The Spillover Effect of Debt Covenants: LBO Loans

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Abstract: We analyze spillover effect from debt covenant of leveraged buyout (LBO) borrowers on industry incumbents. By covenant cushion, we identify whether LBO borrowers are capable or incapable to comply with financial covenant. We show that incumbents can increase net debt issuance, have higher book leverage, decrease their cash holdings, and have greater firm size when LBO borrowers are in violation of financial covenant. Further, negative spillover effect on cost of issuing debt is channeled through the creditors. Overall, we provide consistent empirical evidence that negative spillover effect from LBO borrowers' actual covenant cushion is mainly on industry incumbents' financing policies.

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Keywords: Leveraged buyout, financial covenants, covenant cushion, spillover effect

1. Introduction

In the traditional view, creditors have passive role in corporate governance and can only influence managers' decisions when firms are in default. A different view proposed in the studies conducted by Chava and Roberts (2008), Gârleanu and Zwiebel (2009), Roberts and Sufi (2009), Nini, Smith, and Sufi (2009), Nini, Smith, and Sufi (2012), and Denis and Wang (2014) otherwise focuses on the role of debt covenants through which creditors will actively participate in firms' operating policies even outside of the default states. Chava and Roberts (2008) and Roberts and Sufi (2009) find that covenant violations lead to significant declines in capital expenditures and decreases in both net debt issuance and leverage ratio. Nini, Smith, and Sufi (2012) provide evidence of an increase in CEO turnover which can make operating and stock price performance improve after covenant violation. When directly studying the capital expenditure restrictions contained in the private loan agreement, Nini, Smith, and Sufi (2009) find that capital expenditure restrictions have a significant and negative impact on firms' investment but lead to subsequent increases in firms' valuation and operating performance. In the model of Gârleanu and Zwiebel (2009), creditors can get stronger control rights through tighter debt covenants. And, in the empirical work conducted by Denis and Wang (2014), creditors are found to be able to exercise control rights just through covenant renegotiations. Slightly different from the previous studies, another plausible explanation for the relationship between debt covenant and borrowers' performance proposed by Demiroglu and James (2010) is the signaling role of bank loan covenant that borrowers use tight covenants when they expect improvements in future performance. While the literature has primarily focused on the relationship between debt covenants and borrowers' operations, we intend to introduce a new dimension by analyzing whether and how industry incumbents' financing and operating policies can be changed in response to the distance between borrowers' debt covenant and covenant threshold permitted by the loan contract.

The purpose of this study is to present the evidence of the existence of spillover effect. Among all the private loan agreements, we mainly focus on the leveraged buyout (LBO) loan contracts. Because significant amounts of debt are used in the acquisition, any impact of LBO loans on the existing firms in the same industry should be dominant if the spillover effect exists. The specific research question this study addressed concerns the financial covenant information of LBO borrowers. We provide evidence on the three primary questions: (1) Can LBO borrowers' being capable or incapable to comply with financial covenant have spillover effect on industry incumbents? (2) Why the spillover effect can exist? (3) What impact (if any) do LBO borrowers' being less restricted or more restricted to financial covenant have on industry incumbents?

We obtain LBO loan data from DealScan database. However, as shown by Nini, Smith, and Sufi (2009), the Dealscan record of credit agreement can be incomplete. Through our text-search program based on individual Central Index Keys (CIKs), we have 202 actual loan contracts to 180 non-financial firms from EDGAR. Of all the financial covenants, performance covenants are written in the most loan agreements. And, Max. Debt to EBITDA covenant as the maximum value of the ratio of debt to EBITDA is the most commonly used and quarterly maintenance-based performance covenant. We use the ratio of debt to EBITDA defined by the ratio of total debt on such fiscal quarter to EBITDA computed for the period of four consecutive quarters ended on such date in analysis and hand-collect post 1-quarter covenant threshold and post 1-year covenant threshold for each loan agreement. According to Chava and Roberts (2008), Demiroglu and James (2010), and Denis and Wang (2014), covenant cushion as [1-(actual covenant accounting variable/covenant threshold)] can be employed to characterize LBO borrowers and identify whether they have covenant slack. And, we can have the mean value of LBO borrowers' covenant cushion measures for each industry. We use Fama-French 48 industry classification to define industry incumbents. Further, based on lenders' information, we are

able to group borrowers having deals recorded in Dealscan into “same loan lenders group” and “different loan lenders group”. Accordingly, we require that firms in our sample should have non-missing identification of loan lenders group and non-missing variables used in analysis. Our empirical analysis is started by 16,153 observations for 3,038 incumbent firms in same loan lenders group and 725 observations for 159 incumbent firms in different loan lenders group.

Our first set of results concerns the existence of spillover effect. We find that LBO borrowers’ actual covenant cushions, compared with expected covenant cushions, can better have real effect on incumbent firms’ net debt issuance. When LBO borrowers have more covenant slack in one quarter after the loan agreement, industry incumbents can have significantly higher net debt issuance and book leverage. This suggests positive spillover effect that LBO borrowers’ post 1-quarter actual covenant cushion can reduce other existing firms’ cost of issuing debt. However, results can no longer be supported when we estimate with technical default indicator variable identified by the negative value of post 1-quarter actual covenant cushion. In contrast, we find negative spillover effect from LBO borrowers’ covenant cushion in one year after the loan contract. Our findings that industry incumbents can issue more debt when LBO borrowers have their debt to EBITDA greater than covenant limit can still be supported when we estimate with technical default indicator variable identified by the negative value of post 1-year actual covenant cushion. Further, we show that spillover effect exists especially for incumbent firms having the same loan lenders who also participate in our 202 LBO loan contracts.

After realizing that incumbent firms’ cost of issuing debt can be altered by LBO borrowers’ actual covenant cushion, our second set of results relates to industry incumbents’ operating performance. Consistent with the results estimated with technical default indicator variable identified by the negative value of post 1-quarter actual covenant cushion, we find that LBO borrowers’ actual covenant cushion in one quarter after the loan agreement have

no effect on incumbent firms' operating performance. Although LBO borrowers' post 1-year actual covenant slack can only lead to marginally significant declines in capital expenditure, the significantly increases in cash holdings, smaller firm size, and significantly decreases in operating income growth and sales growth all can be corresponding to increases in cost of issuing debt for incumbent firms in the same loan lenders group. Further, by estimating with technical default identified by post 1-year actual covenant cushion, our findings that incumbent firms can increase their cash holdings and have smaller firm size when LBO borrowers have more covenant slack in one year after the loan agreement can still be supported. Slightly different from the negative spillover effect, it is interesting to find that incumbent firms, especially for different loan lenders group, can suffer significant deterioration in firm value when LBO borrowers are in technical default of financial covenant. This explores alternative possibility related to the spillover effect on the performance in the stock market that having the same loan lenders may mitigate industry uncertainty caused by LBO borrowers' technical default. Overall, results provide consistent empirical evidence that negative spillover effect from LBO borrowers' actual covenant cushion is mainly on industry incumbents' financing policies.

Finally, the evidence we present has several implications for industry incumbents. The existence of negative spillover effect on debt issuance indicates that they should understand the potential impact on their financing policies when there is a LBO loan made by same loan lenders in their industries. In addition, they should realize that their operating performance can become worse when LBO borrowers with the same loan lenders have more covenant slack in their industries. Although we do not further investigate the spillover effect on incumbents' performance in the stock market, our finding on firm value can be important for market investors to know that they should be more cautious with the companies particularly in the industries in which the events of LBO borrowers' breach of covenant limits occurred.

The remainder of this study proceeds as follows. In Section 2, we develop the hypotheses for empirical tests. Section 3 discusses debt covenants and LBO loan data. Section 4 describes sample construction and presents the empirical results, and Section 5 concludes.

2. Hypothesis Development

The key question in this study is whether debt covenants of LBO borrowers can have spillover effect on the other firms in the same industry. Previous studies have addressed the effects of covenants written in the loan agreements on borrowers' financing and operating policies. Chava and Roberts (2008) suggest that technical default can increase the subsequent cost of capital which leads to significant investment declines. More Specifically, Roberts and Sufi (2009) indicate that covenant violation can be costly especially for debt financing. Differently, by emphasizing on the transfer of control rights and creditor intervention, Nini, Smith, and Sufi (2012) find improvement in both operating and stock price after a covenant violation. Even in the absence of technical default, creditor intervention can impact borrower's operation either through capital expenditure restrictions investigated by Nini, Smith, and Sufi (2009) or through debt renegotiations studied by Denis and Wang (2014). However, when investigating the possible spillover effect on industry incumbents, creditor intervention is not appropriate explanation because it is LBO borrowers who have debt covenant restrictions set by loan agreements. Accordingly, we focus on the increased cost of debt capital and the renegotiation cost associated with technical default to develop several hypotheses for the subsequent empirical tests.

Our first main hypothesis relates to the spillover effect from LBO borrowers' debt covenants on the cost of debt financing. By using financial covenants which are accounting-based debt covenants, we are able to know whether LBO borrowers are more restricted to or can be more capable in compliance with debt covenants after the initiation of loan agreement. When the distance between borrowers' financial covenant and covenant threshold permitted by the loan contract is positive with greater amount, these borrowers are

described as having more covenant slack, meaning that they are less restricted to and can be able to comply with the financial covenant. And, when the distance is negative with greater amount, it means covenant violation and borrowers' being non-compliance with the financial covenant. We already know that violation of covenant can increase borrower's cost of debt capital. Accordingly, if all the borrowers have to share the increased cost of debt capital, positive spillover effect on incumbent firms' cost of issuing debt is expected. Moreover, they are expected to decrease their net debt issuance and have lower book leverage when LBO borrowers are more restricted to financial covenants or are in technical violation of financial covenants in the same industry. Alternatively, if the increased cost of debt capital and the renegotiation cost associated with technical default are specific to the borrower, the increased subsequent loan capital and the decreased monitoring intensity may lower the cost of debt financing for incumbent firms. In other words, negative spillover effect on incumbents' cost of issuing debt is expected. They are expected to increase net debt issuance and have higher book leverage when the events of borrowers' breach of financial covenant limits occurred in the same industry.

Hypothesis 1 (Cost of debt financing): Existing firms' cost of issuing debt can be affected by LBO borrowers' being capable or incapable to comply with financial covenants.

If all the borrowers' cost of debt financing is decreased when LBO borrowers in the same industry have greater amount of covenant slack and are in compliance with financial covenants:

Hypothesis 1a (Positive spillover effect): The existing firms' net debt issuance and book leverage is positively affected by LBO borrowers' covenant slack and being in compliance with financial covenants.

If only LBO borrowers' cost of debt financing is increased and other existing firms' cost of debt financing can be decreased when LBO borrowers in the same industry are more

restricted to and incapable to comply with financial covenants:

Hypothesis 1b (Negative spillover effect): The existing firms' net debt issuance and book leverage is negatively affected by LBO borrowers' covenant slack and being in compliance with financial covenants.

Our second main hypothesis relates to the reason why spillover effect exists. LBO borrowers' breach of financial covenant limits can have substantial uncertainty about the outcome of renegotiation and whether technical default can be triggered. If the uncertainty caused by covenant violation is the reason for the existence of spillover effect, all incumbent firms are expected to be affected by LBO borrowers' being in compliance or non-compliance with financial covenants. And, the spillover effect on existing firms with loan lenders different as the ones participating in LBO loans should be expected to be enlarged if the information shared between the same loan lenders can mitigate uncertainty. On the other hand, if cost of debt capital is the mechanism behind the existence of spillover effect and is channeled through the creditors, spillover effect is expected to be mainly on industry incumbents whose lenders also participate in LBO loans.

Hypothesis 2a (Industry uncertainty): All industry incumbents are expected to be affected by LBO borrowers' being capable or incapable to comply with financial covenants. And, existing firms with different loan lenders should be expected to have enlarged spillover effect if the information shared between loan lenders who also participate in LBO loans can reduce industry uncertainty.

Hypothesis 2b (Creditors): Only existing firms with loan lenders participating in LBO loans are expected to be affected by LBO borrowers' being in compliance or non-compliance with financial covenants.

Next, we further investigate whether LBO borrowers' being in compliance or non-compliance with financial covenants can also have an impact on the existing firms'

operating performance. More specifically, if the spillover effect on cost of issuing debt exists, whether LBO borrowers having more covenant slack or being in technical default of financial covenant can also affect industry incumbents' investment and operating performance. When the increased cost of debt financing can cut existing firms' investment, they are expected to have performance deterioration. Alternatively, if the increased cost of debt capital can make incumbents select positive NPV projects, they are expected to have performance improvement. However, it is also possible that the increased cost of issuing debt can mainly affect incumbent firms' financing policies and that they are expected to have no significant changes in operating performance surrounding the event of whether LBO borrowers are or are not in violation of financial covenant.

