SYNDICATED LOAN SPREADS AND THE COMPOSITION OF THE SYNDICATE

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<u>ABSTRACT</u>

The past decade has seen significant changes in the structure of the corporate lending market, with non-bank institutional investors playing larger roles than they historically have played. These non-bank institutional lenders typically have higher required rates of return than banks, but invest in the same loan facilities. We hypothesize that non-bank institutional lenders invest in loan facilities that would not otherwise be filled by banks, so that the arranger has to offer a higher spread to attract the non-bank institution. In a sample of 20,031 leveraged loan facilities originated between 1997 and 2007, we find that, loan facilities including a non-bank institution in their syndicates have higher spreads than otherwise identical bank-only facilities. Contrary to risk-based explanations of this finding, non-bank facilities are priced with premiums relative to bank-only facilities of the same loan package. These premiums for non-bank facilities are substantially larger when a hedge or private equity fund is one of the syndicate members. Consistent with the notion that firms are willing to pay spread premiums when loan facilities are particularly important to the firm, we find that firms spend the capital raised by loan facilities priced at a premium faster than other loan facilities, especially when the premium is associated with a non-bank institutional investor.

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1. Introduction

Various types of institutional investors participate in syndicated loans. These investors have substantially different costs of providing debt capital: Banks must receive the risk free rate plus a premium for the default risk. In contrast, hedge fund managers have relatively high required returns on top of the considerable fees they charge. Consequently, to justify it making an investment, a hedge fund's pre-fee expected returns must be substantially higher than those for a bank. Given these different expected returns, it is somewhat puzzling that both hedge funds and banks (as well as other institutions) all invest in the same syndicated loan facilities.

One possible explanation for the observation that investors with differing expected returns invest in the same syndicated loan facilities is that facilities differ on dimensions other than risk, and that these differences are associated with both spread differences and also the identity of investors who provide the financing. Some loan facilities are made when the supply of capital is high, so that the loan facility can be filled by banks at a relatively low spread. Others are made at times when it is difficult to acquire the necessary capital from banks, so that the loan arrangers have to raise the spreads to attract other non-bank institutional investors such as hedge funds. Alternatively, if the loan facility is not crucial to the firm's health and it cannot be filled at low cost by banks, the firm could choose not to borrow at all. Consequently, when non-bank financial institutions take positions in loan facilities, there should be a higher spread than in loan facilities in which they do not take positions. In addition, we expect that borrowing firms should spend the money they raise in non-bank facilities relatively quickly.

To evaluate the way in which different kinds of non-bank institutional investors are involved in the syndicated lending process, we consider a sample of 20,031 facilities of "leveraged" loans from the *DealScan* database, each of which was originated between 1997 and 2007.[1] We focus on the leveraged

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[1] The technical definition of leveraged loans varies by organization. For example, *DealScan* defines as leveraged any loan with a credit rating of BB+ or lower and any unrated loan. Bloomberg defines leveraged loans as those with spreads over LIBOR of 250 basis points (bp) or more. Standard & Poor's deems loans with spreads over LIBOR of 125 bp or more as leveraged loans. Thompson Financial denotes as leveraged loans, all those with an initial spread of 150 bp or more before June 30, 2002, or 175 bp or more after July 2, 2002. We follow *DealScan's*

loan segment of the market because non-bank institutional investors' participation in the corporate lending market has been concentrated in this lower quality, non-investment grade segment of the market, and also because restricting the sample to leveraged loans allows us the sample to be relatively homogenous.[2] Of the 20,031 leveraged loan facilities, 13,752 are associated with a syndicate containing only commercial or investment banks (bank-only facilities), while the remaining 6,279 have syndicates containing at least one non-bank institutional investor (non-bank facilities). These institutional investors are most often finance companies (contributing to the syndicates of 4,603 loan facilities), private equity or hedge funds (2,754 loan facilities) and mutual funds (1,010 loan facilities).

We estimate the difference in spreads between loan facilities as a function of the identities of the investors in a particular facility. In doing so, we control for other factors that affect the loan facility's spread, such as the firm's risk measured by either firm-level accounting variables, or the rating of the issuer, as well as the loan facility's type (Term Loan A, Term Loan B, or Revolver) and other facility-specific characteristics. Our estimates suggest that the presence of a non-bank institutional syndicate member is associated with a significantly higher spread than an otherwise similar bank-only loan facility. When we control for risk using firm-level accounting variables, our estimates imply a spread premium of approximately 56 basis points. If we instead group loans by rating category, the estimated spread premiums are smaller, around 24 basis points, but are still statistically significant and large enough to be economically important.

In computing these estimates of the non-bank premiums, we control for publicly observable variables that could affect spreads. However, it is possible that non-bank premiums could reflect unobservable differences between firms that are correlated with both the likelihood of there being a non-

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classification of leveraged loans in this paper. By "non-bank" we mean an institutional investor that is neither commercial bank nor investment bank.

