

Covenants, Creditors' Simultaneous Equity Holdings, and Firm Investment Policies

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ABSTRACT

We analyze how creditors' simultaneous debt and equity holding ("dual ownership") affects firm investment policies. Dual ownership significantly reduces the likelihood of having a capital expenditure restriction covenant in loan contracts and the effect varies in predicted ways with borrowers' monitoring needs and dual owners' monitoring capacity. Firms with dual ownership exhibit higher post-loan investment than firms without dual ownership during the recent financial crisis. In the event of covenant violations, firms with dual ownership are more likely to be granted an unconditional waiver and do not suffer a significant drop in debt issuance or investment expenditures. Our results highlight that dual ownership has real implications for corporate investment and can help mitigate shareholder-creditor conflicts.

JEL Classifications: G21; G31; G32

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1. Introduction

Under the traditional agency framework of debtholder-shareholder incentive conflicts, shareholders have a residual claim on firm value. In contrast, debtholders have a fixed claim on firm value, making them vulnerable to risk shifting and other opportunistic shareholder behavior. Researchers have long been interested in understanding factors that may mitigate or exacerbate debtholder-shareholder incentive conflicts and their implications for firms' financial decisions.

A recent development in financial markets in the US is that many lenders hold both debt and equity in a borrowing firm.¹ In this paper, we analyze the impact of dual holdings on firm investment. We focus on investment because it is at the heart of incentive conflicts between shareholders and debtholders that are vulnerable to the borrower's risk-shifting investments (Jensen and Meckling (1976); Smith and Warner (1979)). Specifically, we hypothesize and examine four ways through which dual ownership may affect a firm's investment - namely, loan contracting with respect to the capital expenditure restriction covenant (hereafter CAPEX covenant), post-financing investment, lenders' responses to covenant violations, and investment changes around covenant violations.

Debtholders protect themselves from the opportunistic behavior of shareholders by establishing restrictive covenants (Smith and Warner (1979)) and covenants act as important tripwires that facilitate the transfer of control rights to creditors (Chava and Roberts (2008)). Hence, covenants in private loan contracts provide a unique setting to better understand how debtholder-shareholder incentive conflicts in the presence of dual ownership affect firm investment for two reasons. First, *ex ante*, covenants can mitigate agency problems (Smith and Warner (1979)) and help secure financing through the pledging of state-contingent control rights (e.g., Aghion and Bolton (1992); Dewatripont and Tirole (1994)). Second, covenants are ubiquitous in loan contracts and covenant violations are frequent (Smith (1993)). These covenant violations, considered as technical defaults, convey the same contractual rights to creditors as payment defaults, give lenders strong bargaining power, and allow lenders to materially influence a violating firm's investment (Chava and Roberts (2008)). If dual ownership

¹One reason is institutional investors' increasing participation in the syndicated loan market since mid-1990s. Throughout this paper, we use the terms "dual holdings" and "dual ownership" interchangeably to refer to creditors' simultaneous holdings of both debt and equity within the same firm, and the corresponding financial institutions are termed as "dual owners" or "dual holders."

affects the incentive conflicts between creditors and shareholders, we should observe that it has an effect on firm investment by shaping the loan covenant design, affecting lenders' response to covenant violations as well as post-loan investments.

Against this backdrop, we first investigate the effect of dual ownership on firm investment by examining how dual ownership affects the loan covenant regarding capital expenditure restrictions. Nini, Smith, and Sufi (2009) show that the CAPEX covenant imposing a limit on a borrower's capital expenditure is commonly used by lenders (present in about one-third of loan contracts) to protect against the borrower's potential risk-shifting investment. It is also binding in constraining investment and rarely violated by borrowers in practice. As a result, the CAPEX restriction covenant has received increasing research attention in recent years (e.g., Nini et al. (2009); Houston et al. (2014)). Dual ownership could mitigate the traditional debtholder-shareholder conflicts (by partially internalizing the conflicts through simultaneous ownership of equity and debt) and afford lenders an additional monitoring capacity, thereby reducing a borrower's incentive to make risk-shifting investment (Jiang, Li, and Shao (2010)). Therefore, we hypothesize that loan contracts of borrowers with dual ownership are less likely to contain the CAPEX restriction covenant (H1).

Dual ownership also can affect firms' post-loan investments by granting borrowers greater autonomy, latitude and flexibility over investment decisions (if H1 holds). Subsequent investments in borrowers with dual ownership are less likely to be capped by a prescribed number and can be higher than those in firms without dual ownership. On the other hand, dual owners may limit some potentially harmful managerial investment decisions through monitoring. Therefore, the net effect of dual ownership on the amount of capital expenditure is not clear-cut. During the recent 2008 financial crisis when loan supply dried out, many firms were forced to scale down or cancel their investments, bypassing attractive investment opportunities (Campello, Graham, and Harvey, 2010). If dual ownership helps align the interests of debtholders and shareholders, we hypothesize that firms with dual ownership should exhibit more investments than firms without dual ownership in the financial crisis period. This is because in the crisis period, agency conflicts between debtholders and shareholders exacerbate, but firms with dual ownership are affected to a lesser extent thanks to the incentive alignment effect of dual ownership. Second, bypassing attractive investment opportunities in the crisis period because

of the lack of enough funding may prove costly to the firm and its shareholders. Dual owners therefore may suffer on its equity side. We also predict that borrowers with dual ownership are more likely to receive an unconditional waiver after financial covenant violations than firms without dual ownership and dual ownership attenuates the dramatic decline in the borrower's investment following covenant violations for several reasons discussed in detail later. We conjecture that the ability to continue borrowing is an important reason for the less dramatic cut in investment for firms with dual ownership after financial covenant violations.²

While our above hypotheses are based on the incentive alignment argument, we acknowledge that there is a non-mutually exclusive alternative argument regarding the effects of dual ownership on firm investment. Specifically, dual ownership means that an institution has both debt and equity claims in the same company, resulting in higher concentration of exposures. If this effect dominates the effect of incentive alignment, we expect that dual owners are more likely to introduce a CAPEX restriction covenant in loan contracts to protect from potential suboptimal investment and that borrowers with dual ownership exhibit lower post-loan investments, particularly in the 2008 financial crisis when credit risk is heightened. The exposure concentration argument about dual ownership also suggests that following a financial covenant violation, borrowers with dual ownership are less likely to be granted an unconditional waiver and therefore are more likely to suffer a larger decline in investment and borrowing than firms without dual ownership, other things being equal.

Using a sample of about 6,000 loan contracts signed by non-financial public firms in the U.S. from 1996 to 2010, we find that lenders are less likely to impose CAPEX restrictions in loan contracts of companies with dual ownership. In particular, the probability of having a CAPEX restriction is reduced by approximately 10.2% if dual holders are present in the borrower. Relative to the sample mean, this represents a reduction of about a quarter, suggesting that the effect of dual ownership on the likelihood of having a CAPEX restriction is both statistically and economically significant. This result is more consistent with the incentive alignment hypothesis than the exposure concentration hypothesis.

²The CAPEX covenant is usually binding and effective in constraining borrowers' investment below the contractual limits, and as a result, violation of the CAPEX covenant is rare (see Nini et al. (2009); we also confirm this in our data collection process). Hence, we do focus on violations of financial covenants rather than the CAPEX restriction.

One, however, may argue that the above result is due to the endogeneity of dual ownership. For example, good firms attract equity investment by financial institutions and are less likely to be imposed a CAPEX restriction covenant in loan contracts. Though we have already controlled for several performance and risk proxies for firm quality in our models, it is possible that these measures do not fully capture a firm's superior quality, which is known to dual owners. That is, there are omitted variables that are correlated with dual ownership and the incidence of CAPEX restrictions. We conduct extensive tests to address the endogeneity concern.

First, we confirm that our results are robust to the use of lenders' equity ownership lagged one quarter before the loan origination and in so doing, we take creditors' equity ownership as predetermined related to their debt ownership, and this minimizes the possibility that equity arises because a lender has access to private information gained in loan contracting. Second, we explore cross-sectional heterogeneity in the effect of dual ownership based on borrower characteristics. The results show that firms with a higher default risk (measured by a relatively lower Z-score and a higher debt-to-cash flow ratio) benefit more from the presence of dual ownership by having a lower chance of carrying a CAPEX restriction. Therefore, the effect of creditors' simultaneous debt and equity holdings appears to be more important when credit risk is higher and debtholder-shareholder incentive conflict is more acute, which is precisely the prediction of the incentive alignment hypothesis. Further, if unobserved borrower superior quality drives our result, one should expect firms with dual ownership to have better post-financing abnormal stock performance. Unreported results suggest that firms with dual owners do not outperform firms without dual ownership. Jiang et al. (2010) also arrive at a similar conclusion with a different sample. Therefore, these results based on the cross-sectional tests help alleviate the endogeneity concern.

We further explore cross-sectional heterogeneity in the effect of dual ownership based on lender characteristics. We find that the negative relation between dual ownership and the use of CAPEX restrictions is more pronounced in dual ownership of non-commercial banking institutions (non-CBs) that are likely to have more monitoring incentives than commercial banks (CBs) that only hold the voting rights but not cash flow rights attached to share ownership (Jiang et al. (2010)). The effect of dual ownership is also more pronounced when dual holders represent the majority of the lenders in a loan and have longer investment horizons. These

tests highlight the rationales for the observed impact of dual holders in loan contracting and provide further support for the incentive alignment hypothesis. Third, we estimate linear probability models with firm fixed effects to control for any unobserved time-invariant firm-level factors. Also, we implement the instrumental variable estimation to deal with the possibility that endogeneity arises from the existence of time-varying unobserved correlated factors. The finding of a negative relation between dual ownership and having a CAPEX restriction is robust to all these tests.

We then test the impact of dual ownership on a firm's post-financing investment and find that firms with dual ownership exhibit more capital expenditures in the subsequent four quarters than firms without dual ownership, and this effect is mainly because the presence of dual ownership attenuates the sharp decline in investment during the 2008 financial crisis when credit rationing is acute. A natural extension is whether absent the CAPEX restriction covenant in loan contracts, firms with dual ownership exhibit risk-shifting in investments. Comparing the asset volatility change two years before and after the loan origination, we find no evidence of risk-shifting investment. This is consistent with the argument that dual ownership mitigates the incentive conflicts between debtholders and shareholders, corroborating our finding from the analysis of loan covenant.

Last, we examine how dual ownership affects firm investment via affecting lender actions in the event of financial covenant violations and violators' changes in debt financing. Technical violations of financial covenants result in a transfer of control rights from the borrower to the lender and give creditors a chance to intervene. We find that firms with a higher level of dual ownership are more likely to be granted an unconditional waiver after financial covenant violations. It appears that dual owners choose to avoid costly renegotiations either because dual ownership mitigates the incentive conflicts between debtholders and shareholders or because renegotiations entail a significant cost on their equity holdings. Recent literature shows that firms experience a deep cut in investment following covenant violations (e.g., Chava and Roberts (2008); Nini, Smith, and Sufi (2012)). Taking a "quasi-discontinuity" approach used in Nini et al. (2012), we find a similar pattern. Dual ownership, however, has an extenuating effect on the investment cut following covenant violations, suggesting that lenders exercise their control rights differently when they are also shareholders. Further analysis shows that this result might

be attributable to continued borrowing in firms with dual ownership. Taken together, our results obtained from the design of covenant restrictions and technical violations of covenants paint a consistent picture in which dual ownership can reduce debtholder-shareholder incentive conflicts by partially internalizing the conflicts.

We contribute to the literature in three ways. First, our paper is closely related to the emerging but mixed literature on the implications of creditors' dual ownership in the US.³ Santos and Wilson (2009) show that commercial banks offer interest rate concessions to the borrowers over which they have control through the voting stakes acquired from their trust business. Using a sample of U.S. syndicated loans spanning from 1987 to 2006, Jiang et al. (2010) find that dual ownership lowers loan spreads. Using cross-country data, Ferreira and Matos (2012) show that bank dual ownership is associated with a higher loan spread but helps mitigate credit rationing in the crisis. While having a different focus with a sample of leveraged loans during the period 1997-2007, Lim, Minton, and Weisbach (2014) find in a supplementary test that hedge fund and private equity dual owners charge higher loan spreads. These prior studies primarily examine how dual ownership affects loan pricing and produce mixed evidence about the effects of dual ownership.