Hypothesis 3a (Investment reduction): The spillover effect on existing firms' operating performance is consistent with the spillover effect on their cost of issuing debt.

Hypothesis 3b (Positive NPV project selection): The spillover effect on existing firms' operating performance is opposite to the spillover effect on their cost of issuing debt.

Hypothesis 3c (Incumbents' financing policies): Unlike the spillover effect on cost of issuing debt, there is no spillover effect on the existing firms' operating performance because the event of whether LBO borrowers are or are not in violation of financial covenant mainly affect incumbent firms' financing policies.

3. Debt Covenants and LBO Loan Data

3.1 Debt covenants in the loan agreements

In the loan document, covenants are often broadly classified as affirmative covenants and negative covenants. According to Tirole (2006) and Nini, Smith, and Sufi (2012), affirmative covenants are the lists of events or actions that borrowers are required to take,

such as maintaining sound accounting practices, notifying lenders the occurrence of any business related modification, and complying with the laws; negative covenants are the actions or events that borrowers must prevent from taking, such as paying dividends, making any acquisition which can change the jurisdiction of the borrowers, and issuing more debt until payment and satisfaction in full of all liabilities and termination of the loan agreement.

In addition to these two kinds of covenants, restrictions written based on accounting information are called as financial covenants. A firm's net worth, interest coverage, current ratio, capital expenditure, research & development expenditure, and Debt/EBITDA can be limited. Generally, financial covenants in the public bond contracts are incurrence-based, while financial covenants in the private loan agreement are maintenance-based. The incurrence-based covenants restrict firms on a case-by-case basis. Borrowers are only required to comply with the limits if they intend to take specified actions, such as borrowing more debt or paying dividends. For example, the loan agreement between Biomet, Inc. and Bank of America, N. A., dated September 25th, 2007 contains the following clauses:

> SECTION 7.03. Indebtedness. Create, incur, assume or suffer to exist any Indebtedness, provided that the Borrower may incur Indebtedness and any Restricted Subsidiary may incur Indebtedness if (x) immediately before and after such incurrence, no Default shall have occurred and be continuing and (y) the Total Leverage Ratio for the Test Period immediately preceding such incurrence would be less than or equal to 7.5 to 1.0 (calculated on a Pro Forma Basis (including a pro forma application of the net proceeds therefrom) as if such Indebtedness had been incurred and the application of the proceeds therefrom had occurred on the first day of such Test Period); provided that Restricted Subsidiaries that are Non-Loan Parties may not incur Indebtedness pursuant to the foregoing exception in an aggregate principal amount at any time outstanding in excess of the greater of $300,000,000 and 2.75% of Total Assets, in each case determined at the time of incurrence.

In the above example, Biomet, Inc. has an incurrence test that total leverage ratio defined as the ratio of consolidated total debt to consolidated EBITDA must be smaller than 7.5 to

1.0 when intending to take on more debt.

The maintenance-based covenants, on the other hand, restrict firms on a regular basis. Borrowers typically have to meet certain specified financial tests every fiscal quarter. The negative covenants in credit agreement for Hanger Orthopedic Group, Inc. dated as of May 26th, 2006 contain financial condition covenants, of which one is also related to leverage ratio.

7.1 Financial Condition Covenants.

(a) Consolidated Leverage Ratio. Permit the Consolidated Leverage Ratio as at the last day of any period of four consecutive fiscal quarters of the Borrower (or, if less, the number of full fiscal quarters subsequent to the Closing Date) ending with the last day of any fiscal quarter set forth below to exceed the ratio set forth below opposite the last day of such fiscal quarter:

Fiscal Quarter Ended:	Consolidated Leverage Ratio:
FQ3 2006, FQ4 2006, FQ1 2007	6.25 to 1.00
FQ2 2007, FQ3 2007	6.00 to 1.00
FQ4 2007, FQ1 2008, FQ2 2008	5.50 to 1.00
FQ3 2008	5.25 to 1.00
FQ4 2008, FQ1 2009, FQ2 2009	5.00 to 1.00
FQ3 2009	4.75 to 1.00
FQ4 2009, FQ1 2010, FQ2 2010	4.50 to 1.00
FQ3 2010	4.25 to 1.00
FQ4 2010, FQ1 2011, FQ2 2011 FQ3 2011, FQ4 2011, FQ1 2012 FQ2 2012, FQ3 2012, FQ4 2012 FQ1 2013, FQ2 2013	4.00 to 1.00

Chava and Roberts (2008) use data from Dealscan and show that there are at least 15 kinds of financial covenants: Max. Debt to EBITDA, Min. (Tangible) Net Worth, Min. Fixed Charge Coverage, Min. Interest Coverage, Max. Leverage Ratio, Max. Debt to Tangible Net Worth, Min. Current Ratio, Min. Debt Service Coverage, Max. Senior Debt to EBITDA, Min. EBITDA, Min. Quick Ratio, Min. Cash Interest Coverage, Max. Debt to Equity, Max. Senior Leverage, and Max. Loan to Value. Although Debt/EBITDA is defined as leverage ratio in most loan contracts, leverage ratio reported in Dealscan is the one commonly defined in the literature which is the ratio of total debt to total capital.

However, information on covenants provided by Dealscan has some omissions. For example, the loan agreement for ADC Telecommunications, Inc. dated as of April 3rd, 2008 which is recorded as no financial covenants in Dealscan actually has one capital expenditure restriction and four financial covenants (Max. Debt to EBITDA, Max. Senior Debt to EBITDA, Min. Interest Coverage, and Min. Cash). As the other illustrative example, the loan contract for AM Communications, Inc. and its direct and indirect subsidiaries dated August 14th, 2002 is only recorded with two financial covenants in Dealscan.

> Key Financial Ratios: Max. consolidated funded debt to consolidated EBITDA ratio of 3.5:1 thru 3/29/03, 3:1 thereafter; min. fixed charge coverage ratio increasing from 0.75:1 to 1.25:1.

Instead, according to the official loan document, this loan agreement has all three financial covenants, capital expenditure restriction, and research & development expenditure restriction. The missing financial covenant in Dealscan is shown below:

> 14. FINANCIAL COVENANTS. Borrowers shall maintain and keep in full force and effect each of the financial covenants set forth below: (a) Net Worth. Borrowers shall maintain at all times a minimum Net Worth in an amount not less than the amounts set forth below opposite the corresponding measurement periods:

Measurement Period:	Minimun Net Worth:
Closing Date through September 28, 2002	$6,700,000
September 29, 2002 through December 28, 2002	$7,500,000
December 29, 2002 through March 28, 2003	$8,700,000
March 29, 2003	$8,790,000
March 30, 2003 through April 1, 2004	(a) $8,790,000, plus (b) 80% of actual Consolidated Net Income of Borrowers for the Fiscal Year ended March 29, 2003.
April 2, 2004 through March 26, 2005	(a) Minimum Net Worth required for March 30, 2003 through April 1, 2004, plus (b) 80% of actual Consolidated Net Income of Borrowers for Fiscal Year ended April 1, 2004.
March 27, 2005, and at all times thereafter	(a) Minimum Net Worth required for April 2, 2004 through March 26, 2005, plus (b) 80% of actual Consolidated Net Income of Borrowers for Fiscal Year ended March 26, 2005.

Nini, Smith, and Sufi (2009) collect the covenant information in the credit agreement and use six mutually exclusive categories to identify the financial covenants: coverage ratio covenants, debt to cash flow covenants, net worth covenants, debt to balance sheet covenants, liquidity covenants, and minimum cash flow covenants. Among all, coverage ratio covenants, debt to balance sheet covenants, and liquidity covenants have several components. Coverage ratio covenants include interest coverage, fixed charge coverage, and debt service covenants. The debt to total capitalization and debt to net worth covenants are included in debt to balance sheet covenants. Liquidity covenants include current ratio, quick ratio, and working capital covenants.

Based on the accounting information used in the covenants, Christensen and Nikolaev (2012) broadly classify the financial covenants into two groups: performance covenants and capital covenants. In the study conducted by Demerjian (2011), capital covenants are financial covenants with balance sheet variables and performance covenants are written on income statement values. The capital covenants, also called as balance sheet covenants, are the restrictions on balance sheet information, such as leverage, net worth, and current ratio. The performance covenants, also called as income statement covenants, are mainly formulated by operating performance, including coverage ratio, debt to cash flow, and minimum cash flow covenants. This classification method can show that financial covenants function differently. Capital covenants align the shareholders' incentives with the lenders ex ante, ensure the minimum value of a firm's asset maintained by the shareholders, and provide a lower bound of liquidation value. Performance covenants allow the lenders to monitor and examine whether the borrower has significant operating income to service the debt.

3.2 LBO loan data

We obtain loan data from Reuters Loan Pricing Corporation's DealScan database. Loans or facilities, as the basic unit of the observation in DealScan, are often grouped into one deal

or one package. And, one deal or one package represents one loan contract in which the borrower is restricted to debt covenants. Even though DealScan provides information on basic loan characteristics, one of our major concerns is the incompleteness of the information on financial covenants. In order to obtain the original credit agreement, we, thus, use Perl programming language to download and read relevant electronic filings from EDGAR.

Since May 6, 1996, all public firms are required to have electronic filings on EDGAR. Among all the material contracts, bank loan agreements are also required for disclosure. The loan contracts can be the attachments to the SEC's EDGAR electronic filings. For the period 1996 through 2012, there are 475,791 individual CIKs in the EDGAR database. We use Perl program and follow Nini, Smith, and Sufi (2009) to scan every 10-Q, 10-K, and 8-K filings. 10-Q is the quarterly report and 10-K is the annual report. 8-K is the current report filing. However, our procedures are slightly different as the ones employed by Nini, Smith, and Sufi (2009). We also scan every S-1 and S-4 filings in EDGAR. S-1 is the form relating to firms' initial public offering (IPO) and S-4 is the form relating to mergers or exchange offers. The filing frequency of 8-K is more than one million times (1,097,996). 10-Q is the second most common filings with more than four hundred thousand times (425,796). The filing frequency of 10-K is 132,824. There are 37,222 firms having 10-K filing, 27,754 firms having 10-Q filing, and 36,095 firms having 8-K filing. S-1 and S-4 filings are much less with 16,507 and 61,139 filing frequencies, respectively. 13,437 firms have S-1 filing and 36,794 firms have S-4 filing.

According to SEC exhibit list of regulation S-K, most loan contracts can fall within EX-4 and EX-10. In addition, we also find that some loan contracts can be included in EX-1, EX-3, EX-11, and EX-99. These exhibit numbers are specified as the beginning of text that we are looking for. To search and download the loan agreements, we follow Nini, Smith, and Sufi (2009) and use the following ten terms for the keywords of loan contracts:

"CREDIT AGREEMENT," "LOAN AGREEMENT," "CREDIT FACILITY," "LOAN AND SECURITY AGREEMENT," "LOAN & SECURITY AGREEMENT," "REVOLVING CREDIT," "FINANCING AND SECURITY AGREEMENT," "FINANCING & SECURITY AGREEMENT," "CREDIT AND GUARANTEE AGREEMENT," "CREDIT & GUARANTEE AGREEMENT." And, the end string is "In witness whereof". All the above words are used as a set of text strings for us to search all the non-missing CIKs' filings. We then extract the texts which contain the specified keywords and possibly are the loan contracts from the filings.

Our first step for obtaining each firm's CIK is to include all the package data from Dealscan initiated during the period from January 1996 to December 2012 and keep the dollar-denominated private loans.[1] After using Compustat-Dealscan linking file provided by Chava and Roberts (2008) to match companies, we have 45,888 packages with Compustat gvkey identified. Because the file date is only up to August 2012, we then use non-missing ticker symbol in Dealscan and the company information in Compustat industrial quarterly files to match companies. We have 1,942 packages with Compustat gvkey identified. In order to extend the sample, we match company name in Dealscan and company legal name in Compustat. We extract and compare these two variables with length specified as 6, 9, 12, 15, 18, 21, 24, 27, 30, 35, 40, 45, 50, 55, 60, 65, and 70. Through this process, we have 6,962 packages with Compustat gvkey identified. We can use the total of 54,792 packages to identify the borrower's CIK for reading filings on EDGAR. There are 9,181 non-missing CIKs in the end.

Of all the 54,792 packages, we can have 1,333 packages whose deal purposes are made for LBO. Because our search program is based on the firm's CIK, we then are able to use 811 packages with 468 non-missing CIKs and locate the credit agreement in EDGAR according to the date, the amount, the company name and all the other available background

[1] Here, since other currencies-denominated loan agreement can also have financial covenants measured by other currencies, we only analyze dollar-denominated private loans for consistency.

information provided by Dealscan. Our process yields 210 actual loan contracts. In the appendix, we discuss the possible unmatched reasons for only 26% match rate. After randomly selecting 30 unmatched package data and doing detailed search by hand, we find that most credit agreements which are written for LBO purposes have been already extracted. In our sample, we also require that both loan amount and interest spread of all the facilities in each deal should be nonmissing and are left with 632 packages made to 525 non-financial firms. Of these 632 packages, we have 202 contracts to 180 borrowers.