[2] The proportion of leveraged loans among loans classified as "institutional" loans by *DealScan* is about 90% during the sample period. Similarly, Nandy and Shao (2010) find that 86.1% of "institutional" loans are leveraged loans with the proportion increasing over the years during the period from 1995 to 2006. The definition of "institutional" facilities in this paper is different from the one used by *DealScan* or Nandy and Shao (2010). We focus on the actual participation as opposed to the label put on the facility and consider a loan facility to be 'institutional' if at least one non-bank (neither commercial bank nor investment bank) institutional investor is involved in the lending syndicate.

bank institutional syndicate member and the spreads on the loan facilities in which they invest. For example, suppose that at times when the firm is having financial problems that prevent it from receiving a loan facility from other lenders, it is more likely to have a non-bank institution in the loan facility's syndicate. In this case, it would be possible that the borrower's true risk would not be reflected in observable variables, so that the positive estimated premiums could reflect compensation for risk that is unobservable to an outsider.

To evaluate the possibility that the premiums to non-bank institutional investors reflect incremental risk differences between non-bank loans facilities and bank-only loan facilities, we estimate the effect of non-bank syndicate members on the pricing of different facilities within the same loan. Different facilities within the same loan package typically have the same seniority and hence have the same default risk. Yet, facilities usually have different maturities, sizes, and syndicate structures, so we control econometrically for differences in facility-specific attributes when estimating within-loan differences. Using this approach, the existence of a non-bank syndicate member effect on the relative spreads on different facilities of the same loan cannot reflect a correlation between non-bank institutions' existence and a factor related to firm-level risk.

The within-loan estimates indicate that when a non-bank institution participates in a Term Loan B facility's syndicate, the facility has a larger spread premium relative to Term Loan A facilities or revolvers of the same loan relative to bank-only Term Loan B facilities, although only the premium difference for revolvers is statistically significantly different from zero. We also consider the cases in which the non-bank institution invests in a particular type of facility and there also is another facility of the same type in the same loan. In each of these cases, the facility with the non-bank institutional investor trades at a statistically significantly higher spread. These findings confirm that facilities in which non-bank institutional investors participate have higher spreads than otherwise similar bank-only facilities, even holding borrower characteristics constant.

We also examine whether the type of non-bank syndicate member is related to the spread premium. We estimate this spread premium when we control for risk econometrically using firm-specific

financial data, and also when we compare across different facilities in the same loan. Consistent with the notion that different types of institutional investors have different required rates of return, we find that when hedge or private equity funds participate in a facility's syndicate, the spread premium is substantially higher, about 29 basis points than when other types of non-bank institutional investors participate in the facility's syndicate.

We also examine whether these spread premiums vary when the non-bank syndicate members also have equity positions at the time of the loan facility origination. When a hedge fund has an equity stake in the borrowing firm greater than 0.1 percent, the spread premium approximately doubles, to about 58 basis points. Finally the spread premiums vary positively with the fraction of the loan that is purchased by the non-bank institutional investor. These findings are consistent with the view that arrangers rely on non-bank institutional investors, especially hedge and private equity funds, as lenders of last resort, when it is difficult to raise capital for the loan facility through banks.

Finally, we consider the idea that if non-bank institutional lenders are paid premiums to invest in the particular facilities in which they participate, then these facilities should be for loan facilities in which capital is particularly important for the borrowing firms. A testable implication of this idea is that the borrowing firms should save a smaller fraction of the capital they raise as cash than when a non-bank institution does not participate in the syndicate. To evaluate this hypothesis, we estimate equations similar to those in Kim and Weisbach (2008) that predict the fraction of an incremental dollar raised that goes to alternative uses. Our estimates indicate that when there is a positive spread premium, the estimated fraction of capital raised that the borrowing firm saves as cash declines with the abnormal spread on the loan facility. This finding is consistent with the notion that borrowers are willing to pay a premium on their loan facilities in situations in which raising capital quickly is particularly important to the firm.

Our findings parallel those of Brophy, Ouimet, and Sialm (2009), who find that hedge funds' equity investments are typically to firms that otherwise would have trouble raising capital. When making equity investments, hedge funds typically negotiate discounts relative to the public stock price paid by other investors, and earn abnormal returns because their purchases are at a discount. Thus, hedge funds

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abnormal returns on private placements of equity can be thought of as the return to providing liquidity. Our findings can be viewed similarly: we find that hedge and private equity funds contribute to loan facilities in firms with spreads that are relatively high. Since spreads are determined through an auction process, high spreads that cannot be explained by risk and other firm and loan facility attributes mean that the facility would have relatively few investors or would have difficulties in fully subscribing absent the hedge or private equity fund. Therefore, we view the spread premiums as compensation that non-bank institutional investors receive in exchange for providing liquidity to their firms in the facility that is in less demand from other investors.

