Concentration of Control Rights in Leveraged Loan Syndicates*

Mitchell Berlin, Greg Nini, and Edison G. Yu**

First Draft: April 1, 2016

Printed: October 3, 2017

Abstract

Corporate loan contracts frequently concentrate control rights with a subset of lenders. In a large fraction of leveraged loans, which typically include a revolving line of credit and a term loan, the revolving lenders have the exclusive right and ability to monitor and renegotiate the financial covenants in the governing credit agreements. Concentration is more common in loans that include nonbank institutional lenders and in loans originated subsequent to the financial crisis, when recognition of bargaining frictions increased. We conclude that concentrated control rights maintain the benefits of lender monitoring and minimize the costs of renegotiation associated with larger and more diverse lending syndicates.

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* This is a revised version of "Learning and Contract Evolution: The Case of Leveraged Loans." We thank Viral Acharya, Yeejin Jang (discussant), Justin Murfin, Michael Roberts, Richard Rosen (discussant), Anjan Thakor, Greg Udell, and seminar participants from Drexel, the Drexel-Lehigh-Temple-Delaware Research Symposium, the Federal Reserve Bank of Philadelphia, George Mason, and the University of Nebraska for helpful comments and suggestions, although we are solely responsible for any errors. We thank Matthew Accardi and Michael Slonkosky for outstanding research assistance. The views expressed in this paper are our own, and not necessarily those of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.

** Berlin (mitchell.berlin@phil.frb.org) is from the Federal Reserve Bank of Philadelphia; Nini (gpn26@drexel.edu) is from LeBow College of Business, Drexel University; and Yu (edison.yu@phil.frb.org) is from the Federal Reserve Bank of Philadelphia.

One striking development in the $4 trillion syndicated loan market has been the marketing of bank-originated term loans to nonbank intermediaries such as hedge funds, collateralized loan obligations (CLOs), and mutual funds.[1] Another closely related development has been the marketing of so-called "covenant-lite" loans — loans without traditional financial covenants — first during the period of credit expansion in 2005-2007 and more recently as the pace of commercial lending quickened in 2012-2014. Some observers have interpreted covenant-lite loans as a sign of a decline in the role of banks in monitoring and renegotiating contracts.[2] Moreover, the rapid growth of leveraged lending in the recent period has caught the attention of bank regulators concerned about the possibility of declining credit standards, which prompted regulators to impose restrictions on the origination of leveraged loans in 2013.[3]

In this paper, we empirically examine a large sample of loan contracts to understand whether the leveraged loan market has evolved to supplant the role of banks in monitoring and renegotiating loan contracts. More generally, we seek to better understand the economics of lending arrangements with multiple creditors by examining how the presence of nonbank lenders in leveraged loan syndicates has affected the structure of loan contracts.

Specifically, we examine the financial covenants in a large set of credit agreements governing leveraged loans issued during the years 2005 through 2014. The typical structure of a leveraged loan deal includes multiple tranches, most commonly a term loan and a revolving line of credit. The line of credit is predominately funded by commercial banks, and the term loan is often marketed to nonbank investors.[4] Although we do confirm a sharp rise in loan tranches lacking traditional financial covenants, we show that very few loan deals are issued without any financial covenants. Even if the term loan lacks financial covenants, the line of credit nearly always contains traditional financial covenants. Despite the tranches sharing similar cash flow rights, including a senior and secured position in the borrower's capital structure, the revolving lenders are often given the unilat-

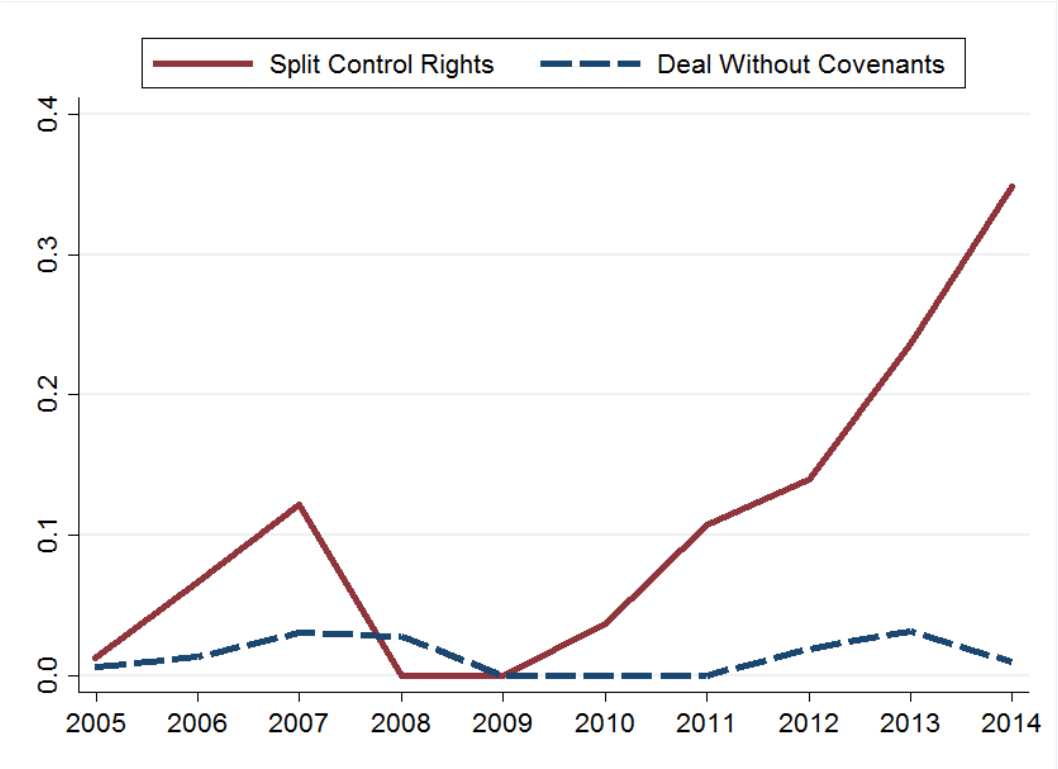
[1] The league tables provided by Thomson Reuters report $4 trillion of syndicated loan issuance during 2016, with about one-half of the total coming from the United States. See http://share.thomsonreuters.com/general/PR/Loan_4Q_2016_E.pdf.

[2] For examples, see Becker and Ivashina (2016) and Billett et al. (2016). We discuss the literature below.

[3] In March 2013, the Office of the Comptroller of the Currency, the Board of Governors of the Federal Reserve System, and the Federal Deposit Insurance Corporation issued "Interagency Guidance on Leveraged Lending," which proposed "sound practices for leveraged finance activities." The original guidance pointed to "the absence of meaningful maintenance covenants in loan agreements" and "the participation of unregulated investors" as factors motivating the new guidelines. See https://www.federalreserve.gov/bankinforeg/srletters/sr1303a1.pdf for details.

[4] Bord and Santos (2012) show that the average share of term loans retained by banks fell by 50% between the 1990s and 2010, but the share of credit lines remained largely unchanged.

Figure 1: Covenant-Lite Tranches and Deals



Note: The figure shows the annual proportion of leveraged loan deals that contain no financial maintenance covenants in any tranche (blue dashed line) and that contain split control rights (red solid line).

eral right to waive or amend the covenants without consulting the term lenders. The consequence of this structure is to concentrate control rights with the revolving lenders, which we refer to as *split control rights*.[5]

Figure 1 highlights the difference between deals with split control rights and deals that lack covenants entirely. Based on a sample of more than 900 leveraged loan deals that we describe in detail below, the figure shows the annual fraction of deals that contain split control rights (red solid line), meaning that the revolving lenders have the unilateral right to waive or amend the financial covenants, and the fraction of deals that contain exclusively covenant-lite tranches (blue dashed line). The incidence of split control rights rose sharply after the financial crisis, from zero in 2009 to about 35% by 2014. However, the incidence of completely covenant-lite deals barely changed in recent years and remained less than 2% across all deals in our sample.

We begin by looking for evidence that split control rights are associated with less monitoring,

[5]In our sample, nearly all leveraged loan deals include a revolving tranche.

but instead we find that borrowers with loans that have split control rights are still subject to the discipline of financial covenants. We examine the realized frequency of covenant violations and find that borrowers with split control rights violate covenants at a rate similar to borrowers with financial covenants on all tranches in the deal. We conclude that split control rights are best interpreted as a concentration of control rights rather than a relaxation of monitoring by lenders, which maintains the benefits of borrower monitoring by giving the revolving lenders sole discretion following a covenant violation, including the decision whether to waive the violation, amend the terms of the agreement, or enforce additional rights granted by the event of default.

We conjecture that split control rights help minimize bargaining frictions within lending syndicates. We hypothesize that the presence of a large set of nonbank institutional investors increases bargaining frictions. Institutional tranches of leveraged loans have a larger and more diverse set of lenders, fewer repeated interactions to foster relationship benefits, and a secondary market that permits lenders to change during the life of the loan. We show that, indeed, the usage of split control rights is concentrated in deals that have a term loan tranche designed for funding by institutional lenders. Across our whole sample, the rate of split control rights is nearly four times as large among deals with an institutional tranche.

Our primary empirical challenge is to establish whether the expected costs of renegotiation, as proxied by the presence of an institutional tranche, have a causal effect on the usage of split control rights. We begin by arguing that the sharp rise in split control rights after 2009 reflects an increase in the recognition of renegotiation costs following the experience of the financial crisis. A 2010 article from *The Secured Lender* highlights the difficulties faced by syndicates that included nonbank lenders:

> *In 2009, the lending industry departed even further from the halcyon days when syndicates of lenders functioned in a unified and cooperative way. In an increasing number of situations, some lenders have found that their most troublesome conflicts were not with their borrower, but with other co-lenders in the facility.*[6]

In response to these challenges, corporate loan contacts evolved to make renegotiation easier. As prima facie evidence, the 2014 version of the Loan Syndications and Trading Association's (LSTA)

[6] Taken from "Ten Assumptions That Secured Lenders Should Not Make in 2010," from the March 10 issue of *The Secured Lender*.

Model Credit Agreement Provisions (MCAP), a model syndicated loan contract reflecting standard market conventions, was updated to include a provision meant to ease renegotiation of the maturity of a loan.[7] We provide evidence that this provision, along with a separate provision to facilitate the renegotiation of the pricing of a loan, was nearly non-existent prior to the financial crisis but is now used in about one-half of the deals. Moreover, the rise is concentrated in deals with an institutional tranche, in line with the description of these provisions in the LSTA's *Complete Credit Agreement Guide*:

> *[B]oth of these provisions permit a borrower to modify maturity, pricing, and other key terms on a portion of its debt without having to seek the unanimous lender consent ...Particularly in a broadly syndicated loan with many disparate lenders, meeting the required consent threshold is difficult at best.*[8]

We then show that the growth in split control rights shown in Figure 1 has occurred exclusively among deals with an institutional tranche, which we attribute to the increased recognition of renegotiation costs. Indeed, split control rights are only significantly related to the presence of an institutional tranche during the 2011-2014 period. We conclude that the experience of the financial crisis accelerated the adoption of split control rights as a way to maintain the traditional benefits of bank lending — monitoring and renegotiation — while accommodating the presence of institutional lenders that provide a substantial portion of the supply of term loans.

We rule out alternative explanations for the correlation between split control rights and the presence of institutional lenders that emerges during the latter period. We find no evidence that the nature of leveraged lending borrowers has changed over time, which suggests that changes in the contract structure are not due to changes in loan demand or borrower composition. We also show that deals with institutional tranches have experienced no changes in other contract terms — interest rate, amount, or maturity — that would suggest alternative supply-side explanations for the rise in split control rights. Finally, we show that the causal interpretation of an institutional tranche on split control rights is robust to a large degree of correlation between omitted factors that could be an alternative explanation for the result.

[7] The 2014 MCAP updated the previous version from 2011. We describe the contractual provisions, known colloquially as "amend and extend," in detail below.

[8] Quote taken from page 645 of Bellucci and McCluskey (2017).

Apart from our substantive findings, our paper makes a methodological contribution by carefully accounting for all of a firm's loans, rather than looking at the term loans in isolation. Our approach adopts the view that lenders and borrowers write term loan contracts with a full understanding of the firm's revolving lines of credit and vice versa. Our analysis is based on the credit agreements that govern a large sample of leveraged loan deals for which we manually read the credit agreements to avoid relying on standard databases for information about covenants. In the Appendix, we show that our data on financial covenants are more accurate than those provided by Dealscan and provide guidance on how to best use Dealscan data related to covenants. Furthermore, reading the loan contracts uncovers a broad set of contract terms that sheds light on the underlying economics of multi-creditor lending.

In the next section, we discuss the existing literature concerning the economic purposes of financial covenants, the emerging literature on covenant-lite loans, and the broader literature on models of multi-creditor lending. Many existing multi-creditor models were conceived prior to the emergence of nonbank institutional investors and are not fully appropriate for the current institutional environment. Section II provides some background on the growth of the leveraged loan market and the contractual provisions that are the main topic of our paper. Section III describes our data and sample construction. In Section IV, we document the frequency of split control rights and show that firms with split control rights are still monitored by covenants. Section V shows that the incidence and growth of split control rights are concentrated in deals with institutional investors and attributes the change to renegotiation costs. Section VI explores some alternative explanations, and Section VII offers some conclusions and directions for further research.

I. Literature Review

Our paper provides evidence supporting models that identify covenants and renegotiation as essential features of bank lending. Following the classic paper by Smith and Warner (1979), a number of theoretical models show that covenants act as ex-ante tripwires that trigger monitoring by the lender, who can then either impose default or renegotiate the terms of the contract.[9] Subsequently, a series of papers have established empirically that covenant violations occur frequently outside

[9]See, for example, Aghion and Bolton (1992), Berlin and Mester (1992), Gorton and Kahn (2000), and Garleanu and Zwiebel (2009).

of serious financial distress and that they typically trigger renegotiation.[10] Furthermore, covenant violations lead to significant ex-post changes in firm behavior, evidence that actual and prospective covenant violations act as a trigger for bank monitoring.[11] Consistent with a large literature that has consistently found positive abnormal stock returns when a firm announces a new bank loan issue, beginning with James (1987), Nini et al. (2012) have documented that bank monitoring through covenants benefits other firm claimants.[12] More generally, Roberts (2015) has shown empirically that renegotiation of bank loans is pervasive quite apart from actual or prospective covenant violation.

The growth of the institutional loan market poses serious challenges for this well-documented model of bank lending, in which monitoring and renegotiation are closely related features of bank lending. We expect a large syndicate composed of institutional investors holding small shares of the loan to have difficulties in coalescing around a common bargaining stance, much less renegotiating loan terms every nine months as documented by Roberts (2015). Consistent with anecdotal accounts from market participants of negotiating frictions during the financial crisis, Demiroglu and James (2015) and Osborn (2014) have found that bankruptcy is more likely for firms with syndicates including nonbank lenders, especially syndicates including CLOs.[13]

Our empirical evidence that institutional loan syndicates have evolved to concentrate control rights has some similarities with other recent research on leveraged lending and covenant-lite loans, but we view the differences as fundamental. Like Becker and Ivashina (2016), we explore the implications of bargaining frictions in loan syndicates with nonbank lenders. In their interpretation, covenant-lite loans mitigate bargaining frictions by reducing the probability of covenant violations and subsequent bargaining by banishing financial maintenance covenants entirely to turn syndicated loans into an instrument more like bonds. In contrast, our evidence supports the view that covenant-lite term loans are best interpreted as a mechanism to concentrate control rights with the revolving lenders. The main difference in our empirical approaches is that we account for all of the borrowing firm's loans, while they consider the term loans in isolation. Inconsistent with their interpretation,

[10] See, for example, Beneish and Press (1995); Dichev and Skinner (2002); Roberts and Sufi (2009); Roberts (2015).
[11] See, for example, Chava and Roberts (2008), Nini et al. (2009), and Roberts and Sufi (2009).
[12] Related, Carey and Gordy (2016) find that the recovery value of nonbank debt claims in bankruptcy increases with the share of bank loans in a firm's debt structure.
[13] Gilson et al. (1990) provide early evidence that the existence of nonbank creditors reduces the likelihood of restructurings outside of bankruptcy.

our evidence shows that covenant violations do not occur less frequently in contracts with split control rights. That is, covenant violations are not less for firms that have a covenant-lite term loan.