Table 1 reports the summary statistics for the sample of 202 private loan agreements signed by 180 borrowers. Panel A of Table 1 presents the time profile of the year of the contracts. The total deal amount dramatically increases during the LBO boom of 2004 to 2007 and reaches its highest value of $734 billion in 2007. And, the number of the credit agreements written during the LBO boom can be about 42% of our sample. This pattern is similar to time trends recorded by Demiroglu and James (2010) and Shivdasani and Wang (2011).

Panel B of Table 1 presents summary statistics on deal characteristics. The average deal amount of $1,120 million is more than two times as large as the average deal amount of Nini, Smith, and Sufi's (2009) sample. As the problem of incompleteness described in Section 3.1, we can have only 37% of our sample written with financial condition covenants when directly using the "Key Financial Ratios" information provided by Dealscan. However, we use actual credit agreement to identify whether financial covenants are applied and find that 91% of the borrowers are required to maintain certain financial standards in their credit agreements. In other words, our findings question the accuracy and the reliability of directly using the reporting on financial covenants from Dealscan in analysis. Based on Christensen and Nikolaev's (2012) classification, over 90% of the deals contain performance covenants and only 8% of the borrowers are restricted with capital covenants. Coverage covenant and Debt to cash flow covenant are the two groups of

financial covenants used mostly in the private loan contracts. And, we also list the five commonly used financial covenants as follows: Max. Debt to EBITDA (75%), Min. Fixed Charge Coverage (41%), Min. Interest Coverage (63%), Min. EBITDA (16%), and Max. Senior Debt to EBITDA (14%). On average, our sample of 202 credit agreements contains two financial covenants. Compared with Nini, Smith, and Sufi's (2009) sample, our sample of LBO deals is more restrictive on the borrowers. In addition to the financial covenants, about 73% of the agreements have a capital expenditure restriction.

From Compustat, we follow Nini, Smith, and Sufi (2009) and Denis and Wang (2014) to measure borrower characteristics by computing the average of four quarters prior to the credit agreements. Book value of assets is ATQ. Book leverage ratio is the ratio of total debt (DLTTQ + DLCQ) to the book assets. The market-to-book ratio is the ratio of total debt plus market equity (PRCCQ*CSHHQ) to book assets. Cash flow is the operating income (OIBDPQ), scaled by book value of assets. Because Max. Debt to EBITDA is the most commonly used financial covenant, debt to EBITDA is measured by the ratio of total debt on such fiscal quarter to EBITDA computed for the period of four consecutive quarters ended on such date. Because capital expenditure is also a commonly used restriction, we then include capital expenditure (CAPX) for the fiscal year prior to the loan contracts from annual COMPUSTAT. S&P issuer credit ratings are monthly frequency data from COMPUSTAT. A dummy variable is used to identify whether LBO borrower has a non-missing credit rating in the quarter prior to the loan contract.

Panel C of Table 1 describes borrower characteristics. The average value of total book assets for our sample is $3,000 million. We can find that the average deal amount is about 37% of average book assets. This ratio is quite close to the book leverage ratio (42%). The average market-to-book ratio is 1.411 and the average of cash flow scaled by book assets is 0.050. Compared with the one of Nini, Smith, and Sufi's (2009) sample, firm size of our sample may appear larger. The average capital expenditure in the previous fiscal year is

$182 million which is 6% of the average of total assets. Because 3% of the borrowers with available non-missing data can have negative EBITDA for the previous four quarters, we then use maximum function to have nonnegative value of debt to EBITDA and obtain its average value equal to 3.167. Nearly 40% of the firms in our sample have Standard & Poor's issuer credit rating. Conditional on borrowers having corporate credit rating, we have 13.8% investment-graded firms. And, there are only two firms whose rating is CCC+ or below. The average value of credit ratings for our sample is 10 (BB-).

3.3 Max. Debt to EBITDA and covenant cushion

According to summary statistics in Table 1, Max. Debt to EBITDA and capital expenditure restriction are documented in over 70% of the loan contracts. Under the former one covenant (Max. Debt to EBITDA), borrowers are required not to have their ratio of debt to EBITDA higher than the threshold set quarterly in the credit agreements. In contrast, as mentioned by Nini, Smith, and Sufi (2009), capital expenditure restriction is the maximum amount for one specific fiscal year. Before borrowers breaching capital expenditure restriction, they are likely to have debt renegotiations triggered by failing to maintain quarterly ratio of debt to EBITDA. We then mainly focus on Max. Debt to EBITDA covenant. Based on the agreements, this covenant has three variations: the ratio of debt to EBITDA, the ratio of debt minus cash to EBITDA, and the ratio of debt to adjusted EBITDA. And, the ratio of debt to EBITDA is generally accepted definition which is employed by about 60% of the deals written with Max. Debt to EBITDA covenant. After hand-collecting covenant threshold information in one quarter and one year after the initiation of loan contract, we find that changes between the post 1-quarter covenant threshold and the post 1-year covenant threshold are quite little. The average of post 1-quarter Max. Debt to EBITDA covenant threshold is 5.55, only 0.01 higher than the average of the post 1-year covenant threshold.

We follow Chava and Roberts (2008), Demiroglu and James (2010), and Denis and Wang

(2014) to define covenant cushion as [1-(actual covenant accounting variable/covenant threshold)]. When actual covenant accounting variable is measured at the initiation of LBO loan contract, Demiroglu and James (2010) indicate that the positive value of covenant cushion which is also called as covenant slack can be the measure of covenant tightness. Because we do not only use positive value of covenant cushion in analysis, we define the covenant cushion at the initiation of LBO loan contract as expected covenant cushion. When actual covenant account variable is measured in the fiscal quarter required by loan contract, Denis and Wang (2014) indicate that positive value of covenant cushion means that borrowers have some covenant slack and are less restricted to the covenant; negative value of covenant cushion means that covenant violation which should not be taken as an immediate technical default but will allow creditors to exert their influence through renegotiation. We therefore have actual covenant cushion which is computed by using actual covenant accounting variable.

In Panel A of Table 2, covenant threshold of Max. Debt to EBITDA is reported. In Panel B of Table 2, we report non-missing actual covenant accounting variables for LBO borrowers. It is shown that all Debt to EBITDA accounting variables are on average higher than the covenant threshold. In Panel C of Table 2, covenant cushion measures are reported. We use non-missing Max(0,Debt to EBITDA), post 1-quarter covenant threshold, and post 1-year covenant threshold to measure post 1-quarter expected covenant cushion and post 1-year expected covenant cushion. And, post 1-quarter Debt to EBITDA, post 1-year Debt to EBITDA, post 1-quarter covenant threshold, and post 1-year covenant threshold are used to compute post 1-quarter actual covenant cushion and post 1-year actual covenant cushion. We have about 25% of LBO borrowers with non-missing covenant cushion measures which can be used in analysis. The mean value of both post 1-quarter expected covenant cushion and post 1-year expected covenant cushion is negative, showing that LBO borrowers on average are found not to be able to comply with Max. Debt to EBITDA at the initiation of

LBO loans. The negative value of post 1-quarter actual covenant cushion indicates that LBO borrowers can have their values of Debt to EBITDA on average higher than covenant limits in one quarter after the LBO loans. In contrast, positive value of post 1-year actual covenant cushion shows that LBO borrowers on average comply with Max. Debt to EBITDA covenant thresholds in one year after the LBO loans. We further separate firms into two groups: positive value of covenant cushion measures and negative value of covenant cushion measures. Because LBO borrowers can also have the breach of Max. Debt to EBITDA covenant limits in expansions, we thus find that whether firms comply with Max. Debt to EBITDA covenant is little related to macroeconomic conditions.

4. Sample Construction and Empirical Results

4.1 Identification of loan lenders and incumbent firms

Given that we have complete financial covenant information for 202 actual loan contracts made to non-financial firms, we are able to use their lenders' information for identifying whether other deals with non-missing loan amount and interest spread in Dealscan are made by the same lenders. Based on the lenders' information for each facility, we have 766 lenders for 202 LBO loans. After that, we can classify a borrower into "same loan lenders group" if it has one facility made by one of 766 lenders. There are 50,038 deals for 10,830 borrowers having the same loan lenders who also participate in our 202 LBO loan contracts and 3,565 deals to 2,163 borrowers having different loan lenders. We then use Compustat-Dealscan linking file provided by Chava and Roberts (2008) and non-missing ticker symbol to have Compustat unique company identification for having accounting information from quarterly COMPUSTAT. By using Fama-French 48 industry classification, we are able to identify incumbent firms as other firms in the same industry with available non-missing debt to EBITDA covenant cushion.[2]

[2] According to Fama-French 48 industry classification, we have 28 industries in analysis: Agriculture, Food Products, Printing and publishing, Consumer goods, Healthcare, Medical equipment, Chemicals, Textiles, Construction materials, Fabricated products, Machinery, Automobiles and trucks, Aircraft, Oil, Utilities, Communication, Personal services, Business services, Computers, Electronic equipment, Measuring and

4.2 Spillover effect on issuing debt

To examine whether LBO borrowers' covenant cushions can affect incumbent firms' net debt issuing activity, we run the following regression model:

$$\textit{Net debt issuance}_{i,t} = \frac{\Delta D_i}{A_{i,t-1}} = \alpha + \beta * \textit{covenant cushion}_{i,t-1} + \gamma * \textit{controls}_{i,t-1} + \varepsilon_{i,t}. \qquad (1)$$

$\textit{Net debt issuance}_{i,t}$ is the ratio of change in firm *i*'s total debt from quarter *t-1* to quarter *t* divided by firm *i*'s book assets at *t-1*. $\textit{Covenant cushion}_{i,t-1}$ is the mean value of LBO borrowers' covenant cushion measures in the incumbent firm *i*'s industry at *t-1*. We have the following four different measures: post 1-quarter expected covenant cushion, post 1-year expected covenant cushion, post 1-quarter actual covenant cushion, and post 1-year actual covenant cushion and include each of the four measures one at a time. The quarter *t-1* for post 1-quarter expected covenant cushion and post 1-year expected covenant cushion is the quarter of initiation of LBO loan. As for post 1-quarter actual covenant cushion, the quarter *t-1* is one quarter after the initiation of LBO loan. And, quarter *t-1* for post 1-year actual covenant cushion is one year after the initiation of LBO loan. Firm *i*'s book leverage ratio (the ratio of total debt to book assets), market-to-book ratio (the ratio of market assets to book assets), tangibility (the ratio of net property, plant, and equipment to book assets), profitability (EBITDA divided by assets), and size (log book assets) are $\textit{controls}_{i,t-1}$ as other factors which can determine a firm's net debt issuance. In order to control macroeconomic condition, we also include a recession dummy that takes the value of one when quarter *t* is during the recession period classified by National Bureau of Economic Research (NBER): 2001Q2, 2001Q3, 2001Q4, 2008Q1, 2008Q2, 2008Q3, 2008Q4, 2009Q1, and 2009Q2.

Before empirical analysis, we exclude observations with book leverage greater than one or market-to-book ratios greater than ten. In addition, we require that incumbent firms used in analysis should have non-missing data for dependent and control variables listed in model (1). Panel A of Table 3 presents descriptive statistics of our incumbent firms. The

control equipment, Business supplies, Shipping containers, Transportation, Wholesale, Retail, Other.

average net debt issuance is 1.382%. And, we find no significant difference in net debt issuance between same loan lenders and different loan lenders groups. As for firm characteristics, we see that incumbent firms classified in same loan lenders group have significantly higher book leverage, significantly higher tangible assets, significantly higher profitability, and significantly greater firm size than those classified in different loan lenders group. In Panel B of Table 3, we show the correlations between net debt issuance at *t* and the industry mean of LBO borrowers' covenant cushion measures at *t-1*. The actual covenant cushion computed in one year after the initiation of LBO loan is significantly and negatively correlated with incumbent firms' net debt issuance, especially for same loan lenders group. This suggests that LBO borrowers' actual covenant cushion can have real effect and that it may negatively affect incumbents' net debt issuing activity especially through the same lenders who also participate in LBO loans.

