Effects of bank loan covenants on the selection of covenants in public corporate bonds

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ABSTRACT

This study presents empirical evidence demonstrating the significant influence of a firm's existing bank loan covenants on the selection of covenants in public corporate bonds. Controlling for previously identified determinants of debt covenants, this paper finds a significant inverse relation between bank loan covenants and those associated with new bond offerings when the maturity of the bonds precedes the maturity of the outstanding bank loans. This finding suggests a substitution effect, indicating that firms tend to incorporate fewer covenants in their bond contracts when they already have bank loan covenants in place. Moreover, the relation becomes positive when the maturity of the bonds exceeds that of the bank loans. Empirical results remain significant across different covenant categories. Results are also robust when alternative measures of covenants and maturity are employed.

Keywords: bank loan covenants, corporate bond covenants, agency conflicts

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INTRODUCTION

Agency conflicts between shareholders and creditors are prevalent in numerous firms across various industries. In order to address these conflicts, creditors employ a range of debt covenants aimed at curbing managers' inclination towards risky behaviors. However, creditors bear the cost of implementing debt covenants. Bradley and Roberts (2015) find that bank loans with covenants are associated with lower promised yields for the banks involved. Similarly, Reisel (2014) studies corporate bonds and finds bonds with investment restrictions or issuance restrictions tend to have lower yields. Given the associated costs of implementing covenants, a research question arises: Do new debt issues have fewer covenants when comparable covenants already exist in debt outstanding? The primary objective of this study is to examine the relation between the covenants of existing debt and those of new issues.

Public corporate bondholders are less inclined to rely on each other for monitoring the issuing firms, since they are typically less informed arm-length's outsiders reliant on public information. Chiu, Wang, Wrolstad (2018) document that covenants in corporate bonds exhibit a positive correlation with each other. However, banks are different from corporate bondholders; they are more involved in borrowers' affairs and have great monitoring efficiency. According to Black (1975), Diamond (1984), and Fama (1985), banks possess a cost-effective and continuous access to financial information, granting them a relative advantage in monitoring borrowers.

Bank loan covenants could offer collective protection to all creditors of the same firm, rather than exclusively benefiting a specific creditor of a particular loan. For instance, if a bank includes a dividend covenant in a loan agreement that restricts managers from distributing dividends to stockholders, public corporate bondholders of the firm also benefit from protection against potential exploitation by shareholders, even if they do not have a dividend covenant in their bond indentures.

To investigate the impact of bank loan covenants on the selection of covenants in corporate bond offerings, this study gathers bond data from the FISD database and bank loan data from LPC's Dealscan database. By merging this data with additional firm-level information from COMPUSTAT, the sample comprises 3,879 new bond issues of 1,271 U.S. firms spanning the years 1990 to 2014.

Following Chava, Kumar and Warga (2010), Billett, King, and Mauer (2007) and Smith and Warner (1979), this paper categorizes the various covenants found in bank loans and corporate bonds into four distinct categories: dividend restrictions, financing restrictions, investment restrictions and event related restrictions. Empirical results consistently show that the inclusion of covenants in new bonds decreases when the maturity of these bonds precedes that of existing bank loans. In contrast, when the maturity of these bonds exceeds that of existing bank loans, the presence of covenants in new bond issues increases in accordance with the covenants found in the existing bank loans. This finding provides support for the hypothesis of a substitution effect, suggesting that the presence of existing bank loan covenants reduces the utilization of covenants in new bonds, particularly when the bank loan covenants remain effective throughout the lifespan of the new bond issues. Furthermore, the substitution effects of bank loan covenants remain statistically significant when analyzing different categories of covenants separately. For instance, the presence of bank loan dividend covenants is associated with an average decrease of 0.44 (or a 78.57% decrease on average) in new bond covenants when new bonds mature before bank loans. Similarly, the presence of bank loan investment covenants is correlated with an average decrease of 0.18 (or a 13.78% decrease on average) in new bond covenants when new bonds mature before bank loans. These results hold robustly across alternative covenant classifications and maturity measures.

This paper is part of a growing literature on the role of banks in capital market. Black

(1975), Diamond (1984) and Fama (1985) discuss banks' cost advantage over public corporate bondholders. According to the findings of Datta, Iskandar-Datta, and Patel (1999), existence of bank loans can even lower the yield spreads of corporate bond issues. However, the interaction between existing bank loan covenants and those of new bonds has not been explored in previous literature. Therefore, this study contributes to the literature by providing evidence that existing bank loan covenants could reduce the utilization of corporate bond covenants, particularly when the bonds mature prior to the bank loans. In such cases, bondholders are safeguarded by the existing bank loan covenants throughout the lifespan of the bonds.