Our interpretation and empirical evidence also differ from those of Billett et al. (2016), who view a covenant-lite contract as a mechanism to bypass the agent bank when intra-syndicate conflicts are severe. In their model, covenants are removed entirely to reduce the costs of intra-syndicate conflicts, even if the lack of covenants exacerbates borrower moral hazard. This model is inconsistent with our evidence that firms with a covenant-lite term loan universally have a revolving loan that is governed by covenants, so the agent bank maintains the covenant control rights granted in the revolving loan.

Our findings also shed light on models of multi-creditor lending. Our evidence that institutional loan contracts are designed to mitigate bargaining frictions when there are many creditors is generally inconsistent with the model discussed in Bolton and Scharfstein (1996). In their model, firms with very risky cash flows borrow from multiple creditors to create intra-creditor bargaining frictions to prevent strategic default. Conversely, our results say that, in the leveraged loan market, bargaining frictions are not a positive feature of nonbank lenders but rather a cost to be minimized through contract design. Our empirical results also raise questions for multi-creditor models in which the priority of the bank's claim over other creditor claims is key to promoting efficient monitoring and renegotiation.[14] In the leveraged loan market, we find that contracts are designed to concentrate control rights with the revolving lenders despite the term loan creditors having equal priority with the revolving lenders. In fact, deals with split control rights tend to be concentrated in highly leveraged borrowers and have a very large term loan relative to the revolving loan, which dilutes the expected recovery of the revolving lenders in the event of a bankruptcy filing.

Our empirical results best support the theories of banking in which liquidity provision through lines of credit is the key feature that makes bank lending unique, notably, Kashyap et al. (2002) and Gatev and Strahan (2006). These models emphasize the complementarity between deposit taking and providing lines of credit. Because credit lines create the potential for borrower moral hazard caused by the insurance provided by the fixed interest rate spread, covenants are a natural

[14]These models include Park (2000), Diamond (1993), Rajan and Winton (1995), and Repullo and Suarez (2015).

component of revolving loans.[15] There is a natural complementarity between the two roles of banks, the provision of liquidity and monitoring borrowers, which we confirm empirically remains true in the modern leveraged loan market. Although the growth in the institutional market suggests that nonbank intermediaries are at no disadvantage in supplying term loans, banks continue to specialize in providing liquidity by retaining the line of credit and retaining control rights that permit them to monitor efficiently.

II. Background

A. Leveraged Loan Market

A syndicated loan is characterized by a syndicate of lenders jointly providing funding to a single borrower. A typical deal is arranged by a single or small set of lead lenders who solicit the syndicate members and structures the lending arrangement. After the original financing, a single lender will serve as the agent for the syndicate to help coordinate payments, the flow of information between the borrower and the lenders, and any renegotiation. Each lender, however, retains the authority to vote on any changes to the governing agreement during the life of the loan.

The leveraged loan market refers to syndicated loans made to relatively risky borrowers, much as the junk bond market is the portion of the corporate bond market for relatively risky bond issuers. Although there is no universal definition of a leveraged loan, Loan Pricing Corporation (LPC) defines a leveraged loan as a syndicated loan that is rated BB+ or lower or an unrated loan with an interest-rate spread larger than 150 basis points.[16] We adopt this definition throughout the paper.

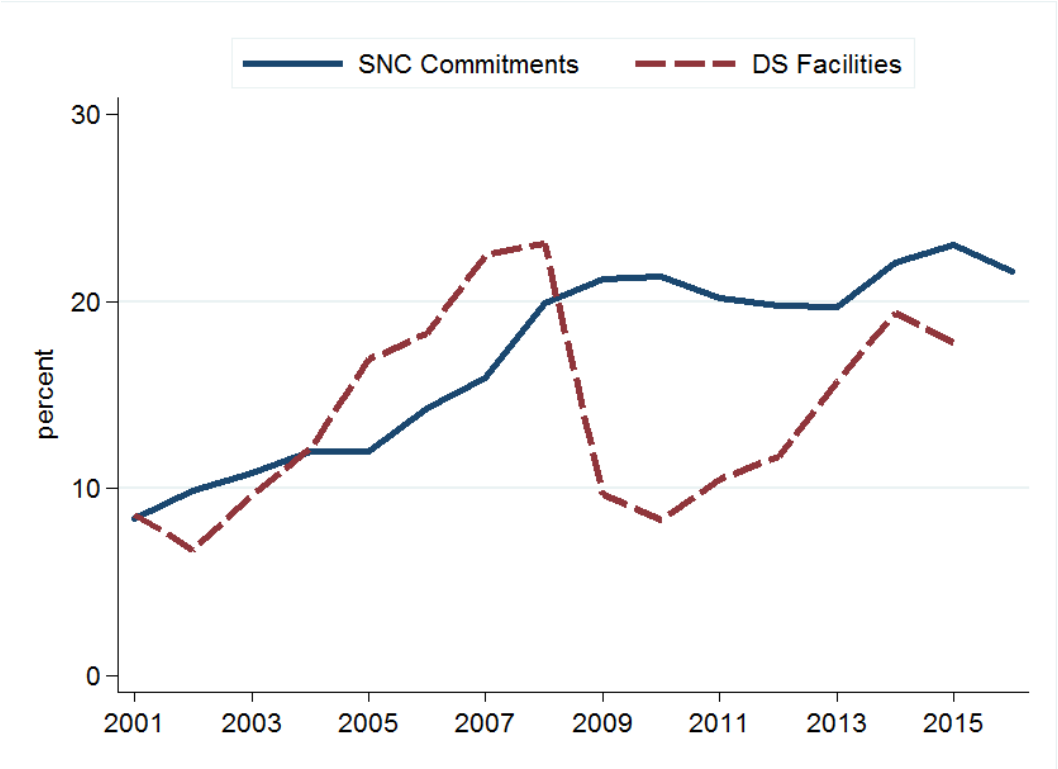
A unique feature of the leveraged loan market since the early 2000s has been the increase in participation of nonbank institutional investors such as CLOs and mutual funds.[17] Figure 2 highlights this trend in two ways. The blue solid line shows that the fraction of syndicated loans held by nonbanks increased from less than 10% in 2001 to nearly 20% by 2008. This series is based on aggregate data from the Shared National Credit (SNC) Program administered by U.S.

[15] See Shockley and Thakor (1997) for a model that highlights the insurance provided by credit lines and Sufi (2009) for empirical evidence that covenants serve to limit access to existing credit lines. Acharya et al. (2014) argue that covenants and credit line revocations are part of the cost of the liquidity insurance provided by credit lines.

[16] This cutoff has been adjusted over time with market conditions.

[17] See Bord and Santos (2012) for evidence on the rise of various nonbank investors in the term loan market.

Figure 2: Institutional Investors in Syndicated Loans



Note: The figure shows the annual share of commitments in the Shared National Credit review provided by nonbanks (blue solid line) and the annual fraction of facilities in Dealscan designated for institutional investors (red dashed line). The SNC data are available at https://www.federalreserve.gov/supervisionreg/snc.htm.

regulatory agencies, so it reflects the experience of large syndicated loans to borrowers of all risk levels. The red dashed line shows that the fraction of newly originated leveraged loan facilities intended for institutional investors increased from less than 10% in 2001 to about 25% by 2008. Although new issuance fell sharply after the financial crisis, the SNC data show that the level of outstanding loans provided by nonbanks has remained constant at around 20% to 25% of total syndicated loans.

In response to the emergence of institutional investors, the arrangers of leveraged loans began to design a tranche of the deal intended specifically for institutional investors. As described in Taylor et al. (2006), an "institutional term loan (term loan B, C, or D) is a term loan facility carved out for nonbank institutional investors." This tranche is different from the so-called "pro rata" tranches that are traditionally funded by banks, which include a revolving credit facility and, possibly, a

"term loan A."[18]

As an example of a typical leveraged loan deal, consider the April 2014 $1.2 billion loan financing the spinoff of Time Inc. from Time Warner Inc. The deal was arranged by Citibank, JP Morgan, Morgan Stanley, and Wells Fargo, which each helped underwrite the deal.[19] The deal included a $500 million revolver with a 5-year maturity and a $700 million institutional term loan with a 7-year maturity. Each tranche offered a floating rate of interest tied to LIBOR; the revolver paid an additional spread of 225 basis points, and the term loan offered a spread of 325 basis points. Each is a senior, secured obligation of the borrower backed by a lien on all of Time's assets. Dealscan identifies the term loan as a tranche intended for institutional investors. For example, we confirm that CLOs owned more than $260 million of the term loan by the end of 2015.[20]

Figure 3 shows the quarterly time series of syndicated loan issuance from 2003 through the end of 2015. Loan issuance fell sharply around the financial crisis and subsequent recession. Leveraged loans, in particular, show two periods of sharp growth, the first from 2004 through 2007 and the second beginning in 2012 and reaching a peak in early 2014. The variation during each of the periods is driven primarily by swings in the institutional portion of the market, which grew faster during the waves and fell further during the crisis. The first wave subsided with the financial crisis, and the second wave prompted a regulatory response from the primary banking regulators. In March 2013, the Federal Reserve, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency issued guidance on leveraged lending in response to "periods of tremendous growth in the volume of leveraged credit and in the participation of unregulated investors."[21] Our analysis sample spans the years 2005 through 2014, but much of the analysis is a comparison of contract terms between the first wave and the second wave.

B. Financial Covenants

We collect the details of the financial covenants from the credit agreements that govern a sample of leveraged syndicated loans, which we describe in Section III.A. Here we provide an overview of

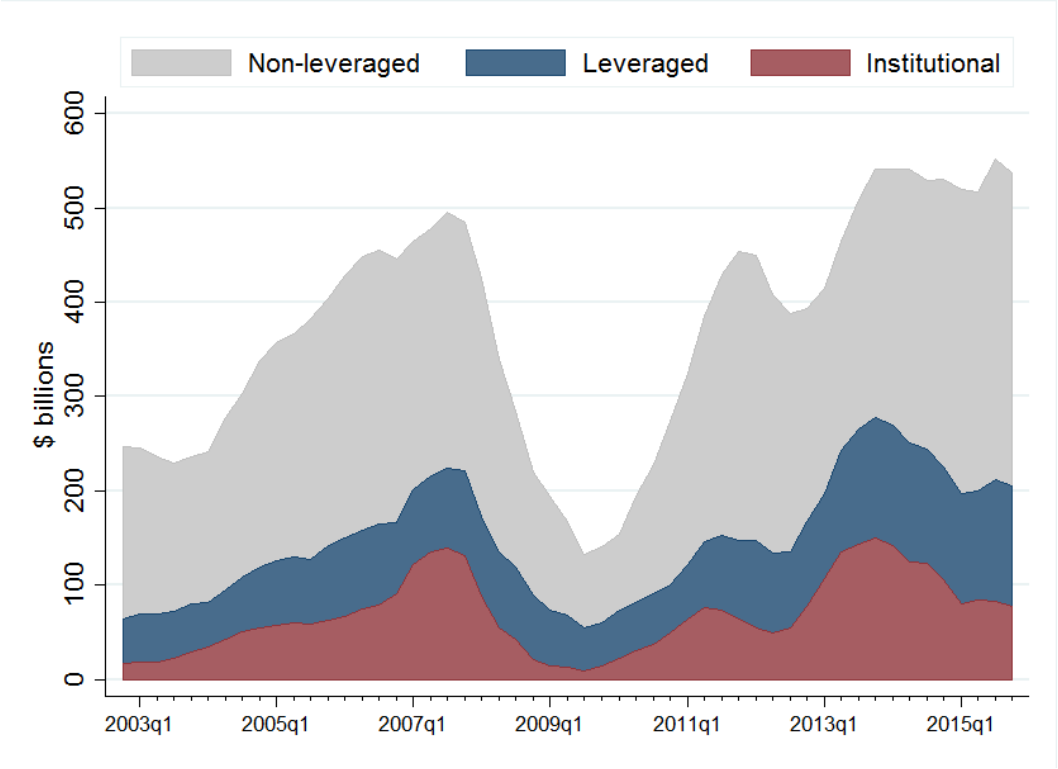
[18] These tranches are referred to as "pro rata" because lenders typically fund the identical proportion of each tranche.

[19] Citibank has served as the administrative agent for the deal.

[20] This is based on data from CLO-i.com. The ownership data are based on reports from October, November, and December 2015. Roughly 100 different CLOs in the sample owned the Time term loan, but no CLO owned any of the revolver.

[21] The guidance is available at https://www.federalreserve.gov/bankinforeg/srletters/sr1303a1.pdf.

Figure 3: Issuance of Syndicated Loans



Note: The figure shows the 4-quarter moving averages of issuance of syndicated loans. The sample is from Dealscan from 2003:Q4 through 2015:Q4.

the covenants we collect from the contracts.

Covenants generally come in three forms: affirmative covenants, negative covenants, and financial covenants. Affirmative covenants refer to the set of activities that the borrower must make, such as paying taxes or complying with laws. Negative covenants specify actions that the borrower cannot take, such as disposal of assets or granting liens on existing assets. Financial covenants refer to accounting-based conditions that test the borrower's financial position or recent performance. In each case, failure to comply with a covenant, including a financial covenant, leads to an event of default, which provides the lenders with additional legal rights, including the right to call the loan.[22]

Financial covenants can be one of two types, depending on when the firm needs to be in compliance with the test. *Incurrence covenants* are only triggered if some contractually specified event actually occurs. For example, a widely used incurrence covenant limits the leverage ratio of the borrower in the event that the borrower issues additional new debt above some level. Absent the occurrence of a triggering event, the incurrence-based financial covenants do not apply. *Maintenance covenants*, on the other hand, require that the borrower needs to maintain compliance at periodic intervals over the life of the loan, regardless of whether any events occur. Financial maintenance covenants are typically monitored quarterly, but the monitoring frequency is determined by the contracting parties.[23]

We collect data on maintenance financial covenants because the monitoring and renegotiation triggered by maintenance covenants distinguish bank loans from other types of debt, which typically have incurrence covenants. Indeed, our reading suggests that loan tranches without maintenance covenants do have incurrence covenants, but we leave the study of incurrence covenants to future research.

Financial covenants can refer to almost any item on a firm's balance sheet or income statement, but a few standard covenants appear in many contracts. The most common covenants are tied to an agreed-upon definition of the borrower's cash flow available for debt service, typically defined as earnings before the deduction of interest, taxes, depreciation, and amortization (EBITDA).[24]

[22] See Wight et al. (2009) for additional discussion of loan covenants and the rights granted in the event of a default.

[23] In some cases, the monitoring of the maintenance covenants depends on the utilization of the borrower's line of credit, so-called "springing covenants." We treat these as maintenance covenants.

[24] In many cases, the definition of EBITDA for the purpose of loan covenants is different than the GAAP definition.

Other types of financial maintenance covenants are based on net worth, asset coverage, and various liquidity measures.

C. Split Control Rights

As we discovered in the process of reading credit agreements, the provisions of a loan contract can be different for separate tranches in the same deal. In particular, the financial covenants in a deal may apply to only a subset of the tranches in a deal. We refer to these cases as *split control rights*, since the arrangement means that the financial covenant can be waived or modified by only a subset of the syndicate lenders. In the event of a covenant violation, these lenders have the unilateral right to negotiate with the borrower about how to cure the default.

Split control rights can be accomplished through two means. First, the deal can be governed by multiple credit agreements that have different financial covenants. For example, a firm with a pre-existing line of credit may issue a new term loan that does not have any financial maintenance covenants. If the revolving loan contains financial maintenance covenants, then the revolving lenders are still protected by the existing covenants and the associated contingent control rights. Roughly one-third of deals with split control rights are accomplished through multiple contracts.

Second, a single credit agreement that contains financial maintenance covenants can give the lenders in a specific tranche the unilateral right to decide whether to waive or modify the financial covenant. In the credit agreement governing the Time loan described above, the borrower is bound by a maximum senior leverage ratio financial covenant, which prohibits the borrower from having a "Consolidated Secured Net Leverage Ratio as of the last day of any Test Period to be higher than 2.75 to 1.00."[25] However, the next paragraph in the credit agreement states:

> *The provisions of this Section 7.08 are for the benefit of the Revolving Credit Lenders only and the Required Class Lenders for the Revolving Credit Facility may amend, waive or otherwise modify this Section 7.08 or the defined terms used for purposes of this Section 7.08 (but solely for such purposes) or waive any Default resulting from a breach of this Section 7.08 without the consent of any Lenders other than such Required Class Lenders in accordance with the provisions of clause (iv) of the second proviso of Section*

[25] The complete credit agreement is available in Time Inc.'s Form 10-12B filed with the SEC on May 8, 2014 and available in EDGAR.

