All common ownership variables are rank transformed. Detailed variable definition can be referred to Appendix C.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)
CO_vw	-0.082***				-0.106***			
	(-2.617)				(-3.604)			
CO_ew		-0.089***				-0.089***		
		(-2.837)				(-3.047)		
Top 5 CO_vw			-0.045**				-0.078***	
			(-2.282)				(-3.868)	
Top 5 CO_ew				-0.064***				-0.075***
				(-3.267)				(-3.735)
Industry Classification	HP	HP	HP	HP	CRSP	CRSP	CRSP	CRSP
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	22,059	22,059	22,059	22,059	24,187	24,187	24,187	24,187
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	0.646	0.646	0.646	0.646	0.645	0.645	0.646	0.645