This paper further expands the empirical research on debt covenants by demonstrating the significance of existing bank loan covenants as a determining factor in the selection of covenants for new bond issues. Previous studies have primarily focused on the impact of financial stability on the presence of covenants. For instance, Malitz (1986) highlights lightly leveraged firms with larger sizes are less inclined to have covenants. Chava, Kumar, and Warga (2010) find that bond covenants are also affected by firms' managerial entrenchment and fraud. In addition to financial stability, Chiu, Wang, and Wrolstad (2018) demonstrate that the inclusion of bond covenants in new issues tends to increase when there are existing bond covenants. No substitution effects are identified in their study.

HYPOTHESIS DEVELOPMENT

As argued in the seminal papers of Jensen and Meckling (1976) and Myers (1977), risky outstanding debt gives managers more incentives to make suboptimal investment decisions, resulting in a loss of firm value, known as agency cost. Billett, King, and Mauer (2007) estimate a system of equations for leverage, debt maturity and covenants, and provide strong empirical evidence that debt covenants, along with short term debt, serve as efficient contracting mechanisms used by firms to mitigate conflicts between stockholders and creditors. However, covenants come with costs. Reisel (2014) and Bradley and Roberts (2015) examine the determinants of covenants in corporate bond issues and bank loan deals respectively, and both papers find a negative relation between debt covenants and debt yields.

Debt covenants offer safeguards to all creditors of the firm as a whole, rather than being limited to the specific creditor associated with a particular debt issue. For instance, when a firm is bound by the dividend covenant, it helps mitigate conflicts between stockholders and creditors within the firm, benefiting other creditors, even if they do not have the dividend covenant in their own contracts. Given that banks possess superior monitoring capabilities and stronger incentives to oversee the management of borrowing firms, bondholders are expected to derive advantages from the protection offered by existing bank loan covenants. Additionally, as pointed out by Billett, King, and Mauer (2007), the maturity of debt influences covenant restrictions. Taken together, the hypothesis is proposed below,

Safeguard Effect Hypothesis: Existing bank loan covenants decrease the usage of public corporate bond covenants when new bond issues reach maturity before the bank loans.

On the other hand, if the maturity dates of bonds extend beyond those of bank loans, bondholders will not benefit from the full protection provided by bank loan covenants. As a result, they may face increased risk once the bank loans mature, especially if similar covenants are not included in their own contracts. Given that the utilization of extra covenants entails costs for creditors (Bradley & Roberts, 2015; Reisel, 2014), the relation between the covenants of new bonds and existing bank loan covenants, specifically for new bond issues maturing after the existing bank loans, is ultimately an empirical question.

DATA COLLECTION

U.S. public corporate bond data is taken from FISD. Information of bank loan maturity and covenant usage is from LPC's Dealscan database. Quarterly financial data of borrowing firms is from COMPUSTAT. Yields on 10-year and 6-month Treasury debt are from Federal Reserve.

The sample for this study comprises all public bonds issued by non-financial, unregulated firms in the United States during the period 1990-2014. Bonds without available covenant information, bonds issued by foreign firms or in foreign currency are excluded from the sample. If a firm has more than one debt issues within a single day, only the largest issue with the greatest length of maturity is retained. Finally, the sample has 3,879 new bond issues by 1,271 unique firms.

According to Chava and Roberts (2008), Dealscan database contains more than 75% of all commercial loans in the United States during the early 1990s. Following Smith and Warner (1979), Billett, King and Mauer (2007), and Chava, Kumar and Warga (2010), this paper classifies twenty bank loan covenants into dividend-related, financing-related, investment-related, and event-related covenants (also known as sweeps for bank loans.)

Bank loan dividend covenant index, investment covenant index, and sweeps index take on values of 0 or 1. A value of 1 indicates the presence of the corresponding covenant in any of bank loans outstanding, while a value of 0 indicates its absence.[1] Financing-related covenants are grouped into two subcategories: debt offering limitations[2], and priority limitations[3]. The financing covenant index takes on values of 0, 1, or 2, representing the count of different subcategories of financing covenants in the bank loan contracts. The aggregate bank loan covenant index is calculated as the sum of the four individual loan covenant indexes mentioned above. The maximum value of the aggregate bank loan covenant index is 5 (= 1 + 1 + 1 + 2). A higher index indicates stronger restrictions on borrowing firms and greater protection for creditors.

Taking Harris Corporation as an example, it had two existing bank loan deals in September 2005, when it issued a new bond. One of the loan deals was borrowed in October 2003 with a 4-year maturity and dividend restrictions, while the other was borrowed in March 2005 with a 5-year maturity and no dividend restriction. In this example, the bank loan covenant index is calculated based on these two loans and it equals one, indicating the presence of dividend restrictions in at least one of the outstanding loans.

Similar to bank loan covenants, forty-six covenants of public corporate bond issues are classified into the same four categories. Within each category, covenants are further organized into different subcategories based on their specific characteristics and purposes.