10.01(a).

The contract makes clear that the borrower will renegotiate exclusively with the revolving lenders regarding the financial covenant.[26] In the Online Appendix, we provide an additional example of split control rights accomplished within a single credit agreement. Roughly two-thirds of deals with split control rights are accomplished within a single contract.

In some cases, we find that the types of covenants or the level of specific covenant is different across the tranches in a deal, which happens when the tranches are governed by separate credit agreements. For example, the revolving loan may contain a fixed charge coverage ratio, and the term loan may contain a maximum leverage covenant.[27] Since control is allocated differently for different covenants, we choose not to define these deals as having split control rights.[28]

For our sample contracts, we collect data on the existence of any financial maintenance covenant and the tranches excluded from control, if any, through split control rights. In our sample of deals with split control rights, we did not find a single case in which the revolving lenders were excluded from covenant-related decisions.[29] In the subsequent analysis, reference to split control rights should be interpreted as a provision that excludes a term loan tranche from the control provided by covenants.

III. Loan Issuance Data

This section describes the sample of loan deals that we construct, with some additional details provided in the Appendix. The ultimate goal is to generate a sample of loan financing events along with data on the contract choices settled on by the borrower and lenders.

[26] In cases in which split control rights are accomplished within a single agreement, the agreement typically modifies the definition of "required lenders," which is the number of lenders required to modify terms in the contract. Required lenders are often defined as any set of lenders holding greater than 50% of the sum of outstanding loans and unused credit commitments. In a credit agreement covering multiple tranches without split control rights, the required lenders would include lenders from all of the tranches. In a credit agreement with split control rights, only a majority of the lenders from a specific tranche are required to waive or modify a default on the financial covenants.

[27] In about 2% of deals, we find that the tranches have the same covenant set at different levels. In each of these cases, the covenant is tighter for the revolving loan.

[28] All of our results are qualitatively similar and tend to be quantitatively stronger if we define these deals as having split control rights.

[29] Some deals include more than two tranches, typically a revolver and multiple term loan tranches. In some of these cases, the term loan A retains control rights, and the term loan B is excluded.

A. Loan Contract Sample

We begin by constructing a sample of loan "deals" using LPC's Dealscan database, in which we define a deal as the set of loan facilities that are current on the same day to the same borrower.[30] We use the concept of a deal under the assumption that the contracts governing these facilities are designed with mutual awareness. We examine only deals that contain at least one term loan facility and at least one facility considered a leveraged loan, as defined in Dealscan.

Our sample spans from 2005 through 2014. Because we hand-collect data from the underlying credit agreements, we limit the span of the sample to minimize data collection. However, as shown in Figure 3, issuance of institutional loans was relatively high at the beginning and end of this period.

After imposing some restrictions (described in the Appendix) to construct a sample of fairly homogeneous loans and firms, we are left with nearly 8,700 leveraged loan deals. For this sample, we attempt to collect the credit agreement that governs each of the facilities in the deal. We focus on borrowers that were likely public at the time of the loan, since SEC filings are the ultimate source of the loan contracts.[31] In total, we find contracts for 966 of the deals.

Since we have a credit agreement for about 11% of the full deal sample, Table I provides some summary statistics to assess the representativeness of our sample credit agreements based exclusively on data from Dealscan. Column (1) provides sample means for the set of deals for which we have a contract, and column (2) provides sample means for all other deals. Based on the sample means, the deals with a contract are significantly larger and less risky, based on the differences in loan amounts and interest rate spreads. The most notable difference, however, is that deals without a contract are significantly less likely to have a borrower with data in Compustat.[32] Nearly 90% of deals without a contract are for borrowers that were likely private at the time of the loan. Based on this evidence, we conclude that the predominant reason that we fail to find a loan contract is that the borrower is not a public firm, so the agreement is not publicly available.

Column (3) of Table I provides sample means for the set of deals without a contract but for

[30] In terms of fields in Dealscan, we identify a deal using facilityStartDate and borrowerCompanyID. A deal does not correspond perfectly to a loan package, since a borrower can have multiple packages beginning on the same date.

[31] We define a likely public firm as one that we can merge with data from Compustat from the year-end immediately prior or immediately subsequent to the loan issue date.

[32] Thank you to Michael Roberts for providing the gvkey link data used in Chava and Roberts (2008).

Table I: Comparison of Deals With and Without a Contract

	Deals with a Contract (N = 966)	Deals Without a Contract (N = 7,729)	Deals Without a Contract, Public Firm (N = 954)
	(1)	(2)	(3)
Number of Term Loan Tranches	1.3	1.4	1.3
Spread on Term Loan (bps)	322	402	332
Spread on Revolver (bps)	270	349	280
Maturity of Term Loan (months)	66	63	63
Maturity of Revolver (months)	55	54	50
Amount of Term Loan ($ millions)	379	213	437
Amount of Revolver ($ millions)	226	98	287
Covenant-lite Term Loan (%)	11	9	7
Covenant-lite Revolver (%)	4	3	2
Institutional Term Loan (%)	61	56	66
Institutional Revolver (%)	0	1	0
Borrower in Compustat (%)	100	12	100

Note: This table reports summary statistics for the full set of leveraged loan deals. A loan deal refers to all facilities issued on the same date. A "Deal with a Contract" is one for which we have the governing loan agreement; a "Deal Without a Contract" is all other issues. A "Deal Without a Contract, Public Firm" is the subset of deals for which we find a Compustat observation from the year-end before or following issuance. The data are from Dealscan.

which the firm has Compustat data. Within the set of firms with Compustat data, we have a contract for about one-half of deals. Moreover, the means for loan spreads and loan amounts are quite close in columns (1) and (3), suggesting that the set of loans for which we have a contract is fairly representative of the set of loans to public borrowers. Finally, according to Dealscan's measure of whether a loan is covenant-lite, our sample of deals with contracts has a similar fraction of covenant-lite term loans and revolvers as does the sample of firms without contracts. We conclude that our results concerning the prevalence of financial covenants are not driven by the fact that we only observe contracts for a subset of firms.

B. Contract Data

In 15% of the deals for which we find a corresponding contract, the contract governs only a term loan. For these deals, we search for a previously issued revolving credit agreement that is still outstanding at the time of the new term loan. In two-thirds of these cases, we find a previously

issued credit agreement and code the contract as if it was issued on the same day.[33] For the remaining 5% of deals, we cannot find a revolving loan contract and believe that many of these are for firms that truly do not have a line of credit.[34] We exclude these from our analysis, including in column (1) of Table I. Based on the covenant-lite indicator in Dealscan, fewer than 5% of these term loan-only deals are covenant-lite, which is less than one-half of the rate for deals that include a revolver. Based on the small fraction of deals without a revolver and the small fraction of term loan-only deals that are covenant-lite, including these deals would not change the conclusion from Figure 1 that there are very few leveraged loan borrowers that completely lack financial covenants.

For each of the leveraged loan deals for which we have a contract, we manually read all of the contracts related to the deal, including any previously issued revolving loans, if needed. The final output is two unique pieces of data for each deal: (1) an indicator that the deal contains zero financial maintenance covenants, and (2) an indicator that the deal has split control rights.

The advantage of the hand-collected data is that we have more accurate data than are available in Dealscan. In the Appendix, we compare our hand-collected data with what could be constructed from Dealscan and show that Dealscan often fails to identify deals that truly do have split control rights. We also show how our empirical results could best be replicated using data exclusively from Dealscan.

C. Additional Data

We use Dealscan to provide some additional data about the facilities covered in each loan deal. Dealscan provides information on the amount, maturity, and pricing of the individual tranches. Almost all of the loans have a floating interest rate tied to LIBOR, and Dealscan provides information on the spread over LIBOR that the borrower must pay. We collect this information for all term loan tranches and all revolving tranches separately. Dealscan also provides information on whether the term loan is marketed to institutional investors.[35] Although the Dealscan definition surely does not capture perfectly which lenders are funding a tranche, it does indicate that a tranche is

[33] For the revolvers issued before the term loans, we also searched for intervening changes to the revolvers in Capital IQ to make sure that we have the most up-to-date information about the revolver contract.

[34] The small fraction of deals without a line of credit should not be surprising. Sufi (2009) finds that roughly 85% of public firms have a line of credit and that this fraction is even higher for firms that have debt outstanding, as all firms in our sample do.

[35] We use the market segment data to identify institutional tranches.

more likely to be funded by institutional investors. Moreover, we think the intended investor is the important distinction, since the contract will be tailored with the intended investor in mind.

In Section V, we explore the ownership of CLOs as an example of nonbank participation in our sample deals, using data provided by CLO-i.[36] CLO-i is a product of Creditflux that provides data on CLOs based on the trustee reports provided by CLOs to their investors. The trustee reports include data on the portfolio of loans owned by the CLO. We collect the holdings of each loan in our sample as of the most recent year-end period following the origination of the loan that is also at least 6 months after origination.[37] Using these data, we have information on whether the loan appears in any CLO portfolio, the number of CLOs that own the loan, and the total holdings of the CLO universe. These data are only available for loans issued since 2011.

We also merge our sample of borrowers to Compustat and Capital IQ. Using Compustat and Capital IQ, we collect data on the balance sheets, income statements, and debt structures for the borrowers shortly before and after the loan was issued.

IV. The Rise in the Split Control Rights

We begin by documenting the concentration of control rights through the presence of split control rights. Table II presents the annual time series of the frequency of loans with no maintenance covenants and with split control rights.[38] Column (1) shows that nearly every deal contains at least one maintenance covenant, meaning that most borrowers must be in regular compliance with some financial covenant. Across the entire sample, the frequency of deals with no maintenance covenants is only 2% and has not risen in recent years. Column (2) shows, however, that the frequency of split control rights has risen sharply in recent years. Across the 10-year sample, 14% of deals have split control rights, but the incidence was more than twice that rate during 2013 and 2014. By the end of the sample, more than one-third of leveraged loan deals have split control rights.

[36] Dealscan has limited data on the participants in the syndicate at loan origination and no data on trades in the secondary market, so we do not rely on Dealscan lender data to measure the syndicate structure.

[37] We require the year-end period to be 6 months following origination to allow the loan some time to settle into CLO portfolios.

[38] These data are shown in Figure 1.

Table II: Concentration of Control Rights

Year	Number of Issues	No Maintenance Covenant (1)	Split Control Rights (2)
2005	168	1%	1%
2006	150	1%	7%
2007	131	3%	12%
2008	36	3%	0%
2009	31	0%	0%
2010	54	0%	4%
2011	56	0%	11%
2012	107	2%	14%
2013	127	3%	24%
2014	106	1%	35%
Total	966	2%	12%

Note: This table reports the annual frequency of deals with no maintenance covenants and deals with split control rights in the sample of leveraged loan deals that include both a term loan and a revolver. Column (1) reports the fraction of deals with no maintenance covenant in any tranche in the deal, and column (2) reports the frequency deals with split control rights, meaning that the revolving lenders have the unilateral right to waive or amend a covenant. The data were compiled by the authors from the credit agreements governing the loans.

A. Are Loans with Split Control Rights Still Monitored?

To bolster our interpretation that split control rights serve to concentrate control rights rather than reduce creditor monitoring, we next examine the disclosures that firms make regarding loan covenants, including the disclosure that the borrower has violated a financial covenant. We use disclosures in 10-K filings following the issuance of the loan and use the experience of borrowers without split control rights to determine whether borrowers with loans that have split control rights seem less constrained by covenants.[39]

For each deal in our sample, we find in EDGAR the second 10-K filing following the loan origination date and borrow the methodology from Nini et al. (2012) to identify each instance a firm mentions a covenant and each reported violation.[40] Across the sample, we find a 10-K filing for about 90% of our sample; the mean number of covenant mentions is 3.5 per filing, and about 8% of the firms report a covenant violation.[41]

Table III reports an estimate of the correlation between split control rights and realized covenant-related disclosures, based on OLS regressions. Columns (1) and (2) report the results for covenant violations, and columns (3) and (4) report the results for covenant mentions. Specifications (2) and (4) include a full set of fixed effects for the combination of industry and quarter of issuance and for the combination of credit rating and quarter of issuance.[42] We include these fixed effects to account for variation in the propensity to violate a covenant because borrower risk and general economic conditions. The estimates in columns (1) and (2) show that there is no significant relationship between split control rights and the subsequent realized frequency of covenant violations. The point estimates are close to zero, and the estimated confidence intervals comfortably surround zero.

In our sample, more than 6% of the firms with split control rights report a covenant violation

[39] We exclude firms with loans that have no maintenance covenants from this analysis.

[40] We use the second 10-K for two reasons. First, firms are unlikely to violate a covenant immediately following the origination of the loan. Second, 10-K filings often discuss matters related to the entire fiscal year, so any covenant-related discussion in the first 10-K filing immediately following origination might refer to a prior loan agreement. Within each 10-K, we automatically search the filing for the word "covenant" within 100 words of the following phrases: "waiv," "viol," "in default," "modif," and "not in compliance." The requirement that "covenant" be located near the additional terms reduces the number of hits that are unrelated to covenants in loan agreements. Based on the discovered mentions of a covenant, we manually read the relevant passages to confirm whether or not the firm violated a covenant. We record the number of mentions of the phrase "covenant" along with an indicator that the firm violated a covenant.

[41] We lose 10% of the sample because the borrower stops filing with the SEC.

[42] The number of observations reported in the table excludes all singletons within a fixed effect group.

in the second year after issuing the loan. For instance, consider the experience of Southcross Energy Partners, which entered into a $650 million leveraged loan on August 4, 2014. The deal was backed by two credit agreements, one for a $200 million revolving loan and a separate agreement for a $450 million term loan. Although the term loan contract contained no financial maintenance covenants, the revolving agreement included a leverage, senior leverage, and interest coverage covenant. Roughly nine months following issuance, Southcross entered into an amendment of the revolving credit facility to relax the strictness of the covenants, and in its 10-Q filing for the period ending June 30, 2015, Southcross writes, "As of June 30, 2015, we determined that we will not be in compliance with the consolidated total leverage ratio for our financial covenants" and describes some of the actions taken in preparation for a violation.[43] Despite the lack of maintenance covenants in the term loan, Southcross was still subject to the scrutiny of covenants and forced to renegotiate with the revolving lenders under the threat of default.

The Southcross anecdote and columns (1) and (2) of Table III show that having split control rights does not mean that firms are free from the monitoring of revolving creditors. Nevertheless, covenant violations are infrequent, so it may be difficult to detect a significant difference in a relatively small sample. To support our inference, columns (3) and (4) report the relationship between split control rights and the number of covenant mentions. Based on the estimates, firms with split control rights do not appear to discuss covenants any less often than other firms; the point estimates, relative to an unconditional mean of 3.5, are very close to zero. This is unsurprising because firms with split control rights still face covenants in their lines of credit, which generates the need for firms to disclose information related to these covenants. As an example of the types of disclosures related to covenants, US Ecology, Inc. disclosed in its 2015 10-K that its credit agreement included a financial maintenance covenant despite the presence of split control rights, writing, "The Credit Agreement also contains a financial maintenance covenant, which is a maximum Consolidated Senior Secured Leverage Ratio, as defined in the Credit Agreement, and is only applicable to the Revolving Credit Facility."[44]

Based on this evidence, we conclude that the primary purpose of split control rights is to allow revolving lenders to set and renegotiate financial covenants independently of the term loan lenders,

[43] Southcross Energy Partners, L.P.'s 10-Q, filed on August 7, 2015, is available in EDGAR. Southcross subsequently filed for Chapter 11 bankruptcy protection on March 28, 2016.

[44] The 10-K was filed on February 29, 2016, and is available in EDGAR.

Table III: Realized Covenant-Related Disclosures

	Covenant Violations		Covenant Mentions	
	(1)	(2)	(3)	(4)
Split Control Rights	-0.020	0.035	0.047	0.227
	(-0.78)	(0.610)	(0.130)	(0.320)
Industry x Quarter FE	No	Yes	No	Yes
Rating x Quarter FE	No	Yes	No	Yes
N	858	565	858	565
r2	0.001	0.455	0.000	0.493

Note: This table displays coefficient estimates from OLS regressions of covenant-related disclosures on an indicator that the prior loan deal has split control rights. "Covenant Violations" is an indicator that the firm violated a financial covenant, and "Covenant Mentions" is the frequency that the word "covenant" appears in the filing. "Industry x Quarter FE" refers to fixed effects for the industry of the borrower interacted with the calendar quarter the deal was originated, and "Rating x Quarter FE" refers to fixed effects for the credit rating of the borrower interacted with the calendar quarter the deal was originated. Standard errors are clustered by calendar quarter and robust to arbitrary heteroskedasticity.
Absolute t statistics are in parentheses.
* p< 0.10, ** p< 0.05, *** p< 0.01

which serves to concentrate control rights with revolving lenders.