We build on these prior studies but examine a different new topic - how dual ownership affects a firm's investment policy. We examine multiple channels through which dual ownership may affect firm investment: the incidence of using the commonly observed CAPEX restriction covenant in loan contracting, post-loan investment and asset volatility, the chance of granting a waiver upon covenant violations, and the investment changes around covenant violations. We develop both an incentive alignment hypothesis and a (non-mutually exclusive) competing exposure concentration hypothesis, and find substantial support for the incentive alignment hypothesis. Jiang et al. (2010) point out that understanding the implications of dual ownership for firms' real financing and investment activities is a promising line of research. Our study answers their call. To the extent that firm investment policy is at the heart of the debtholder-shareholder agency conflicts, our findings also add to the recent efforts in identifying mechanisms that can mitigate shareholder-creditor conflicts in firm investment, for example, accounting conservatism (Watts (2003); Ball and Shivakumar (2005)), CAPEX restriction covenant (Beatty

³See Santos (1998) for a review of an early literature based on the main-bank system in Japan and Germany.

et al. (2010)), managerial debt ownership (Wei and Yermack (2011)).

Second, our examination of the CAPEX restriction covenant and lenders' responses to covenant violations also helps identify an exact channel through which debt financing affects investment. The evidence adds to our limited understanding of the specific links between financing and investment (Chava and Roberts (2008)). Examining loan covenants is also interesting and important in its own right given that lenders and borrowers may trade off between loan spreads and covenants (Bradley and Roberts (2004)). Therefore, it is not clear ex ante how dual ownership affects loan covenants even though there is (mixed) evidence regarding its effect on loan spreads.⁴

Third, researchers have long been striving to understand factors that affect lenders' responses to a borrower's technical default and the potential costs to the borrower that might be entailed by lenders' different responses. However, inhibited by the difficulty in obtaining violation data, researches on these issues are rather limited (e.g., Beneish and Press (1993, 1995); Chen and Wei (1993); Smith (1993); Chava and Roberts (2008); Nini et al. (2012)). In particular, to our knowledge, only Chen and Wei (1993) directly model the waiver decision of lenders. Our study helps fill the paucity of this literature by documenting dual ownership as a novel mechanism that affects lenders' waiver decisions on covenant violations and mitigates the adverse shocks caused to the violating firm's financing and investment. It is also worth noting that our hand collected waiver decision data set for a comprehensive sample of financial covenant violations is much larger than the sample used (typically around 100 firms) in previous studies (e.g., Beneish and Press (1995); Chen and Wei (1993)) on waiver decisions. Therefore, our results could be more representative.

2. Hypothesis development

2.1. *The effects of dual ownership on the CAPEX covenant in loan contracts*

Debt holders have a fixed claim on firm value; in contrast, shareholders' claim on firm value is a residual claim that can be likened to a call option on firm value (with the exercise price equal

⁴The negative effect of dual ownership on the incidence of CAPEX restrictions persists even if we control for loan spreads.

to the face value of debt) (Nash, Netter, and Poulsen (2003)). Therefore, shareholders may have incentives to increase firm risk so as to maximize their equity value, but at the expense of debtholders. Such risk-shifting investment problems are at the heart of the incentive conflicts between debtholders and shareholders. Anticipating this risk-taking incentive of shareholders and their agents (company managers)⁵, creditors rationally respond in loan contracting (Brockman, Martin, and Unlu (2010)). In particular, debtholders can impose restrictive covenants to constrain the borrowing firm's investment policy to reduce the likelihood of asset substitution (Nash et al. (2003)). These restrictive covenants also help lower the cost that debtholders incur in monitoring the borrowing firm (Smith and Warner (1979)). One important restrictive investment covenant is the CAPEX covenant and this covenant is commonly observed in private loan contracts (Nini et al. (2009)). Using a web crawler to search company SEC filings, Nini et al. (2009) compiled a first comprehensive data set on the CAPEX restriction covenant in syndicate loans. They report that lenders impose the CAPEX restriction covenant to deal with the acute risk-shifting incentives arising from deteriorated borrower credit quality. They also find that the imposition of the CAPEX restriction covenant is effective in capping the borrower's investment, and this is further confirmed by Denis and Wang (2013).

Intuitively, the potential wealth transfer from debtholders to shareholders is a positive function of the amount of investment and the riskiness of each dollar of investment. To the extent that the CAPEX restriction covenant is tightly set and binding in limiting the borrower's investment, the risk-shifting problem is greatly mitigated (Nini et al. (2009); Freudenberg, Imbierowicz, Saunders, and Steffen (2012); Denis and Wang (2013)). Also consistent with this view, Houston et al. (2014) find that politically connected companies pay a lower loan spread and are less likely to be imposed a CAPEX restriction covenant than their non-connected peers. They argue that political connections help increase a firm's profitability and/or decrease its risk, and lenders recognize these potential benefits as part of their assessment of credit risk in loan contracting. Dual ownership, as a new development in the financial market, can reduce the traditional debtholder-shareholder conflicts by partially internalizing the conflicts through simultaneous ownership of equity and debt and afford lenders additional monitoring capacity

⁵It has been standard for the debt contracting literature to implicitly assume that managers act on behalf of shareholders who reward managers with incentive compensation (e.g., common stocks, stock options) (see Smith and Warner (1979); Nash et al. (2003); Nini et al. (2009); Jiang et al. (2010)).

(Santos and Wilson (2009); Jiang et al. (2010)). As such, Holmstrom and Tirole (1997) argue that banks can enhance their protection against the risk-shifting behavior by holding an equity stake in the borrower. Empirically, Santos and Wilson (2009) find support for this argument with dual ownership of commercial banks, and Jiang et al. (2010) find supporting evidence by focusing on non-CB dual holders. Using a hand collected data set, Santos and Rumble (2006) show that a US commercial bank is more likely to join the board of a borrower when the bank holds a large equity voting right acquired in trust business and such board membership further helps enhance a dualholder’s monitoring role. Therefore, if dual ownership helps align the incentives of debtholders and shareholders, lenders may lower their demand for restrictions on investment activities of borrowing firms.⁶ Our first hypothesis is stated as follows:

H1: loan contracts of borrowers with dual ownership are less likely to contain the CAPEX restriction covenant, other things being equal.

2.2. The effects of dual ownership on post-loan investments

Any impact of dual ownership on the CAPEX restriction covenant will eventually show up in firms’ post-loan investments. If firms with dual ownership are more likely to borrow without CAPEX restrictions (i.e., H1 is true), these borrowers should have greater autonomy, latitude and flexibility over investment decisions. This means that subsequent investments will not be capped by a prescribed number and can be higher than investment in firms without dual ownership (Nini et al. (2009)). On the other hand, dual owners may play a monitoring role in corporate decisions and limit some suboptimal managerial investment decisions. Therefore, the net effect of dual ownership on the amount of capital expenditure is not clear-cut.

During the recent 2008 financial crisis, banks suffered severe losses on their exposures to subprime mortgage-backed securities and loan credit supply largely dried out or shut down. As

⁶Compared to pure lenders, being a dual owner provides an additional source for lenders to obtain information about the borrower. It is tempting to argue that this may economize information collection and/or result in better information about the borrower. A lowered information risk about the borrower may lead the lenders to use fewer CAPEX restriction covenants. However, this possibility is unlikely the main driving force for the effect of dual ownership given that banks have access to private information, while shareholders may not have. Please also refer to our discussion of finding no evidence consistent with this superior information story.

a result, many firms were unable to roll over their debt upon maturity or failed to borrow new loans. Campello et al. (2010) report that firms tried to fund their operations by burning cash holdings and/or selling assets, and still many firms were forced to scale down or cancel their investments, bypassing attractive investment opportunities. If dual ownership helps align the interests of debtholders and shareholders, we hypothesize that firms with dual ownership should exhibit more investments than firms without dual ownership in the financial crisis period, other things being equal. This is because in the crisis period, agency conflicts between debtholders and shareholders exacerbate, but firms with dual ownership are affected to a lesser extent thanks to the incentive alignment effect of dual ownership. Second, bypassing attractive investment opportunities in the crisis period because of the lack of enough funding may prove costly to the firm and its shareholders. Dual owners therefore may suffer on its equity side. Consistent with this view, Ferreira and Matos (2012) report that bank equity ownership in the borrower attenuates the decrease in loan financing during the crisis. As a result, the presence of dual holders may lessen the sharp decline in CAPEX spending in the crisis period. To sum up, we have the following two hypotheses (with the first stated in null):

H2 (null): Dual ownership is not related to a borrower's post-loan investment, other things being equal.

H3: Borrowers with dual ownership exhibit more investments than firms without dual ownership in the financial crisis, other things being equal.

2.3. The effects of dual ownership on investment changes following covenant violations

Under the incomplete contracting framework, debtholders protect themselves from the opportunistic behavior of shareholders by establishing restrictive covenants and covenant violations trigger the transfer of control rights to creditors. In so doing, creditors play an important governance role even in the absence of bankruptcy or payment default (e.g., Chava and Roberts (2008); Nini et al. (2012)). Specifically, in the event of a covenant violation, the transfer of control rights from shareholders to debtholders over borrowing firms enables creditors to in-

tervene in management. Creditors may either grant an unconditional waiver of the violation or require some amendments in the loan terms (e.g., reducing loan size, increasing the interest rate, or demand an immediate repayment) (Chen and Wei (1993)). Beneish and Press (1995) argue that waivers reflect lenders' proprietary assessment that a borrower is worthy of credit continuation. They report that firms that failed to obtain an unconditional waiver of their violations suffer significant stock price losses. Chava and Roberts (2008) find that borrowers that go through debt renegotiations also experience an immediate decline in investment, and the decline is greater in firms with more severe agency problems. Nini et al. (2012) further show that amended credit agreements following covenant violations are unfavorable in terms of a lower funding amount, a shorter maturity, a higher interest rate, and/or more restrictive covenants. Importantly, they report that the decline following covenant violations also extends to shareholder payouts, and in contrast, there is an immediate sharp increase in corporate restructuring and forced CEO turnover. Therefore, one way dual ownership can affect investment is through the effects on the probability a covenant violator obtains an unconditional waiver and on changes in investment following covenant violations.

We predict that borrowers with dual ownership are more likely to receive an unconditional waiver after covenant violations than firms without dual ownership for three reasons. First, dual ownership mitigates the incentive conflict between debtholders and shareholders, and thus it is less imperative for them to initiate a costly renegotiation for the purpose of transferring control rights. Second, since unwaived violations tend to induce negative market reactions and cause significant repercussions to the borrower's operation, failure to obtain a waiver by a violator with dual ownership may convey an even more negative signal to the firm's investors and other stakeholders about the firm's underlying situation. Third, creditors with dual ownership in the firm also face a cost—the loss on their equity side—caused by costly debt renegotiations. As a result, even if creditor control and intervention exerted on unwaived borrowers may eventually turn things around, dual holders need to balance it carefully with the costs of causing short-term repercussions to firm operations (e.g., reduced financing and investment, restructuring, increased CEO turnover). Taken together, we predict that dual holders are more likely to grant an unconditional waiver to violators in which they hold both debt and equity claims.

A higher probability of obtaining an unconditional waiver means that borrowers with dual

ownership may be able to avoid the adverse shock caused by debt renegotiations to their investments. Moreover, since Chava and Roberts (2008) find that the decline in investment following covenant violations is greater in firms with more severe agency problems, we predict that the decline in investment (if any) among borrowers with dual ownership is less dramatic because dual ownership mitigates agency incentive conflicts. To sum up, we have the following two hypotheses:

H4: Dual ownership increases the chance for a borrower to obtain an unconditional waiver following a covenant violation, other things being equal.

H5: Dual ownership attenuates the decline in a borrower's investment following a covenant violation, other things being equal.

To further explore why borrowers with dual ownership may exhibit a different pattern in investment changes following a covenant violation, we also examine the effects of dual ownership on the changes in debt financing as a plausible channel. If dual ownership helps align the interests of debtholders and shareholders, we hypothesize that the decline in financing following covenant violations is alleviated by the presence of dual ownership, which is Hypothesis 6:

H6: Dual ownership attenuates the decline in a borrower's debt financing following a covenant violation, other things being equal.

2.4. An alternative hypothesis

While our above hypotheses are based on the incentive alignment argument, we recognize that there is a non-mutually exclusive alternative argument regarding the effects of dual ownership on firm investment. Specifically, dual ownership, by definition, means that an institution has both debt and equity claims in the same company, which is likened to a case of “putting two eggs into one basket.” The higher concentration of exposures thus subjects the dual holding institution to a higher risk: if things go wrong with the borrower (e.g., due to a major invest-

ment failure), the lender can suffer both as a creditor and a shareholder. If this effect due to the higher concentration of exposures dominates the effect of incentive alignment, we expect that dual owners are more likely to introduce a CAPEX restriction covenant in loan contracts to constrain borrower investment.