The dividend covenant index is assigned values of 0, 1, or 2, representing the count of different subcategories of dividend related covenants in a new bond indenture.[4] A higher index indicates stronger restrictions on the issuers regarding dividend-related payments.

Similarly, financing covenant index takes on values 0, 1, 2, 3, or 4, representing the count of different subcategories of financing covenants in a new bond indenture. Investment covenant index takes on values 0, 1, 2, or 3. And event covenant index takes on values 0, 1,

[1] Investment covenants exist if there are any restrictions on capital expenses, fixed charge coverage, interest or cash interest coverage, debt service coverage, quick ratio, current ratio and EBITDA. Sweeps index equals one if any sweeps of excess cash flow, asset sales, debt and equity issuance and insurance proceeds exist.

[2] Debt offering limitations include any restrictions on debt to EBITDA ratio, debt to equity ratio, debt to tangible net worth, leverage ratio and loan to value ratio.

[3] Priority limitations include restrictions on senior debt to EBITDA ratio and senior leverage.

[4] In addition to direct restrictions on dividend payments, bond indentures may also encompass limitations on other similar types of payments. Table 1(Appendix) shows the classification with subcategories. For further details, please refer to Chava, Kumar, and Warga (2010) and Wang, Chiu, and Wrolstad (2018).

or 2.

The aggregate bond covenant index is calculated as the sum of the four covenant indexes mentioned above. It reflects the total count of covenant subcategories in a bond issue. The maximum value of the aggregate bond covenant index is 11 (= 2 + 4 + 3 + 2), corresponding to the eleven covenant subcategories in total.

As indicated in Panel A of Table 1 (Appendix), on average, a new bond issue contains 5.31 different covenants, while bonds outstanding have 4.69 covenants, which is fewer than that of new bonds. This discrepancy arises because 22.4% of new bonds in the sample are issued by firms that do not have any existing bonds or bond covenants.

Among the covenants included in the sample, limitations on sale and lease obligations are the most prevalent, present in 91.1% of the sample. Conversely, direct investment limitations are the least common, appearing in only 2.1% of the sample.

Panel B of Table 1 (Appendix) summarizes information of existing bank loan covenants. For each new bond, there are on average 2.83 distinct types of bank loan covenants outstanding. Among these covenants, debt limitations are the most commonly observed, present in 78.1% of the sample. Debt priority limitations are the least utilized covenants, appearing in only 13.6% of the sample.

In order to control for the effects of other debt characteristics, this study incorporates two control variables related to debt characteristics: *Issue size*, defined as the percentage of the offering amount over the total assets, and *Secured*, a binary variable that takes on a value of one when the new debt is secured.

This paper also controls for effects of basic firm characteristics. Market-to-book ratio is a proxy for a firm's growth potential. Billett, King, and Mauer (2007) provide evidence that growth opportunities affect the choice of covenants and Adam and Goyal (2008) show that market-to-book ratio is the most informative proxy for investment opportunities. Since a high proportion of fixed assets and a firm's profitability improve borrowing ability, the ratio of fixed-to-total assets is included. Additionally, firm size, leverage, abnormal earnings, and investment grade, a dummy variable which is equal to one if the firm has investment grade rating, are also included. All the firm characteristics variables are calculated based on the most recent quarterly financial report by the date of new debt issuance. And all the variables in dollars are inflation-adjusted to December 2014 dollars using the monthly consumer price index.

Last, *Term premium*, defined as the 10-year Treasury bond yield minus a 6-month Treasury bill yield, is used to control for macroeconomic factors over time. It is matched to the month of a firm's issuance date.

Table 2 (Appendix) presents the descriptive statistics for the control variables mentioned above. It is observed that 22.4% of the new bonds in the sample do not have any existing bond covenants. This is because either these firms do not have any bonds outstanding on the issuance date or their outstanding bonds do not include covenants (similar to most commercial papers). The average maturity of the corporate bonds is 11.2 years, and only 4.6%, a small proportion, of the new bonds in the sample mature before the existing bank loans. Furthermore, the borrowing firms in the sample exhibit a relatively large size and investment grade firms account for 46.9% of all. This is because firms capable of issuing public bonds tend to possess larger sizes and better credit quality compared to those relying primarily on private debt and lacking public bond issuance (Denis & Mihov, 2003).