V. Split Control Rights and Renegotiation Costs

In this section, we examine the role of renegotiation costs in the design of a loan to have split control rights. We hypothesize that the presence of an institutional tranche creates the scope for renegotiation difficulties, which split control rights can mitigate by concentrating the ability to renegotiate with revolving lenders. Moreover, we hypothesize that the recognition of renegotiation costs increased following the financial crisis, which explains the growth in split control rights documented in Table II. After showing independent support for this hypothesis, we use the combination of the presence of an institutional tranche after the financial crisis to identify the impact of expected renegotiation costs on split control rights.

A. Institutional Deals

As shown in Table I, a significant fraction of leveraged loan deals contain an institutional term loan tranche. Although this designation is an imperfect proxy for the number and diversity of the lending

Table IV: Institutional Deals and CLO Investors

	Deals with Institutional Tranche		Deals Without Institutional Tranche		p-Value
	N	Mean	N	Mean	for Difference
	(1)	(2)	(3)	(4)	(5)
Some CLO Holding (%)	219	64	177	25	0%
25 CLOs Holding (%)	219	54	177	9	0%
Number of CLOs Holding	140	160	44	48	0%
Average CLO Holdings ($ millions)	140	2.27	44	3.00	25%
CLO Share of Deal (%)	140	48	44	46	44%

Note: This table reports summary statistics for CLO holdings for the set of leveraged loan deals with a loan contract, split on whether the deal contains an institutional tranche. The data are compiled from CLO-i for the 2011-2014 sample.

syndicate, it remains a useful measure for expected bargaining difficulties at the time the loan is originated. Indeed, Demiroglu and James (2015) and Osborn (2014) show that the presence of a CLO increases the likelihood that a distressed firm will enter Chapter 11 rather than restructure outside of bankruptcy. The institutional tranche is designed to appeal to institutional investors, with the expectation that the tranche will be widely held and traded in a secondary market. This expectation drives the structure of the credit agreement at the time the loan is originated.

To provide some evidence for one type of institutional investor, Table IV shows that deals with an institutional tranche are much more likely to be widely held in portfolios of CLOs. Based on the sample of deals issued since 2011, nearly two-thirds of institutional deals are held by at least one CLO, and more than one-half are held by at least 25 CLOs; the comparable numbers for non-institutional deals are 25% and 9%. Conditional on a CLO owning the loan, the average number of CLOs is more than 3 times as large for institutional deals, with the average syndicate composed of more than 150 CLOs. On average, a single CLO owns $2 million to $3 million of a loan, and CLOs collectively own a bit less than one-half of the entire deal. To the extent that lenders and borrowers expect renegotiation difficulties to increase with the presence and/or number of CLO investors, the comparison of deal terms across these groups should provide a good sense of how contracts respond to renegotiation costs.

Deals with an institutional tranche may also differ along dimensions unrelated to renegotiation costs, so Table V provides some evidence on how borrowers differ across the groups.[45] On average, deals with an institutional tranche are used by borrowers that are much larger and have higher

[45]The number of observations in Table V falls slightly from Table II because we require Compustat data from the year after the issuance of the loan.

Table V: Comparison of Deals with and without an Institutional Tranche

	Deals with Institutional Tranche		Deals without Institutional Tranche		p-Value
	N	Mean	N	Mean	for Difference
	(1)	(2)	(3)	(4)	(5)
Borrower Assets ($ millions)	587	3595	375	1266	0%
Borrower OIBDP / Assets	586	0.12	375	0.11	38%
Borrower Debt / Assets	585	0.52	375	0.35	0%
Borrower Debt / OIBDP	585	5.07	375	3.94	0%
Sr. Secured Debt / Assets	564	0.55	369	0.44	0%
Sr. Secured Term Loan / Assets	564	0.41	369	0.21	0%
Sr. Secured Revolver / Assets	564	0.10	369	0.20	0%
Borrower Rated BB+/BB	587	0.12	375	0.09	4%
Borrower Rated BB-/B+	587	0.40	375	0.10	0%
Borrower Rated B/B-/CCC	587	0.22	375	0.06	0%
Borrower Unrated	587	0.26	375	0.75	0%

Note: This table reports summary statistics for set of leveraged loan deals with a loan contract, split on whether the deal contains an institutional tranche. The data are compiled from Compustat as of the fiscal year following the loan issuance. OIBDP stands for operating income before depreciation.

leverage, particularly term loan debt. The average institutional borrower is about 2.8 times larger, measured by total assets, and has nearly twice as much term loan debt, relative to total assets. The borrowers with an institutional tranche are also significantly more likely to have a credit rating, and conditional on having a credit rating, institutional borrowers are more likely to have a low credit rating (B/B-/CCC) rather than a higher speculative-grade rating (BB+/BB). There is no significant difference in profitability across the groups, as measured by operating income (OIBDP). The evidence suggests that institutional deals are used more heavily by larger and more highly leveraged borrowers who have access to the bond market by virtue of having a credit rating. To the extent that these factors may also explain the usage of split control rights, we control for these factors in subsequent regressions.

B. The Impact of the Financial Crisis on Loan Contracts

A striking pattern in Table II is the rise in split control rights in the years following the financial crisis. We conjecture that this change reflects an increased awareness of bargaining difficulties due to the experience during the crisis, as documented in the anecdote from *The Secured Lender* in the Introduction. Not surprisingly, loan arrangers and borrowers responded by crafting contracts to avoid similar problems arising in the future. In a discussion of the 2014 MCAP produced by the LSTA, which addressed several changes in contracts arising from the financial crisis, one ob-

server said, "During the financial crisis, borrowers not surprisingly encountered difficulty achieving unanimous consent from lenders that would modify provisions."[46]

We hypothesize that the changes in contracts following the crisis have been more pronounced in deals with an institutional tranche, since these are the deals where easing renegotiation costs is most beneficial. To test our hypothesis, we collect data on two additional contract provisions that facilitate renegotiation, each of which became quite common following the financial crisis. We then show that the growth in these provisions has been concentrated in deals with an institutional tranche, which provides evidence that these deals have become viewed as particularly prone to renegotiation difficulties. For each of the loan contracts in our sample, we determine if the term loan is subject to the following two provisions:

1. **Amend and Extend**. An amend and extend provision allows a borrower to extend the maturity of a portion of a loan without having to obtain the consent of all lenders at the time of the extension. A standard loan agreement requires unanimous consent from all lenders to change the maturity date of the loan. However, with an amend and extend provision, a subset of lenders is permitted to extend the maturity of their own portion of the loan without requiring the consent of non-extending lenders. Without this provision, even a small minority of lenders can stop a firm from extending the maturity of any portion of the loan. This provision would allow just a portion of institutional lenders to extend the maturity of the institutional tranche. In the Online Appendix, we provide an example of the specific language in an amend and extend provision.

2. **Refinancing Facility**. A refinancing provision permits the borrower to add a new loan tranche using an existing credit agreement, provided that the proceeds are used to refinance a portion of the existing loan. Most syndicated loans allow the borrower to prepay a loan with little or no penalty, but a credit agreement without a refinancing facility requires that any prepayments must be made on a pro-rata basis to all existing lenders. A refinancing provision permits a borrower to refinance with a subset of lenders, usually to obtain a lower interest rate. The Online Appendix contains an example of a credit agreement that permits a refinancing facility.

[46] Quote taken from Goodstein (2014).

Each of these provisions reduces the hurdle for renegotiating a loan. The amend and extend provision, in particular, has been included in loan agreements as a direct response to the experience of the financial crisis. Bellucci and McCluskey (2017) describe the evolution as,

> *Following the occurrence of the financial crisis, borrowers faced uncertain and illiquid loan market conditions... As a refinancing alternative, borrowers sought to extend the maturities of their existing loans... If the amendment provisions of the applicable credit agreement required a unanimous rather than required lender vote, as a practical matter an amend and extend transaction would likely not be possible... Over time, new credit agreements started to include mechanics that are referred to as amend and extend transactions that permit the required amendments to be effected with the consent of only the extending lenders...*[47]

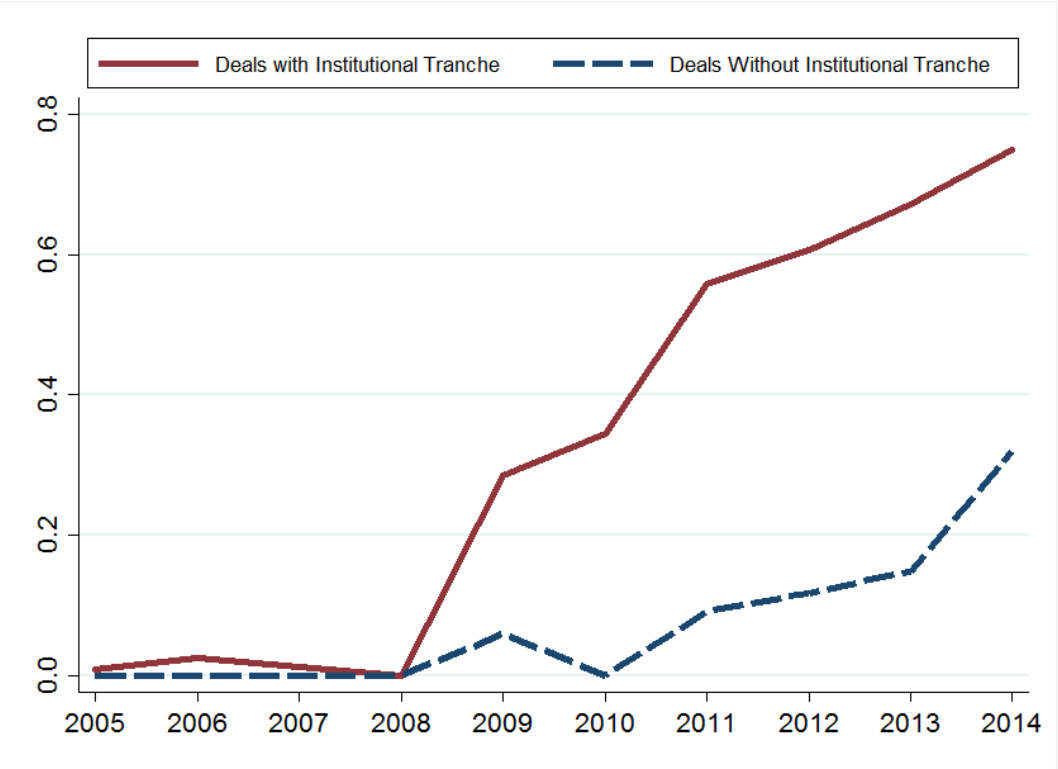
We examine the pattern of these provisions to provide an indication of when, and for which loans, market participants designed contracts to facilitate renegotiation. Since the provisions are quite similar, we create a single indicator that a deal either has an amend and extend provision or permits a refinancing facility.[48] Figure 4 plots the annual frequency of deals that have an amend and extend provision or a refinancing facility option. The solid red line plots the annual frequency for deals that have an institutional tranche, and the dashed blue line plots the annual frequency for deals without an institutional tranche. These provisions were extremely rare prior to the financial crisis in 2008; we find only a handful of contracts that permit an amend and extend provision. Since the crisis, however, the frequency of these provisions has risen steadily over time, particularly for deals with an institutional tranche. Although deals without an institutional tranche sometimes include these provisions, the rate of inclusion has been about twice as large for institutional deals. We conclude from this evidence that the recognition of renegotiation costs increased following the financial crisis more for institutional deals than other deals.

As an initial piece of evidence that renegotiation costs are an important factor determining split control rights, we note that the correlation between an amend and extend or refinancing provision and split control rights is quite high. During the four-year period at the end of our sample (2011-2014), the frequency of an amend and extend or refinancing provision is 44%. However, for deals

[47] Quote taken from pages 63 and 64 of Bellucci and McCluskey (2017).

[48] Indeed, we find that the provisions are frequently used in the same agreement.

Figure 4: Institutional Investors and Alternative Contract Provisions



Note: The figure shows the annual proportion of leveraged loan deals that contain an amend and extend or refinancing provision. The red solid line is for deals with an institutional tranche, and the blue dashed line is for deals without an institutional tranche.

that contain split control rights, the frequency increases to 74%. Similarly, the frequency of split control rights is only 11% for deals without an amend and extend or refinancing provision but 40% for deals with such a provision. These provisions are strongly positively correlated, which we take as evidence that they are addressing the same underlying friction.

C. Renegotiation Costs and Split Control Rights

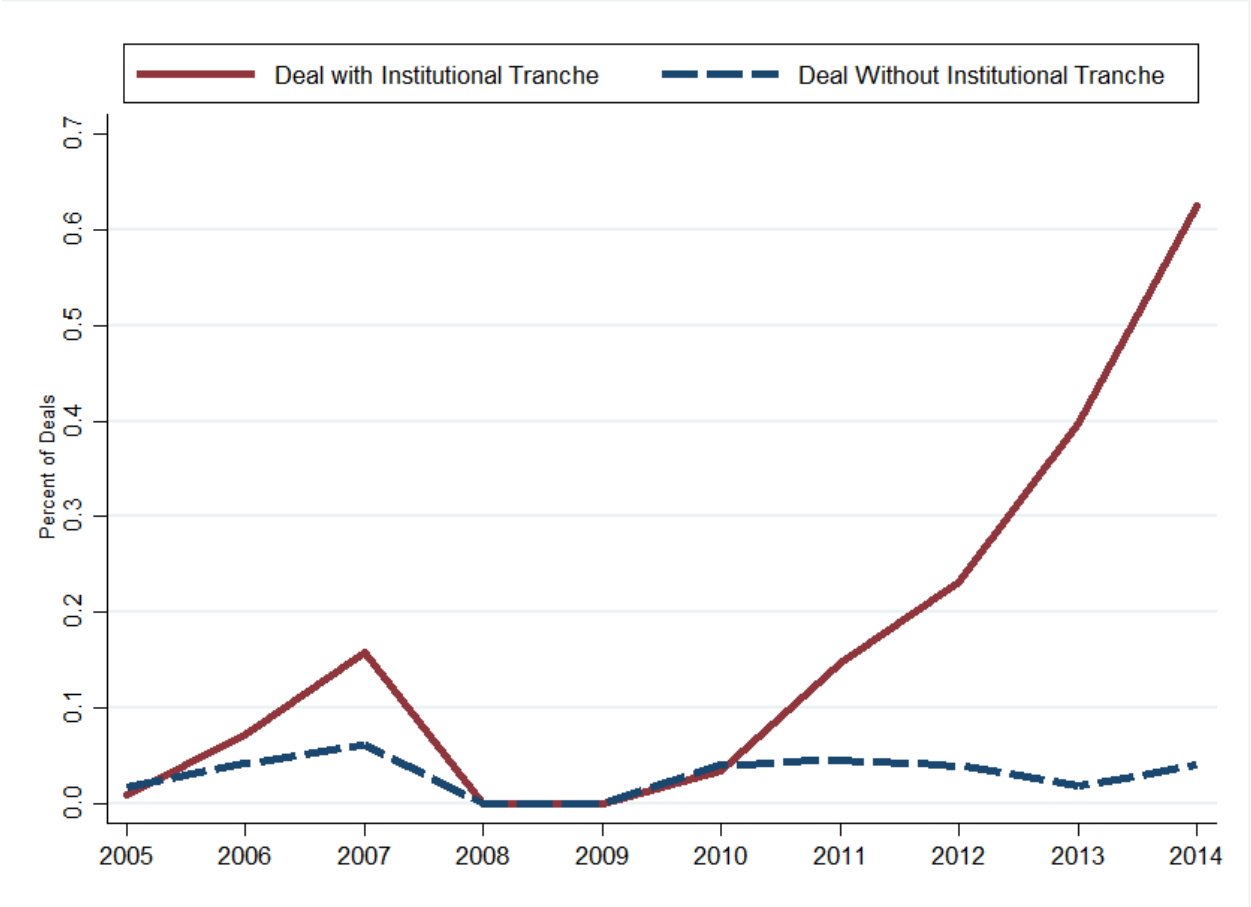
Based on the evidence in Figure 4, we use as a measure of expected renegotiation costs the combination of a deal containing an institutional tranche and being issued after 2010. Figure 5 provides initial evidence that split control rights respond sharply to this measure of renegotiation costs. The figure shows the annual frequency of split control rights for the set of deals with an institutional tranche (red solid line) and those without (blue dashed line) and highlights the sharp difference between the experience of the two groups. For deals without an institutional tranche, split control rights are very uncommon and have not become more common in recent years. For deals with an institutional tranche, however, split control rights has become much more common over time. The similarity of the time series pattern documented in Figure 4 suggests that a common factor is driving each of the provisions, which we attribute to increased recognition of renegotiation costs.