Nandy and Shao (2010) compare spreads on "institutional" and "bank" facilities, and document that the Term Loan B facilities or what they label institutional facilities, have higher spreads than facilities they label bank facilities, Revolvers or Term Loan A facilities. We extend their work in a number of ways; in particular, we focus on the actual participation by types of bank and non-bank institutional syndicate members as opposed to the label put on the facility, and the way that non-bank institutions participation in the syndicate affects facilities' spreads and the way in which the capital is used.

The paper also is related to the literature on potential conflicts of interest that arise when institutional investors engage in syndicated lending. Ivashina and Sun (2011b) and Massoud, Nandy, Saunders, and Song (2011) focus on the trading of institutions that participate in syndicated lending, and the associated potential conflicts of interest. Both papers find evidence that institutional investors in the syndicated loan market exploit their access to private information when trading and earn abnormal returns when they trade in the firm's equities.

The remainder of the paper proceeds as follows: Section 2 describes the data sources and sample. Section 3 estimates the differences in spreads between bank-only loan facilities and comparable non-bank loan facilities. Section 4 examines factors that affect the magnitude of spread differences between bank-only and non-bank facilities. Section 5 considers the way in which the fraction of the capital raised varies with the loan's pricing and composition of the syndicate, while Section 6 concludes.

2. Data sources and sample construction

2.1. Sample of leveraged loan facilities

We obtain our sample of leveraged loans from the Reuters Loan Pricing Corporation's (LPC) *DealScan* database for the 1997-2007 period. We consider a loan to be a "Leveraged loan" if it has a credit rating of BB+ or lower, or is unrated (see footnote 1). Leveraged loans in our sample are either stand-alone facilities (41.4%) or made up of term loans facilities packaged together with revolver facilities. A term loan facility is a loan facility for a specified amount, fixed repayment schedule and maturity, and is usually fully funded at origination. In contrast, revolvers typically have shorter maturities than term loan facilities and are drawn down at the option of the borrower. Term Loan facilities are normally designated by letter, where the Term Loan A facility is usually amortizing, and is typically held by the lead arranger, and the remaining facilities (Term Loan B, C, D, E, …) are more often "bullet", meaning that they have one payoff at maturity, and are usually sold to third parties.[3]

We focus on leveraged loans because participation of non-bank institutional investors in this segment of the loan market has increased over time. In addition, according to previous studies (e.g. Nandy and Shao (2010)) the overwhelming majority of "institutional" loans are leveraged loans with the proportion increasing over time. Moreover, given that the pricing function of leveraged loans is likely to be different from that of investment grade loans, restricting the sample to leveraged loans finesses econometric difficulties that could potentially arise if we were to pool leveraged and investment grade loans. We begin our sample in 1997 because major developments in the market that fueled institutional involvement in the corporate loan market occurred in 1995 and 1996.[4]

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[3] Appendix C contains statistics on the payoff structure of each type of facility in our sample.
[4] The Loan Syndications and Trading Association (LSTA) was founded in 1995 and S&P first started rating bank loans in 1995. In 1996, LSTA first started providing mark-to-market pricing (for dealers only). In addition, the secondary market for syndicated loans became well established by mid-1990s: by the early 1990s specialized loan trading desks were operating in a number of institutions led by Bankers Trust, Alex Brown, Bear Stearns, Citibank, Continental Bank and Goldman Sachs. By 1997, about 25 institutions had active trading desks and there were two inter-dealer brokers. These innovations spurred the fast growth of the syndicated loan market, which in turn fueled institutional participation in the primary lending market. Moreover, there are very few leveraged loans before 1997.

To construct the sample, we begin with all leveraged loan facilities listed in *DealScan* made to non-financial U.S. public firms and completed between 1997 and 2007, a total of 37,552 loan facilities. We require that the data on deal value and the date of origination not be missing, and that interest rate is set at a spread over LIBOR. We additionally restrict the sample to the most common type of facilities, where the type of instrument is either a line of credit (such as Revolver/Line, 364-Day Facility, Limited Line) or a term loan.[5] We further restrict the sample to the borrowing companies for which we could match to the *Compustat* database.[6] Finally we exclude loans whose primary purpose is LBO financing. This screening process results in a sample of 20,031 facilities, associated with 13,122 loans made to 5,627 borrowing firms.

We consider a loan facility to have a non-bank institutional investor if at least one institutional investor that is not either a commercial or investment bank is involved in the lending syndicate. Non-bank institutions include hedge funds, private equity funds, mutual funds, pension funds and endowments, insurance companies, and finance companies.