ANALYTICAL MODEL

The regression model below is used to examine the impact of bank loan covenants on the selection of covenants for new bonds:

$$Bond\ covnt = \beta_1 Bank\ loan\ covnt + \beta_2\ Shorter\ maturity + \beta_3\ Bank\ loan\ covnt \times Shorter\ maturity + \beta_4 Bond\ covnt.existing + Other\ debt\ level\ factors + Firm\ level\ factors + Industry\ and\ year\ controls + \varepsilon$$

The variables *Bond covnt* and *Bank loan covnt* represent the number of different covenant categories in new bond issues and bank loans outstanding, respectively. *Shorter maturity* is a binary variable that takes on the value of one when the new bond issue matures before any bank loans with covenants outstanding. The coefficient β_3 of *Bank loan covnt* time *Short maturity* quantifies the impact of existing bank loan covenants on the selection of covenants in new bonds with shorter maturity. If this coefficient is negative, it supports the safeguard hypothesis that existing bank loan covenants decrease the utilization of covenant provisions in public corporate bonds when the bonds have shorter maturities. The regression model also includes *Bond covnt.existing*, the number of covenant categories in bonds outstanding, as a control variable.

Other debt level factors include *Issue size*, *Secured*, and a dummy variable, *No bond covnt existing*, which indicates if the firm has no existing bond covenants before the new bonds. Firm level factors include firm size, leverage, market to book ratio, fixed assets, and abnormal earnings.

EMPIRICAL ANALYSES

Table 3 (Appendix) displays the analysis of the effects of existing bank loan covenants on bond covenant selections. As reported in Column 2, the coefficient of *Bank loan covent*, which represents the effect of existing bank loan covenants on the covenants of new bond issues when the new bond issues mature after bank loans outstanding, is positive and statistically significant (coef. = 0.154; t value = 4.17). This indicates that a one-unit increase in bank loan covenants is associated with a 0.15 increase in new bond covenants. On the other hand, the coefficient for the interaction term (*Bank loan covent* × *Shorter maturity*) is negative and statistically significant (coef. = -0.355; t value = -3.17). This suggests that when the new bond issues mature before bank loans outstanding, the positive effects of bank loan covenants on new bond covenants are reduced by 0.355, or approximately 6.69% (0.355/5.306) on average[5]. However, based on Column 2, it is uncertain whether the net effect, -0.201 (0.154-0.355), is statistically significant.

To examine the net impact of existing bank loan covenants when new bond issues mature before bank loans outstanding, an alternative regression specification is presented in Column 3. The interaction term, *Bank loan covnt* × *Shorter maturity*, is found to be negative and statistically significant (coef. = -0.201; t value = 1.77). This implies that a one-unit increase in bank loan covenants is associated with a decrease of approximately 0.201 units in new bond covenants, representing an average reduction of 3.78%.

In summary, the findings from Table 3 support the safeguard hypothesis that existing bank loan covenants have a negative impact on the utilization of covenants in new bond issues when the new bonds mature prior to the existing bank loans. On the other hand, when the new bond issues mature after the existing bank loans, there is a positive association between the covenants of the new bonds and the bank loan covenants. This positive relation suggests that bondholders may include more covenants in the bond contracts initially to protect themselves against the risks that emerge once the existing bank loans mature and their covenants become ineffective.

[5] As shown in Panel A of Table 1, the average number of covenants in new bonds is 5.306. Therefore, a decrease of 0.355 units represents a reduction of approximately 6.69% (0.355/5.306) from the average number of covenants.

Also, the regression results in Table 3 consistently show that the coefficient of *Bond covnt existing* is positive and statistically significant. This indicates that the presence of covenants in outstanding bonds is associated with an increase in the number of covenants in new bond issues. These findings align with Simpson (1973) and Chiu, Wang, and Wrolstad (2018), which highlight the widespread usage of boilerplate language in bond indentures.

The coefficient of the dummy variable, *No bond covnt existing*, is positive and statistically significant in all regressions of Table 3. This indicates that when firms do not have any existing bond covenants, they are more inclined to include additional covenants in new bonds.

Moreover, this study reveals that the number of covenants in new bond issues is positively associated with the issue size and financial leverage of the borrowing firm, while it exhibits a negative relation with firm size. These findings can be explained by influence of ex-ante agency costs in Malitz (1986).

Columns 1 to 4 of Table 4 (Appendix) present the regression results for each of the four covenant categories separately, examining the impact of existing bank loan covenants on the corresponding covenants of new bond issues.

The findings reveal that when new bond issues mature prior to existing bank loans, the presence of bank loan covenants that restrict dividends (Column 1) and investment activities (Column 3) exert a significant negative impact on the corresponding covenants of new bonds. These results support the safeguard effect hypothesis, suggesting that the inclusion of similar covenant provisions in new bonds decreases when bank loan covenants are present.

Specifically, when new bonds have a shorter maturity, the presence of bank loan dividend covenants is associated with a noteworthy decrease of 0.44 in dividend covenants of new bonds. This decrease represents an average reduction of approximately 78.57% in the inclusion of dividend covenants in new bonds compared to cases where bank loan dividend covenants are absent. Similarly, the presence of bank loan investment covenants is correlated with a decrease of 0.18 in investment covenants of new bonds, indicating an average reduction of around 13.78% in the inclusion of investment covenants.