Table 4 reports the estimation results. We first can find spillover effect from LBO borrowers' actual covenant cushion on incumbent firms' net debt issuing activities. Even controlling for industry fixed effect, both post 1-quarter expected and post 1-year expected covenant cushions are found to have insignificant effect. In contrast, after we control for industry fixed effect, we have significantly positive coefficient of 0.764 (*t*-value=5.483) on *Post 1-quarter actual covenant cushion*$_{t-1}$, indicating that incumbent firms can issue more debt when LBO borrowers have more covenant slack in one quarter after the initiation of loan contract. This suggests positive spillover effect from LBO borrowers' post 1-quarter actual covenant cushion that LBO borrowers' covenant cushion can significantly reduce other firms' cost of issuing debt in the same industry. Consistent with Panel B of Table 3, we have significantly negative coefficient on *Post 1-year actual covenant cushion*$_{t-1}$ in both regression models, showing negative spillover effect that incumbent firms can otherwise issue less debt when LBO borrowers have more covenant slack in one year after the initiation of loan contract. In Table 5, we replace net debt issuance with book leverage and

obtain similar results that LBO borrowers' covenant slack in one quarter after the loan contract generates a corresponding increase in incumbent firms' book leverage ratios and that incumbent firms' book leverage ratios decline as borrowers have more covenant cushion in one year after the initiation of LBO loan.

In Table 6, we specifically examine spillover effect from actual covenant cushions. We see that spillover effect on net debt issuance exists especially for same loan lenders group and that our regression models can better explain same loan lenders group's net debt issuing activity. Although different loan lenders group's book leverage can be better explained by our regression models, it is shown that spillover effect exists especially for same loan lenders group. In Table 7, we examine the spillover effect by using two actual covenant cushions to identify whether LBO borrowers are or are not in technical violation of financial covenant. And, we only include incumbents in the industry with only one LBO borrower when doing the empirical estimation. Different as the previous results, there is no spillover effect when LBO borrowers are in technical default identified by *Post 1-quarter actual covenant cushion*$_{t-1}$. In contrast, we can still see the positive spillover effect on both net debt issuance and book leverage ratio from technical default identified by *Post 1-year actual covenant cushion*$_{t-1}$. Result that LBO borrowers' breach of Max. Debt to EBITDA covenant limits can lead to increases in incumbent firms' net debt issuance and book leverage ratio is the negative spillover effect from *Post 1-year actual covenant cushion*$_{t-1}$. And, we also find that spillover effect exists especially for same loan lenders group. Accordingly, we provide evidence on the existence of negative spillover effect that can be channeled through the creditors.

4.3 Spillover effect on operating performance

We next focus on spillover effect from actual covenant cushion and investigate whether and how it can have an impact on incumbent firms' operating performance. Specifically, our model takes the following form:

$$\Delta Performance^{operating}_{i,t-2\ to\ t} = \alpha + \beta * covenant\ cushion_{i,t-1} + \gamma * controls_{i,t-1} + \varepsilon_{i,t-2\ to\ t}. \quad (2)$$

$\Delta Performance^{operating}_{i,t-2\ to\ t}$ is firm *i*'s operating income growth, sales growth, capital expenditure growth, change in cash holdings, asset growth, and change in market-to-book ratio from quarter *t-2* to quarter *t*. The operating income growth is measured by the difference in the log of firm *i*'s operating income (OIBDPQ). Similarly, we also use the difference in the log of firm *i*'s sales (SALEQ), capital expenditure (CAPXY), cash holdings (CHEQ), total asset, and market-to-book ratio to measure sales growth, capital expenditure growth, change in cash holdings, asset growth, and change in market-to-book ratio. $Covenant\ cushion_{i,t-1}$ is the mean value of LBO borrowers' covenant cushion measures in the incumbent firm *i*'s industry at *t-1*. We have the following four different measures: post 1-quarter expected covenant cushion, post 1-year expected covenant cushion, post 1-quarter actual covenant cushion, and post 1-year actual covenant cushion and include each of the four measures one at a time. The quarter *t-1* for post 1-quarter expected covenant cushion and post 1-year expected covenant cushion is the quarter of initiation of LBO loan. As for post 1-quarter actual covenant cushion, the quarter *t-1* is one quarter after the initiation of LBO loan. And, quarter *t-1* for post 1-year actual covenant cushion is one year after the initiation of LBO loan. Firm *i*'s book leverage ratio (the ratio of total debt to book assets), market-to-book ratio (the ratio of market assets to book assets), tangibility (the ratio of net property, plant, and equipment to book assets), profitability (EBITDA divided by assets), and size (log book assets) are included as $controls_{i,t-1}$. In order to control macroeconomic condition, we also include a recession dummy that takes the value of one when quarter *t* is during the recession period classified by National Bureau of Economic Research (NBER): 2001Q2, 2001Q3, 2001Q4, 2008Q1, 2008Q2, 2008Q3, 2008Q4, 2009Q1, and 2009Q2. We control for industry fixed effect when estimating the model.

In Panel A of Table 8, we report the descriptive statistics of operating performance measures. There is no significant difference in the operating income growth, sales growth,

and change in cash holdings between same loan lenders and different loan lenders groups, but we see that incumbent firms in same loan lenders group have significantly higher capital expenditure growth, significantly higher asset growth, and significantly higher market-to-book ratio than those in different loan lenders group. In Panel B of Table 8, we show the correlations between each operating performance measure and the industry mean of LBO borrowers' post 1-quarter actual covenant cushion and post 1-year actual covenant cushion at *t-1*. We find that both two actual covenant cushions are significantly and negatively correlated with same loan lenders group's operating income growth and sales growth. And, it seems that incumbent firms in same loan lenders group have significantly lower capital expenditure growth and significantly smaller firm size when LBO borrowers have more covenant slack in one year after the loan contract. We also find that they may decrease their cash holdings and have lower firm value when LBO borrowers have the breach of Max. Debt to EBITDA covenant limits in one quarter or one year after the credit agreement. As for different loan lenders group, it is interesting to find that they also can have significantly lower firm value when LBO borrowers are unable to comply with Max. Debt to EBITDA covenant limits in one year after the loan agreement.

In Panel A of Table 9, we report the estimation results of spillover effect from *Post 1-quarter actual covenant cushion*$_{t-1}$. Unlike the significantly positive spillover effect on net debt issuance, we find that incumbent firms' operating performance can hardly be affected by LBO borrowers' covenant cushion in one quarter after the initiation of loan contract. Although some of our regression modes cannot better fit different loan lenders group's operating performance, we can see that LBO borrowers' post 1-quarter actual covenant cushion has marginally significant and positive effect on the sales growth of incumbent firms in different loan lenders. However, this association cannot be explained by the cost of issuing debt because either their net debt issuance or their book leverage cannot be affected by LBO borrowers' post 1-quarter actual covenant cushion.

In Panel B of Table 9, we report the estimation results of spillover effect from *Post 1-year actual covenant cushion*$_{t-1}$. We find spillover effect from LBO borrowers' post 1-year actual covenant cushion on incumbent firms' operating performance, especially for same loan lenders group. When LBO borrowers have more covenant slack in one year after the loan agreement, incumbent firms in same loan lenders group can have smaller firm size and significant decreases in both operating income and sales growth. And, they also can have marginally significant decreases in capital expenditures. In addition, the significant and positive association between LBO borrowers' post 1-year actual covenant cushion and same loan lenders group's cash holdings can be corresponding to the significantly negative spillover effect on net debt issuance. It is interesting to find that whether same loan lenders group or different loan lenders group can have their firm value significantly and positively associated with LBO borrowers' post 1-year actual covenant cushion. Further, the coefficient of 0.265 (*t*-value=2.855) on *Post 1-year actual covenant cushion*$_{t-1}$ for different loan lenders group is greater than the coefficient of 0.084 (*t*-value=2.134) on *Post 1-year actual covenant cushion*$_{t-1}$ for same loan lenders group. However, this cannot be explained by the corresponding decreases in asset growth because different loan lenders' asset growth cannot be affected by LBO borrowers' covenant cushion in one year after the initiation of loan contract. It appears that LBO borrowers' post 1-year actual covenant cushion can generate widespread positive spillover effect on market-to-book ratio for all the existing firms in the same industry.

In Table 10, we also report the estimation results of spillover effect on incumbent firms' operating performance by using two actual covenant cushions to identify whether LBO borrowers are or are not in technical default of financial covenant. Results shown in Panel A of Table 10 are quite consistent with results listed in Panel A of Table 9. Our regression models can better explain same loan lenders group's operating performance. Although we find declines in capital expenditure, the effect of LBO borrowers' technical default

identified by *Post 1-quarter actual covenant cushion*$_{t-1}$ for same loan lenders group can only be marginally significant. Different as the results listed in Panel B of Table 9, results in Panel B of Table 10 show insignificant effect from technical default identified by *Post 1-year actual covenant cushion*$_{t-1}$ on incumbent firms' operating income growth, sales growth, and capital expenditure growth. However, significant decreases in cash holdings and significant increases in asset growth are still in line with the negative spillover effect from LBO borrowers' post 1-year actual covenant cushion on incumbent firms' cost of issuing debt. Interestingly, by estimating with technical default identified by *Post 1-year actual covenant cushion*$_{t-1}$, we find that the firm value of incumbent firms in different loan lenders group can better be negatively affected when LBO borrowers have breach of Max. Debt to EBITDA covenant limits in one year after the loan contract. Overall, we provide empirical support for the view that spillover effect from LBO borrowers' debt covenant is mainly on industry incumbents' financing policies.

5. Conclusion

In this study, we analyze whether and how the distance between LBO borrowers' debt covenant and covenant threshold permitted by the loan contract can have spillover effect on other firms in the same industry. Based on actual loan contract from EDGAR, we can have 202 contracts to 180 non-financial firms and hand-collect all the financial covenant information for each loan agreement. Among all the financial covenants, we mainly focus on Max. Debt to EBITDA covenant which is the most commonly used and quarterly maintenance-based one and use the ratio of debt to EBITDA which is the generally accepted definition in analysis. By using post 1-quarter covenant threshold and post 1-year covenant threshold to compute expected and actual covenant cushion, we are able to characterize LBO borrowers and identify whether they have covenant slack.

To define incumbent firm, we use Fama-French 48 industry classification and compute the mean value of LBO borrowers' covenant cushion measures for each industry. We also

group firms into “same loan lenders group” and “different loan lenders group” based on lenders’ information provided by Dealscan. After requiring that incumbents in our sample should have non-missing identification of loan lenders group and non-missing variables used in analysis, we have 16,153 observations for 3,038 incumbent firms in same loan lenders group and 725 observations for 159 incumbent firms in different loan lenders group.

We show that LBO borrowers’ actual covenant cushions, compared with expected covenant cushions, can better have spillover effect on the existing firms in the same industry. When LBO borrowers have more covenant slack in one year after the loan agreement and are not in technical violation of Max. Debt to EBITDA covenant, industry incumbents can issue less debt and have lower book leverage ratio. This suggests negative spillover effect on cost of issuing debt. And, we find that spillover effect can be mainly observed especially for incumbent firms having the same loan lenders who also participate in LBO loans. Accordingly, rather than competitiveness, we provide alternative channel for the existence of negative spillover effect that is particularly through the creditors on industry incumbents’ financing policies.

In addition, we also examine the spillover effect on industry incumbents’ operating performance. When LBO borrowers have more covenant slack in one year after the loan contract, other firms in the same industry can experience significant decreases in operating income growth and sales growth. Although significant performance deterioration cannot be observed when we estimate with technical default identified by post 1-year actual covenant cushion, we have results further in support for the negative spillover effect that is mainly on industry incumbents’ financing policies. That is, incumbent firms can increase their cash holdings and have smaller firm size when LBO borrowers are not in technical default.

Our findings have implications for industry incumbents that they should understand the potential impact on their financing policies when there is a LBO loan made by same loan lenders in their industries and that they should realize that their operating performance can

become worse when LBO borrowers with the same loan lenders have more covenant slack. Although we do not investigate the spillover effect on incumbents' performance in the stock market, result that incumbent firms with loan lenders different as the ones participating in LBO loans can have significant deterioration in firm value when LBO borrowers are in violation of financial covenant is suggestive for market investors to be more cautious with the companies particularly in the industries in which the events of LBO borrowers' breach of covenant limits occurred.

This study sheds new light on the role of debt covenant by providing evidence of the existence of spillover effect. However, because of the properties of LBO loans, one question concerns the spillover effect from capital covenant is not able to be discussed in this study. Another question concerns the possible information conveyed through same loan lenders that might reduce industry uncertainty and generate different spillover effect on the performance in the stock market. Perhaps these and other related questions can be the issues for future research.

Appendix: Unmatched package data in Dealscan

As described in Section 3.2, we can only have 26% match rate which is lower than Nini, Smith, and Sufi's (2009) 40%.[3] In order to understand the reasons, we randomly select 30 unmatched deals (= 5% * 601 unmatched package data) and examine the effectiveness of our text-search program.[4] After conducting a detailed search by hand, we list the unmatched reasons in the Appendix Table.