To better measure the relationship between institutional loans and split control rights, we estimate regressions to control for other differences between the deals. We create an indicator that a deal has split control rights and estimate the following probit model:

$$Split_{it} = 1\left(\alpha \cdot Institutional_{it} + X'_{it}\beta + \varepsilon_{it} > 0\right), \tag{1}$$

where $Split_{it}$ is an indicator that a deal has split control rights, 1() is the indicator function that the expression is positive, X is a set of covariates that might affect the probability that a deal has split control rights, and ε is a standard normal random variable with unit variance. The subscript i indexes deals and t indexes calendar quarter. Although some borrowers appear multiple times in the data, the incidence of repeat borrowing is infrequent enough that we do not exploit the panel nature of the data. We do, however, estimate the model on different subperiods to account for the evolution documented in Figure 5. We separate the sample into three periods: 2005-2007, 2008-2010, and 2011-2014. However, because of the low incidence of split control rights during the

Figure 5: Split Control Rights and Institutional Investors



Note: The figure shows the annual proportion of leveraged loan deals that contain split control rights. The red solid line is for deals with an institutional tranche, and the blue dashed line is for deals without an institutional tranche.

2008-2010 period, we use only the early and later periods.

The coefficient estimates from the probit regressions are shown in Table VI. The table reports a version of model (1) with no control variables and a version with a large set of controls chosen based on the observed differences between deals with and without an institutional tranche reported in Table V. We include the natural log of the borrower's assets to control for firm size, the borrower's operating income scaled by assets to control for profitability, and several measures of the borrower's credit risk, including credit rating dummy variables. In these regressions, unlike those in Table V, all of the control variables are measured as of the year-end prior to the loan issuance.[49] The regressions with controls also include calendar quarter fixed effects and industry fixed effects based on the Fama-French 30 classification of the borrower's SIC code.

As shown in columns (1) and (2), there is only a very weak relationship between the institutional tranche indicator and split control rights during the years 2005-2007. With no controls, the estimated marginal effect of the deal containing an institutional tranche is only 3.8%, and the point estimate becomes negative when including controls. Neither of the estimates is significantly different from zero. During the early period, larger borrowers and riskier borrowers were more likely to have split control rights, and since these are also the borrowers more likely to have an institutional tranche, the estimated relationship between an institutional deal and split control rights is largely driven by these observable characteristics.

During the later period, however, there is a very strong relationship between the institutional tranche indicator and split control rights. Without controls, the estimated marginal effect is a statistically significant 36.6%, and unlike the early period, adding control variables only increases the estimate to highly statistically significant 42.5%, as seen in column (4). Indeed, the included control variables have a much weaker relationship with split control rights during the latter period; the point estimates on firm size and leverage are closer to zero, and the increase in pseudo-R^2 is much smaller between specifications (3) and (4) than between specifications (1) and (2). The underlying motivation to include split control rights appears to have shifted somewhat between the periods, and the presence of an institutional tranche became much more important during the years following the crisis. We take the large increase in the estimated effect of an institutional tranche

[49] This change results in a loss of about 3% of the sample, as there are some firms that did not file with the SEC prior to the issuance of the loan.

as evidence that recognition of renegotiation costs prompted a change in the optimal contract to more often include split control rights.

VI. Alternative Explanations

The evidence in Table VI shows a strong relationship between split control rights and the presence of an institutional term loan tranche during the years 2011-2014 that is unaffected, or perhaps slightly strengthened, by including control variables that are correlated with the presence of an institutional tranche. In our interpretation of this evidence, split control rights are responding to the expected renegotiation costs created by institutional investors, which became clearer only after the financial crisis. However, the presence of an institutional investor is not randomly assigned to loans, and the presence of an institutional investor is only an indirect proxy for expected renegotiation costs, so there could be other interpretations of the evidence in Table VI. In this section, we address the plausibility of several alternatives.

We address two broad concerns with our interpretation. First, we ask whether unobserved factors could be responsible for the correlation between split control rights and the institutional tranche indicator. Our empirical model estimated in Table VI certainly does not account for all of the factors that influence the choice for a loan to have split control rights, so it could be that unobserved factors are simultaneously affecting the propensity for split control rights and the presence of an institutional tranche. Second, we ask whether the presence of an institutional tranche during the 2011-2014 period could be serving as a proxy for factors other than expected renegotiation costs.

A. Sample Composition

We begin by asking whether the composition of the leveraged loan sample has changed over time, particularly the deals with an institutional tranche. Although we control for observable borrower characteristics in Table VI, here we ask specifically if these observable characteristics appear to have changed differentially for institutional loans during the years 2011-2014. To determine if this

Table VI: Split Control Rights and Institutional Tranches

	Dependent Variable: Split Control Rights			
	2005 - 2007		20011 - 2014	
	(1)	(2)	(3)	(4)
Institutional Tranche	0.308	-0.342	1.506***	2.175***
	(1.17)	(-0.76)	(7.02)	(5.37)
Borrower Rated BB+/BB		-1.111		0.390
		(-1.92)		(1.19)
Borrower Rated BB-/B+		-0.303		0.441
		(-0.91)		(1.88)
Borrower Unrated		-0.611		0.319
		(-1.21)		(1.11)
Ln(Assets)		0.184		-0.069
		(1.72)		(-0.90)
Debt / Assets		-1.227		-0.157
		(-1.50)		(-0.22)
Debt / OIBDP		0.258***		0.056
		(3.34)		(0.65)
OIBDP / Assets		8.072*		4.797
		(2.20)		(1.38)
M.E. of Institutional Tranche	(0.038)	-(0.043)	0.366***	0.425***
	(1.04)	(-0.78)	(7.13)	(6.56)
Year-Quarter FE	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes
N	449	265	396	357
r2	0.009	0.313	0.185	0.370

Note: This table displays coefficient estimates from probit regressions where the dependent variable is an indicator that a deal has split control rights. M.E. of Institutional Tranche reports the marginal effect of a discrete change in Institutional Tranche from 0 to 1, computed with control variables at their sample means. OIBDP stands for operating income before depreciation. Year-Quarter FE refers to fixed effects for the calendar quarter the deal was originated, and Industry FE is constructed using the Fama-French 30 industry classification based on the SIC code. r2 is the pseudo-R^2. Standard errors are clustered at calendar quarter level.

Absolute t statistics are in parentheses.

* p< 0.10, ** p< 0.05, *** p< 0.01

is so, we estimate a series of the following difference-in-difference type regressions:

$$y_{it} = \alpha + X'_{it}\beta + \delta_t + \phi Institutional_{it} + \gamma Institutional_{it} \cdot I\left(t > 2010\right), \tag{2}$$

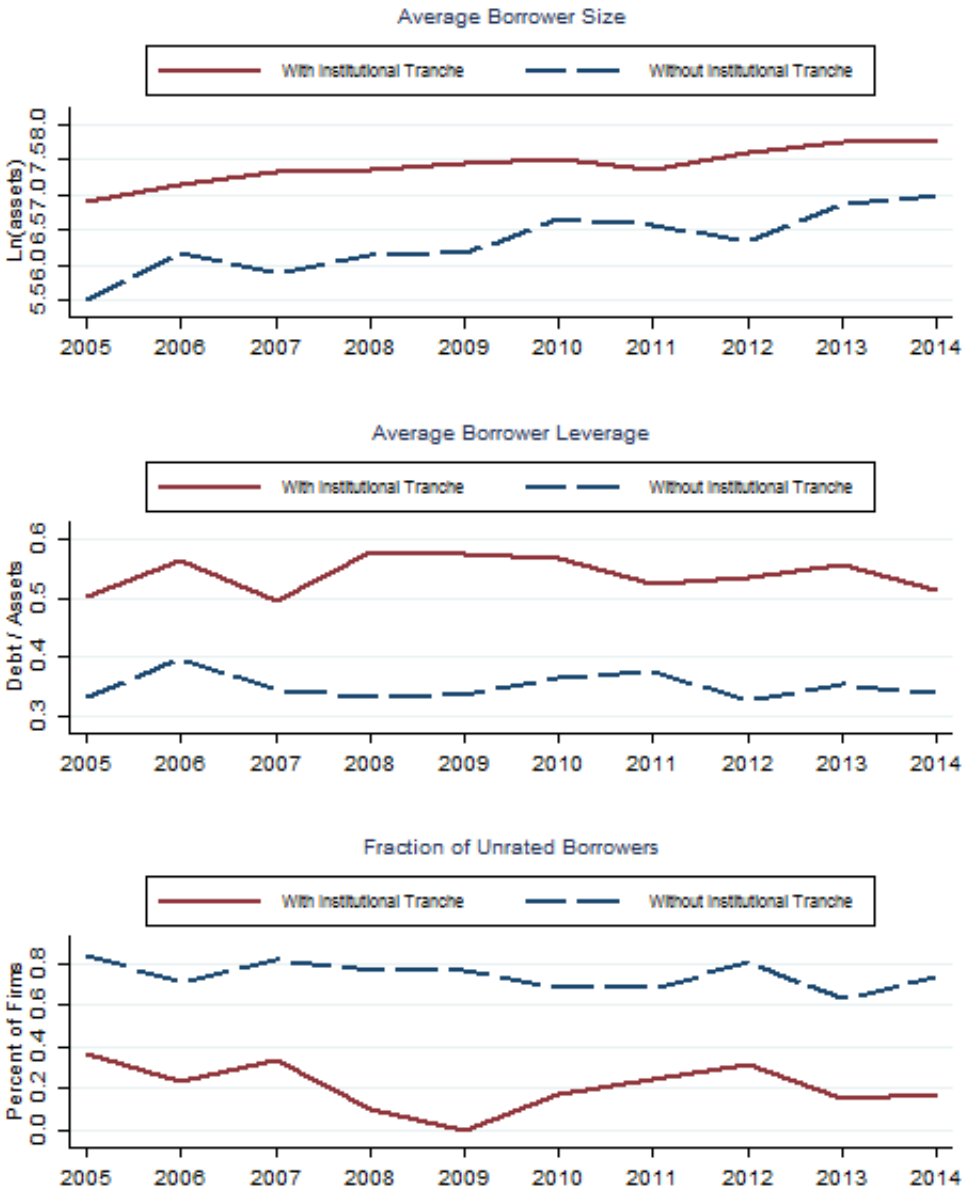
where y_{it} is an outcome variable for deal i during quarter t, X is a vector of control variables, δ_t is a calendar-quarter fixed effect, $Institutional$ is an indicator that the deal has an institutional tranche, and $I\left(t > 2010\right)$ is an indicator that the deal was issued after year 2010. In this specification, the parameter ϕ measures the impact of a loan having an institutional tranche, and γ measures the additional impact during the years 2011-2014. We use the estimate of γ to assess whether institutional deals seem unique during the 2011-2014 period. Based on the characteristics of firms using institutional loans documented in Table V, we examine firm size, firm leverage, and an indicator that the borrower has a credit rating.

Figure 6 plots the time series of the averages of these borrower characteristics for deals with and without an institutional tranche. The figure confirms that larger firms, more highly leveraged borrowers, and borrowers more likely to have a credit rating are significantly more likely to use an institutional tranche. However, the difference among the types shows no discernible pattern over time, other than perhaps a slight narrowing of the difference in size during recent years.

Table VII shows the coefficient estimates of ϕ and γ from equation (2). These regressions include industry and calendar quarter fixed effects but no other control variables. The coefficient estimates confirm that deals with an institutional tranche are significantly larger, more highly leveraged, and much less likely to be unrated. However, only firm size shows any difference during the 2011-2014 period when the average firm with an institutional tranche fell from roughly 2.5 times larger to roughly 1.5 times larger than borrowers without an institutional tranche. We have no reason to believe that a tilting of the size distribution toward slightly smaller firms would result in a drastic increase in the use of split control rights.[50] Moreover, there is no statistically significant change in the average leverage of institutional borrowers or the likelihood that an institutional borrower has a credit rating. Based on this evidence, we do not believe that changes in the characteristics of institutional borrowers could explain the rise in split control rights.

[50] In addition, Figure 6 shows that the change in relative size is driven by the deals without an institutional tranche becoming larger.

Figure 6: Borrower Characteristics and Institutional Deals



Note: The figure shows annual sample means for borrower characteristics. Borrower Size is defined as the natural log of total assets in 2009 dollars, and Borrower Leverage is defined as the ratio of the book value of debt to total assets. The balance sheet data is from the fiscal year immediately following the origination of the loan. In each graph, the red solid line is for deals with an institutional tranche, and the blue dashed line is for deals without an institutional tranche.

Table VII: Institutional Tranche and Borrower Characteristics

	Ln(Assets)	Debt / Assets	Borrower Unrated
	(1)	(2)	(3)
Institutional Tranche	1.287***	0.125***	-0.494***
	(12.94)	(6.40)	(-12.30)
Institutional Tranche x Post 2010	-0.386**	0.029	-0.001
	(-2.91)	(0.94)	(-0.01)
Year-Quarter FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	962	960	962
r2	0.318	0.278	0.334

Note: This table displays coefficient estimates from OLS regressions. Year-Quarter FE refers to fixed effects for the calendar quarter the deal was originated, and Industry FE refers to the Fama-French 30 industry classification based on the SIC code. Standard errors are clustered by calendar quarter.
Absolute t statistics are in parentheses.
* p< 0.10, ** p< 0.05, *** p< 0.01

B. Accounting for Unobservable Factors

Although the lack of significant changes in observable characteristics helps rule out some alternative explanations for the strong relationship between split control rights and an institutional tranche, it could be that unobserved factors are driving the relationship during the 2011-2014 period. We use the insights of Altonji et al. (2005) to assess this possibility.[51]

We first modify the model in (1) to account for the potential endogeneity of the decision to include an institutional tranche. The model becomes a bivariate probit:

$$Split_{it} = 1\left(\alpha \cdot Institutional_{it} + X'_{it}\beta^S + \varepsilon^S_{it} > 0\right), \tag{3}$$

$$Institutional_{it} = 1\left(X'_{it}\beta^I + \varepsilon^I_{it} > 0\right),$$

$$\begin{bmatrix} \varepsilon^I \\ \varepsilon^S \end{bmatrix} \sim N\left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 & \rho \\ \rho & 1 \end{bmatrix}\right),$$

[51] Bhagwat et al. (2016) use the approach of Oster (2014), which expands the insights of Altonji et al. (2005) to the case of a continuous dependent variable.

where the model for *Split* is unchanged from (1), and *Institutional* is modeled as a probit function of the observable factors X and a random variable ε^I. This model allows for the endogeneity of *Institutional* through the correlation ρ, which captures the extent to which there are common unobserved factors that affect both the likelihood that a deal has split control rights and an institutional tranche. A large positive value of ρ would result in a positive bias on the estimate of α in model (1), which has an implicit assumption that $\rho = 0$.

Although α can be identified in the model (3) by placing parametric assumptions on the distribution of residuals, we are hesitant to rely exclusively on the assumption that the error terms are jointly normally distributed. Instead, we use the approach of Altonji et al. (2005), who suggest treating ρ as an unidentified parameter and assess the degree of bias that might be present in our estimates of α in Table VI. The first suggestion from Altonji et al. (2005) is to estimate (3) assuming different levels of residual correlation ρ and examining how our inferences might change. Table VIII reports the result from this exercise by showing the estimates of β^S, β^I, and α for three different levels of ρ: 0.2, 0.4, and 0.6.

The estimates in Table VIII show that a higher level of ρ does indeed result in a lower estimate for α and the estimated marginal effect of an institutional tranche. However, the inference that an institutional tranche leads to a large and statistically significant increase in the probability of split control rights remains true for even a very high degree of correlation among unobserved factors. Even with a correlation of 0.6 among the unobserved factors, the estimated marginal effect remains a highly statistically significant 18.8%. The robustness of the inference reflects the statistically strong relationship between the presence of an institutional tranche and split control rights; the omitted factors would need to be very important determinants of both *Split* and *Institutional* to fully account for the estimate of α.