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ROBUSTNESS TESTS

Instead of categorizing forty-six bond covenants and twenty bank loan covenants into separate groups and calculating covenant indexes, the regression models in Table 5 (Appendix) directly use the total count of forty-six debt covenants existing in new bonds as the dependent variable, and the total count of twenty bank loan covenants existing in bank loans as the independent variable. Panel A of Table 5 reveals that, on average, new bond issues have 8.50 different covenants, while bank loans outstanding have 4.44 different covenants. The regression results in Column 2 of Panel B demonstrate that the interaction term between the count of bank loan covenants and the bond shorter maturity dummy remains negative and statistically significant, consistent with the findings in the previous tables. Since debt covenants are not classified into different categories in this analysis, the examination of covenant effects at specific categories is not available and therefore not reported in the table.

In Columns 3 and 4 of Table 5, an alternative approach is used to determine the short maturity dummy variable. Instead of comparing the bond maturity with the maximum maturity of bank loans, it is now compared with the average maturity of bank loans outstanding. For instance, if a new bond issue has an 8-year maturity and there are two bank loans outstanding, one with a 5-year maturity and the other with a 9-year maturity, the short maturity dummy will be zero (i.e., $8 < 0.5*(5+9)$), indicating that the bond maturity is longer

than the average maturity of bank loans. Approximately 2.5% of new bond issues in the sample have a maturity shorter than the average maturity of bank loans. Columns 3 and 4 present the impacts of bank loan covenants using this alternative measure of maturity. It is observed that new bond issues with a shorter maturity than bank loans have, on average, 0.47 fewer covenants compared to those with longer maturity. This difference represents a 5.4% reduction (i.e., 0.47/8.505 = 5.57%) from the average covenant count.

In summary, the robustness tests provide consistent evidence with findings presented in the previous tables, supporting the safeguard effect hypothesis of bank loan covenants.

CONCLUSION

This study examines the impact of bank loan covenants on the selection of corporate bond covenants. Robust evidence demonstrates a negative relation between the covenants of new bond issues and existing bank loan covenants when the new bond issues mature before the outstanding bank loans. Conversely, a positive association is observed when the new bond issues mature after the outstanding bank loans. Moreover, the substitution effects remain significant when examining different covenant categories separately. Specifically, when new bond issues mature before existing bank loans, the presence of bank loan dividend covenants is correlated with a decrease of 0.44 covenants in new bond issues, and the existence of investment covenants is correlated with a decrease of 0.18 covenants in new bonds.

These findings are consistent with the notion that the inclusion of covenants in a firm's outstanding bank loans serves as a substitute for covenants in the firm's new bonds. This can be attributed to the inherent costs associated with implementing and monitoring debt covenants, which are relatively higher for corporate bondholders compared with banks. Banks, due to their closer relationship and greater access to information, have relative advantage in effectively monitoring borrowers. As a result, the presence of covenants in existing bank loans reduces the need for similar covenants in new bond issues, reflecting a substitution effect between them.

By examining the relation between existent bank loan covenants and the selection of covenants in new bond issues, this paper adds to the current body of research on debt covenant structure. The findings highlight the significance of considering the impact of bank loan covenants on the design of covenants in new bonds, shedding light on the interplay between different debt instruments. Moreover, this study contributes to the expanding body of literature examining the role of banks in the capital market.

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APPENDIX

Table 1 Classification of debt covenants

This table shows the classification of debt covenants and reports the mean and standard deviation of each covenant indexes. Inspired by Smith and Warner (1979), Billett, King, and Mauer (2007), and Chava, Kumar, Warga (2010), this paper classifies 46 covenants of each new public bond issues into 4 categories, dividend restrictions, financing restrictions, investment restrictions and event related restrictions. Restrictions on a parent company and its subsidiaries are both considered. The aggregate bond covenant index is calculated as the sum of the four covenant indexes. The covenants of bonds outstanding for a firm are accumulated up to the date of the new issue and then categorized into the same categories as bonds outstanding. 20 bank loan covenants are also grouped into four. Bank loan dividend covenant index, investment covenant index, and sweeps index take on values of 0 or 1, indicating the existence of corresponding covenants. Financing covenants are divided into two distinct subcategories and the financing covenant index is the sum of its two subcategory indicator variables. The aggregate bank loan covenant index is the sum of four loan covenant indexes above. Panel A reports the mean and standard deviation of four bond covenant indexes and their subcategory indicator variables. Panel B reports the mean and standard deviation of four bank loan covenant indexes and their subcategory indicator variables.