A higher incidence of CAPEX restriction covenants also means that borrowers with dual ownership will have less autonomy and latitude over investment decisions. Under the exposure concentration argument, the binding effect of CAPEX restriction covenants, coupled with the dual holders' possible monitoring of questionable investment decisions, suggests that borrowers with dual ownership should exhibit a lower level of post-loan investments than their counterparts. In the financial crisis when the credit risk is heightened, dual holders are unlikely to extend more loans to fund the borrower's investment in order to limit their potential losses. This reasoning suggests that investment in firms with dual ownership is likely to drop more than that in firms without dual ownership in the crisis period. The exposure concentration argument about dual ownership also predicts that following a covenant violation, borrowers with dual ownership are less likely to be granted an unconditional waiver and therefore are likely to suffer a larger decline in investment and borrowing than firms without dual ownership, other things being equal. These possibilities add tension to our hypotheses.

3. Data and variables

3.1. Sample construction

The loan contract data are taken from the Reuters Loan Pricing Corporation's (LPC) DealScan database. LPC gathers data from SEC filings, industry contracts, and directly from borrowers and lenders. Following Jiang et al. (2010), we focus on loan facilities that have non-missing all-in-drawn spread and use the London Interbank Offered Rate (LIBOR) as the base rate. We exclude bankers' acceptance, bridge loans, leases, loan-style floating rate notes, standby letters of credit, step-payment leases, bonds, notes, guidance lines, traded letters of credit, multi-option facilities, and undisclosed loans.

Because our study focuses on how dual ownership affects CAPEX restrictions and this information is not readily available from DealScan, we first obtain from Nini et al. (2009) the

capital expenditure restriction data.⁷ They collect binary information on capital expenditure restrictions from loan agreements included in SEC filings of non-financial public firms for loans originated in the period 1996-2005.⁸ For the period 2006-2010 that is not covered by Nini et al. (2009), we follow their data collection procedure to manually code whether there is a CAPEX restriction covenant in a loan from the 10-K, 10-Q, and 8-K filings in EDGAR. In total, we obtain 6,458 loan facilities for which we have information on the CAPEX restriction covenant.

Next, we collect for these loan facilities lenders' equity holding information from the Thomson Financial Ownership database, which compiles the information on institutional equity holdings disclosed in 13F filings. Specifically, for the lenders in our sample of loan agreements, we search for their equity holding information in the Thomson Financial Ownership database and ascertain the lenders' stock holdings in the borrowing companies in the quarter of loan origination. As in Jiang et al. (2010), this approach enables us to identify the simultaneous ownership of each creditor in the quarter of loan origination.

Finally, we obtain firm characteristics from Compustat. Following Nini et al. (2009), we construct firm-level characteristics as the average of the quarterly data over the year prior to loan origination. The final sample for our loan-level analysis comprises 5,947 loan facilities for which we have non-missing information on all the required variables. Our post-financing analyses are conducted at the firm-quarter basis and use much larger samples. Please refer to the relevant sections for details.

3.2. Dual ownership variables

To identify a loan with dual holders, at least one lender participating in the facility needs to hold a "significant" amount of shares in the borrowing firm or its parent firm in the quarter of loan origination. We follow Jiang et al. (2010) and define the threshold of "significant" as either exceeding 1% of the borrower's outstanding shares or over the value of \$2 million (or \$5 million if the lender has equity ownership in the borrower's parent firm) in 2010 constant dollars.⁹ In coding the dual ownership variables, we further take into account that a lending

⁷Before 1996, there were few electronic company filings in the EDGAR database from which loan covenant information is collected.

⁸We thank Amir Sufi for generously making the data available.

⁹The adjustment is based on the annual CPI obtained from the U.S. Bureau of Labor Statistics.

institution can influence the borrowing company through shares held by its subsidiaries. To identify the first-level subsidiaries of a lender, we check the lending institution’s 10-K filings for the years in which the institution participates in loan agreements. Using a combination of algorithmic matching and manual checking, we search in the Thomson Financial Ownership database for the identified subsidiaries of the lenders. Hence, a lender is classified as a dual holder if the equity position in the borrower held by the lender or any of its subsidiaries meets the same criteria specified above.

In addition to the indicator on whether there exists a dual holder at the loan level used in prior studies, we also introduce a continuous measure of dual ownership to gauge the extent to which the interest between debtholders and shareholders is aligned by creditors’ simultaneous equity holding. Specifically, we compute the lenders’ share ownership as the total proportion of the borrowing firm’s and/or its parent firm’s equity held by the lenders (or the lenders’ subsidiaries).

To mitigate heteroskedasticity and improve the model fitness, we transform the equity ownership by taking the natural logarithm of $(1 + \text{equity ownership}\%)$ in the regressions.¹⁰ The intuition behind this measure is that given its debt exposure, a larger stake of equity in the borrowing firm means more incentive alignment between shareholders and creditors and creditors’ stronger ability to monitor the borrower.¹¹

¹⁰The skewness and kurtosis of the untransformed equity ownership are 8.677 and 180.489, respectively. The maximum of the untransformed equity ownership is 52.5%, reflecting the share ownership held by both a firm and its subsidiaries. The results from the regressions using either form are similar in most cases, except for Column 2 in Table 5, where the untransformed equity ownership is loaded positively and insignificantly.

¹¹An alternative proxy for measuring dual ownership is to calculate a relative ratio of equity exposure of a dual holder to its debt exposure. Nevertheless, the information on each lender’s loan amount extended to a borrower is not readily available and sometimes unreliable even when it is available in DealScan. For example, only 2,397 facilities (about 40% of the regression sample) have some non-missing loan share information for lenders in the facility (for the rest of the loan facilities, individual lender’s loan amount information is completely missing). In addition, only 1,424 out of the 2,397 loan facilities have a total share of 100%, indicating the existence of missing values or data errors on loan share information. A second measurement issue is that the calculation of dualholders’ equity-to-debt ratio is also confounded by the amount of revolver loans that is not yet drawn down. Because of these issues, we do not use a relative equity-to-debt ratio as our main proxy. We nevertheless experiment with a noisy relative equity-to-debt ratio to check the robustness of our results. The average equity-to-debt ratio in our sample is about 24%. See Section 4.3.4 for details.

3.3. Control variables

3.3.1. Firm-level control variables

Following the literature (e.g., Graham, Li, and Qiu (2008); Chava, Livdan, and Purnanandam (2009)), we control for firm characteristics that could affect loan contracting. These control variables include firm size (measured as the natural logarithm of a firm’s total assets), Tobin’s Q (defined as the ratio of the market value to the book value of assets), profitability (measured as the ratio of operating income before depreciation to total assets), leverage (defined as the ratio of long-term debt and debt in current liabilities to total assets), asset tangibility, a modified Altman’s (1968) Z-score, credit rating dummies (see Appendix for details), and cash flow volatility (calculated as the natural logarithm of the standard deviation of quarterly cash flows from operations over the 16 quarters prior to the loan initiation scaled by total assets). We expect that firms with a larger size, more growth opportunities, higher profitability, more tangible assets, lower leverage, a higher Z-score, or lower cash flow volatility have a lower chance of being imposed a CAPEX restriction in loan contracts. An opaque firm may expose a lender to a higher information risk as well as a higher credit risk. We thus include in our model an indicator for whether the borrower is a constituent firm of the S&P 500 stock index and expect that such firms are less likely to be imposed a CAPEX restriction. The above variables (except for cash flow volatility) are measured as the average of the quarterly data over the four quarters prior to the loan origination date. To mitigate the undue influence of outliers, we winsorize all the continuous variables at the 1st and 99th percentiles.

3.3.2. Loan-level control variables

Control variables on loan characteristics are included as well. Loan size is controlled for, as it could affect loan contracting through economies of scale in loan issuance. We also control for loan maturity because of the higher default risk and greater uncertainty involved in long-maturity loans. Loans that use performance-based pricing may enjoy more favorable terms than those without such a clause, and hence we include a dummy variable that takes the value of one if a loan uses performance-based pricing. We also control for the (logged) number of lenders in the loan syndicate as syndicate size affects the syndicate’s ability to deal with credit risk (Jiang

et al. (2010)). Furthermore, dummy variables are included to control for the differences in risks and pricing mechanisms among different types of loans (e.g., term loan, revolver greater than one year, revolver less than one year, 364-day facility, etc.) and loans initiated for different purposes (e.g., corporate purposes, working capital, debt repayment, acquisition, etc.).

3.3.3. *Other control variables*

Macroeconomic factors may also influence the non-price loan contract terms. We follow Graham et al. (2008) and Chava et al. (2009) and include credit spread and term spread as control variables in the regressions. Credit spread is the difference between the yields of BAA corporate bonds and AAA corporate bonds, and term spread is the difference between the yields of 10-year Treasury bonds and 1-year Treasury bonds. We also use industry dummies (based on the Fama-French 48 industry classification) and year-quarter dummies to control for industry- and time-fixed effects, respectively.

3.4. *Summary statistics*

Table 1 presents summary statistics for the variables used in the analyses. About 37.5% of the loan facilities in the sample contain a covenant restriction on capital expenditures. The proportion is higher than the figure (31.9%) reported in Nini et al. (2009), suggesting lenders' increasing reliance on using CAPEX restrictions in syndicate loan contracts to control for borrowers' potentially opportunistic investment behaviors in recent years. Dual holders are present in about 28.8% of the sample loans. The mean equity ownership held by the group of lenders in a syndicated loan is about 2% in the subsample with dual ownership. While this mean level appears moderate, it is higher than the mean level of voting rights (0.49%) held by CBs in Santos and Wilson (2009) and the mean level of share ownership (0.67%) held by non-CBs in Jiang et al. (2010). Both papers find a significant effect of dual ownership on lowering loan spreads, suggesting that dual holders that integrate both debt and equity ownership can be potentially influential. The comparison also suggests that dual ownership is becoming more prevalent in recent years.

While our measurement of dual ownership follows Jiang et al. (2010), we want to emphasize that in unreported results, we also experiment with a more stringent cutoff of 2% ownership

(instead of the current 1%) for the binary dual ownership variable, we find that the incidence of having (significant) dual ownership is reduced to about 10% of loans, but the average equity ownership by creditors in firms with dual ownership increases to about 4.7%, which is close to the commonly used ownership cutoff of 5% for block holders. Using the stringent cutoff, we find our main results are qualitatively similar but the binary dual ownership variable has a larger magnitude in the loan level analysis as expected.

Summary statistics on loan characteristics can also be found in Table 1. The average loan size is about \$327.5 million, and the average loan maturity is approximately 48 months. Nearly 75% of the loans contain a performance-based pricing clause.

[Insert Table 1 near here]

In Table 1, a univariate test is performed to compare the probability of containing an investment restriction between the groups of loans with and without dual holders. We find that 17.6% (45.6%) of the loans drawn by firms with (without) dual holders have a CAPEX restriction. The difference is statistically significant at the 1% level, providing preliminary support for the argument that dual ownership helps align the interests of debtholders and shareholders and mitigate the borrowers' risk-shifting incentives, which result in a lower chance of imposing a CAPEX restriction covenant. This evidence is not consistent with the argument that dual ownership increases the exposure concentration of lenders. In addition, based on the comparison between loans with and without dual ownership, we find that firms attracting dual ownership are larger, more profitable, use lower financial leverage, have less volatile cash flows, and have a higher Tobin's Q and Z-score. Also, dual ownership is more likely to be present in large loans with shorter time to maturity. Therefore, firms with dual ownership tend to be better firms and we will deal with the potential endogeneity of dual ownership later.

4. Empirical results

4.1. *The effect of dual ownership on the incidence of CAPEX restrictions*

We use the following Probit model to examine the effect of dual ownership on the incidence of a capital expenditure restriction (H1):

$$\text{CAPEX restriction dummy} = f(\text{dual ownership measure, firm characteristics, loan characteristics, macroeconomic factors, credit rating dummies, industry and year-quarter effects}). \quad (1)$$

In Eq. (1), the dependent variable is the CAPEX restriction dummy, which is equal to one if a CAPEX restriction covenant is imposed and zero otherwise. We control for borrowing firm characteristics, loan characteristics, macroeconomic factors, as well as industry- and time-fixed effects. In all regressions, we report robust t-statistics that adjust for clustering at the borrowing firm level. Variable definitions are reported in the Appendix.