There are two alternative options to identify α in the bivariate probit (3). First, if there is an instrumental variable that affects the likelihood that a deal has an institutional tranche but does not directly affect the probability a deal has split control rights, α is identified through the exclusion restriction. The modified model becomes:

Table VIII: Split Control Rights and Institutional Tranches, Bivariate Probit 2011-2014

	Correlation = 0.2		Correlation = 0.4		Correlation = 0.6	
	Split Control	Institutional	Split Control	Institutional	Split Control	Institutional
	(1)	(2)	(3)	(4)	(5)	(6)
Institutional Tranche	1.822***		1.416***		0.942**	
	(4.56)		(3.68)		(2.65)	
Borrower Rated BB+/BB	0.271	-1.459***	0.142	-1.446***	-0.001	-1.421***
	(0.83)	(-3.98)	(0.43)	(-3.94)	(-0.00)	(-3.84)
Borrower Rated BB-/B+	0.412	-0.400	0.377	-0.405	0.337	-0.411
	(1.75)	(-1.06)	(1.60)	(-1.08)	(1.42)	(-1.11)
Borrower Unrated	0.257	-0.719*	0.189	-0.716*	0.116	-0.710*
	(0.89)	(-2.39)	(0.66)	(-2.40)	(0.42)	(-2.41)
Ln(Assets)	-0.024	0.479***	0.023	0.473***	0.074	0.463***
	(-0.32)	(5.05)	(0.31)	(5.09)	(1.04)	(5.11)
Debt / Assets	-0.033	1.308*	0.104	1.309*	0.256	1.311**
	(-0.05)	(2.38)	(0.15)	(2.47)	(0.40)	(2.61)
Debt / OIBDP	0.050	-0.035	0.043	-0.035	0.033	-0.034
	(0.59)	(-0.44)	(0.51)	(-0.43)	(0.41)	(-0.43)
OIBDP / Assets	4.644	0.194	4.378	0.144	3.985	0.071
	(1.38)	(0.08)	(1.36)	(0.06)	(1.34)	(0.03)
Residual Correlation	0.200		0.400		0.600	
M.E. of Institutional Tranche	0.333***		0.267***		0.188**	
	(5.52)		(4.39)		(3.04)	
Year-Quarter FE	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
N	357		357		357	

Note: This table displays coefficient estimates of the bivariate probit model presented in (3) where the residual correlation is constrained to be 0.2, 0.4, and 0.6. The dependent variables are indicators that a deal has split control rights and contains an institutional tranche. OIBDP stands for operating income before depreciation. M.E. of Institutional Tranche reports the marginal effect of a discrete change in Institutional Tranche from 0 to 1, computed with control variables at their sample means. Year-Quarter FE refers to fixed effects for the calendar quarter the deal was originated, and Industry FE refers to the Fama-French 30 industry classification based on the SIC code. The sample includes only deals issued during 2011-2014. Standard errors are clustered at calendar quarter level. Absolute t statistics are in parentheses.

* p< 0.10, ** p< 0.05, *** p< 0.01

$$Split_{it} = 1\left(\alpha \cdot Institutional_{it} + X'_{it}\beta^S + \varepsilon^S_{it} > 0\right),$$

$$Institutional_{it} = 1\left(X'_{it}\beta^I + \gamma Z + \varepsilon^I_{it} > 0\right),$$

$$\begin{bmatrix} \varepsilon^I \\ \varepsilon^S \end{bmatrix} \sim N\left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 & \rho \\ \rho & 1 \end{bmatrix}\right),$$

where Z is the instrumental variable that is assumed to not directly affect *Split*.

Second, Altonji et al. (2005) suggest making the assumption that the correlation between the unobservable factors, ρ, is equal to the correlation between observable factors influencing *Split* and *Institutional*, which are given by $X'\beta^S$ and $X'\beta^I$ in model (3). Altonji et al. (2005) show that this assumption can be implemented by setting $\rho = \frac{\text{Cov}(X'\beta^S, X'\beta^I)}{\text{Var}(X'\beta^S)}$.[52] This is a parametric assumption that formalizes the idea that the degree of correlation based on observable factors can be used as a guide to assess the potential for unobserved correlation, and Altonji et al. (2005) suggest that a conservative assumption is that the correlations are equal. In our setting, Table VIII shows that several factors are significantly correlated with the likelihood that a deal has an institutional tranche, particularly the borrower's size, credit rating status, and leverage. These factors, however, do not have a very strong impact on the probability of split control rights, which suggests that there is little correlation of observables in the data. Moreover, the fact that including these factors in Table VI only serves to increase the estimate of α foreshadows that permitting similar correlation of unobservable factors will have little impact on the estimate of α.

Table IX provides coefficient estimates of the bivariate probit model under the two alternative identifying assumptions. Columns (1) through (4) implement the instrumental variables strategy, in which we use an indicator that the borrower issued an institutional loan prior to the year 2011 as the instrument. Since there was very little issuance during 2008-2010, this amounts to an indicator that the borrower issued an institutional loan during the prior surge in institutional issuance from 2005-2007. We conjecture that the prior experience with the institutional market

[52] This condition follows considering the linear projection of the determinants of *Institutional*, $I* \equiv X'\beta^I + \varepsilon^I_{it}$, onto the observable and unobservable factors that determine *Split*, which are $X'_{it}\beta^S$ and ε^S. The coefficients in the linear projection are $\frac{\text{Cov}(I*, X'\beta^S)}{\text{Var}(X'\beta^S)}$ and $\frac{\text{Cov}(I*, \varepsilon^S)}{\text{Var}(\varepsilon^S)}$, and the assumption that selection on observables is the same as selection on unobservables is formalized by assuming that the coefficients are equal. Based on the model 3, $\text{Var}(\varepsilon^S) = 1$, $\text{Cov}(I*, \varepsilon^S) = \rho$, and $\text{Cov}(I*, X'\beta^S) = \text{Cov}(X'\beta^I, X'\beta^S)$. Substituting yields $\rho = \frac{\text{Cov}(X'\beta^S, X'\beta^I)}{\text{Var}(X'\beta^S)}$.

will facilitate subsequent issuance but should not have a direct effect on the structure of subsequent loan contracts. Columns (1) and (2) use no additional control variables, and columns (3) and (4) add the same set of controls used in Table VI.

As shown in the second row of columns (2) and (4), the previous institutional tranche indicator is positive and statistically significant. Under the assumption that the previous institutional indicator does not directly affect the probability of split control rights, the correlation of residuals is estimated to be above the 0 value assumed in Table VI. Nevertheless, the top row in columns (1) and (3) shows that the estimate of α remains positive and statistically significant, though the estimate is less precise than in Table VI. The estimated marginal effects of a deal having an institutional tranche are close to the magnitudes estimated in Table VIII under the assumption of a residual correlation of 0.2 and 0.4.

Columns (5) and (6) in Table IX show the estimates under the assumption that the residual correlation is equal to that of the observable factors affecting *Institutional* and *Split*. The estimated correlation is only 0.08, which results in a large, positive estimate of α and an estimated marginal effect closer to that in Table VI.

In the Online Appendix, we implement a third strategy suggested by Altonji et al. (2005), which is to assess the degree of selection based on unobservable factors that would be necessary to fully explain the large positive estimate of α in column 4 of Table VI. Our estimates suggest that the degree of selection based on unobservable factors would need to be 2.4 times as large as the degree of selection based on observable factors, which we view as implausibly large. This estimate reflects the same two features of the data: (1) the statistical relationship between the presence of an institutional tranche and split control rights is very strong, so any unobserved factors would need to be very important, and (2) accounting for observable factors that affect the likelihood that a deal has an institutional tranche has no impact on the estimated value of α.

Based on the collective evidence, we conclude that there is a large, positive relationship between a deal containing an institutional tranche and the use of split control rights, which can at most be only partially attributed to unobserved factors. The estimated marginal effect of a loan having an institutional tranche is only somewhat sensitive to our different estimation strategies and consistently above 20%. Given an unconditional frequency of split control rights of about 25% during the 2011-2014 period, we conclude that the presence of an institutional tranche is an important driver

Table IX: Split Control Rights and Institutional Tranches, Bivariate Probit 2011-2014

	Instrumental Variable				Equal Residual Correlation	
	Split Control	Institutional	Split Control	Institutional	Split Control	Institutional
	(1)	(2)	(3)	(4)	(5)	(6)
Institutional Tranche	0.935*		1.86*		2.032***	
	(2.14)		(2.26)		(5.03)	
Previous Institutional Tranche		0.986***		0.717**		
		(5.79)		(2.78)		
Borrower Rated BB+/BB			0.290	-1.608***	0.340	-1.463***
			(0.71)	(-4.28)	(1.04)	(-4.00)
Borrower Rated BB-/B+			0.414	-0.509	0.429	-0.396
			(1.58)	(-1.18)	(1.83)	(-1.04)
Borrower Unrated			0.266	-0.620*	0.293	-0.720*
			(0.71)	(-2.01)	(1.02)	(-2.39)
Ln(Assets)			-0.029	0.431***	-0.050	0.482***
			(-0.21)	(3.95)	(-0.66)	(5.02)
Debt / Assets			-0.043	0.929	-0.106	1.308*
			(-0.05)	(1.60)	(-0.15)	(2.33)
Debt / OIBDP			0.051	-0.024	0.054	-0.036
			(0.57)	(-0.27)	(0.63)	(-0.44)
OIBDP / Assets			4.657	0.317	4.745	0.216
			(1.29)	(0.11)	(1.38)	(0.08)
Residual Correlation	0.365		0.190		0.0848	
M.E. of Institutional Tranche	0.235*		0.339*		0.368***	
	(2.60)		(2.12)		(6.12)	
Year-Quarter FE	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
N	396		357		357	

Note: This table displays coefficient estimates of the bivariate probit model presented in 3 using either an instrumental variable (columns 1, 2, 3, and 4) or an assumption of equal selection on unobservables and observables (columns 5 and 6). The dependent variables are indicators that a deal has split control rights and contains an institutional tranche. OIBDP stands for operating income before depreciation. M.E. of Institutional Tranche reports the marginal effect of a discrete change in Institutional Tranche from 0 to 1, computed with control variables at their sample means. Year-Quarter FE refers to fixed effects for the calendar quarter the deal was originated, and Industry FE refers to the Fama-French 30 industry classification based on the SIC code. The sample includes only deals issued during 2011-2014. Standard errors are clustered at calendar quarter level.

Absolute t statistics are in parentheses.

* p< 0.10, ** p< 0.05, *** p< 0.01

of split control rights. Combined with the evidence of renegotiation difficulties for these loans during the crisis and the changes in other contract terms to facilitate renegotiation, we conclude that the rise in split control rights reflects increased recognition of renegotiation costs for institutional deals.

C. Changes in Other Loan Terms

We next examine changes in other loan terms for institutional deals relative to other deals. To the extent that split control rights are responding to changes in factors other than recognition of bargaining frictions, we would expect to observe additional changes in loan terms. The goal of this exercise is to look for clues from changes in other features of institutional deals to corroborate or refute alternative explanations for the changes in institutional loan tranches. We specifically ask if the increase in split control rights could reflect an increase in the supply of credit from institutional lenders, who perhaps became more willing to give up the contractual authority provided by covenants. If so, we would also expect to see a reduction in loan spreads coincident with the increase in credit supply from institutional lenders.

We begin by plotting the time series of several additional deal characteristics in Figure 7, where we again compare deals with and without an institutional tranche. The top panel plots the difference in interest rate spreads between the term loan tranche and the revolving tranche in the same deal. Even within the same deal, the term loan typically pays a higher spread, often about 50 basis points. Figure 7 shows that in recent years the spread differential for deals with an institutional tranche has widened compared with deals that do not have an institutional tranche. If the rise in split control rights was due to an increase in the supply of credit from institutional lenders, we would expect that the spread differential would compress. The widening of the difference suggests that a large increase in supply is not responsible for the growth in split control rights.

The middle panel examines the difference in the maturity of term loans compared with the revolver in the same deal. Term loans typically have a longer maturity, and this is particularly true for institutional tranches, where the term loans are 1 to 1.5 years longer. In recent years, the difference in maturity has widened for institutional deals, which could reflect an increased willingness of institutional lenders to make riskier loans. However, lengthening the maturity of a loan also reduces the frequency of renegotiations, which makes the trend also consistent with

minimizing renegotiation costs for institutional deals.

Finally, we examine the share of the total deal amount comprised by the term loan tranches in a deal. For institutional deals, term loans typically comprise about 70% of the total deal amount, which is about 20 percentage points more than that of deals without an institutional deal. The difference in term loans shares has not grown over time, again suggesting that there has not been a large increase in the supply of institutional term loans.

Table X shows the coefficient estimates of the difference-in-difference type regressions in (2) for the same variables presented in Figure 7. The regressions include controls for borrower size, profitability, and leverage. The estimated coefficients confirm that deals with an institutional tranche tend to have term loans that comprise a larger share of the deal, have a longer maturity, and have relatively higher spreads, on average. However, the difference in spreads and relative size did not change significantly during the 2011-2014 period. The relative maturity of term loans did increase for institutional tranches by about 7 months on average, which we interpret as an additional margin through which renegotiation costs were reduced for institutional deals. In total, there is no evidence of a positive shock to the supply of credit from institutional investors that could account for the growth in split control rights.[53]

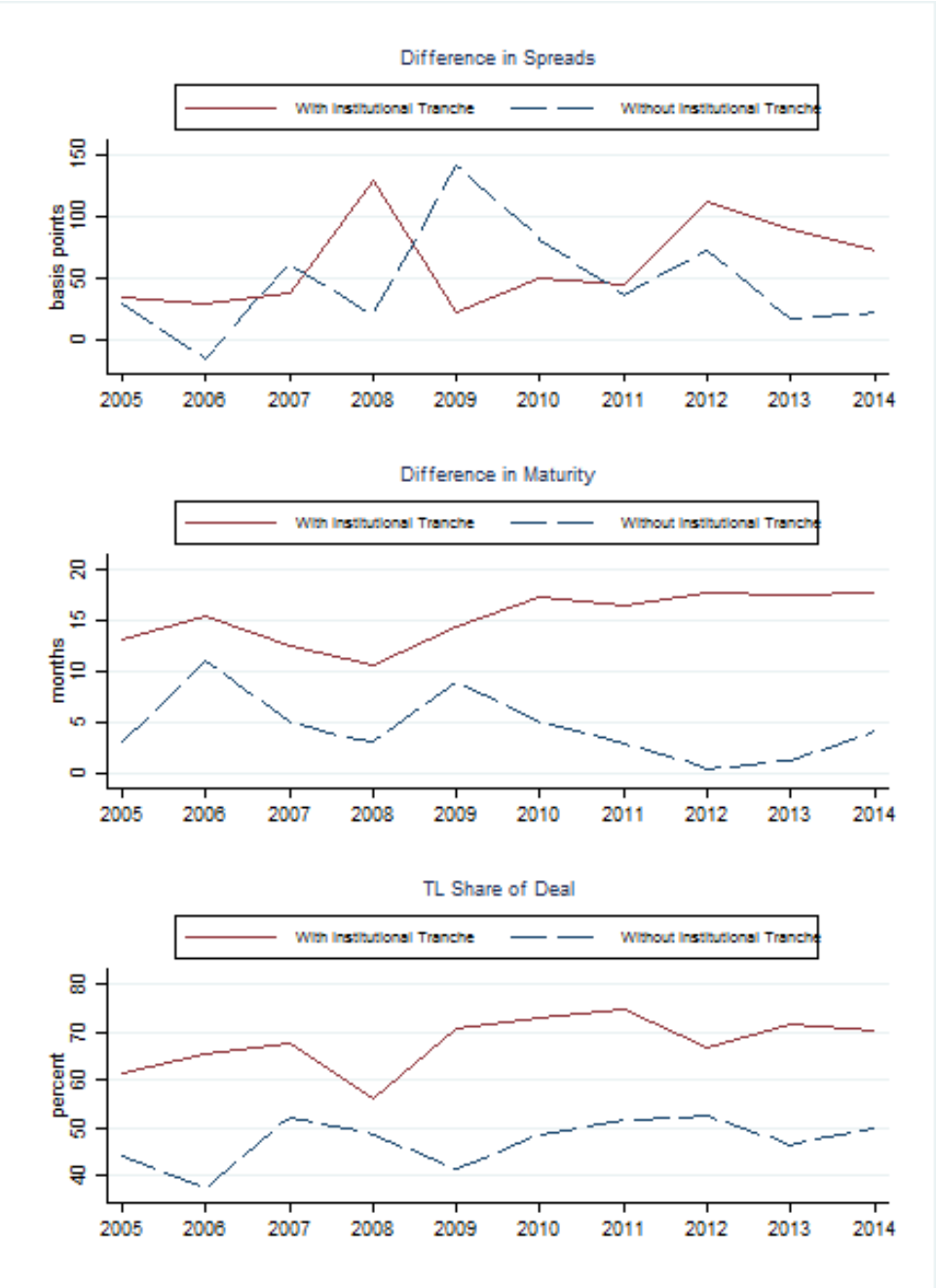
VII. Conclusions

In this paper, we construct a unique data set of covenant provisions in a large sample of leveraged loan deals for the years 2005 through 2014. We take into account all of the borrowing firm's loans when measuring the presence of covenants, including both its revolving loans and its term loans. It is common for firms to include multiple facilities in a single contract, but firms often have separate revolving loan and term loan contracts or treat the facilities differently within the same contract. Our evidence suggests that contractual differences across the tranches are quite common and have important implications for the allocation of bargaining power and control rights.