Among all the 30 unmatched observations, we can find full contract in EDGAR for two observations. One unmatched reason indicates that we should also consider locating the loan contract based on the amount of all the facilities in this deal and the other unmatched reason is because that we mismatch the company names. Overall, this shows that we may miss the contracts for 7% of the unmatched package data. For 47% of the unmatched observations, we directly search the company names in EDGAR and find that we are unable to have either the borrowers' information or the corresponding files in EDGAR. For the 33% of the unmatched observations, we cannot have the information related to the deal active date in EDGAR. And, for the remaining 10% of unmatched observations, we are unable to obtain loan contract in EDGAR.

[3] When requiring nonmissing loan amount and nonmissing interest spread of all the facilities in each deal made to non-financial firms, we can have match rate equal to 32% which is still a lower value.

[4] Nini, Smith, and Sufi (2009) randomly select 200 observations which are roughly 3% of 5,861 unmatched deals to address the possible misses in their program.

Appendix Table

Unmatched Reasons for Package Data in Dealscan

Deal Active Date	Company Name in Dealscan	Identified CIK	Company Name in EDGAR	Unmatched Reasons
20050131	Central Security Group Inc	0018748	CENTRAL SECURITIES CORP	Unable to have the information related to the deal active date in EDGAR
19971111	Premcor Refining Group Inc (fka Clark Refining & Marketing Inc)	0020762	PREMCOR REFINING GROUP INC	① Unable to have the information related to the deal active date in EDGAR ② The information on the interest rate of all the facilities in this deal is missing
20040503	Communications Supply Corp	0022701	COMMUNICATIONS SYSTEMS INC	① Unmatched company name ② No matching companies in EDGAR
19980514	Acterna [Ex-Dynatech Corp]	0030841	ACTERNA CORP	① Unable to have the information related to the deal active date in EDGAR ② The information on the interest rate of all the facilities in this deal is missing
20061211	Plantation Timber Products Group Ltd	0051434	INTERNATIONAL PAPER CO /NEW/	① Unmatched company name ② No corresponding files in EDGAR (Plantation Timber CIK: 1296805)
20060828	Orange Broadband	0074778	ORANGE & ROCKLAND UTILITIES INC	① Unmatched company name ② No corresponding files in EDGAR (Orange Broadband CIK: 1359372)
20031027	Hunter Fan Co	0312069	BARCLAYS PLC	Unable to have the information related to the deal active date in EDGAR

20070416	Hunter Fan Co	0312069	BARCLAYS PLC	Unable to have loan contract in EDGAR
20050930	Veritext LLC	0773318	VERITEC INC	① Unmatched company name ② No matching companies in EDGAR
20040524	Daily Racing Form LLC	0783412	DAILY JOURNAL CORP	① Unmatched company name ② No corresponding files in EDGAR (Daily Racing Form CIK: 884408)
20001001	Benchmark Medical	0863436	BENCHMARK ELECTRONICS	① Unmatched company name ② No matching companies in EDGAR
19980804	Celadon Group Inc	0865941	CELADON GROUP INC	Unable to have the information related to the deal active date in EDGAR
20060926	Petco Animal Supplies Inc	0888455	PETCO ANIMAL SUPPLIES INC	Unable to have the information related to the deal active date in EDGAR
20040802	Duane Reade Inc	0895364	DUANE READE INC	Unable to have the information related to the deal active date in EDGAR
20080718	USANA Health Sciences Inc	0896264	USANA HEALTH SCIENCES INC	Unable to have the information related to the deal active date in EDGAR
20040917	Culligan Water Technologies Inc	0914478	SAMSONITE CORP/FL	① Unmatched company name ② No corresponding files in EDGAR (Culligan Water Technologies CIK: 945382)
20040325	Saguaro Utility Group	0941138	UNS Energy Corp	Unmatched borrower name and unmatched loan facilities in the loan contract from EDGAR
20001122	Engle Homes	1049391	ENGLE HOMES ORLANDO INC	Unable to have loan contract in EDGAR
19980722	Anthony Crane Rental	1067606	ANTHONY & SYLVAN POOLS CORP	① Unmatched company name ② Full contract in EDGAR.

				ANTHONY CRANE RENTAL HOLDINGS LP CIK: 1070316 (The file of this credit agreement can be referred to Exhibit 10.3 and 10.4 of Registration Statement on Form S-4 filed on September 30, 1998, File No. 333-65003)
20080922	Centerplate Inc [ex-Volume Services America Inc]	1086774	Centerplate, Inc.	① Unable to have the information related to the deal active date in EDGAR ② The information on the interest rate of all the facilities in this deal is not provided
20020728	Network Communications Inc	1087879	NETWORK COMMERCE INC	① Unmatched company name ② No corresponding files in EDGAR (Network Communications CIK: 1364727)
20110915	Mutual Fund Store	1094810	MUTUAL FIRST FINANCIAL INC	① Unmatched company name ② No matching companies in EDGAR
20070507	Local TV LLC	1259550	LOCAL.COM Corp	① Unmatched company name ② No matching companies in EDGAR
20050824	Hit Entertainment	1309799	HARVEST ENERGY TRUST	① Unmatched company name ② No corresponding files in EDGAR (Hit Entertainment CIK: 1038385)
20080912	Marshall Retail Group LLC	1399315	MARSHALL & ILSLEY CORP	① Unmatched company name ② No corresponding files in EDGAR (Marshall Retail Group CIK: 1216236)
19990723	ChipPAC International Co Ltd	1402159	ACROPOLIS PRECIOUS METALS	① Unmatched company name

			INC.	② No corresponding files in EDGAR (ChipPAC International Co CIK: 1097583)
20050331	Talecris Biotherapeutics Inc	1405197	Talecris Biotherapeutics Holdings Corp	Unable to have the information related to the deal active date in EDGAR
20080912	Weather Channel	1453090	Weatherford International Ltd./Switzerland	① Unmatched company name ② No matching companies in EDGAR
20060503	NPC International	1548621	NPC International, Inc., NPC Operating Company A, Inc. and NPC Operating Company B, Inc.	Unable to have loan contract in EDGAR
20100930	EVERTEC Inc	1559865	EVERTEC, Inc.	① Full contract in EDGAR ② We miss this contract because of the inconsistency between the deal amount and the amount requested by the borrower in the contract agreement. However, the amount of all the facilities in this deal is matched. Term B Loan: $350 million; Revolving Facility Loan: $50 million. (The file of this credit agreement can be referred to Exhibit 10.1 of Registration Statement on Form S-4 filed on April 14, 2011, File No. 333-173504)

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Table 1
LBO Loan Data

Panel A presents the time profile of total deal amount and loan contracts for our LBO loans. Panel B presents deal characteristics, including deal amount and details of financial covenants. Financial covenants identified by Dealscan, Financial covenants identified by contracts, performance covenant, capital covenant, coverage ratio covenant, debt to cash flow covenant, net worth covenant, debt to balance sheet covenant, liquidity covenant, minimum cash flow covenant, Max. Debt to EBITDA, Min. Fixed Charge Coverage, Min. Interest Coverage, Min. EBITDA, Max. Senior Debt to EBITDA, and capital expenditure restriction are all indicator variables. The number of financial covenants is the sum of all the financial covenants written in the loan contract. Panel C presents borrower characteristics. Total assets, book leverage ratio, market-to-book ratio, cash flow (operating income)/assets are measured as the average over four quarters prior to the loan agreement. Debt to EBITDA is the ratio of total debt on such fiscal quarter to EBITDA computed for the period of four consecutive quarters ended on such date prior to the loan agreement. Capital expenditure is the amount for the fiscal year prior to the loan contracts. Negative EBITDA is an indicator variable equal to one when EBITDA for the four consecutive quarters prior to the loan agreement is less than zero. Max (0, Debt to EBITDA) is the nonnegative value of Debt to EBITDA. Corporate credit rating is a dummy variable used to identify whether LBO borrower have a non-missing credit rating in the quarter prior to the loan contract. The value of credit rating is reported: firms with the highest rating (AAA) are valued 22 and firms with missing value are valued 0. Investment grade is an indicator which takes one if the S&P long-term issuer credit rating is BBB- or higher.

Panel A: Time profile of the total deal amount and loan contracts for our LBO loans

Year	Deal amount ($ in millions)	Number	Percentage
1996	2,986	9	5
1997	5,470	17	9
1998	5,453	25	13
1999	9,350	17	9
2000	3,145	7	3
2001	1,258	5	2
2002	3,010	7	3
2003	7,275	16	8
2004	11,937	28	15
2005	31,767	19	9
2006	41,555	15	7
2007	73,413	22	11
2008	25,032	6	3
2009	938	3	1
2010	2,175	3	1
2011	1,405	3	1
Total	226,173	202	100

Panel B: Deal characteristics

Variable	Mean	Median	Standard deviation	N
Deal amount ($ in millions)	1,120	302	2,525	202
Financial covenants identified by Dealscan{0,1}	0.366	0.000	0.483	202
Financial covenants identified by contracts{0,1}	0.911	1.000	0.286	202
Performance covenant{0,1}	0.911	1.000	0.286	202
Capital covenant{0,1}	0.079	0.000	0.271	202
Coverage ratio covenant{0,1}	0.817	1.000	0.388	202
Debt to cash flow covenant{0,1}	0.842	1.000	0.366	202
Net worth covenant{0,1}	0.050	0.000	0.217	202
Debt to balance sheet covenant{0,1}	0.020	0.000	0.140	202
Liquidity covenant{0,1}	0.015	0.000	0.121	202
Minimum cash flow covenant{0,1}	0.163	0.000	0.371	202
Max. Debt to EBITDA{0,1}	0.752	1.000	0.433	202
Min. Fixed Charge Coverage{0,1}	0.406	0.000	0.492	202
Min. Interest Coverage{0,1}	0.629	1.000	0.484	202
Min. EBITDA	0.163	0.000	0.371	202
Max. Senior Debt to EBITDA{0,1}	0.139	0.000	0.346	202
No. of financial covenants	2.351	2.000	1.222	202
Capital expenditure restriction{0,1}	0.728	1.000	0.446	202

Panel C: Borrower characteristics

Variable	Mean	Median	Standard deviation	N
Total assets ($ in millions)	3,000	519	6,350	122
Book leverage ratio	0.423	0.406	0.304	113
Market-to-book ratio	1.411	1.180	0.680	65
Cash flow (operating income)/assets	0.050	0.043	0.036	111
Debt to EBITDA	-3.685	2.931	69.362	103
Capital expenditures ($ in millions)	182	30	455	115
Negative EBITDA {0,1}	0.027	0.000	0.163	111
Max (0, Debt to EBITDA)	3.167	2.931	3.164	103
Corporate credit rating {0,1}	0.704	1.000	0.444	117
Conditional on having credit rating:				
Credit rating (AAA=22; AA+=21; …)	10.063	9.833	2.057	80
Investment grade {0,1}	0.138	0.000	0.326	80

Table 2
Max. Debt to EBITDA and Covenant Cushion

Panel A presents Max. Debt to EBITDA covenant thresholds. Panel B presents actual accounting variables of Debt to EBITDA. Max (0, Debt to EBITDA) is the nonnegative value of Debt to EBITDA. Panel C presents covenant cushion measures. Post 1-quarter expected covenant cushion = 1 – {Max (0, Debt to EBITDA) $_{\text{at the initiation of LBO loan}}$ /covenant threshold in one quarter after the initiation}. Post 1-year expected covenant cushion = 1 – {Max (0, Debt to EBITDA) $_{\text{at the initiation of LBO loan}}$ /covenant threshold in one year after the initiation}. Post 1-quarter actual covenant cushion = 1 – {Post 1-quarter Debt to EBITDA/covenant threshold }. Post 1-year actual covenant cushion = 1 – {Post 1-year Debt to EBITDA /covenant threshold}.