Panel A. Statistics of corporate bond covenants

Covenant	New Bonds		Bonds Outstanding		Dummy
	Mean	Standard Deviation	Mean	Standard Deviation	
Bond_dividend covnt ∈ {0,1,2}	0.560	0.873	0.553	0.877	
Limitations on issuer/subsidiary	0.267	0.442	0.279	0.449	Yes
Other payments limitations	0.293	0.455	0.274	0.446	Yes
Bond_financing covnt ∈ {0,1,2,3,4}	1.895	0.891	1.733	1.180	
Debt limitations	0.721	0.448	0.669	0.471	Yes
Priority limitations	0.060	0.237	0.096	0.294	Yes
Limitations on sale/ lease obligations	0.911	0.284	0.750	0.433	Yes
Equity offering limitations	0.203	0.402	0.218	0.413	Yes
Bond_investment covnt ∈ {0,1,2,3}	1.321	0.692	1.156	0.858	
Direct investment limitations	0.021	0.144	0.050	0.217	Yes
Indirect investment limitations	0.414	0.493	0.362	0.481	Yes
Limitations on consolidation/mergers	0.886	0.317	0.745	0.436	Yes
Bond_event covnt ∈ {0,1,2}	1.530	0.682	1.250	0.869	
Default related event covenants	0.842	0.365	0.699	0.459	Yes
Change of control provision	0.688	0.464	0.551	0.497	Yes
Bond covnt ∈ {0,1,2,3,4,5,6,7,8,9,10,11}	5.306	2.500	4.692	3.315	No
Observations	3,879				

Panel B. Statistics of bank loan covenants

Covenant	Bank loans outstanding		Dummy
	Mean	Standard Deviation	
Bank loan_dividend covnt ∈{0,1}	0.735	0.441	
Dividend limitations	0.735	0.441	Yes
Bank loan_ financing covnt ∈{0,1,2}	0.916	0.576	
Debt offering limitations	0.781	0.414	Yes
Priority limitations	0.136	0.342	Yes
Bank loan_Investment covnt∈{0,1}	0.731	0.444	
Investment limitations	0.731	0.444	Yes
Bank loan_Sweeps ∈{0,1}	0.442	0.497	
Default related event covenants	0.442	0.497	Yes
Bank loan covnt∈{0,1,2,3,4,5}	2.825	1.356	No
Observations	3,879		

Table 2 Descriptive Statistics

This table presents descriptive statistics for a sample of 3,879 firm-issue observations over the period from 1990 to 2014. The sample consists of public corporate bonds issued by non-financial unregulated firms in the United States. Bonds without covenant information and those issued by foreign firms or in foreign currency are excluded from the analysis. The remaining bonds are matched with their respective issuing firms' most recent quarterly financials obtained from COMPUSTAT, using the item codes specified in the brackets for reference. *No bond covnt existing* is a dummy which equals one if the firm has no existent bond covenants before the new issue. *Issue maturity* is the years between debt offering date and maturity date. *Shorter maturity* equals one if a new issue has shorter maturity than any bank loans outstanding with covenants. *Issue size* is the offering amount divided by total asset. The dummy *Secured* equals one if it is a secured bond. *Firm size* is the total assets in millions [atq]. *Leverage* is the ratio of total debt [dlttq+dlcq] to the market value of the firm, which is derived by subtracting equity [ceqq] from *Firm size* and adding the market value of equity [prcc_fq*cshoq]. *MB ratio* is the ratio of market value of assets to *Firm size. Fixed asset* is net property, plant, and equipment [ppentq] divided by *Firm size. Abnormal earnings* is the difference between earnings per share [epsfxq] of year *t* minus earnings per share of year *t-1*, divided by the year *t-1* share price. *Investment grade* is a binary indicator that takes on a value of one if a firm is investment grade. *Term premium* is the 10-year Treasury debt yield minus a 6-month Treasury debt yield in the month when bonds are issued. Treasury debt yields are sourced from the Federal Reserve Bank Economic Database. To ensure comparability, all data are adjusted to real values in 2014 dollars using the monthly CPI. Firm-level variables are winsorized at the 1% tails based on the full sample to mitigate the influence of extreme outliers.

Variable	Mean	Median	Standard Deviation	25%	75%
No bond covnt existing	0.224	0	0.417	0	0
Issue maturity(years)	11.212	9.667	9.381	6.667	10.083
Shorter maturity	0.046	0	0.210	0	0
Issue size (percentage)	11.017	7.111	11.884	3.059	14.443
Secured	0.032	0	0.176	0	0
Firm size (in millions)	13,710	4,244	28,547	1,557	12,839
Leverage	0.259	0.225	0.157	0.138	0.354
MB ratio	1.731	1.466	0.889	1.187	1.964
Fixed asset	0.359	0.290	0.260	0.138	0.548
Abnormal earnings	0.003	0.000	0.069	-0.006	0.006
Investment grade	0.469	0	0.499	0	1
Term premium	1.687	1.830	1.197	0.570	2.740
Number of new bond issues	3,879				
Unique firms	1,271				

Table 3 Impacts of bank loan covenants on the selection of new bond covenants

This table shows the impacts of bank loan covenants on the selection of covenants in new bond issues. The dependent variable is the general bond covenant index of a new issue. The sample is limited to bonds issued during 1990-2014 by U.S. non-financial unregulated firms with relative information available from FISD, Dealscan and COMPUSTAT. To ensure comparability, all data are adjusted to real values in 2014 dollars using the monthly CPI. Firm-level variables are winsorized at the 1% tails. All specifications include Fama-French 48 industry dummies and year dummies. *t*-values are in parentheses. Standard errors are clustered on firm levels. The notation ***, ** and * are employed to indicate significance at the 1% level, 5% level, and 10% level, respectively.