[Insert Table 2 near here]

As can be seen in Column 1 of Table 2, the coefficient of the dual ownership indicator variable is significantly negative, suggesting that loans issued to firms with dual holders are less likely to contain CAPEX restrictions. The result is potentially consistent with H1: creditors' simultaneous debt and equity holdings help mitigate the conflicts of interest between shareholders and debtholders, which then lower the chance of using CAPEX restrictions to protect the lenders. In Column 2, we add in loan type and purpose dummies as additional controls, and the results remain similar. The marginal effect (evaluated from 0 to 1) reported under the t-statistic in Column 2 indicates that the presence of dual ownership decreases the probability of having an investment restriction by about 10.2%, which represents a 27% drop in the incidence of CAPEX restriction relative to the sample mean. The evidence found suggests that the exposure concentration argument is not dominating.

Using percentage share ownership held by creditors as a proxy for the magnitude of dual ownership, the results reported in Columns 3–4 are consistent with those in Columns 1–2. The odds of having a CAPEX restriction are negatively related to the creditors' equity ownership in the borrowing firm. Using the marginal effect estimate (evaluated at the sample mean) in Column 4, we find that a one-standard-deviation increase in share ownership by creditors is associated with a decrease in the probability of having a CAPEX restriction that is about 13.6% of the sample mean, *ceteris paribus*. Therefore, the effect of dual ownership on lowering the incidence of using a CAPEX restriction is both statistically and economically significant.

In addition, the results on the control variables are consistent with the existing literature (e.g., Graham et al. (2008); Chava et al. (2009)). Specifically, firms that are small, less

profitable, face fewer growth opportunities, have lower tangibility, and/or a lower Z-score are more likely to have a CAPEX restriction covenant imposed.

One, however, may argue that this result is due to the endogeneity of dual ownership. For example, good firms attract equity investment by financial institutions and are less likely to be imposed a CAPEX restriction covenant (please refer to Table 1 for observed differences). Note that our model has already controlled for several proxies for firm quality including firm size, profitability, leverage, Z-score, credit ratings, Tobin's Q, and cash flow risk. But, it is possible that these performance and risk measures do not fully capture the superior quality of firms and dual owners may have private information on such quality. That is, there are omitted variables that are correlated with both dual ownership and the incidence of a CAPEX restriction covenant. To address the concern over endogeneity, we conduct extensive tests in the following subsections including using lagged equity ownership, cross-sectional tests on the relation between dual ownership and the CAPEX restriction, controlling for firm-fixed effects, and an instrumental variable (IV) estimation, among others.

We first check the robustness of our result to the use of lenders' equity ownership lagged one quarter before the loan origination - that is, we hold the equity ownership as predetermined relative to debt ownership. A similar approach is also followed in Lim et al. (2014). This measurement mitigates the concern that equity ownership only arises after an institution has gained access to confidential information about the borrower by participating in loans granted to the borrower. We repeat the model estimation in Table 2 and find that the (unreported) results are substantially similar: both the binary and continuous dual ownership measures are loaded negatively and significantly at the 1% level and the magnitudes of the marginal effects are comparable. It therefore reinforces the hypothesis that the equity ownership held by a lender can help mitigate debtholder-shareholder agency conflicts and attenuates the risk-shifting problem, which in turn affects the loan terms (e.g., the lower loan spread observed in Jiang et al. (2010) and the lower incidence of CAPEX restrictions in our case).

4.2. *Cross-sectional heterogeneity of the effect of dual ownership on the odds of CAPEX restrictions*

As pointed out in Rajan and Zingales (1998), one way to overcome endogeneity concerns is to focus on detailed theoretical mechanisms through which independent variables affect the dependent variable. Evidence on moderating factors could be viewed as “the ‘smoking gun’ in the debate about causality” (p.560). In this subsection, we analyze when and why dual ownership has an impact on the incidence of CAPEX restrictions. We conduct cross-sectional tests first based on borrower characteristics and then based on lender characteristics. To the extent that we find evidence consistent with theoretical predictions in which borrowers are expected to benefit more from mitigated debtholder-shareholder incentive conflict (if any) afforded by dual ownership and when lenders are more likely to have an effect, the endogeneity concern due to omitted variables reflecting firms’ superior quality should be lessened.

4.2.1. *Heterogeneity arising from borrower characteristics*

First, we conduct cross-sectional tests to better understand how the relation between dual ownership and the odds of CAPEX restrictions varies in different firms. The credit risk and agency problems faced by creditors vary with the borrower’s creditworthiness, which may in turn moderate the effect of dual ownership. The underlying intuition is that the role of dual ownership in mitigating the debtholder-shareholder conflict should be more valuable when the credit risk facing lenders is relatively high.

The first moderating factor we consider is the borrower’s financial health as proxied by Z-score. A higher Z-score indicates better financial health and thus a lower default risk. Thus, it is expected that the effect of dual ownership on lowering the use of CAPEX restrictions is more pronounced in borrowers with a lower Z-score. In Columns 1–2 of Panel A, Table 3, we present the results from split-sample regressions based on whether the borrower’s Z-score is above the sample top tercile or not.¹² As can be seen, the coefficient on the dual ownership indicator in the subsample with relatively low Z-score is negative and significant at the 1% level, whereas the coefficient is negative but insignificant for the group of firms with a Z-score that

¹²Note that financial institutions are less likely to invest in the equity of poor firms. Using the top tercile as the cutoff recognizes this investment requirement and reflects whether a borrower is good or relatively poor.

is higher than the 67th percentile of the sample. A further test of the difference in coefficients between the two groups suggests that the difference is statistically significant at the 5% level (two-tailed).

[Insert Table 3 near here]

Next, we consider using debt-to-cash-flow ratio as another moderating factor. In practice, the borrower's ratio of debt to cash flow is used in contracting by banks as an important indicator of credit quality (Nini et al. (2009)). Because the credit risk is relatively higher in borrowing firms with a high debt-to-cash-flow ratio, dual ownership is expected to exert a larger impact on CAPEX restrictions in such firms should the incentive alignment hypothesis hold. This is what we find in Columns 3–4: the coefficient of the dual ownership indicator is negative and statistically significant in both group, but is much larger in magnitude in the group where borrowers have an above-top-tercile debt-to-cash-flow ratio than that in the other group. A test of the difference in coefficients between the two groups confirms that the difference is statistically significant at the 10% level (two-tailed).

To the extent that the above cross-sectional tests show that dual holders have a larger effect when agency conflict between debtholders and shareholders is more severe, they lend further support for our hypothesis that dual ownership partially internalize the debtholder-shareholder incentive conflicts and thus mitigates the endogeneity concern. ¹³

4.2.2. *Heterogeneity arising from lender characteristics*

Previously, we have shown that consistent with our expectation, dual ownership is more valuable when debtholder-shareholder incentive conflict is acuter. In this section, we provide

¹³In addition to the risk-shifting agency problem between debtholders and shareholders, a firm as a nexus of contracts also has owner-manager agency problems. One important form of such agency problems is that in firms with free cash flows but limited growth opportunities, managers may have over-investment (or empire-building) incentives rather than making payout to shareholders (Jensen (1986)). Incidentally, having a CAPEX restriction covenant also helps limit the managerial agency incentive for over-investment. We, however, argue that the effect of dual ownership on the incidence of the CAPEX restriction covenant is unlikely to be driven by shareholders' concern over managers' over-investment incentives given that the CAPEX restriction covenant is primarily initiated by creditors to help resolve the conflicts between debtholders and shareholders. In addition, shareholders' concern over managerial over-investment problem implies a positive relation between dual ownership and the chance of imposing a CAPEX restriction covenant, and this is inconsistent with our baseline finding. Moreover, managers' over-investment problem is more acute in firms with abundant free cash flows but limited growth opportunities (Jensen (1986)). If CAPEX restriction is primarily used to deal with the managerial over-investment problem, we expect to see a positive and significant coefficient of the dual ownership variable in this subset of firms. We, however, find no such evidence in unreported results in the subsample of borrowers with above-sample-median free cash flow and below-sample-median Tobin's Q.

several tests to further the understanding of when dual owners are more likely to have a significant impact on the use of CAPEX restrictions by examining dual owners' proportional presence in the syndicate structure, types and investment horizons. Intuitively, if dual ownership facilitates incentive alignment between debtholders and shareholders, loans are less likely to contain a CAPEX restriction covenant when dual holders comprise the majority of lenders, are investors that tend to have more monitoring incentives, and have longer investment horizons.

First, among those loan facilities that have dual holders, we count the number of dual holders in a loan facility and define two indicator variables—*dual owners are the majority (1/0)* that takes the value of one if dual owners account for more than 50% of the syndicate members and *dual owners are the minority (1/0)* that takes the value of one if dual owners account for less than 50% of the syndicate members. We expect that the effect of dual ownership on loan contracting is stronger when dual holders are the majority in a loan syndicate. We then repeat the baseline regressions by collapsing the dual ownership dummy into the above two indicators. In the regression model, the loans without dual ownership are treated as the omitted group. The result is reported in Column 1 of Panel B, Table 3. The chance of imposing a CAPEX restriction decreases by 24.8% when the majority of lenders are dual holders, while the likelihood of having a CAPEX restriction covenant decreases by only 9.9% in the other dual ownership group. A test (unreported) shows that the difference in the effects of dual ownership between the two groups is statistically significant.

Second, we investigate whether the relation between dual ownership and the CAPEX restriction covenant varies according to the type of dual holders. As Jiang et al. (2010) note, commercial banks (CBs) and non-CBs may have different monitoring incentives. Specifically, the equity holdings of CBs are likely to emanate from their fiduciary capacity in trust accounts, whereas the equity holdings of non-CBs are a result of active investment. In the case of trust accounts, CBs can only monitor and vote on behalf of their clients, but they do not enjoy the cash flow rights associated with the share ownership (Santos and Wilson (2009)). Holmstrom and Tirole (1997, p.686) also argue that commercial banks normally do not monitor a borrower very intensively as they seldom put up their own capital for investment in the borrower. In contrast, for non-CB institutions, voting rights and cash flow rights attached to any share ownership are unified, and so non-CB investors should have more incentives to monitor the

invested firm than do CBs. If dual ownership facilitates incentive alignment, its effect on lowering the CAPEX restriction should be more pronounced in non-CBs. To test this conjecture, we define three mutually exclusive dual ownership indicator variables. *CB dual ownership only* (*Non-CB dual ownership only*) takes the value of one if all the dual holders participating in the loan facility are CBs (non-CB institutions).¹⁴ The indicator variable *both CB and non-CB dual ownership* takes the value of one if the existing dual holders include at least a CB and a non-CB institution. In the regressions, the omitted group comprises the loans without dual ownership.

The result presented in Column 2 of Panel B, Table 3 shows that all the three dummy variables on dual ownership are negatively loaded with the strongest effect observed when dual owners solely comprise non-CBs. The result is consistent with the finding of Jiang et al. (2010) that dual holders charge a lower loan spread and the relation is more pronounced for non-CB dual holders. It is also consistent with the finding on a significant effect of CB dual holders on lowering loan spread documented in Santos and Wilson (2009) and Jiang et al. (2010). Importantly, these results indicate that types of dual holders matter. Since it is unlikely that non-CBs possess more private information about a borrower than CBs, the result from types of dual holders seems inconsistent with the alternative explanation that private information possessed by dual owners (particularly non-CBs) drives our result.

Third, recent studies (e.g., Bushee (2001); Cella, Ellul, and Giannetti (2013)) show that institutional investors have different investment horizons and this characteristic has important influence on their incentives in affecting corporate policies. For example, taking into account trading behaviors and portfolio characteristics, Bushee (2001) classifies institutional investors into dedicated investors, transient investors, and quasi-indexers based on their expected investment horizons. Specifically, an institution with a low portfolio turnover, and long-term and stable ownership is categorized as a dedicated investor, whereas a short-term-focused institution having a high portfolio turnover and diversified portfolio holdings is classified as a transient investor. We expect that a dedicated dual holder has greater incentives and ability than a transient dual holder to influence the covenants in loan contracting and monitor the borrower

¹⁴We categorize a lender as a commercial bank following Jiang et al.'s (2010) classification. Also, to classify a lender as a CB, we manually determine whether its major business is related to commercial banking by checking a list of commercial banks insured by the Federal Deposit Insurance Corporation (FDIC).

ex post. We test this conjecture by collapsing the binary dual ownership measure into three mutually exclusive indicators: loans with at least one dedicated dual holder, loans with solely transient dual holders, and others.¹⁵ The result presented in Column 3 of Panel B, Table 3 lends support to our argument: the presence of a dedicated dual holder has the largest effect in reducing the use of a CAPEX restriction, while the effect of dual ownership is not significant when all the dual holders are transient investors.