We find that syndicated loan contract terms have evolved to concentrate control rights with

[53] Although imprecisely estimated, one interpretation of the 32 basis point increase in term loan spreads for institutional deals after 2010 is as compensation for the loss of covenants in the term loans. To the extent that split control rights put term loan lenders at a relative disadvantage, we would expect larger spreads for these loans if all else is equal. Of course, all else is likely not equal because of the reduction in bargaining costs, which makes interpretation difficult.

Figure 7: Other Loan Terms and Institutional Investors



Note: The figure shows the annual sample means for differences in loan terms across term loans and revolvers in the same deal. The "Difference in Spreads" is the term loan spread minus the revolver spread, the "Difference in Maturity" is the maturity of the term loan minus the maturity of the revolver, measured in months, and the "TL Share of Deal" is the ratio of the term loan tranche to the total amount of the deal. In each graph, the red solid line is for deals with an institutional tranche, and the blue dashed line is for deals without an institutional tranche.

Table X: Institutional Tranche and Borrower Characteristics

	Difference in Spreads	Difference in Maturity	TL Share of Deal
	(1)	(2)	(3)
Institutional Tranche	32.05*	5.678**	0.191***
	(2.41)	(3.30)	(7.51)
Institutional Tranche x Post 2010	17.460	7.269***	0.004
	(0.98)	(3.76)	(0.12)
Borrower Rated BB+/BB	-23.530	-2.022	-0.061
	(-1.59)	(-0.91)	(-1.65)
Borrower Rated BB-/B+	-38.81*	-0.272	-0.005
	(-2.49)	(-0.14)	(-0.17)
Borrower Unrated	140.800	-3.290	0.055
	(0.82)	(-0.26)	(0.47)
Ln(Assets)	-39.190	-2.949	0.052
	(-1.15)	(-0.75)	(1.41)
Debt / Assets	-30.670	-1.975	0.028
	(-2.00)	(-1.19)	(1.20)
Debt / OIBDP	-16.23***	1.159**	-0.001
	(-3.60)	(2.94)	(-0.11)
OIBDP / Assets	-60.660	6.420*	0.123**
	(-1.92)	(2.52)	(2.84)
Year-Quarter FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	908	933	938
r2	0.231	0.26	0.36

Note: This table displays coefficient estimates from OLS regressions. OIBDP stands for operating income before depreciation. Year-Quarter FE refers to fixed effects for the calendar quarter the deal was originated, and Industry FE refers to the Fama-French 30 industry classification based on the SIC code. Standard errors are clustered by calendar quarter.

Absolute t statistics are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

revolving lenders. We postulate that these contractual changes are designed to alleviate coordination problems that became painfully apparent during the financial crisis. The most notable change is that a number of contractual terms can be adjusted with the approval of only a minority of lenders, which prohibits the ability of a small set of lenders from preventing a renegotiation. The syndication of term loans to nonbank intermediaries was an innovation that expanded the supply of credit; however, the expansion of loan syndicates beyond the banking sector likely raised the costs of renegotiating loan contracts, a key advantage of loans vis-a-vis other types of debt. In turn, loan contracts adjusted to facilitate renegotiation by treating traditional bank lenders differently from the nonbank intermediaries. The continued presence of nonbank investors suggests that altering the contracts is preferred to returning to bank-only lending syndicates.

Our results have important implications for understanding the growth in covenant-lite loans. We show that the prevalence of borrowers with exclusively covenant-lite loans is significantly lower than either the financial press or some of the recent literature on syndicated loans would suggest. We find that when all of a firm's full borrowings are taken into account, that is, when we include a firm's revolving loans along with its term loans, there is essentially no covenant-lite lending. We conclude that covenant-lite loans serve an important role of concentrating control rights in a smaller set of lenders — the revolving lenders, which are usually banks — to reduce bargaining costs. Contracts appear to have evolved to give agents with an advantage in monitoring borrower performance more negotiation power and reduce the costs of renegotiation for other syndicate members.

The significant change in contract terms suggests that the contracts observed in practice evolve as market participants learn and adjust to experience. This is important for research that assumes, often implicitly, that contracts are always set optimally and searches for changes in fundamentals to explain changes in observed contracts. We document substantial changes in covenants despite very few changes in other loan terms, such as price or quantity, and few changes in the nature of borrowers accessing the market. We conclude that the contract changes are not caused by changes in traditional fundamental factors but rather learning by market participants that the earlier contracts could be improved.

One important caveat to our results is that we do not provide any evidence that split control rights, or the introduction of amend and extend or refinancing provisions, actually work to reduce

renegotiation costs. Although we establish that this is the intent of the provisions, a useful direction for future research is to examine if bargaining between firms and creditors has become more efficient following the contractual changes we document. One alternative is that differential treatment of revolving and term lenders could lead to additional intra-syndicate conflicts. We suspect that a few more years of experience, including a spate of corporate defaults, are necessary to generate enough data to answer this question properly.

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Appendix

Sample Construction

The next two parts of this section of the Appendix describe the construction of the leveraged loan sample and the process through which we collect loan contracts. The subsequent section provides a comparison of the covenant data we collected with that available from Dealscan.

A. Loan Contract Sample

We construct our sample of leveraged loan deals using the market segment identified in Dealscan. We begin by identifying all term loans (using the loan type field in Dealscan) market segment marked as "Leveraged," which LPC defines as a loan rated BB+ or lower or an unrated loan with an interest-rate spread larger than 150 basis points.[54] We then define a loan deal as all loan facilities with the same facility start date, which we later modify to include previously issued and still outstanding revolvers. Although excluding deals composed exclusively of a line of credit removes about 30% of the leveraged loan sample, this restriction concentrates the sample on the most relevant loans. According to Dealscan, fewer than 1% of the revolver-only deals are intended for the institutional market, whereas about 50% of the deals with a term loan are intended for the institutional market.[55]

To examine a fairly homogeneous set of deals, we make the following restrictions on the set of deals: (i) we include only deals in which all of the facilities are secured with collateral and syndicated in the U.S., (ii) we exclude all deals composed exclusively of second-lien term loans, (iii) we exclude deals that include a loan type other than a term loan or a revolving loan, and (iii) we exclude all loans to borrowers with an SIC code indicating that the borrower is a financial firm or government related.[56] After these restrictions, we have 8,695 deals issued during the years 2005-2014.

About 81% of these deals include a revolving loan issued on the same day as the term loan. However, if we search for a revolving loan issued previously by the same borrower with a maturity date after the start date of the term loan, we find that about two-thirds of the term loan borrowers

[54] LPC has varied the definition somewhat over time to account for market conditions.
[55] We use the market segment "Institutional" to define an institutional tranche.
[56] We use Dealscan's SIC code and drop borrowers with a 1-digit SIC code of 6 or 9.

previously issued a revolver that was likely outstanding at the time of the term loan deal. This leaves fewer than 7% of term loan issuers that potentially have only a term loan. For the sample for which we have a loan contract, we manually search for a previously issued revolver and confirm that it was still outstanding at the time the term loan was issued.

B. Contract Data

We next attempt to collect the credit agreements that govern each of the facilities in the loan deals. We gather the agreements from three secondary sources. First, we use LPC's loanconnector website, which provides credit agreements along with a link to the underlying deal because the agreements are organized by borrower and issue date. Second, we collect credit agreements from Practical Law's comprehensive deal database, which we merge to the issue data using CIK code and the date of the issue.[57] Finally, we use S&P's Capital IQ system to manually search for any remaining contract.

Because filings with the SEC are the ultimate source of the credit agreements, we search for agreements only among public firms. We classify a firm as public if we are able to merge the borrower with annual data in Compustat from the fiscal year immediately before or immediately after the issue date of the loan.[58] We find that 1,920 of the 8,695 deals are for public firms.

For the deals for which we have a credit agreement, we manually confirm that the agreement includes a term loan and search for a revolving line of credit. About 10% of the contracts contain only a term loan. For these borrowing firms, we search in Capital IQ and EDGAR for a previously issued revolving credit agreement that is still outstanding at the time of the new deal. In about two-thirds of these cases, we find a previous credit agreement and code the contract as if it was issued on the same day.[59] For the remaining 4% of deals, we cannot find a revolving loan contract and believe that these are for firms that truly did not have a line of credit at the time the term loan was issued. We exclude these from our analysis, including in column (1) of Table I. The final

[57] We find a borrower's CIK code using the borrower's gvkey and Compustat. The Practical Law data provide the borrower's CIK code.

[58] We update the Compustat link file from Chava and Roberts (2008).

[59] Our underlying assumption is that the term loan credit agreement is determined with complete knowledge of the existing revolving agreement. Consistent with this assumption, many of the term loan agreements refer explicitly to the prior revolver agreement in the contract. Furthermore, we are focusing on public firms that report their contracts to the SEC, which makes it implausible that lenders and firms (and their lawyers) negotiating a loan contract do so without complete knowledge of the terms of all existing credit agreements.

sample is a set of 966 loan deals for which we have the full set of loan contracts for the borrowing firm.

C. Comparison with Dealscan

We read the credit agreements to produce data on the number and level of financial maintenance covenants and the tranches to which the covenants apply. Dealscan also produces data on financial covenants that are available in several tables underlying the source data. In this section, we assess the accuracy of the Dealscan data under the assumption that our data are complete and correct and provide some guidance on how to best use the Dealscan covenant data.

Dealscan provides covenant-related data in two places. First, Dealscan includes a financial covenant table that includes the level of many common financial covenants. Dealscan also provides a separate table for financial covenants related to the net worth of the borrower. The data in these tables are provided at the package level, where a package is close to the level of a deal that we use in our analysis, except that a firm may issue multiple packages on a single day, and a package does not include any previously issued loans. However, a package often includes multiple facilities, often a term loan and a revolver. The Dealscan covenant data do not account for any differential treatment across facilities in the same package. In our sample, about two-thirds of the deals with split control rights are accomplished within a single contract.

We also find that the Dealscan covenant data are missing for many loans that actually have financial covenants. In our sample, 98% of the deals contain at least one financial covenant. However, only 74% of these deals have financial covenant data available in Dealscan, meaning that Dealscan lacks covenant data for roughly one-quarter of the loans that actually have covenants. In the cases in which Dealscan does have financial covenant data, we find that the level of covenants is quite accurate, at least as of the original credit agreement.[60]

Based on this evidence, we believe that it is best to view the Dealscan covenant data as accurate when they are available but to treat missing data with care. We do not support treating missing covenant data as evidence that the loan package is covenant-lite.

The second place where Dealscan provides covenant data is in the market segment file. These

[60] Additionally, for the few deals that completely lack financial covenants, Dealscan also does not provide financial covenant data.

data iare at the facility level and include a segment called "Covenant Lite," which can be used to create an indicator that the facility has no financial covenants.

Across our full sample, Dealscan identifies 4.2% of the deals as having a covenant-lite revolving loan, which overstates the frequency of revolving loans that truly lack financial covenants. Based on our reading of the contracts, only 1.5% of revolving loans lack financial covenants, which are the deals labeled "No Maintenance Covenant" in Table II. Although Dealscan correctly denotes nearly all of the revolving loans that truly lack financial covenants, it incorrectly classifies some revolving loans as covenant-lite. In nearly all of these cases, the term loan in the same package is also denoted as covenant-lite, so it is possible that the revolving loan has been incorrectly included with the term loan. Based on our reading of the contracts, we believe it is best to assume that all revolving facilities contain covenants. Although this will certainly misclassify some facilities, the mistakes are far fewer than using a covenant-lite indicator based on the market segment data.

The market segment data are more informative for term loans. In our sample, 13.7% of deals have a term loan without covenants, which are the deals labeled "Split Control Rights" in Table II. In 67% of these deals, Dealscan correctly denotes the term loan as covenant-lite. However, in recent years, the false-negative rate is much lower than 33%. In the last three years of our sample, more than 80% of deals with split control rights have a term loan identified by Dealscan as covenant-lite. The false-positive rate is also quite low. In the 84.8% of deals with covenants that do apply to the term loan, Dealscan classifies fewer than 2% of the term loans as covenant-lite.

Altogether, it is again the case that the market segment data are accurate when they are available, but they are sometimes missing, understating the prevalence of covenant-lite term loans. However, using the market segment data is the preferable way to identify covenant-lite term loans, particularly for recent years when the false-negative rate is quite low.

Online Appendix

A. Examples of Loan Contract Provisions

Split Control Rights

As an example of a contract that contains split control rights accomplished within a single contract, consider the event of default section from the July 1, 2014, agreement for ServiceMaster Co:

> *(c) Any Loan Party shall default in the observance or performance of any agreement contained in Section 7 of this Agreement (subject to, in the case of the financial covenant contained in subsection 7.10, the cure rights in subsection 8.2); provided that in the case of any Event of Default under subsection 7.10 (a "Financial Covenant Event of Default"), such default shall not constitute a default with respect to any Term Loans unless and until the Revolving Loans have been declared due and payable and the Revolving Commitments have been terminated by the Required Revolving Lenders pursuant to subsection 8.1; provided, however that if (i) Required Revolving Lenders irrevocably rescind such acceleration and termination in a writing delivered to the Administrative Agent within 20 Business Days after such acceleration and termination and (ii) Required Lenders (including the Term Loan Lenders) have not accelerated the Loans, the Financial Covenant Event of Default shall automatically cease to constitute an Event of Default with respect to the Term Loans from and after such date;*

Amend and Extend

For an example of an amend and extend provision, J. Crew Group's March 5, 2014, credit agreement contained the following provision:

> *SECTION 2.14. Extensions of Loans. (a) Notwithstanding anything to the contrary in this Agreement, pursuant to one or more offers (each, an "Extension Offer") made from time to time by the Borrower to all Lenders of Loans with a like Maturity Date on a pro rata basis (based on the aggregate outstanding principal amount of the respective Loans with the same Maturity Date) and on the same terms to each such Lender, the Borrower may from time to time with the consent of any Lender that shall have accepted*

such offer extend the maturity date of any Loans and otherwise modify the terms of such Loans of such Lender pursuant to the terms of the relevant Extension Offer (including, without limitation, by increasing the interest rate or fees payable in respect of such Loans and/or modifying the amortization schedule in respect of such Loans) (each, an "Extension", and each group of Loans as so extended, as well as the original Loans not so extended, being a "tranche"; any Extended Loans shall constitute a separate tranche of Loans from the tranche of Loans from which they were converted), so long as the following terms are satisfied: (i) no Default shall exist at the time the notice in respect of an Extension Offer is delivered to the Lenders, ..., (ii) except as to interest rates, fees, amortization, final maturity date, premium, required prepayment dates and participation in prepayments (which shall, subject to immediately succeeding clauses (iii), (iv) and (v), be determined by the Borrower and set forth in the relevant Extension Offer), the Loans of any Lender (an "Extending Lender") extended pursuant to any Extension ("Extended Loans") shall have the same terms as the tranche of Loans subject to such Extension Offer ..., (iii) the final maturity date of any Extended Loans shall be no earlier than the then Latest Maturity Date at the time of extension ..., (iv) the Weighted Average Life to Maturity of any Extended Loans shall be no shorter than the remaining Weighted Average Life to Maturity of the Loans extended thereby, (v) any Extended Loans may participate on a pro rata basis or on a less than pro rata basis (but not on a greater than pro rata basis ... in any voluntary or mandatory prepayments hereunder, ..., (vi) if the aggregate principal amount of Loans (calculated on the face amount thereof) in respect of which Lenders shall have accepted the relevant Extension Offer shall exceed the maximum aggregate principal amount of Loans offered to be extended by the Borrower pursuant to such Extension Offer, then the Loans of such Lenders shall be extended ratably up to such maximum amount based on the respective principal amounts ..., (vii) all documentation in respect of such Extension shall be consistent with the foregoing, (viii) any applicable Minimum Extension Condition shall be satisfied unless waived by the Borrower and (ix) the interest rate margin applicable to any Extended Loans will be determined by the Borrower and the lenders providing such Extended Loans.