	Bond covnt of a new issue		
	(1)	(2)	(3)
Bank loan covnt	0.137***	0.154***	
	(3.71)	(4.17)	
Shorter maturity	-0.671***	0.313	0.313
	(-3.96)	(1.09)	(1.09)
Bank loan covnt × Shorter maturity		-0.355***	-0.201*
		(-3.17)	(-1.77)
Bank loan covnt × (1-Shorter maturity)			0.154***
			(4.17)
Bond covnt.existing	0.250***	0.250***	0.250***
	(9.69)	(9.72)	(9.72)
No bond covnt exising	1.383***	1.385***	1.385***
	(7.78)	(7.78)	(7.78)
Issue size	0.014**	0.014**	0.014**
	(2.39)	(2.37)	(2.37)
Secured	0.676**	0.684**	0.684**
	(2.28)	(2.33)	(2.33)
Log(Firm size)	-0.131**	-0.132**	-0.132**
	(-2.45)	(-2.48)	(-2.48)
Leverage	1.969***	1.964***	1.964***
	(4.94)	(4.95)	(4.95)
MB ratio	-0.158***	-0.161***	-0.161***
	(-3.00)	(-3.08)	(-3.08)
Fixed asset	-0.085	-0.092	-0.092
	(-0.34)	(-0.36)	(-0.36)
Abnormal earnings	-0.124	-0.141	-0.141
	(-0.23)	(-0.26)	(-0.26)
Investment grade	-0.737***	-0.735***	-0.735***
	(-5.58)	(-5.57)	(-5.57)
Term premium	-0.038	-0.048	-0.048
	(-0.51)	(-0.64)	(-0.64)
Constant	4.078***	3.838***	3.838***
	(6.18)	(5.94)	(5.94)
Obs	3,879	3,879	3,879
R-squared	0.333	0.335	0.335

Table 4 Impacts of different types of bank loan covenants on the selection of covenants in new bonds

This table presents estimates of effects of existing bank loan covenants on the selection of different types of covenants in new bonds. The dependent variables are dividend covenant index, financing covenant index, investment covenant index, and event covenant index of a new bond issue, respectively. The sample is limited to bonds issued during 1990-2014 by U.S. non-financial unregulated firms with relative information available from FISD, Dealscan and COMPUSTAT. To ensure comparability, all data are adjusted to real values in 2014 dollars using the monthly CPI. Firm-level variables are winsorized at the 1% tails. All specifications include Fama-French 48 industry dummies and year dummies. *t*-values are in parentheses. Standard errors are clustered on firm levels. The notation ***, ** and * are employed to indicate significance at the 1% level, 5% level, and 10% level, respectively.

	Different types of covenants in a new bond issues			
	Dividend covnt	Financing covnt	Investment covnt	Event covnt
Bank loan_dividend covnt	0.048*	0.020	-0.012	0.103***
	(1.84)	(0.56)	(-0.41)	(3.58)
Bank loan _financing covnt	0.046*	0.060*	0.020	0.027
	(1.69)	(1.80)	(0.85)	(1.24)
Bank loan _investment covnt	-0.011	-0.013	0.018	-0.022
	(-0.34)	(-0.33)	(0.60)	(-0.66)
Bank loan_sweeps	0.114***	0.095***	0.071**	0.026
	(3.72)	(2.64)	(2.55)	(1.08)
Shorter maturity	0.091	-0.216*	-0.049	-0.098*
	(1.28)	(-1.84)	(-0.70)	(-1.69)
Bank loan_dividend covnt× Shorter maturity	-0.440***			
	(-4.80)			
Bank loan_financing covnt × Shorter maturity		0.040		
		(0.33)		
Bank loan_investment covnt × Shorter maturity			-0.182**	
			(-2.03)	
Bank loan_event covnt × Shorter maturity				-0.011
				(-0.13)
Bond_dividend covnt existing	0.127***	-0.043	-0.092***	-0.088***
	(4.01)	(-1.25)	(-3.50)	(-3.42)
Bond_financing covnt existing	0.060**	0.254***	0.058**	-0.000
	(2.33)	(8.22)	(2.55)	(-0.01)
Bond_investment covnt existing	0.047*	0.025	0.235***	0.071***
	(1.65)	(0.66)	(6.50)	(2.60)
Bond_event covnt existing	0.025	-0.004	0.090***	0.406***
	(1.15)	(-0.15)	(4.06)	(14.76)
No bond covnt exising	0.274***	0.480***	0.498***	0.708***
	(4.30)	(5.79)	(7.65)	(12.60)
Issue size	0.007***	0.005**	0.003*	-0.001
	(4.22)	(1.98)	(1.79)	(-0.91)
Secured	0.220***	0.452***	0.143*	-0.119**
	(2.62)	(3.75)	(1.87)	(-2.13)
Constant	0.310	1.676***	0.809***	1.119***
	(1.46)	(5.90)	(4.22)	(5.64)
Firm and Macro level controls	Yes	Yes	Yes	Yes
Obs	3,879	3,879	3,879	3,879
Pseudo R-squared	0.479	0.210	0.274	0.433