Taken together, we find that the effect of dual ownership is more pronounced when dual holders represent the majority of the lenders, when dual holders are non-CB institutions, and when dual holders are long-term investors.

4.3. Other robustness checks

In this section, we estimate models with firm fixed effects and instrumental variables (IVs) to further deal with the potential endogeneity of dual ownership. We also conduct several other robustness checks.

4.3.1. Firm fixed effect estimations

First, to mitigate the concern that unobserved time-invariant factors drive our results, we estimate linear probability models with firm fixed effects as a robustness check. Firm-fixed-effect estimation exploits changes in dual ownership and the incidence of CAPEX restriction, and so is less susceptible to the omitted variable bias. The results in Panel A of Table 4 show that after controlling for firm fixed effects, both the presence of dual ownership and the creditors' share ownership are still negatively associated with the incidence of capital expenditure restrictions at the 1% level.

[Insert Table 4 near here]

4.3.2. IV estimation

We also conduct an IV estimation to deal with the possibility that there are omitted time-varying factors that are correlated with both dual ownership and CAPEX restrictions. While

¹⁵The updated data for the widely used classifications of institutional investors are available at <http://acct3.wharton.upenn.edu/faculty/bushee/>.

good IVs are extremely difficult to obtain, the literature provides some reasonable candidates. Following Jiang et al. (2010), the first IV is a variable measuring the borrower’s stock liquidity. The intuition is that the incidence of institutional equity ownership crucially depends on the stock liquidity of the portfolio companies. However, stock liquidity is unlikely to directly affect the probability of having a CAPEX restriction in the borrower beyond the firm characteristics (including proxies for information asymmetry such as firm size, tangibility, cash flow risk, and whether the borrower is a constituent firm of the S&P 500 stock index) that we control for in the models. The illiquidity measure we use is defined as the average ratio of the daily absolute return to the trading volume over the six months prior to the loan origination (Amihud (2002)). The second IV is the (logged) number of publicly listed lenders participating in a loan facility following Ferreira and Matos (2012). Constraints on equity holdings in private lending institutions are more common, and listed lenders are more likely to have affiliates (e.g., an asset management division) that facilitate their dual ownership. Therefore, the number of publicly listed lenders in a loan facility is likely to be correlated with creditors’ equity ownership, but as a priori, it is not expected to be directly related to the chance of having an investment restriction.

Our third IV is the mean incidence of dual ownership (the mean share ownership held by lenders) in each industry-year. The rationale is that institutions tend to herd into the same industries in investment (e.g., Choi and Sias (2009)), and thus institutional ownership is expected to display some industry patterns. In contrast, it is difficult to argue that the industry-level average institutional ownership affects the CAPEX restriction at the individual firm level especially when industry and time fixed effects, and credit risk measures of individual borrowers are controlled for.¹⁶

The results from the two-stage regressions are reported in Panel B of Table 4. We obtain the fitted value of dual ownership indicator (share ownership held by dual holders) from the first-stage Probit (Tobit) regression reported in Column 1 (2) of Panel B, Table 4. The first-stage results confirm that stock illiquidity is inversely related to both the presence and the extent of

¹⁶The first-stage regression also includes loan characteristics (e.g., loan size, performance pricing, loan maturity) as control variables. While this is consistent with the recent loan literature, we note that loan characteristics may not be ideal control variables given that they might be jointly determined. In unreported results, we exclude these loan-level controls and find that our results on dual ownership in the IV tests and in fact in our baseline models remain qualitatively unchanged.

dual ownership, whereas the number of lenders that are publicly listed and the industry average dual ownership (both the incidence and extent) are positively related to the two dual ownership variables. Moreover, F-tests of excluded IVs support the relevance of the instruments, and the Hansen's over-identification tests show that the orthogonality conditions cannot be rejected at any conventional level of significance. In the second-stage regressions shown in Columns 3–4 of Panel B, Table 4, the coefficients on both instrumented dual ownership measures are still significantly negative, consistent with our baseline results.

4.3.3. Testing the post-financing stock performance and controlling for loan spread

In addition to the above tests on endogeneity, we provide in this section two other tests of the alternative story on dual holders' private information on borrowers' superior quality. If the alternative story drives the observed negative relation between dual ownership and CAPEX restrictions, one should expect that firms with dual ownership are likely to have better post-financing abnormal stock performance. However, we find no evidence supporting this prediction. A similar observation is also made in Jiang et al. (2010) with a different sample. Limiting the analysis to S&P 500 firms only that are less likely to have the information asymmetry problem, we still find a negative and significant effect of dual ownership on the incidence of CAPEX restriction. Overall, we conclude that the observed negative relation between dual ownership and CAPEX restrictions is most likely to support the incentive alignment hypothesis.

Lenders may trade off loan spreads and covenants (e.g., CAPEX restriction) (Bradley and Roberts (2004)). It is possible that the lower incidence of CAPEX restriction is because dual holders charge a higher loan spread. While this argument is not supported by the finding of Jiang et al. (2010), we directly test it by including loan spread in our CAPEX model. We find that adding loan spread as a control does not change the inference on the effect of dual ownership. The effect of dual ownership on CAPEX restriction is also unaffected if we further control for the number of financial covenants and whether a loan is collateralized in the model.

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¹⁷The above results are unreported for brevity but are available upon request.

4.3.4. *Results from using a relative equity-to-debt ratio as an alternative dual ownership proxy*

As we mention in Footnote 11, an alternative proxy for measuring dual ownership is to calculate a relative ratio of a dual holder’s equity exposure to its debt exposure. Bearing in mind the two data issues and caveats we discuss in Footnote 11, we nevertheless construct an arguably noisy proxy of the relative equity-to-debt ratio to examine the tenor of our results. Specifically, for each loan facility, we compute the relative equity-to-debt ratio as total equity value/total debt value for the dual holders that have non-missing equity and loan share information. Note that by construction, the relative equity-to-debt ratio is computed if there is at least a dual holder in the facility with non-missing information on equity and debt value. Admittedly, this ratio may not be representative of the equity-to-debt ratio for all the dual holders in a loan facility when some dual holders have missing values on their loan shares. Even with this loose computation requirement, the sample size still drops by about 23%.

The results are reported in Panel C of Table 4. We find that the result on the negative relation between dual ownership and the chance of having a CAPEX restriction covenant is robust to the use of the noisy relative equity-to-debt ratio. This suggests that the binary and continuous dual ownership measures that we use as the main proxies have adequately captured the incentives of the dual holders.

5. The effect of dual ownership on subsequent investments

5.1. *The effect on the extent of subsequent investments*

To examine the impact of dual ownership on subsequent CAPEX spending (H2), we conduct regressions at the firm-quarter level with the dependent variable being the sum of capital expenditures over the four quarters subsequent to the measurement of dual ownership, scaled by net property, plant, and equipment at the beginning of the four quarters. The dual ownership indicator and the lenders’ share ownership are separately included as the key explanatory variable.¹⁸ Following Kaplan and Zingales (1997), we control for firm characteristics such as

¹⁸To measure the presence and extent of dual ownership for each firm-quarter, we begin with the borrowing firms that appear at least once in the loan sample. For each firm-quarter, we identify all the existing loans (i.e., loans already initiated but have not yet matured in that quarter) and obtain lender information on each loan. In this way, we obtain a list of institutions that are lenders in a given quarter for each sample firm. For each

cash flow and Tobin’s Q as well as total assets and leverage. To test whether borrowers with dual ownership exhibit more investments than firms without dual ownership in the financial crisis (H3), we include a dummy for the financial crisis that takes the value of one for the period from 2007Q3 through the end of our sample period, and interact it with dual ownership measures. The regression sample contains 82,237 unique firm-quarters for which we have non-missing values on all the variables used in the following regression model:

$$\text{Capital expenditures} = f(\text{dual ownership measure}, \text{dual ownership measure} * \text{crisis dummy}, \text{crisis dummy}, \text{firm characteristics}, \text{firm and year-quarter effects}). \quad (2)$$

We include firm-fixed effects in the model so that our estimation controls for the existence of any time-invariant omitted variables that may be correlated with dual ownership and firm investment. The results reported in Columns 1–2 of Table 5 show that dual ownership on average exerts a significantly positive effect on the borrower’s post-financing capital expenditure. In Columns 3–4, we include the interaction term between the crisis dummy and the dual ownership proxies. The interaction terms are loaded positively and significantly, suggesting that creditors’ equity ownership helps mitigate the decline in the borrowing firm’s investment in the crisis period. In fact, the Wald tests suggest that in the crisis period, the effect of dual ownership on capital investment is positive and significant, suggesting that borrowers with dual ownership exhibit more investments than firms without dual ownership in the financial crisis. Therefore, H3 is supported.

Interestingly, the stand-alone item of dual ownership is positive but insignificant, implying that the positive effect of dual ownership observed in Columns 1–2 is mainly driven by the effect of dual ownership in the crisis period. As H2 suggests, it is plausible that during normal times, greater latitude and flexibility in investment afforded by the infrequent use of CAPEX restrictions in loan contracts and the monitoring role of dual holders may have offsetting effects

pair of firm-lender, we collect the information about the lender’s equity holdings in the firm in each quarter from the Thomson Financial Ownership database. To define the presence of dual ownership, we aggregate the firm-quarter equity holdings owned by various existing lenders. If the lenders’ equity holdings exceed 1% of the firm’s outstanding shares or \$2 million measured in 2010 constant dollars, dual ownership is deemed to be present in the firm-quarter (i.e., the dual ownership dummy is equal to one). In addition, we introduce a continuous variable measuring the lenders’ share ownership: the natural logarithm of one plus the total percentage of a firm’s outstanding shares held by all the lenders in the firm-quarter.

on investment in firms with dual ownership. In contrast, in the crisis period where there is credit rationing, it is crucial to continue investment and not to bypass attractive investment opportunities. Dual ownership appears valuable to firms' financing and investment in crisis.

Note that the above results are again not consistent with the exposure concentration argument that predict firms with dual ownership should use CAPEX restriction covenant more often and exhibit less post-loan investment than firms without dual ownership.

[Insert Table 5 near here]

The estimates on the control variables are consistent with the literature (e.g., Kaplan and Zingales (1997)): capital spending is positively related to cash flow and Tobin's Q and inversely linked to firm size and leverage. Also, as expected, firms had significantly less capital spending in the recent financial crisis.

5.2. *The effect on post-loan asset volatility*

As discussed, the CAPEX restriction covenant is an important way to deal with a borrower's risk-shifting problem. We have found that firms with dual ownership are less likely to have a CAPEX restriction covenant in loan contracts, and have more investment spending than firms without dual ownership (particularly in the crisis period). A natural extension question is whether firms with dual ownership exhibit risk-shifting in investments absent the CAPEX restriction covenant. To investigate this, we compare asset volatility changes over the period two years before loan origination to two years after loan origination between borrowers with and without dual ownership. We follow Bharath and Shumway (2008) to construct the measure of asset volatility. The results are reported in Table 6. As Table 6 shows, the mean asset volatility of borrowers without dual ownership decreases slightly, while the mean asset volatility of borrowers with dual ownership drops significantly at the 1% level. Comparing the mean change in asset volatility around loan origination between firms with and without dual ownership suggests that asset volatility drops more in borrowers with dual ownership. This evidence suggests that in borrowers with dual ownership higher subsequent investments do not exhibit a wealth transfer from shareholders to debtholders. This may reflect the reduced incentive conflicts between debtholders and shareholders afforded by dual ownership, which further reinforces our findings from the analysis of loan covenant.

[Insert Table 6 near here]

6. Investment changes following covenant violations

In this section, we examine how dual holders react to a technical default and how dual ownership affects the investment change following covenant violations. Ideally, we should focus on violations of the CAPEX restriction covenant. But Nini et al. (2009) report that CAPEX restriction is binding and effective in constraining borrower investment below the contractual limit and violation of the CAPEX restriction covenant is rare (we confirm this in our manual data collection). Therefore, following prior studies (Chava and Roberts (2008); Roberts and Sufi (2009a); Nini et al. (2012)), we focus on violations of financial covenants and examine how dual ownership affects lender waiver decisions following covenant violations.