	Mean	Median	Standard deviation	N
Panel A: Max. Debt to EBITDA				
Post 1-quarter covenant threshold	5.552	5.7	1.449	93
Post 1-year covenant threshold	5.536	5.75	1.493	107
Panel B: Actual Debt to EBITDA variables				
Debt to EBITDA $_{\text{at the initiation of LBO loan}}$	6.983	6.450	7.908	111
Max (0, Debt to EBITDA) $_{\text{at the initiation of LBO loan}}$	7.549	6.450	5.457	111
Post 1-quarter Debt to EBITDA	10.680	6.467	38.075	103
Post 1-year Debt to EBITDA	5.967	5.890	2.813	110
Panel C: Covenant cushion measures				
Post 1-quarter expected covenant cushion	-0.358	-0.017	1.084	50 ($N_{Expansion}$: 47; $N_{Recession}$: 3)
Positive value	0.292	0.205	0.284	23 ($N_{Expansion}$: 21; $N_{Recession}$: 2)
Negative value	-0.911	-0.307	1.206	27 ($N_{Expansion}$: 26; $N_{Recession}$: 1)
Post 1-year expected covenant cushion	-0.380	-0.082	1.081	58 ($N_{Expansion}$: 55; $N_{Recession}$: 3)
Positive value	0.294	0.200	0.274	24 ($N_{Expansion}$: 22; $N_{Recession}$: 2)
Negative value	-0.856	-0.276	1.183	34 ($N_{Expansion}$: 33; $N_{Recession}$: 1)
Post 1-quarter actual covenant cushion	-2.602	-0.013	16.722	44 ($N_{Expansion}$: 42; $N_{Recession}$: 2)
Positive value	0.203	0.200	0.110	20 ($N_{Expansion}$: 18; $N_{Recession}$: 2)
Negative value	-4.940	-0.127	22.588	24 ($N_{Expansion}$: 24; $N_{Recession}$: 0)
Post 1-year actual covenant cushion	0.071	0.134	0.407	56 ($N_{Expansion}$: 46; $N_{Recession}$: 10)
Positive value	0.295	0.274	0.207	37 ($N_{Expansion}$: 32; $N_{Recession}$: 5)
Negative value	-0.364	-0.206	0.343	19 ($N_{Expansion}$: 14; $N_{Recession}$: 5)

Table 3
Descriptive Statistics and Pearson correlation matrix

Panel A presents descriptive statistics of our incumbent firms. We further separate firms into same loan lenders group and different loan lenders group. Same loan lenders group include incumbent firms having the lenders who also participate in our 202 LBO loan contracts; different loan lenders group include firms having different lenders. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively, for the t-test on the means between these two groups. In Panel B, we report the Pearson correlation matrix between net debt issuance at *t* and the industry mean of LBO borrowers' post 1-quarter expected covenant cushion, post 1-year expected covenant cushion, post 1-quarter actual covenant cushion, and post 1-year actual covenant cushion at *t-1*. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Descriptive statistics

Variable	Mean	Median	Standard deviation	N
All incumbent firms				
Net debt issuance$_t$ (%)	1.382	0.000	14.343	16,878
Book D_{t-1}/A_{t-1}	0.226	0.197	0.203	16,878
Market-to-book$_{t-1}$	1.606	1.222	1.230	16,878
Tangibility$_{t-1}$	0.248	0.182	0.214	16,878
Profitability$_{t-1}$	0.030	0.032	0.042	16,878
Size$_{t-1}$	5.986	5.916	1.794	16,878
Same loan lenders group				
Net debt issuance$_t$ (%)	1.385	0.000	13.316	16,153
Book D_{t-1}/A_{t-1}	0.229***	0.200	0.203	16,153
Market-to-book$_{t-1}$	1.604	1.224	1.219	16,153
Tangibility$_{t-1}$	0.249***	0.184	0.213	16,153
Profitability$_{t-1}$	0.030***	0.032	0.041	16,153
Size$_{t-1}$	6.062***	5.989	1.769	16,153
Different loan lenders group				
Net debt issuance$_t$ (%)	1.318	0.000	28.981	725
Book D_{t-1}/A_{t-1}	0.175	0.108	0.196	725
Market-to-book$_{t-1}$	1.650	1.183	1.447	725
Tangibility$_{t-1}$	0.226	0.150	0.218	725
Profitability$_{t-1}$	0.014	0.024	0.060	725
Size$_{t-1}$	4.308	4.179	1.502	725

Panel B: Pearson correlation matrix

	Post 1-quarter expected covenant cushion$_{t-1}$	*Post 1-year expected covenant cushion$_{t-1}$*	*Post 1-quarter actual covenant cushion$_{t-1}$*	*Post 1-year actual covenant cushion$_{t-1}$*
All incumbent firms				
Net debt issuance$_t$ (%)	0.009 N=5,701	0.015 N=6,739	0.005 N=5,394	-0.058*** N=6,285
Same loan lenders group				
Net debt issuance$_t$ (%)	0.009 N=5,449	0.016 N=6,448	0.006 N=5,158	-0.059*** N=6,018
Different loan lenders group				
Net debt issuance$_t$ (%)	-0.001 N=252	-0.002 N=291	0.001 N=236	-0.039 N=267

Table 4
The Spillover Effect on Incumbent Firms' Net Debt Issuing Activity

In this table, we report the estimation results of spillover effect on incumbent firms' net debt issuance. *Net debt issuance$_t$ (%)* is the ratio of change in total debt to lagged book assets at quarter *t*. There are four different covenant cushion measures at quarter *t-1*: *Post 1-quarter expected covenant cushion$_{t-1}$*, *Post 1-year expected covenant cushion$_{t-1}$*, *Post 1-quarter actual covenant cushion$_{t-1}$*, and *Post 1-year actual covenant cushion$_{t-1}$*. We include each of the four measures one at a time. The quarter *t-1* for post 1-quarter expected covenant cushion and post 1-year expected covenant cushion is the quarter of initiation of LBO loan. As for post 1-quarter actual covenant cushion, the quarter *t-1* is one quarter after the initiation of LBO loan. And, quarter *t-1* for post 1-year actual covenant cushion is one year after the initiation of LBO loan. *Book D_{t-1}/A_{t-1}* is the ratio of total debt to book assets at *t-1*. *Market-to-book$_{t-1}$* is the ratio of market assets to book assets at *t-1*. *Tangibility$_{t-1}$* is the ratio of net property, plant, and equipment to book assets at *t-1*. *Profitability$_{t-1}$* is EBITDA divided by assets at *t-1*. *Size$_{t-1}$* is log book assets at *t-1*. *Recession Dummy* is an indicator that takes the value of one when quarter *t* is during the recession period classified by NBER: 2001Q2, 2001Q3, 2001Q4, 2008Q1, 2008Q2, 2008Q3, 2008Q4, 2009Q1, and 2009Q2. When we estimate industry fixed effects model, standard errors are clustered by industry. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Net debt issuance$_t$ (%)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post 1-quarter	0.029	0.115						
expected covenant cushion$_{t-1}$	(0.208)	(0.385)						
Post 1-year			0.220	0.378				
expected covenant cushion$_{t-1}$			(1.328)	(1.118)				
Post 1-quarter					0.012	0.764***		
actual covenant cushion$_{t-1}$					(0.910)	(5.483)		
Post 1-year							-1.631***	-2.058**
actual covenant cushion$_{t-1}$							(-3.947)	(-2.430)
Book D_{t-1}/A_{t-1}	-0.636	-1.105	1.684*	1.430	-3.392***	-4.197**	-2.107***	-2.639**
	(-0.802)	(-0.871)	(1.716)	(0.523)	(-3.089)	(-2.136)	(-2.726)	(-2.245)
Market-to-book$_{t-1}$	0.776***	0.644**	1.477***	1.417**	0.176	0.048	0.471***	0.489**
	(6.463)	(2.438)	(9.866)	(2.707)	(0.998)	(0.361)	(3.576)	(2.417)
Tangibility$_{t-1}$	3.549***	3.992***	3.099***	3.866***	3.953***	0.457	2.089***	0.868
	(4.680)	(4.699)	(3.280)	(6.843)	(3.777)	(0.304)	(2.840)	(1.382)
Profitability$_{t-1}$	-12.387***	-11.255*	-39.372***	-39.421**	4.422	7.962*	-0.646	-0.020
	(-3.122)	(-1.863)	(-8.185)	(-2.135)	(0.890)	(1.794)	(-0.171)	(-0.003)
Size$_{t-1}$	-0.202**	-0.200***	-0.326***	-0.317**	-0.643***	-0.705*	-0.094	-0.092
	(-2.329)	(-3.375)	(-3.015)	(-2.795)	(-5.300)	(-1.943)	(-1.092)	(-1.189)
Recession Dummy	-0.210	-0.429	-0.452	-0.518**	0.142	0.404	-1.156***	-0.570
	(-0.348)	(-1.235)	(-0.567)	(-2.146)	(0.224)	(1.679)	(-3.137)	(-1.430)
Intercept	0.908	1.147	1.186	1.205**	4.517***	7.943**	1.563***	1.827***
	(1.497)	(1.708)	(1.580)	(2.429)	(5.522)	(2.800)	(2.667)	(3.435)
Industry Fixed Effect		Yes		Yes		Yes		Yes
Adjusted R^2	0.011	0.015	0.023	0.023	0.008	0.019	0.009	0.011
Obs.	5,701	5,701	6,739	6,739	5,394	5,394	6,285	6,285

Table 5
The Spillover Effect on Incumbent Firms' Book Leverage

In this table, we report the estimation results of spillover effect on incumbent firms' book leverage. *Book* D_t/A_t is total debt divided by book assets at quarter *t*. See Table 4 for the definitions of the explanatory variables. When we estimate industry fixed effects model, standard errors are clustered by industry. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Book D_t/A_t							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post 1-quarter	-0.000	0.000						
expected covenant cushion$_{t-1}$	(-0.164)	(0.010)						
Post 1-year			-0.000	0.000				
expected covenant cushion$_{t-1}$			(-0.306)	(0.248)				
Post 1-quarter					0.000	0.003***		
actual covenant cushion$_{t-1}$					(0.906)	(3.247)		
Post 1-year							-0.009***	-0.011***
actual covenant cushion$_{t-1}$							(-4.476)	(-3.334)
Book D_{t-1}/A_{t-1}	0.952***	0.950***	0.952***	0.951***	0.962***	0.960***	0.960***	0.955***
	(217.916)	(96.049)	(235.886)	(86.610)	(219.591)	(99.913)	(245.269)	(292.448)
Market-to-book$_{t-1}$	-0.000	-0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.162)	(-0.297)	(-1.165)	(-0.743)	(-1.137)	(-1.312)	(-1.456)	(-1.322)
Tangibility$_{t-1}$	0.017***	0.020***	0.016***	0.020***	0.019***	0.012*	0.018***	0.011***
	(4.139)	(4.670)	(4.151)	(4.493)	(4.474)	(2.033)	(4.765)	(3.036)
Profitability$_{t-1}$	-0.083***	-0.090**	-0.031	-0.038	-0.003	0.003	0.003	0.012
	(-3.784)	(-2.716)	(-1.579)	(-1.069)	(-0.144)	(0.100)	(0.141)	(0.384)
Size$_{t-1}$	-0.000	-0.000	-0.000	-0.000	-0.002***	-0.002***	0.000	-0.000
	(-0.904)	(-0.347)	(-0.663)	(-0.137)	(-3.432)	(-4.393)	(0.009)	(-0.266)
Recession Dummy	0.002	0.002	0.002	0.003*	0.004	0.004***	0.001	0.004***
	(0.704)	(1.196)	(0.628)	(1.881)	(1.392)	(11.038)	(0.383)	(3.239)
Intercept	0.014***	0.013***	0.013***	0.012***	0.017***	0.028***	0.012***	0.014***
	(4.186)	(4.175)	(4.208)	(4.427)	(5.245)	(5.615)	(3.898)	(4.675)
Industry Fixed Effect		Yes		Yes		Yes		Yes
Adjusted R^2	0.908	0.909	0.907	0.908	0.912	0.913	0.919	0.920
Obs.	5,701	5,701	6,739	6,739	5,394	5,394	6,285	6,285

Table 6
The Spillover Effect from Actual Covenant Cushion: Same Loan Lenders Group and Different Loan Lenders Group