Table 5 Impacts of bank loan covenants based on alternative measures

This table shows the impacts of bank loan based on alternative covenant and maturity measures. *Bond covnt count* is the total number of 46 bond covenants existing in a new issue or bonds outstanding, while *Bank loan covnt count* is the total number of 20 loan covenants existing at the time of a new issue. In Column 1 and 2 of Panel B, *Shorter maturity* is assigned a value of one if a new issue has a maturity shorter than any bank loans outstanding with covenants. In Column 3 and 4 of Panel B, *Shorter maturity* dummy is assigned a value of one if the maturity of a new bond is shorter than the average maturity of bank loans outstanding. The sample is limited to bonds issued during 1990-2014 by U.S. non-financial unregulated firms with relative information available from FISD, Dealscan and COMPUSTAT. To ensure comparability, all data are adjusted to real values in 2014 dollars using the monthly CPI. Firm-level variables are winsorized at the 1% tails. All specifications include Fama-French 48 industry dummies and year dummies. *t*-values are in parentheses. Standard errors are clustered on firm levels. The notation ***, ** and * are employed to indicate significance at the 1% level, 5% level, and 10% level, respectively.

Panel A: Statistics of alternative measures

Variable	Mean	Std.Dev	25%	75%
Bond covnt count	8.505	4.963	5	13
Bond covnt count.existing	7.876	6.182	3	13
Bank loan covnt count	4.448	3.198	2	7
Shorter maturity	0.025	0.155		
Observations	3,879			

Panel B

	Bond covnt count of a new issue			
	(1)	(2)	(3)	(4)
Bank loan covnt count	0.204***	0.133***	0.197***	0.125***
	(5.92)	(3.48)	(5.69)	(3.24)
Shorter maturity	0.347	0.342	0.172	0.167
	(0.75)	(0.75)	(0.34)	(0.33)
Bank loan covnt count× Shorter maturity	-0.372***	-0.364***	-0.474***	-0.470***
	(-3.61)	(-3.57)	(-4.34)	(-4.21)
Bank loan covnt count × (1-Shorter maturity)		0.258***		0.264***
		(4.36)		(4.45)
Bond covnt count.existing	0.225***	0.241***	0.227***	0.243***
	(8.44)	(8.88)	(8.47)	(8.93)
No bond covnt exising	1.841***	0.663*	1.854***	0.649*
	(5.87)	(1.83)	(5.93)	(1.78)
Issue size	0.029**	0.027**	0.030**	0.027**
	(2.46)	(2.25)	(2.51)	(2.29)
Secured	1.423**	1.483***	1.473***	1.535***
	(2.47)	(2.60)	(2.62)	(2.76)
Log(Firm size)	-0.211**	-0.245**	-0.216**	-0.250**
	(-2.00)	(-2.34)	(-2.04)	(-2.38)
Leverage	3.207***	3.024***	3.127***	2.943***
	(4.09)	(3.89)	(3.96)	(3.76)
MB ratio	-0.330***	-0.317***	-0.335***	-0.321***
	(-3.12)	(-3.04)	(-3.14)	(-3.06)
Fixed asset	0.127	0.058	0.159	0.089
	(0.25)	(0.11)	(0.31)	(0.17)
Abnormal earnings	0.003	-0.074	0.088	0.008
	(0.00)	(-0.06)	(0.08)	(0.01)
Investment grade	-1.211***	-1.256***	-1.181***	-1.227***
	(-4.57)	(-4.78)	(-4.45)	(-4.67)
Term premium	-0.148	-0.138	-0.132	-0.122
	(-0.97)	(-0.91)	(-0.86)	(-0.80)
Constant	5.793***	6.524***	6.541***	7.304***
	(4.35)	(4.98)	(4.81)	(5.45)
Obs	3,879	3,879	3,879	3,879
R-squared	0.315	0.319	0.314	0.319