6.1. *Dual ownership and waiver decisions in the event of covenant violations*

We obtain the information on financial covenant violations from Nini et al. (2012).¹⁹ The authors collect violation data from 10-Q or 10-K filings for each firm-quarter observation in the Compustat database. We then merge the violation data with our dual ownership data by firm and year-quarter. Focusing on new covenant violations (i.e., no violation precedes the current violation in the past four quarters), we manually check 10-Q and 10-K filings to identify whether creditors grant a waiver within four quarters following a violation. It is worth noting that the sample we use in the waiver decision model is much larger than the samples used in previous studies on waiver decisions (e.g., Chen and Wei (1993) and Beneish and Press (1993) examine only about 100 firms). Following Roberts and Sufi (2009b), we classify creditors' response to a financial covenant violation into three major categories: (i) creditors grant an unconditional waiver; (ii) a waiver is granted conditional on some unfavorable changes in loan terms (e.g., the size of credit facility reduced, interest rate increased, maturity shortened, and/or additional collateral required); and (iii) the borrower terminates the credit agreement.

To test the effect of dual ownership on the likelihood of granting an unconditional waiver (H4), the following Probit model is estimated on the basis of firm-quarters:

¹⁹We thank Amir Sufi for generously making the data available.

$$\text{Unconditional waiver dummy} = f(\text{dual ownership measure, firm characteristics, credit rating dummies, industry and year-quarter effects}), \quad (3)$$

where the dependent variable is a dummy variable indicating whether a violating firm receives an unconditional waiver of a covenant violation. The regression results are shown in Table 7. We include the dual ownership indicator in Column 1 and the creditors' equity ownership in Column 2 as the key explanatory variable. The coefficients on both dual ownership variables are positive and significant at the 1% level, suggesting that firms with dual holders are more likely to be granted an unconditional waiver following a technical default. The marginal effect (evaluated from 0 to 1) reported (in bold) under the t-statistic indicates that the presence of dual ownership increases the probability of receiving a waiver by about 22.3%. Note that this result is not simply driven by differences in firm performance (e.g., ROA, Tobin's Q, leverage) leading up to the violation between firms with and without dual ownership since we have controlled for them in the model.

[Insert Table 7 near here]

The observed correlation between dual ownership and creditors' waiver decisions, however, could be due to the existence of omitted variables (for example, firm quality not captured by conventional firm characteristics) that are correlated with both dual ownership and lenders' waiver decisions. To mitigate this concern, we instrument the dual ownership variables with the same IVs we use in Section 4.3.2 and present the second-stage results of IV estimation in Columns 3–4. While the sample size is slightly reduced due to missing values on IVs, inference on the two measures of dual ownership is qualitatively unchanged.

In Column 5, we further experiment with measuring dual ownership with an overall equity-to-debt ratio for all dual holders in the firm to directly measure the equity incentives vis-a-vis debt incentives. The equity-to-debt ratio is loaded positively and significantly, suggesting waiver is more likely when dual holders' equity incentives increase, consistent with our argument that lenders' equity reduces the incentive conflicts between debtholders and shareholders. Overall, the results from the waiver model corroborate our key argument and previous findings that

dual ownership mitigates incentive conflicts between lenders and shareholders.²⁰

Taken together, the evidence in this section shows that the existence of dual ownership increases a violating firm's chance to obtain an unconditional waiver following technical defaults, consistent with the notion that dual ownership mitigates the interest conflicts between creditors and shareholders.

6.2. *Investment changes following covenant violations*

As we find that firms with dual ownership are more likely to be granted an unconditional waiver following a financial covenant violation, we hypothesize that the decline in investment among borrowers with dual ownership is less dramatic than the decline in borrowers without dual ownership (H5). Using the financial covenant violation data and following the methodology of Nini et al. (2012), we now investigate the effect of a new financial covenant violation on a firm's investment activities. Specifically, the following specification is used:

$$\text{Change in investment}_{t,t+4} = f(\text{violation dummy}, \text{violation dummy} * \text{dual ownership measure}, \text{dual ownership measure}, \text{covenant controls}, \text{higher-order covenant controls}, \text{lagged covenant controls}, \text{the level and first difference of } \ln(\text{assets}) \text{ and Tangibility}, \text{industry and year-quarter effects}), \quad (4)$$

where *Change in investment* represents the change in CAPEX scaled by average net property, plant, and equipment from the quarter of the violation to four quarters after the violation. The variables of interest include the violation indicator and its interaction with the dual ownership measure, in which the violation indicator refers to a new covenant violation in the past four quarters. The covenant controls, measured in the quarter of the violation, include the ratio of operating cash flow to average assets, leverage ratio, interest expense scaled by average assets,

²⁰One may argue that the higher chance of obtaining a waiver on covenant violations may be because firms with dual ownership are imposed on tighter covenants in the loan contracts. This, however, is not consistent with our finding that firms with dual ownership are less likely to have a CAPEX restriction in loan contracts. Nevertheless, we also examine the tightness of financial covenants. We focus on three common covenants (i.e., the net worth, current ratio, and debt-to-EBITDA covenant). Using DealScan loan deals with non-missing information on any of the three covenants and measuring the tightness of covenants in the manner of Murfin (2012), we find that there is no statistically significant difference in covenant tightness between loans taken out by firms with and without dual ownership. Therefore, we conclude that differences in covenant tightness do not alternatively explain our results on waivers.

the ratio of net worth to total assets, current ratio, and Tobin’s Q. An important feature of this model setup is that it implements a “quasi-discontinuity” approach by including linear and higher-order control variables for the accounting items on which financial covenants are written. This means that the observed effect of violation on the outcome variable cannot be simply attributed to the poor performance of violators but reflects the effect of creditor control following the violation (Nini et al. (2012)).

The regression results are reported in Table 8. Consistent with the evidence reported in Chava and Roberts (2008) and Nini et al. (2012), capital expenditure declines significantly in the year following a covenant violation. In addition, the coefficients of the two interaction terms are positive and significant at the 1% level, providing strong evidence that dual ownership attenuates the sharp reduction in CAPEX investment following violations. Specifically, the investment spending shrinks by about 2.4% (about 10% of the mean level of investment in the sample) one year following a violation in the absence of dual ownership, while the test of the coefficients (b_1+b_2) indicates that the decrease is not significantly different from zero for violators with dual ownership, all else equal. The estimates on the control variables are also largely consistent with those in Nini et al. (2012).

[Insert Table 8 near here]

Therefore, dual ownership attenuates the sharp decline in investment of violating firms possibly because dual ownership helps better align the interest of debtholders and shareholders. In the next section, we examine the channel through which dual ownership mitigates the investment decline following a financial covenant violation by relating dual ownership to post-violation changes in debt financing.

6.3. *Financing changes following covenant violations*

To investigate whether the decline in financing (if any) among borrowers with dual ownership is less dramatic than that in borrowers without dual ownership following a covenant violation (H6), we again adopt a “quasi-discontinuity” approach by estimating the following model:

Change in financing $_{t,t+4} = f(\text{violation dummy}, \text{violation dummy} * \text{dual ownership measure}, \text{dual ownership measure}, \text{covenant controls}, \text{higher-order covenant controls}, \text{lagged covenant$

controls, the level and first difference of $\ln(\text{assets})$ and Tangibility, industry and year-quarter effects), (5)

where *Change in financing* represents the change in net debt issuance scaled by lagged total assets or the change in net cash flow from long-term debt financing scaled by lagged total assets, from the quarter of the violation to four quarters after the violation. Other independent variables remain the same as in Eq. (4).

The regression results are reported in Table 9. In Columns 1–2, the dependent variable is the change in net debt issuance scaled by lagged assets. Consistent with the evidence shown in Roberts and Sufi (2009a) and Nini et al. (2012), debt issuance decreases significantly in the fourth quarter after a covenant violation. Consistently, the interaction term between the violation indicator and share ownership is positive and significant at the 10% level. In addition, the test of the coefficients (b_1+b_2) suggests that the overall effect of a violation on the change in debt issuance is insignificant when dual holders are present in the violating firm-quarter. Therefore, there is weak evidence on the moderating effect of dual ownership around covenant violations. In Columns 3–4, we examine how the cash flow from long-term debt financing changes in the event of a financial covenant violation. Here we find a stronger moderating effect of dual ownership on long-term debt financing. In particular, the long-term debt financing shrinks significantly in the year following a violation in the absence of dual ownership, while the decrease is statistically insignificant in a firm with dual ownership, all else equal. Collectively, the above results indicate that dual ownership mitigates the sharp decline in investment activities following a financial covenant violation.

[Insert Table 9 near here]

7. Conclusion

In this paper, we examine the effects of creditors' simultaneous ownership of debt and equity in the borrowing firm on loan covenants regarding capital investment and post-financing investment. Our analysis shows that the level of lenders' equity ownership reduces the incidence of having a capital expenditure restriction in loan agreements. This relation is stronger in less

credit worthy borrowers and more pronounced when the majority of the lending syndicate comprises dual owners, in non-commercial banking institutions, and when dual owners are dedicated investors. These loan-level results are more consistent with the argument that simultaneous institutional holdings of debt and equity in the same firm help mitigate the incentive conflicts between debtholders and shareholders than the argument that dual holdings in the borrower increase the lender's exposure concentration or an alternative argument that dual owners have private information about the superior quality of borrowers.

We further document that the presence of dual holders increases the amount of subsequent capital expenditures, and in particular, lessens the decline in a firm's capital expenditures during the recent financial crisis and lowers post-financing asset volatility. These results provide direct evidence on the role of dual ownership in incentive alignment. We also take advantage of the event of technical defaults and show that after a technical default, firms with dual ownership are more likely to be granted an unconditional waiver than those without dual ownership. Moreover, firms with dual ownership manage to maintain financing and investment following financial covenant violations. These results on post-violation financing and investment coupled with creditors' waiver decisions over covenant violations corroborate our loan-level results and further support the argument that dual ownership helps align the interest of debtholders and shareholders. Collectively, our study shows that the increasingly prevalent dual ownership is an important mechanism to mitigate shareholder-creditor conflicts and has real implications for firms' investment policy. We also extend the limited research on the determinants of lenders' waiver decisions and the growing literature on capital expenditure restriction covenant.

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Appendix: Variable Definitions

Variable	Definition
<i>Dual ownership information</i>	
Dual ownership (1/0)	Indicator variable that is equal to one if at least one participating lender holds a significant amount of equity in the borrower (or the borrower's parent firm) in the quarter of loan origination. A lender can also be a shareholder through its subsidiaries. Following Jiang et al. (2010), the threshold for "significant" equity holding is defined as either exceeding 1% of the borrower's outstanding shares or over the value of \$2 million (or \$5 million if the lender has equity holding in the borrower's parent firm) in 2010 constant dollars.
Share ownership	$\ln(1 + \text{the percentage of the borrowing firm's or its parent firm's equity held by the creditors (or their subsidiaries) of the loan facility})$.
Dual owners are the majority (1/0)	Indicator variable that is equal to one if the number of dual owners accounts for more than 50% of the syndicate members, and zero otherwise.
Dual owners are the minority (1/0)	Indicator variable that is equal to one if the number of dual owners accounts for less than 50% of the syndicate members, and zero otherwise.
CB dual ownership only (1/0)	Indicator variable that is equal to one if all the dual holders participating in the loan facility are commercial banks, and zero otherwise.
Non-CB dual ownership only (1/0)	Indicator variable that is equal to one if all the dual holders participating in the loan facility are non-commercial banking institutions, and zero otherwise.
Both CB and non-CB dual ownership (1/0)	Indicator variable that is equal to one if the existing dual holders include both commercial banks and non-commercial banking institutions, and zero otherwise.
With a "dedicated" dual holder (1/0)	Indicator variable that is equal to one if there is at least one "dedicated" investor with a long expected investment horizon among the dual holders in a loan facility, and zero otherwise. See Bushee (2001) for details.
All "transient" dual holders (1/0)	Indicator variable that is equal to one if all the dual holders in a loan facility are "transient" investors, and zero otherwise. See Bushee (2001) for details.

Loan characteristics

CAPEX restriction (1/0)	Indicator variable that is equal to one if there is a covenant restriction on capital expenditure (CAPEX), and zero otherwise.
Loan size	Loan (facility) amount (in million dollars).
Loan maturity	The maturity of loan facility (in months).
Performance pricing (1/0)	Indicator variable that is equal to one if the loan facility uses performance pricing, and zero otherwise.
Syndicate size	Natural logarithm of one plus the total number of lenders in the loan facility.
Loan type dummies (1/0)	Indicator variables for loan type (term loan, revolver greater than one year, revolver less than one year, 364-day facility, etc.).
Loan purpose dummies (1/0)	Indicator variables for loan purpose (corporate purposes, working capital, debt repayment, acquisition, etc.).