This table reports the estimation results of spillover effect from actual covenant cushion: *Post 1-quarter actual covenant cushion*$_{t-1}$ and *Post 1-year actual covenant cushion*$_{t-1}$. *Net debt issuance*$_t$ *(%)* is the ratio of change in total debt to lagged book assets at quarter *t*. *Book* D_t/A_t is total debt divided by book assets at quarter *t*. See Table 4 for the definitions of the explanatory variables. We treat same loan lenders group and different loan lenders group separately in analysis. Same loan lenders group include firms having the loan lenders who also participate in our 202 LBO loan contracts; different loan lenders group include firms having different lenders. We estimate industry fixed effects model. And, standard errors are clustered by industry. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Net debt issuance$_t$ *(%)*				*Book* D_t/A_t			
	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post 1-quarter actual covenant cushion$_{t-1}$	0.783***	-0.247			0.003***	-0.000		
	(5.564)	(-0.221)			(3.294)	(-0.068)		
Post 1-year actual covenant cushion$_{t-1}$			-2.084**	-0.905			-0.011***	-0.003
			(-2.338)	(-0.926)			(-3.270)	(-0.351)
Book D_{t-1}/A_{t-1}	-3.666**	1.421	-2.613*	-3.779**	0.959***	0.993***	0.955***	0.941***
	(-2.236)	(0.229)	(-2.058)	(-2.421)	(98.177)	(43.952)	(250.040)	(37.882)
Market-to-book$_{t-1}$	0.014	-3.275	0.526**	-0.032	-0.001	-0.001	-0.001	-0.003
	(0.090)	(-0.805)	(2.457)	(-0.186)	(-1.438)	(-0.700)	(-1.144)	(-1.653)
Tangibility$_{t-1}$	1.631	-7.169	0.865	0.051	0.013*	0.007	0.012**	0.001
	(1.604)	(-0.666)	(1.229)	(0.049)	(1.964)	(0.302)	(2.775)	(0.116)
Profitability$_{t-1}$	9.730**	-18.733	0.280	-13.730	0.007	-0.038	0.025	-0.167**
	(2.090)	(-0.858)	(0.033)	(-1.595)	(0.289)	(-0.299)	(0.791)	(-2.519)
Size$_{t-1}$	-0.442**	-5.070	-0.127	0.075	-0.002***	-0.009**	-0.000	0.000
	(-2.778)	(-0.934)	(-1.463)	(0.518)	(-4.319)	(-2.500)	(-0.484)	(0.189)
Recession Dummy	0.241**	4.715	-0.527	-1.131	0.004***	-0.005	0.005***	-0.009
	(2.302)	(0.876)	(-1.265)	(-1.248)	(11.619)	(-1.251)	(3.111)	(-1.196)
Intercept	5.957***	30.928	2.019***	1.191***	0.028***	0.042	0.014***	0.020***
	(4.975)	(0.938)	(3.265)	(3.453)	(5.850)	(1.697)	(4.336)	(3.763)
Adjusted R^2	0.023	0.465	0.011	-0.002	0.911	0.947	0.919	0.934
Obs.	5,158	236	6,018	267	5,158	236	6018	267

Table 7
The Spillover Effect from Technical Default Identified by Actual Covenant Cushion

This table reports the estimation results of spillover effect from actual covenant cushion: *Post 1-quarter actual covenant cushion*$_{t-1}$ and *Post 1-year actual covenant cushion*$_{t-1}$. In order to use indicator variable to identify technical default by actual covenant cushion, we only include incumbents in the industry with only one LBO borrower in analysis. *D(Post 1-quarter actual covenant cushion*$_{t-1}$*<0)=1* is the variable that equals to one when LBO borrowers have negative value of *Post 1-quarter actual covenant cushion*$_{t-1}$ and *D(Post 1-year actual covenant cushion*$_{t-1}$*<0)=1* is the variable that takes the value of one when LBO borrowers have negative value of *Post 1-year actual covenant cushion*$_{t-1}$. *Net debt issuance*$_t$ *(%)* is the ratio of change in total debt to lagged book assets at quarter *t*. *Book* D_t/A_t is total debt divided by book assets at quarter *t*. See Table 4 for the definitions of the explanatory variables. We treat same loan lenders group and different loan lenders group separately in analysis. Same loan lenders group include firms having the loan lenders who also participate in our 202 LBO loan contracts; different loan lenders group include firms having different lenders. We estimate industry fixed effects model. And, standard errors are clustered by industry. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Net debt issuance$_t$ *(%)*						*Book* D_t/A_t					
		Same loan lenders	Different loan lenders		Same loan lenders	Different loan lenders		Same loan lenders	Different loan lenders		Same loan lenders	Different loan lenders
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
D(Post 1-quarter	-0.091	-0.101	1.047				0.000	-0.000	0.009			
actual covenant cushion$_{t-1}$*<0)=1*	(-0.289)	(-0.358)	(1.013)				(0.064)	(-0.175)	(1.563)			
D(Post 1-year				1.462**	1.489**	0.775				0.009***	0.009***	0.003
actual covenant cushion$_{t-1}$*<0)=1*				(2.347)	(2.254)	(0.681)				(4.207)	(4.225)	(0.312)
Book D_{t-1}/A_{t-1}	-4.225**	-3.699**	1.476	-3.204***	-3.221***	-3.380**	0.960***	0.959***	0.994***	0.954***	0.954***	0.943***
	(-2.154)	(-2.260)	(0.237)	(-3.640)	(-3.359)	(-2.354)	(100.252)	(98.576)	(44.157)	(327.568)	(293.721)	(38.272)
Market-to-book$_{t-1}$	0.055	0.022	-3.291	0.518**	0.548**	0.014	-0.001	-0.001	-0.002	-0.001	-0.001	-0.003
	(0.417)	(0.143)	(-0.810)	(2.520)	(2.481)	(0.072)	(-1.284)	(-1.403)	(-0.774)	(-1.245)	(-1.098)	(-1.388)
Tangibility$_{t-1}$	0.411	1.589	-7.293	0.846	0.824	0.074	0.012*	0.012*	0.006	0.013***	0.013***	0.005
	(0.274)	(1.557)	(-0.675)	(1.324)	(1.152)	(0.073)	(2.007)	(1.937)	(0.245)	(3.475)	(3.114)	(0.367)
Profitability$_{t-1}$	8.123*	9.862**	-18.657	-1.782	-1.355	-17.218*	0.004	0.008	-0.036	0.007	0.021	-0.195**
	(1.850)	(2.138)	(-0.866)	(-0.238)	(-0.160)	(-1.791)	(0.120)	(0.310)	(-0.282)	(0.237)	(0.692)	(-2.543)
Size$_{t-1}$	-0.697*	-0.433**	-5.048	-0.085	-0.120	0.050	-0.002***	-0.002***	-0.009**	-0.000	-0.000	0.000
	(-1.914)	(-2.714)	(-0.929)	(-0.983)	(-1.256)	(0.361)	(-4.214)	(-4.165)	(-2.429)	(-0.101)	(-0.310)	(0.143)
Recession Dummy	0.648**	0.487***	4.942	-0.497	-0.448	-1.032	0.005***	0.005***	-0.002	0.005***	0.005***	-0.007
	(2.642)	(3.514)	(0.900)	(-1.326)	(-1.169)	(-1.018)	(9.703)	(9.604)	(-0.478)	(3.886)	(3.805)	(-0.909)
Intercept	5.946**	3.927***	30.959	1.222**	1.429**	0.771	0.020***	0.019***	0.037*	0.010**	0.010**	0.017**
	(2.123)	(3.354)	(0.990)	(2.074)	(2.146)	(1.183)	(4.446)	(4.743)	(1.817)	(2.488)	(2.299)	(2.505)
Adjusted R^2	0.018	0.022	0.465	0.012	0.012	0.003	0.913	0.911	0.947	0.919	0.919	0.934
Obs.	5,394	5,158	236	5,986	5,729	257	5,394	5,158	236	5,986	5,729	257

Table 8
Operating Performance measures

Panel A presents descriptive statistics of our operating performance measures. We have six operating performance measures: *Operating income growth*, *Sales growth*, *Capital expenditure growth*, *Change in cash holdings*, *Asset growth*, and *Change in market-to-book ratio*. The operating income growth is measured by the difference between the log of firm *i*'s operating income at quarter *t* and the log of firm *i*'s operating income at quarter *t-2*. We use the same method to have the other five operating performance measures: sales growth, capital expenditure growth, change in cash holdings, asset growth, and change in market-to-book ratio. Same loan lenders group include incumbent firms having the lenders who also participate in our 202 LBO loan contracts; different loan lenders group include incumbent firms having different lenders. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively, for the t-test on the means between these two groups. In Panel B, we report the Pearson correlation matrix between operating performance measures and the industry mean of LBO borrowers' post 1-quarter actual covenant cushion and post 1-year actual covenant cushion at *t-1*. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Operating performance measures

Variable	Mean	Median	Standard deviation	N
Same loan lenders group				
Operating income growth	0.041	0.054	0.756	13,107
Sales growth	0.046	0.043	0.322	15,916
Capital expenditure growth	0.035***	0.035	0.836	15,265
Change in cash holdings	0.024	0.021	0.951	15,716
Asset growth	0.059**	0.031	0.243	16,026
Change in market-to-book ratio	-0.038***	-0.022	0.334	15,676
Different loan lenders group				
Operating income growth	0.046	0.052	0.743	435
Sales growth	0.037	0.033	0.330	706
Capital expenditure growth	-0.054	-0.037	1.166	661
Change in cash holdings	0.000	0.002	0.879	709
Asset growth	0.040	0.025	0.260	717
Change in market-to-book ratio	-0.087	-0.041	0.473	707

Panel B: Pearson correlation matrix

	Post 1-quarter actual covenant cushion$_{t-1}$	*Post 1-year actual covenant cushion$_{t-1}$*
Same loan lenders group		
Operating income growth	-0.045***	-0.035**
	N=4,222	N=4,846
Sales growth	-0.024*	-0.043***
	N=5,092	N=5,935
Capital expenditure growth	-0.020	-0.065***
	N=4,882	N=5,727
Change in cash holdings	0.040***	0.045***
	N=5,033	N=5,869
Asset growth	0.001	-0.083***
	N=5,126	N=5,969
Change in market-to-book ratio	0.108***	0.064***
	N=5,047	N=5,841
Different loan lenders group		
Operating income growth	-0.047	0.012
	N=139	N=160
Sales growth	-0.050	0.020
	N=231	N=259
Capital expenditure growth	-0.053	-0.009
	N=216	N=248
Change in cash holdings	-0.020	0.029
	N=234	N=259
Asset growth	-0.055	-0.051
	N=235	N=262
Change in market-to-book ratio	0.044	0.198***
	N=233	N=258

Table 9
The Spillover Effect on Incumbent Firms' Operating Performance

Panel A of this table reports the estimation results of spillover effect from *Post 1-quarter actual covenant cushion*$_{t-1}$ and Panel B of this table reports the estimation results of spillover effect from *Post 1-year actual covenant cushion*$_{t-1}$. We have six operating performance measures: *Operating income growth*, *Sales growth*, *Capital expenditure growth*, *Change in cash holdings*, *Asset growth*, and *Change in market-to-book ratio*. See Table 4 for the definitions of the explanatory variables. We treat same loan lenders group and different loan lenders group separately in analysis. Same loan lenders group include firms having the loan lenders who also participate in our 202 LBO loan contracts; different loan lenders group include firms having different lenders. We estimate industry fixed effects model. And, standard errors are clustered by industry. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Spillover effect from *Post 1-quarter actual covenant cushion*$_{t-1}$

	Operating income growth		*Sales growth*		*Capital expenditure growth*		*Change in cash holdings*		*Asset growth*		*Change in market-to-book ratio*	
	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Post 1-quarter	-0.017	-0.111	-0.001	0.035*	0.075	-0.056	-0.012	0.075	0.022	0.048	-0.015	0.022
actual covenant cushion$_{t-1}$	(-0.255)	(-0.404)	(-0.036)	(1.920)	(1.533)	(-0.562)	(-0.517)	(0.337)	(1.447)	(1.177)	(-0.745)	(0.782)
Book D_{t-1}/A_{t-1}	0.111**	0.240	0.088***	0.009	-0.117***	-0.277	0.058	-0.115	0.029	-0.069	-0.002	0.340*
	(2.306)	(0.417)	(5.284)	(0.077)	(-3.279)	(-0.754)	(1.124)	(-0.273)	(1.373)	(-1.350)	(-0.032)	(2.053)
Market-to-book$_{t-1}$	0.007	0.010	0.031**	0.036***	0.028	-0.038	0.025	-0.020	0.026***	0.006	-0.011*	-0.030*
	(0.718)	(0.251)	(2.332)	(3.701)	(1.592)	(-1.060)	(1.375)	(-0.921)	(7.662)	(0.297)	(-1.776)	(-1.828)
Tangibility$_{t-1}$	-0.080	-0.466*	-0.003	0.177	-0.235**	-0.312	-0.129	-0.024	-0.056*	-0.000	0.031	0.128
	(-0.963)	(-1.810)	(-0.060)	(0.967)	(-2.637)	(-0.548)	(-1.260)	(-0.075)	(-2.019)	(-0.003)	(0.976)	(0.889)
Profitability$_{t-1}$	0.884	1.771	0.665**	-0.203	0.664	1.408	1.297	2.560***	0.934***	0.802***	0.636***	1.430**
	(1.628)	(0.691)	(2.162)	(-1.028)	(1.018)	(1.622)	(1.699)	(2.993)	(4.206)	(3.697)	(3.076)	(2.860)
Size$_{t-1}$	-0.017**	0.065	-0.009***	0.001	-0.019**	-0.035	0.002	-0.048	-0.003	0.001	-0.001	-0.042
	(-2.372)	(1.705)	(-4.224)	(0.077)	(-2.610)	(-0.722)	(0.186)	(-0.933)	(-1.337)	(0.063)	(-0.592)	(-1.496)
Recession Dummy	-0.101***	0.222**	-0.008	0.061***	-0.107***	0.005	-0.025***	-0.120	-0.019***	0.040	-0.100***	-0.166***
	(-3.990)	(2.539)	(-0.554)	(3.246)	(-5.674)	(0.085)	(-2.962)	(-0.982)	(-2.936)	(1.166)	(-19.613)	(-6.063)
Intercept	0.083	-0.610	0.018	0.051	0.415**	0.050	-0.088	0.486	0.071	0.168	-0.088	0.070
	(0.447)	(-0.777)	(0.184)	(0.771)	(2.477)	(0.098)	(-1.200)	(0.705)	(1.612)	(1.081)	(-1.165)	(0.478)
Adjusted R^2	0.012	-0.066	0.041	0.088	0.020	-0.033	0.010	0.011	0.071	0.280	0.102	0.107
Obs.	4,222	139	5,092	231	4,882	216	5,033	234	5,126	235	5,047	233