Refinancing Facility

As an example, the February 19, 2014, credit agreement for Diamond Foods, Inc. included the following refinancing provision:

> *2.14 Specified Refinancing Debt. (a) The Borrower may, from time to time, and subject to the consent of the Administrative Agent, add one or more new term loan facilities to this Agreement ("Specified Refinancing Debt") pursuant to procedures reasonably specified by the Administrative Agent and reasonably acceptable to the Borrower, to refinance all or any portion of the Loans or New Term Loans of any tranche then outstanding under this Agreement pursuant to a Refinancing Amendment; provided that such Specified Refinancing Debt: (i) shall rank pari passu in right of payment with the other Loans and New Term Loans hereunder; (ii) will not be Guaranteed by any Person that is not a Guarantor; (iii) will be unsecured or secured by the Collateral on an equal and ratable basis with the Obligations (or on a second-lien basis pursuant to intercreditor arrangements reasonably satisfactory to the Administrative Agent); (iv) will have such pricing and optional prepayment terms as may be agreed by the Borrower and the applicable Lenders thereof; (v) will have a maturity date that is not prior to the date that is 91 days after the scheduled maturity date of, and will have a Weighted Average Life to Maturity that is not shorter than 91 days longer than the Weighted Average Life to Maturity of, the Loans or New Term Loans being refinanced (provided that, notwithstanding the foregoing, if such Specified Refinancing Debt is secured by the Collateral on an equal and ratable basis with the Obligations, it will have a maturity date that is not prior to the maturity date of, and will have a Weighted Average Life to Maturity that is not shorter than the Weighted Average Life to Maturity of, the Loans or New Term Loans being refinanced); (vi) subject to clauses (iv) and (v) above, will have terms and conditions that are substantially identical to, or less favorable to the Lenders providing such Specified Refinancing Debt than, the terms and conditions of the Loans or New Term Loans being refinanced; and (vii) the Net Cash Proceeds of such Specified Refinancing Debt shall be applied, substantially concurrently with the incurrence thereof, to the pro rata prepayment of outstanding Loans or New Term Loans being so refinanced*

pursuant to Section 2.03; provided, however, that such Specified Refinancing Debt shall not have a principal amount (or accreted value) greater than the Loans or New Term Loans being refinanced (excluding any such principal issued or incurred to provide funds for the payment of accrued interest, fees, discounts, premiums or expenses payable in connection with the relevant prepayment).

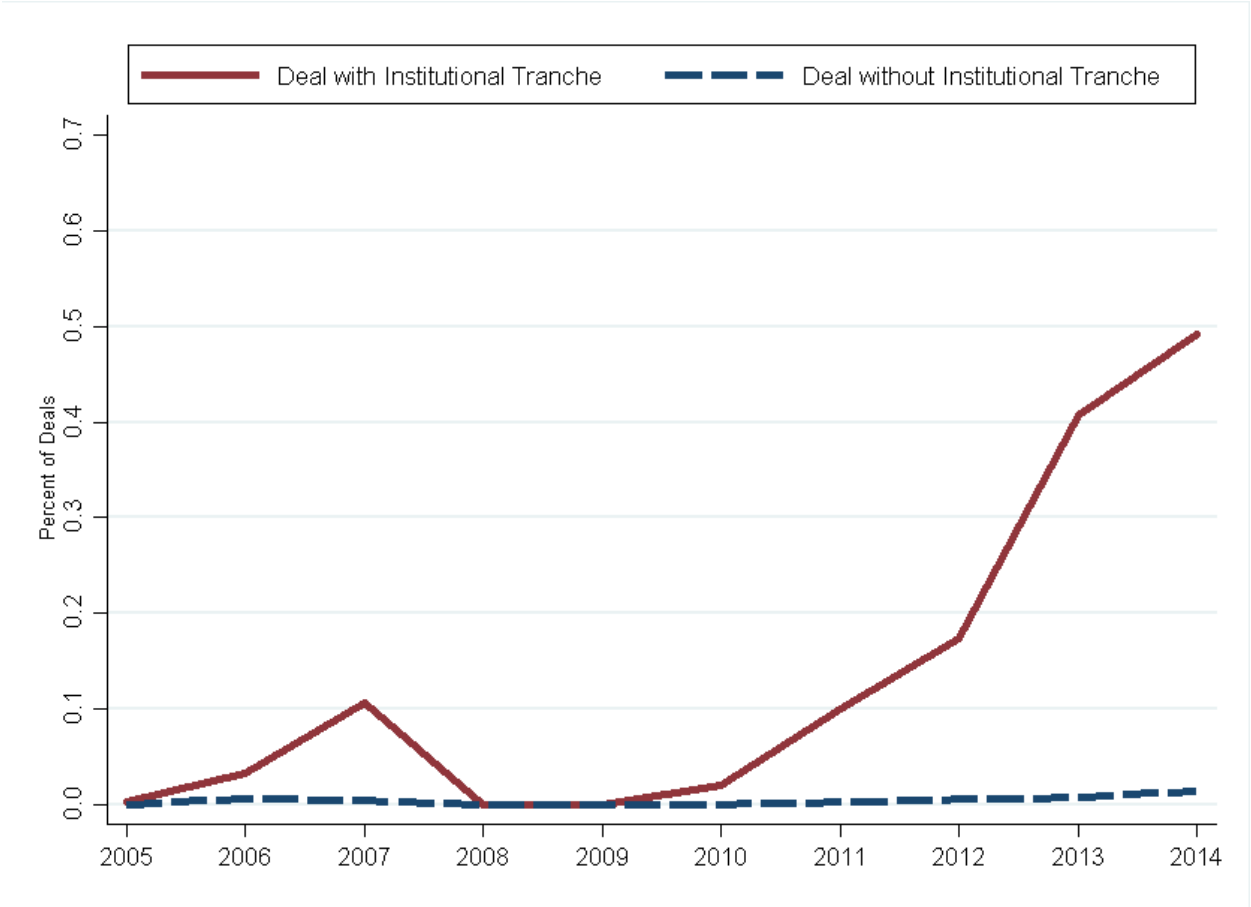
B. Replicating the Main Result with Dealscan

To corroborate our results and facilitate replication, we replicate our main results using data exclusively from Dealscan. We use the full sample of deals in Table I. Recall that a deal is defined in this sample as the set of facilities with the same facility start date. We do not search for a previously issued revolver but in this analysis assume that every borrower has a revolving line of credit. Moreover, we assume that the revolver has financial maintenance covenants. Based on these assumptions, we define a deal as having split control rights as the presence of a term loan designated by Dealscan as covenant-lite, based on the market segment data.

Figure 8 replicates Figure 5 using the larger sample and the alternative definition of split control rights. Consistent with the evidence above, the frequency of split control rights is lower in this sample than in the contract sample, by 10 to 15 percentage points, reflecting the fact that Dealscan misses some truly covenant-lite loans. However, the time series pattern is very similar. Split control rights rose very mildly prior to the crisis and then very sharply during 2011-2014.

We next replicate the bivariate probit regression results in Tables VI and VIII, again using the larger sample and the alternative definition of split control rights. Here, we use only deals from 2011-2014, and the sample is restricted to deals with Compustat data, so the sample about doubles from Tables VI and VIII. The results are quite consistent. The large positive relationship is robust to a high degree of correlation of residuals in model (3). Across the various assumptions for the correlation of residuals, the estimates are a few percentage points smaller using the larger sample and less precise definition from Dealscan. For example, assuming a zero correlation, the estimated marginal effect of *Institutional* falls from 0.425 in Table VI to 0.345 in Table XI. The fall in estimates likely reflects the measurement error in the Dealscan data.

Figure 8: Split Control Rights and Institutional Investors, Dealscan Sample



Note: The figure shows the annual proportion of leveraged loan deals that contain split control rights, based solely on Dealscan data. The red solid line is for deals with an institutional tranche, and the blue dashed line is for deals without an institutional tranche.

Table XI: Split Control Rights and Institutional Tranches, Bivariate Probit 2011-2014, Dealscan Sample

	Correlation = 0.0		Correlation = 0.2		Correlation = 0.4		Correlation = 0.6	
	Split Control	Institutional	Split Control	Institutional	Split Control	Institutional	Split Control	Institutional
	(1)	(2)	(1)	(2)	(3)	(4)	(5)	(6)
Institutional Tranche	2.048***		1.699***		1.307***		0.861***	
	(7.06)		(5.91)		(4.71)		(3.35)	
Borrower Rated BB+/BB	-0.613*	-1.201***	-0.703*	-1.198***	-0.782*	-1.194***	-0.853**	-1.185***
	(-2.01)	(-6.12)	(-2.28)	(-6.18)	(-2.56)	(-6.26)	(-2.85)	(-6.36)
Borrower Rated BB-/B+	-0.345	-0.312	-0.360	-0.314	-0.370*	-0.315	-0.375*	-0.316
	(-1.76)	(-1.66)	(-1.89)	(-1.66)	(-2.02)	(-1.67)	(-2.15)	(-1.69)
Borrower Unrated	-0.332	-0.748**	-0.396	-0.749**	-0.453*	-0.752**	-0.504*	-0.758***
	(-1.34)	(-3.23)	(-1.65)	(-3.25)	(-1.97)	(-3.28)	(-2.30)	(-3.33)
Ln(Assets)	0.092	0.315***	0.118*	0.311***	0.143**	0.306***	0.168**	0.297***
	(1.64)	(4.45)	(2.15)	(4.40)	(2.67)	(4.33)	(3.27)	(4.24)
Debt / Assets	-0.762	0.912*	-0.651	0.938*	-0.530	0.970*	-0.397	1.010**
	(-1.57)	(2.37)	(-1.37)	(2.42)	(-1.16)	(2.50)	(-0.92)	(2.59)
Debt / OIBDP	0.129*	-0.009	0.125*	-0.011	0.119*	-0.014	0.110*	-0.017
	(2.19)	(-0.16)	(2.18)	(-0.20)	(2.16)	(-0.24)	(2.13)	(-0.30)
OIBDP / Assets	6.636**	-0.617	6.386**	-0.675	6.018*	-0.736	5.507*	-0.803
	(2.64)	(-0.32)	(2.60)	(-0.35)	(2.57)	(-0.39)	(2.53)	(-0.43)
Residual Correlation	0.000		0.400		0.600		0.000	
M.E. of Institutional Tranche	0.327***		0.271***		0.211***		0.145***	
	(9.05)		(7.42)		(5.75)		(3.89)	
Year-Quarter FE	Yes		Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes		Yes	
N	667		667		667		667	

Note: This table displays coefficient estimates of the bivariate probit model presented in (3) where the residual correlation is constrained to be 0.2, 0.4, and 0.6. The dependent variables are indicators that a deal has split control rights, defined as a covenant-lite term loan tranche in the deal, and that the deal contains an institutional tranche. OIBDP stands for operating income before depreciation. M.E. of Institutional Tranche reports the marginal effect of a discrete change in Institutional Tranche from 0 to 1, computed with control variables at their sample means. Year-Quarter FE refers to fixed effects for the calendar quarter the deal was originated, and Industry FE refers to the Fama-French 30 industry classification based on the SIC code. The sample includes all deals in Table I issued during 2011-2014. Standard errors are clustered at calendar quarter level.

Absolute t statistics are in parentheses.

* p< 0.10, ** p< 0.05, *** p< 0.01

C. Additional Evidence Related to Selection on Unobservables

An additional suggestion from Altonji et al. (2005) is to assess the degree of bias that might be present in the estimate of α in model (1) because of assuming that $\rho = 0$. Failing to account for non-zero correlation will result in an inconsistent estimate of α if $\rho > 0$, which leads to the standard violation of conditional mean independence of the errors: $\mathrm{E}\left(\varepsilon_{it}^{S}|Institutional_{it}=1\right) - \mathrm{E}\left(\varepsilon_{it}^{S}|Institutional_{it}=0\right) > 0$. We refer to this term as the degree of selection based on unobservable factors: $S_{uo} \equiv \mathrm{E}\left(\varepsilon_{it}^{S}|Institutional_{it}=1\right) - \mathrm{E}\left(\varepsilon_{it}^{S}|Institutional_{it}=0\right)$.[1] Altonji et al. (2005) show that:

$$\text{plim}\ \hat{\alpha} \simeq \alpha + S_{uo}\frac{Var(Institutional)}{Var(\widetilde{Institutional})}, \tag{4}$$

where $\widetilde{Institutional}$ is the residual from a regression of $Institutional$ on the observable variables X. The term $\frac{Var(Institutional)}{Var(\widetilde{Institutional})}$ is larger than 1 and provides a measure of how well the observable factors X explain the likelihood that a deal has an institutional tranche. In our sample during the years 2011-2014, this term is estimated to be 1.223, reflecting the strong correlation between the presence of an institutional tranche and borrower size, leverage, and credit rating.[2]

The important insight from Altonji et al. (2005) is that we can estimate the degree of bias necessary for the positive estimate of α in column (4) of Table VI to be entirely caused by selection based on unobservable factors. Under the hypothesis that $\alpha = 0$, the degree of selection on unobservables can be estimated by $\hat{S}_{uo}^{max} = \frac{\hat{\alpha}}{1.223}$, which is 1.778 based on the estimate $\hat{\alpha} = 2.175$ in Table VI. This number can be interpreted as the difference in the expected value of the unobservable factors explaining split control rights, $\mathrm{E}\left(\varepsilon_{it}^{S}\right)$, for deals with and without an institutional tranche, under the assumption that $\alpha = 0$.

We can gauge the size of $\hat{S}_{uo}^{max}$ by comparing it with the amount of selection based on observable factors, X, which can also be estimated under the hypothesis that $\alpha = 0$. Assuming $\alpha = 0$, the parameters in (1) can be estimated as a standard probit model, and the degree of selection based on observables is given by:

$$S_o = \frac{\hat{\mathrm{E}}\left(X'\beta^S|Institutional_{it}=1\right) - \hat{\mathrm{E}}\left(X'\beta^S|Institutional_{it}=0\right)}{\hat{\mathrm{Var}}\left(X'\beta^S\right)},$$

[1] We borrow the notation from Mavisakalyan and Meinecke (2016).

[2] The R^2 of the OLS regression of $Institutional$ on the control variables in Table VI is 0.33.

where $X'\beta^S$ are the estimated latent thresholds that determine the probability of split control, and $\hat{\text{E}}$, $\hat{\text{Var}}$ denote the sample average mean and variance.[3] In our sample, the average estimated threshold for deals with an institutional tranche is -0.429, and the average estimated threshold for deals without an institutional tranche is -0.790, with the difference being driven by positive coefficient estimates on firm size and leverage.[4] Compared with an overall variance of 0.488, this generates an estimated degree of selection on observables of $\hat{S}_o = 0.739$.

The two estimates $\hat{S}_o$ and $\hat{S}_{uo}^{max}$ can be compared to provide a sense of how large the degree of selection based on unobservable factors would have to be, relative to the degree of selection based on observable factors, for the estimate of α to be fully explained by unobserved selection. In our sample, the estimated ratio is $\frac{\hat{S}_{uo}^{max}}{\hat{S}_o} = \frac{1.778}{0.739} = 2.406$. This estimate means that the degree of selection based on unobservables would need to be 2.4 times as large as the degree of selection on observables to fully explain the large positive estimate of α in Table VI. In our opinion, it is unlikely that factors so important in explaining the nature of covenants in loan agreements would be unfamiliar to us as researchers and/or excluded from standard databases.[5]

[3] There is no corresponding denominator in the equation for S_{uo} because $\text{Var}(\varepsilon^S)$ is set to 1.

[4] The coefficient estimates are only marginally statistically significant.

[5] Altonji et al. (2005) also view such a ratio as implausible in their setting.