Firm characteristics

Assets	Book value of total assets.
Leverage	$(\text{Long-term debt} + \text{debt in current liabilities}) / \text{total assets}$.
Tobin's Q	$(\text{Market value of equity} + \text{book value of liabilities}) / \text{total assets}$.
Profitability	EBITDA/total assets.
Tangibility	Net property, plant and equipment/total assets.
Z-score	Modified Altman's (1968) Z-score = $(1.2 * \text{working capital} + 1.4 * \text{retained earnings} + 3.3 * \text{EBIT} + 0.999 * \text{sales}) / \text{total assets}$. The ratio of market value of equity to book value of total debt is omitted from the calculation because a similar term, Tobin's Q, enters the regressions as a separate variable.
Ln(cash flow volatility)	Natural logarithm of the standard deviation of quarterly cash flows from operations over the 16 quarters prior to loan origination scaled by the total assets.
S&P 500 (1/0)	Indicator variable that is equal to one if the borrower is included in the S&P 500 index, and zero otherwise.
Credit rating dummies	Indicator variables for each category of S&P credit ratings (AAA, AA, A, BBB, BB, B or worse). The firms without ratings are the omitted group in the regressions.

Debt to cash flow	The ratio of debt in the quarter before loan origination scaled by the sum of cash flows (proxied by EBITDA) over the four quarters prior to loan origination.
<i>Macroeconomic factors</i>	
Credit spread	The difference between the yields of BAA corporate bonds and AAA corporate bonds.
Term spread	The difference between the yields of 10-year Treasury bonds and 1-year Treasury bonds.
<i>Covenant violation information</i>	
Violation (1/0)	Indicator variable that is equal to one if there is a financial covenant violation reported by a firm that has not violated a covenant in the previous four quarters, and zero otherwise.
Unconditional waiver (1/0)	Indicator variable that is equal to one if a waiver is granted unconditionally after a covenant violation, and zero otherwise.

Table 1. Summary Statistics

This table presents summary statistics for the variables used in the dual ownership and capital expenditure restriction analysis and compares the characteristics between the groups of firms with and without dual holders. The difference tests are based on t-tests. The sample period is from 1996 to 2010. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level (two-tailed), respectively. Variable definitions are in the Appendix. Note that the mean of share ownership in the group of loans without dual ownership is not zero due to the minimum threshold in the definition of dual ownership indicator.

Variable	Mean	Standard deviation	N	Loans without dual ownership		Loans with dual ownership		Difference
				Mean	Standard deviation	Mean	Standard deviation	
CAPEX restriction (1/0)	0.375	0.484	5,947	0.456	0.484	0.176	0.280***	
Dual ownership (1/0)	0.288	0.453	5,947	0	0.453	1	-	
Raw share ownership (%)	0.591	1.693	5,947	0.021	1.693	2.004	-1.983***	
Share ownership (logged)	0.264	0.516	5,947	0.019	0.516	0.871	-0.855***	
Loan size	327.485	826.289	5,947	191.665	826.289	664.015	472.349***	
Loan maturity	48.387	21.831	5,947	49.066	21.831	46.705	2.360***	
Performance pricing (1/0)	0.746	0.435	5,947	0.708	0.435	0.840	-0.132***	
Syndicate size	1.989	0.841	5,947	1.715	0.841	2.667	-0.952***	
Ln(cash flow volatility)	-3.278	0.609	5,947	-3.247	0.609	-3.356	0.109***	
Ln(assets)	6.666	1.649	5,947	6.112	1.649	8.041	-1.930***	
Leverage	0.307	0.212	5,947	0.314	0.212	0.292	0.022***	
Tobin's Q	1.793	0.996	5,947	1.750	0.996	1.899	-0.149***	
Profitability	0.037	0.024	5,947	0.036	0.024	0.039	-0.004***	
Tangibility	0.323	0.233	5,947	0.324	0.233	0.321	0.003	
Z-score	0.636	0.806	5,947	0.572	0.806	0.794	-0.221***	
S&P 500 (1/0)	0.171	0.377	5,947	0.060	0.377	0.448	-0.388***	
Credit spread	0.917	0.337	5,947	-	0.337	-	-	
Term spread	1.217	1.144	5,947	-	1.144	-	-	

Table 2. Dual Ownership and Capital Expenditure Restrictions

This table shows the results from Probit models regressing the incidence of CAPEX restrictions on the dual ownership indicator and share ownership held by creditors, respectively. Standard errors (clustered at the firm level) that are robust to both cross-sectional heteroskedasticity and within-firm serial correlation are used in computing t-statistics (in square brackets). Marginal effects (evaluated at the sample means for continuous variables or for a change from 0 to 1 for indicator variables) are reported in bold. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. Variable definitions are in the Appendix.

Y = CAPEX restriction (1/0)	(1)	(2)	(3)	(4)
Dual ownership (1/0)	-0.331*** [-4.555] -0.110	-0.309*** [-4.242] -0.102		
Share ownership			-0.306*** [-4.556] -0.106	-0.287*** [-4.271] -0.099
Ln(loan size)	-0.053* [-1.862]	-0.057* [-1.941]	-0.058** [-2.016]	-0.062** [-2.079]
Ln(maturity)	0.230*** [4.808]	0.029 [0.460]	0.232*** [4.830]	0.029 [0.456]
Performance Pricing (1/0)	-0.064 [-1.106]	0.035 [0.548]	-0.065 [-1.115]	0.035 [0.551]
Syndicate size	0.140*** [2.720]	0.142*** [2.778]	0.138*** [2.677]	0.141*** [2.747]
Ln(cash flow volatility)	0.041 [0.808]	0.063 [1.229]	0.040 [0.795]	0.062 [1.217]
Ln(assets)	-0.139*** [-3.638]	-0.131*** [-3.415]	-0.150*** [-3.905]	-0.141*** [-3.654]
Leverage	0.296 [1.582]	0.281 [1.496]	0.305 [1.629]	0.291 [1.543]
Tobin's Q	-0.092** [-2.400]	-0.097** [-2.551]	-0.099*** [-2.597]	-0.104*** [-2.737]
Profitability	-3.980** [-2.466]	-4.207*** [-2.616]	-4.017** [-2.506]	-4.240*** [-2.654]
Tangibility	-0.500** [-2.549]	-0.454** [-2.295]	-0.493** [-2.526]	-0.451** [-2.288]
Z-score	-0.133*** [-2.765]	-0.115** [-2.385]	-0.135*** [-2.800]	-0.116** [-2.405]
S&P 500 (1/0)	-0.261** [-2.021]	-0.227* [-1.738]	-0.239* [-1.840]	-0.207 [-1.582]
Credit spread	0.247 [0.802]	0.244 [0.788]	0.255 [0.828]	0.256 [0.821]
Term spread	0.278* [1.745]	0.272* [1.688]	0.284* [1.777]	0.275* [1.704]
Credit rating dummies	✓	✓	✓	✓
Industry effects	✓	✓	✓	✓
Year-quarter effects	✓	✓	✓	✓
Loan type & purpose dummies		✓		✓
Pseudo R ²	0.506	0.533	0.511	0.538
N	5,947	5,947	5,947	5,947

Table 3. Cross-sectional Heterogeneity of the effect of dual ownership on the odds of CAPEX restrictions

Panel A shows the results from Probit models regressing the incidence of CAPEX restrictions on the dual ownership indicator. The regressions are split by firm characteristics (above or below top tercile Z-score and debt-to-cash flow ratio). Panel B shows the results from Probit models regressing the incidence of CAPEX restrictions on the indicators for dual owner types (CB/non-CB), for dual owners' proportional presence in syndicate structure, and for dual owners' investment horizon, respectively. The loans without dual ownership are treated as the omitted group. In each column, loans with dual ownership are split into mutually exclusive categories based on the characteristics of dual owners. In this table, firm-level control variables include Ln(cash flow volatility), Ln(assets), leverage, Tobin's Q, profitability, tangibility, Z-score, and S&P 500 index inclusion (1/0). Loan controls include logged loan size, logged loan maturity, performance pricing dummy (1/0), and syndicate size. Macro controls include credit and term spreads. Standard errors (clustered at the firm level) that are robust to both cross-sectional heteroskedasticity and within-firm serial correlation are used in computing t-statistics (in square brackets). Marginal effects (evaluated as the discrete change in the expected value of the dependent variable as the indicator variable changes from 0 to 1) are reported in bold. The estimates of the constant, credit rating dummies, loan type, loan purpose, industry and year-quarter indicator variables are omitted for brevity. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. Variable definitions are in the Appendix.

Panel A: Cross-sectional Tests Based on Borrower Characteristics

	Z-score		Debt to cash flow	
	High	Low	Low	High
Y = CAPEX restriction (1/0)	(1)	(2)	(3)	(4)
Dual ownership (1/0)	-0.068 [-0.554]	-0.454*** [-4.697]	-0.199** [-2.099]	-0.495*** [-3.504]
	-0.018	-0.129	-0.055	-0.179
Firm characteristics	✓	✓	✓	✓
Loan controls	✓	✓	✓	✓
Macro controls	✓	✓	✓	✓
Credit rating dummies	✓	✓	✓	✓
Loan type & purpose dummies	✓	✓	✓	✓
Industry effects	✓	✓	✓	✓
Year-quarter effects	✓	✓	✓	✓
Pseudo R ²	0.635	0.751	0.652	0.643
N	1,982	3,965	3,622	1,810
Test of the difference in the estimates on dual ownership:				
P-value	0.014		0.076	

Panel B: Cross-sectional Tests Based on Dual Holder Characteristics

Y = CAPEX restriction (1/0)	(1)	(2)	(3)
Dual owners are the majority (1/0)	-1.141** [-2.158] -0.248		
Dual owners are the minority (1/0)	-0.300*** [-4.083] -0.099		
CB dual ownership only (1/0)		-0.220* [-1.852] -0.071	
Non-CB dual ownership only (1/0)		-0.369*** [-4.120] -0.117	
Both CB and non-CB dual ownership (1/0)		-0.226* [-1.714] -0.073	
With a “dedicated” dual holder (1/0)			-1.476*** [-3.253] -0.273
All “transient” dual holders (1/0)			-0.038 [-0.239] -0.013
Other dual holders (1/0)			-0.348*** [-4.446] -0.113
Firm characteristics	✓	✓	✓
Loan controls	✓	✓	✓
Macro controls	✓	✓	✓
Credit rating dummies	✓	✓	✓
Loan type & purpose dummies	✓	✓	✓
Industry effects	✓	✓	✓
Year-quarter effects	✓	✓	✓
Pseudo R ²	0.533	0.534	0.537
N	5,947	5,947	5,947

Table 4. The Effect of Dual Ownership on the Incidence of CAPEX Restrictions: Robustness Tests

Panel A shows the results from firm fixed-effect linear probability regressions of the incidence of CAPEX restrictions on the dual ownership indicator and share ownership held by creditors, respectively. Panel B reports Probit models based on the instrumental variable (IV) approach with the borrower's stock illiquidity, natural logarithm of one plus the number of publicly listed lending banks in the loan facility, and the industry-year average incidence of dual ownership (or the industry-year average extent of equity ownership) as the excluded instruments, and the control variables in the CAPEX restriction model as included instruments. The stock illiquidity is defined as the average of the daily absolute return to trading volume ratio over the half year prior to loan origination (Amihud (2002)). 1st-stage F-test is the test of excluded IV in the 1st-stage regression. The Hansen overidentification test is the test of all instruments for overidentifying restrictions. Panel C shows the results from Probit models regressing the incidence of CAPEX restrictions on the relative ratio of dual owners' equity position to debt exposure. In this table, firm-level control variables include Ln(cash flow volatility), Ln(assets), leverage, Tobin's Q, profitability, tangibility, Z-score, and S&P 500 index inclusion (1/0). Loan controls include logged loan size, logged loan maturity, performance pricing dummy (1/0), and syndicate size. Macro controls include credit and term spreads. Standard errors (clustered at the firm level) that are robust to both cross-sectional heteroskedasticity and within-firm serial correlation are used in computing t-statistics (in square brackets). The estimates of the constant, credit rating dummies, loan type, loan purpose, and year-quarter indicator variables are omitted for brevity. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. Variable definitions are in the Appendix.