Panel B: Spillover effect from *Post 1-year actual covenant cushion*$_{t-1}$

	Operating income growth		*Sales growth*		*Capital expenditure growth*		*Change in cash holdings*		*Asset growth*		*Change in market-to-book ratio*	
	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Post 1-year	-0.132***	-0.003	-0.050**	-0.067	-0.180*	-0.157	0.130**	0.020	-0.051***	-0.096	0.084**	0.265***
actual covenant cushion$_{t-1}$	(-3.016)	(-0.016)	(-2.209)	(-1.050)	(-2.041)	(-0.598)	(2.321)	(0.159)	(-3.393)	(-1.318)	(2.134)	(2.855)
Book D_{t-1}/A_{t-1}	0.092	0.854**	0.053	0.118	-0.056	-0.917**	0.238**	-0.295	0.042***	0.003	0.059**	0.165
	(1.319)	(2.613)	(1.608)	(1.174)	(-1.210)	(-2.416)	(2.367)	(-0.970)	(2.905)	(0.032)	(2.609)	(1.552)
Market-to-book$_{t-1}$	-0.007	0.008	0.016*	0.019	0.031***	-0.081	0.029	0.050	0.033***	0.050***	-0.003	-0.013
	(-0.365)	(0.148)	(1.814)	(1.033)	(3.362)	(-1.630)	(1.598)	(1.433)	(8.458)	(3.748)	(-0.536)	(-1.053)
Tangibility$_{t-1}$	-0.084	-0.664*	-0.038	-0.085	-0.290***	-0.775*	-0.172**	-0.421	-0.048***	-0.002	-0.005	-0.112
	(-0.625)	(-1.760)	(-0.895)	(-0.828)	(-8.856)	(-1.850)	(-2.479)	(-0.872)	(-3.911)	(-0.026)	(-0.127)	(-1.071)
Profitability$_{t-1}$	1.324	4.474	0.241	0.427	1.011*	1.627	1.914**	0.125	0.559***	0.462	0.165	1.233**
	(1.634)	(1.246)	(0.741)	(1.133)	(2.028)	(1.045)	(2.572)	(0.116)	(5.421)	(1.433)	(0.813)	(2.789)
Size$_{t-1}$	-0.009	-0.041	-0.001	-0.025	0.003	-0.078	0.005	0.013	0.001	-0.006	-0.005*	-0.014
	(-0.829)	(-0.865)	(-0.457)	(-1.253)	(0.534)	(-1.263)	(0.646)	(0.360)	(0.240)	(-0.527)	(-1.926)	(-0.917)
Recession Dummy	-0.085	0.056	-0.077***	-0.051	-0.232***	-0.196	-0.002	0.039	-0.079***	-0.102***	-0.282***	-0.218
	(-1.403)	(0.387)	(-3.219)	(-0.999)	(-6.870)	(-1.321)	(-0.041)	(0.739)	(-8.008)	(-2.963)	(-5.709)	(-1.293)
Intercept	0.042	0.042	0.020	0.124	0.027	0.708***	-0.146***	-0.075	-0.008	0.005	0.003	0.042
	(0.407)	(0.172)	(0.758)	(1.219)	(0.725)	(3.343)	(-3.726)	(-0.691)	(-0.315)	(0.110)	(0.219)	(0.796)
Adjusted R^2	0.017	0.022	0.038	0.015	0.038	0.027	0.014	0.005	0.092	0.157	0.133	0.063
Obs.	4,846	160	5,935	259	5,727	248	5,869	259	5,969	262	5,841	258

Table 10

The Spillover Effect from Technical Default Identified by Actual Covenant Cushion on Incumbent Firms' Operating Performance

In order to use indicator variable to identify technical default by actual covenant cushion, we only include incumbents in the industry with only one LBO borrower in analysis. *D(Post 1-quarter actual covenant cushion$_{t-1}$<0)=1* is the variable that equals to one when LBO borrowers have negative value of *Post 1-quarter actual covenant cushion$_{t-1}$* and *D(Post 1-year actual covenant cushion$_{t-1}$<0)=1* is the variable that takes the value of one when LBO borrowers have negative value of *Post 1-year actual covenant cushion$_{t-1}$*. Panel A of this table reports the estimation results of spillover effect from *D(Post 1-quarter actual covenant cushion$_{t-1}$<0)=1* and Panel B of this table reports the estimation results of spillover effect from *D(Post 1-year actual covenant cushion$_{t-1}$<0)=1*. We have six operating performance measures: *Operating income growth*, *Sales growth*, *Capital expenditure growth*, *Change in cash holdings*, *Asset growth*, and *Change in market-to-book ratio*. See Table 4 for the definitions of the explanatory variables. We treat same loan lenders group and different loan lenders group separately in analysis. Same loan lenders group include firms having the loan lenders who also participate in our 202 LBO loan contracts; different loan lenders group include firms having different lenders. We estimate industry fixed effects model. And, standard errors are clustered by industry. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Spillover effect from *D(Post 1-quarter actual covenant cushion$_{t-1}$<0)=1*

	Operating income growth		*Sales growth*		*Capital expenditure growth*		*Change in cash holdings*		*Asset growth*		*Change in market-to-book ratio*	
	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
D(Post 1-quarter	0.092	0.361**	0.054	0.025	-0.048*	-0.034	0.078	0.018	0.011	-0.011	-0.005	-0.065
actual covenant cushion$_{t-1}$<0)=1	(0.896)	(2.180)	(1.232)	(0.742)	(-1.898)	(-0.201)	(1.274)	(0.085)	(0.860)	(-0.311)	(-0.201)	(-1.248)
Book D_{t-1}/A_{t-1}	0.105**	0.277	0.084***	0.017	-0.117***	-0.286	0.052	-0.101	0.027	-0.062	-0.000	0.337*
	(2.399)	(0.486)	(5.019)	(0.151)	(-3.200)	(-0.773)	(1.089)	(-0.232)	(1.262)	(-1.150)	(-0.008)	(2.066)
Market-to-book$_{t-1}$	0.007	0.003	0.031**	0.035***	0.029	-0.037	0.025	-0.021	0.026***	0.006	-0.011*	-0.029
	(0.721)	(0.093)	(2.331)	(3.622)	(1.668)	(-1.012)	(1.340)	(-0.935)	(7.673)	(0.291)	(-1.815)	(-1.724)
Tangibility$_{t-1}$	-0.080	-0.521*	-0.002	0.166	-0.239**	-0.295	-0.128	-0.043	-0.058*	-0.008	0.031	0.134
	(-0.986)	(-2.060)	(-0.053)	(0.909)	(-2.649)	(-0.526)	(-1.270)	(-0.134)	(-2.062)	(-0.110)	(0.992)	(0.935)
Profitability$_{t-1}$	0.887	2.092	0.661**	-0.168	0.675	1.395	1.292	2.619***	0.937***	0.835***	0.633***	1.429**
	(1.605)	(0.946)	(2.139)	(-0.871)	(1.032)	(1.601)	(1.707)	(2.940)	(4.163)	(3.578)	(3.085)	(2.833)
Size$_{t-1}$	-0.016**	0.078*	-0.008***	0.002	-0.019**	-0.037	0.003	-0.047	-0.003	0.001	-0.002	-0.043
	(-2.496)	(1.827)	(-3.701)	(0.164)	(-2.711)	(-0.735)	(0.314)	(-0.893)	(-1.096)	(0.067)	(-0.681)	(-1.561)
Recession Dummy	-0.080**	0.290***	0.007	0.083***	-0.095***	-0.025	-0.008	-0.085	-0.008*	0.056*	-0.107***	-0.177***
	(-2.396)	(4.934)	(0.509)	(4.615)	(-10.081)	(-0.364)	(-0.354)	(-0.868)	(-1.813)	(1.784)	(-18.210)	(-5.745)
Intercept	0.067	-0.612**	-0.018	-0.076	0.250***	0.256	-0.113**	0.242	0.004	0.029	-0.045	0.056
	(0.973)	(-2.441)	(-0.420)	(-1.053)	(3.601)	(0.714)	(-2.348)	(0.964)	(0.200)	(0.235)	(-1.141)	(0.428)
Adjusted R^2	0.014	-0.031	0.045	0.087	0.020	-0.033	0.011	0.010	0.070	0.275	0.102	0.111
Obs.	4,222	139	5,092	231	4,882	216	5,033	234	5,126	235	5,047	233

Panel B: Spillover effect from *D(Post 1-year actual covenant cushion$_{t-1}$<0)=1*

	Operating income growth		*Sales growth*		*Capital expenditure growth*		*Change in cash holdings*		*Asset growth*		*Change in market-to-book ratio*	
	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders	Same loan lenders	Different loan lenders
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
D(Post 1-year	0.055	0.080	0.020	0.032	0.060	-0.034	-0.059**	0.109	0.020**	0.038	-0.061	-0.191**
actual covenant cushion$_{t-1}$<0)=1	(0.952)	(0.766)	(0.775)	(0.808)	(0.855)	(-0.160)	(-2.575)	(1.026)	(2.087)	(0.987)	(-1.705)	(-2.333)
Book D_{t-1}/A_{t-1}	0.110	0.806**	0.063**	0.116	-0.048	-0.861**	0.234**	-0.369	0.047***	0.016	0.059**	0.133
	(1.670)	(2.376)	(2.096)	(1.165)	(-0.962)	(-2.440)	(2.283)	(-1.326)	(3.163)	(0.167)	(2.486)	(1.234)
Market-to-book$_{t-1}$	-0.008	-0.010	0.018*	0.017	0.033***	-0.099*	0.027	0.047	0.035***	0.056***	-0.004	-0.033***
	(-0.400)	(-0.177)	(1.726)	(0.825)	(3.315)	(-2.002)	(1.397)	(1.171)	(6.914)	(3.588)	(-0.699)	(-3.731)
Tangibility$_{t-1}$	-0.093	-0.681	-0.035	-0.100	-0.281***	-0.855**	-0.177**	-0.422	-0.045***	-0.018	-0.002	-0.127
	(-0.699)	(-1.721)	(-0.764)	(-0.918)	(-8.287)	(-2.153)	(-2.473)	(-0.882)	(-3.326)	(-0.227)	(-0.055)	(-1.258)
Profitability$_{t-1}$	1.428*	5.756	0.223	0.513	0.861	1.753	1.921**	0.345	0.564***	0.463	0.203	1.282**
	(1.815)	(1.499)	(0.659)	(1.308)	(1.673)	(1.146)	(2.426)	(0.358)	(5.199)	(1.444)	(1.024)	(2.690)
Size$_{t-1}$	-0.013	-0.035	-0.002	-0.027	0.003	-0.066	0.006	0.017	0.000	-0.008	-0.004	-0.011
	(-1.332)	(-0.748)	(-0.754)	(-1.366)	(0.430)	(-1.193)	(0.733)	(0.449)	(0.039)	(-0.829)	(-1.642)	(-0.801)
Recession Dummy	-0.112*	0.066	-0.088***	-0.060	-0.238***	-0.205	0.028	0.036	-0.081***	-0.117***	-0.266***	-0.166
	(-1.734)	(0.426)	(-3.509)	(-1.065)	(-6.933)	(-1.669)	(0.597)	(1.033)	(-7.287)	(-2.832)	(-5.066)	(-0.954)
Intercept	0.043	-0.027	0.013	0.125	-0.008	0.691**	-0.129***	-0.109	-0.019	-0.005	0.020	0.137**
	(0.392)	(-0.096)	(0.447)	(1.193)	(-0.159)	(2.826)	(-3.435)	(-1.017)	(-0.662)	(-0.095)	(0.956)	(2.090)
Adjusted R^2	0.017	0.020	0.039	0.010	0.034	0.023	0.013	0.007	0.093	0.153	0.131	0.074
Obs.	4,611	151	5,648	249	5,447	239	5,583	250	5,681	252	5,560	249