Panel A: Firm Fixed Effects Regressions

Y = CAPEX restriction (1/0)	(1)	(2)
Dual ownership (1/0)	-0.064*** [-2.812]	
Share ownership		-0.056*** [-3.111]
Firm characteristics	✓	✓
Loan controls	✓	✓
Macro controls	✓	✓
Credit rating dummies	✓	✓
Loan type & purpose dummies	✓	✓
Firm-fixed effects	✓	✓
Year-quarter effects	✓	✓
Pseudo R ²	0.155	0.153
N	5,262	5,262

Panel B: The Instrumental Variable Approach

Y =	Dual	Share	CAPEX restriction (1/0)	
	ownership (1/0)	ownership		
	(1) 1st-stage	(2) 1st-stage	(3) 2nd-stage	(4) 2nd-stage
	Probit	Tobit	Probit	Probit
Illiquidity	-2.480*	-0.319**		
	[-1.784]	[-2.201]		
Number of publicly listed lenders (logged)	0.786***	0.348***		
	[10.710]	[12.092]		
Average incidence of dual ownership	3.270***			
	[19.189]			
Average share ownership held by lenders		0.696***		
		[18.707]		
Fitted dual ownership			-0.456***	
			[-2.785]	
Fitted share ownership				-0.630***
				[-3.376]
Firm characteristics	✓	✓	✓	✓
Loan controls	✓	✓	✓	✓
Macro controls	✓	✓	✓	✓
Credit rating dummies	✓	✓	✓	✓
Loan type & purpose dummies	✓	✓	✓	✓
Industry & Year-quarter effects	✓	✓	✓	✓
1st-stage Pseudo R ²	0.768	0.590		
F-test of excluded IV (p-value)	0.000	0.000		
Hansen test (p-value)	0.296	0.262		
2nd-stage Pseudo R ²			0.535	0.544
N	5,807	5,807	5,807	5,807

Panel C: Dual Owners' Equity-to-debt Ratio and Capital Expenditure Restrictions

Y = CAPEX restriction (1/0)	(1)	(2)
Equity-to-debt ratio	-0.153**	-0.140**
	[-2.138]	[-2.064]
	-0.053	-0.048
Firm characteristics	✓	✓
Loan controls	✓	✓
Macro controls	✓	✓
Credit rating dummies	✓	✓
Industry effects	✓	✓
Year-quarter effects	✓	✓
Loan type & purpose dummies		✓
Pseudo R ²	0.518	0.545
N	4,597	4,597

Table 5. Dual Ownership and Subsequent Capital Expenditure

This table shows the results from OLS regressions of investment spending on the dual ownership indicator and share ownership held by creditors, respectively. The analysis is at the firm-quarter level. The dependent variable is the sum of capital expenditures over the subsequent four-quarter period, scaled by the period-beginning net property, plant, and equipment. Cash flow equals the sum of earnings before extraordinary items and depreciation over the subsequent four-quarter period, scaled by the period-beginning net property, plant, and equipment. Firm-level control variables, including Tobin's Q, Ln(assets), and Leverage, are measured in the same quarter of dual ownership variables. The sample period is from 1996 to 2010. *Crisis* (1/0) is a dummy variable taking the value one for the period from 2007Q3 to the end of the sample period. Standard errors (clustered at the firm level) that are robust to both cross-sectional heteroskedasticity and within-firm serial correlation are used in computing t-statistics (in square brackets). The estimates of the constant and year-quarter indicator variables are omitted for brevity. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. Variable definitions are in the Appendix.

Y = Capital expenditures	(1)	(2)	(3)	(4)
Dual ownership (1/0) (b_1)	0.008*** [2.846]		0.004 [1.062]	
Share ownership (b_2)		0.005* [1.949]		0.001 [0.550]
Dual ownership*crisis (b_3)			0.018*** [3.779]	
Share ownership*crisis (b_4)				0.011*** [3.300]
Crisis (1/0)	-0.055*** [-6.085]	-0.055*** [-6.086]	-0.063*** [-6.596]	-0.059*** [-6.357]
Cash flow	0.041*** [15.162]	0.041*** [15.173]	0.041*** [15.082]	0.041*** [15.143]
Tobin's Q	0.064*** [20.219]	0.064*** [20.459]	0.064*** [20.343]	0.064*** [20.504]
Ln(assets)	-0.026*** [-5.815]	-0.025*** [-5.690]	-0.026*** [-5.805]	-0.025*** [-5.625]
Leverage	-0.182*** [-13.704]	-0.182*** [-13.755]	-0.182*** [-13.703]	-0.182*** [-13.757]
Firm fixed effects	✓	✓	✓	✓
Year-quarter effects	✓	✓	✓	✓
Adjusted R ²	0.223	0.223	0.224	0.223
N	82,237	82,237	82,237	82,237
Wald test (p-value)				
$b_1 + b_3 = 0$			0.000	
$b_2 + b_4 = 0$				0.000

Table 6. Dual Ownership and Change in Post-loan Asset Volatility

This table presents a comparison of the changes in asset volatility over the window from two years before to two years after the loan origination between borrowers with and without dual holders. We follow Bharath and Shumway (2008) to construct the measure of asset volatility. T-statistics are reported in square brackets. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Pooled sample	Subsample (1)	Subsample (2)	
Variable: asset volatility		Dual ownership=0	Dual ownership=1	Difference: (1)-(2)
Before issuance (3)	3.968	4.053	3.786	0.267*** [20.668]
After issuance (4)	3.956	4.047	3.760	0.287*** [21.484]
Difference: (4)-(3)	-0.012** [-2.213]	-0.006 [-0.875]	-0.026*** [-2.700]	0.020* [1.676]
N	4,757	3,249	1,508	

Table 7. Dual Ownership and Creditors' Waiver Decisions in the Event of Covenant Violations

This table shows the results from Probit models regressing the incidence of creditors' waiver decisions following a financial covenant violation on the dual ownership measures. Unconditional waiver (1/0) takes the value of one if the waiver is granted unconditionally after a covenant violation and zero if no waiver is granted or a conditional waiver is granted. A conditional waiver is that creditors demand some conditions (i.e., a reduction in loan size, an increase in interest rate spread, a decrease in maturity, and/or an addition of collateral) in exchange for a waiver of covenant violations. Firm-level control variables include Tobin's Q, cash/assets, ROA, leverage, and S&P 500 index inclusion (1/0). Columns 3–4 report the second-stage results from the instrumental variable (IV) estimation with the borrower's stock illiquidity, natural logarithm of one plus the number of publicly listed lending banks in the loan facility, and the industry-year average incidence of dual ownership (or the industry-year average extent of equity ownership) as the excluded instruments. Standard errors (clustered at the firm level) that are robust to both cross-sectional heteroskedasticity and within-firm serial correlation are used in computing t-statistics (in square brackets). Marginal effects (evaluated at the sample means for continuous variables or for a change from 0 to 1 for indicator variables) are reported in bold. The estimates of the constant, credit rating dummies, industry and year-quarter indicator variables are omitted for brevity. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Y = Unconditional waiver (1/0)	(1)	(2)	(3)	(4)	(5)
Dual ownership (1/0)	0.575*** [4.949]		0.551*** [2.952]		
	0.223		0.220		
Share ownership		0.341*** [3.691]		0.455*** [2.596]	
		0.136		0.182	
Equity-to-debt ratio					0.642*** [2.797]
					0.256
Firm characteristics	✓	✓	✓	✓	✓
Credit rating dummies	✓	✓	✓	✓	✓
Industry effects	✓	✓	✓	✓	✓
Year-quarter effects	✓	✓	✓	✓	✓
Pseudo R ²	0.246	0.235	0.229	0.228	0.226
N	1,163	1,163	1,129	1,129	1,163

Table 8. Dual Ownership and Change in Investment after Covenant Violations

This table shows the results from OLS regressions of change in investment from the quarter of the financial covenant violation to four quarters after the violation on the violation dummy and its interaction with dual ownership and share ownership held by creditors, respectively. The dependent variable is change in CAPEX scaled by average net property, plant, and equipment (PPE). Higher-order covenant controls are the second and third power of the covenant control variables (including operating cash flow scaled by average assets, leverage ratio, interest expense scaled by average assets, the ratio of net worth to total assets, current ratio, and Tobin's Q). Lagged covenant controls are the four-quarter lagged level of the covenant control variables. The sample period of the covenant violation data obtained from Amir Sufi's website is from 1996 to 2008. Standard errors (clustered at the firm level) that are robust to both cross-sectional heteroskedasticity and within-firm serial correlation are used in computing t-statistics (in square brackets). All specifications include Ln(assets), (PPE/assets), the first difference of Ln(assets) and the first difference of (PPE/assets). The estimates of the constant, higher-order and lagged covenant controls, industry and year-quarter fixed effects are omitted for brevity. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. The null hypothesis of $b_1 + b_2 = 0$ cannot be rejected according to Wald test (p-value=0.427).

Y = Change in CAPEX/average PPE	(1)	(2)
Violation (1/0) (b_1)	-0.024*** [-6.291]	-0.023*** [-6.333]
Violation*dual ownership (1/0) (b_2)	0.019*** [2.868]	
Dual ownership (1/0)	-0.001 [-0.585]	
Violation*share ownership		0.014*** [2.877]
Share ownership		-0.001 [-0.854]
Operating cash flow/average assets	0.682*** [12.385]	0.682*** [12.390]
Leverage	-0.106*** [-3.336]	-0.106*** [-3.332]
Interest expense/average assets	5.271*** [4.708]	5.266*** [4.699]
Net worth/assets	0.062*** [5.709]	0.062*** [5.722]
Current ratio	0.010* [1.935]	0.010* [1.931]
Tobin's Q	0.070*** [9.094]	0.070*** [9.098]
Higher-order covenant controls	✓	✓
Lagged covenant controls	✓	✓
Industry effects	✓	✓
Year-quarter effects	✓	✓
Adjusted R ²	0.109	0.109
N	45,549	45,549

Table 9. Dual Ownership and Change in Debt Financing after Covenant Violations

This table shows the results from OLS regressions of change in debt financing from the quarter of the financial covenant violation to four quarters after the violation on the violation dummy and its interaction with binary dual ownership and continuous share ownership held by creditors, respectively. The dependent variable is change in net debt issuance scaled by lagged total assets and change in net cash flow from long-term debt financing scaled by lagged total assets, respectively. Higher-order covenant controls are the second and third power of the covenant control variables (including operating cash flow scaled by average assets, leverage ratio, interest expense scaled by average assets, the ratio of net worth to total assets, current ratio, and Tobin's Q). Lagged covenant controls are the four-quarter lagged level of the covenant control variables. Standard errors (clustered at the firm level) that are robust to both cross-sectional heteroskedasticity and within-firm serial correlation are used in computing t-statistics (in square brackets). All specifications include $\ln(\text{assets})$, $(\text{PPE}/\text{assets})$, the first difference of $\ln(\text{assets})$ and the first difference of $(\text{PPE}/\text{assets})$. The estimates of the constant, higher-order and lagged covenant controls, industry and year-quarter fixed effects are omitted for brevity. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively. The null hypothesis of $b_1+b_2=0$ cannot be rejected according to Wald tests (p-value=0.289 (0.479) in Column 1 (3)).

Y =	Change in net debt issuance/lagged total assets		Change in long-term debt financing/lagged total assets	
	(1)	(2)	(3)	(4)
Violation (1/0) (b_1)	-0.009** [-2.513]	-0.010*** [-3.096]	-0.023*** [-4.763]	-0.024*** [-5.294]
Violation*dual ownership (1/0) (b_2)	0.003 [0.489]		0.017** [2.046]	
Dual ownership (1/0)	-0.001 [-1.538]		-0.001 [-0.837]	
Violation*share ownership		0.008* [1.932]		0.022*** [3.326]
Share ownership		-0.001** [-2.256]		-0.001 [-0.850]
Operating cash flow/average assets	0.380*** [9.711]	0.379*** [9.701]	0.426*** [6.396]	0.425*** [6.381]
Leverage	-0.317*** [-13.092]	-0.317*** [-13.071]	-0.298*** [-6.998]	-0.298*** [-7.002]
Interest expense/average assets	11.750*** [12.080]	11.742*** [12.066]	3.982*** [2.778]	3.987*** [2.783]
Net worth/assets	0.023** [2.511]	0.023** [2.493]	0.121*** [6.377]	0.121*** [6.372]
Current ratio	0.002 [0.627]	0.002 [0.601]	-0.030*** [-4.757]	-0.030*** [-4.755]
Tobin's Q	0.058*** [10.642]	0.058*** [10.592]	0.056*** [5.953]	0.056*** [5.949]
Higher-order covenant controls	✓	✓	✓	✓
Lagged covenant controls	✓	✓	✓	✓
Industry effects	✓	✓	✓	✓
Year-quarter effects	✓	✓	✓	✓
Adjusted R ²	0.346	0.346	0.266	0.266
N	46,096	46,096	38,823	38,823