To identify commercial bank lenders, we start from lenders whose type in *DealScan* is "US Bank", "African Bank", "Asian-Pacific Bank", "Foreign Bank", "Eastern Europe/Russian Bank", "Middle Eastern Bank", "Western European Bank", or "Thrift/S&L". We manually exclude the some observations that are classified as a bank by *DealScan* but actually are not, such as GMAC Commercial Finance. Then we manually check lenders whose primary SIC code fall in 6011-6082, 6712, or 6719 and add them to the list of commercial banks if appropriate. When identifying commercial banks, we also consider finance companies affiliated with commercial banks (e.g. Foothill Capital) to be commercial banks. We do take into consideration the changes in the institutional type, so that, for example, JP Morgan is classified as an investment bank before its merger with the Chase Manhattan Corp in 2000, and JP Morgan Chase is coded as a commercial bank afterward.

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[5] This restriction excludes bankers' acceptance, leases, standby letters of credit, step payment leases, guidance lines, traded letters of credit, multi-option facilities, and undisclosed loans.
[6] We are grateful to Michael Roberts for providing the *Dealscan-Compustat* link file. In addition to using this link file, we also manually confirmed the matching between *DealScan* and *Compustat*.

To identify investment banks, we start from lenders that are classified by *DealScan* as "Investment Bank". By manually checking each lender, we drop ones that are labeled as IB by *DealScan* but are better characterized as other types, allowing us, for example, to classify Blackstone Group as a private equity firm rather than as an investment bank. We also manually check lenders whose primary SIC code is 6211 to capture additional IB lenders such as RBC Capital Market. Insurance companies are identified following similar process, focusing on the lenders labeled as "Insurance Company" by *DealScan* and the ones having primary SIC code of 6311-6361, 6399, or 6411.

Identifying other types of lenders is more challenging, since there are not SIC codes clearly indicating finance companies, mutual funds, or hedge funds and private equity funds. Therefore, to identify finance companies, we rely on *DealScan*'s classification ("Finance companies"). A lender is classified as a mutual fund if its type in *DealScan* is either "Mutual funds" or "Institutional investor-prime funds". When a lender's type in *DealScan* is ambiguous (e.g. "Institutional Investor – Other", or "Other"), we further check *Capital IQ* to see whether it is a mutual fund. Finally, to identify hedge funds and private equity funds, we start from the lenders that are labeled as "Institutional investor – Hedge fund" or "Vulture fund" in *DealScan*. A lender is further added to the category of HF/PE if its name appears in the *TASS* or *Preqin* databases, or if the descriptions of the lender in *Capital IQ* tells that it is privately owned hedge fund sponsor, manages private equity funds, or manages assets for high-net worth individuals.

Because our sample only includes loan facilities with floating-rate interest payments, we use the all-in-drawn spread as our measure of loan pricing. The all-in-drawn spread is the sum of the spread of the facility over LIBOR and any annual fees paid to the lender group. *DealScan* also provides data on the facility's size and maturity, the number of investors participating in the lending syndicate, as well as information on whether the facility is senior, secured, second-lien, syndicated, and the type of facility (revolver or term loan). We also consider the firm's lending relationship with the facility's syndicate members by examining whether the firm borrowed from the same lender previously.

We match the borrower's and/or borrower's parent name to the *Compustat* firm by a combination of algorithmic matching and manual checking following Chava and Roberts (2008). Using this matching procedure, we are able to obtain other firm-level variables from *Compustat*, CRSP, I/B/E/S, 13F, and SDC Platinum. The total number of leveraged loan facilities that have a full set of data for the most recent prior fiscal year-end is 12,346, of which 3,460 have participation of an institutional investor that is neither an investment bank nor a commercial bank.

2.2. Overview of sample

Table I provides statistics on the annual distribution of leveraged loan facilities. This table emphasizes the increasing trend of non-bank institutional participation in the leveraged loan market. The value of loan facilities with non-bank syndicate members, as well as the fraction of all leveraged loan facilities made up by loan facilities with non-bank participation increased substantially over our sample period, from $57 billion (19% of all leveraged loans) in 1997 to $110 billion (32%) in 2007.

Table II presents summary statistics for the all loan facilities in our sample (20,031 facilities) (Panel A) and lender participation (Panels B, C, and D). As reported in Panel A, the average facility amount is $158 million, the average number of investors involved in a lending syndicate is about six, and the average maturity is about 47 months. Approximately 70% of facilities are secured, 1.4% are second-lien, and about 87.6% are syndicated loan facilities.[7] Almost all loan facilities are senior debt.

Panel B of Table II presents the frequency of bank and non-bank institutions participation, while Panels C and D report loan share information in a sample of loan facilities for which we have data on loan shares (5,624 facilities, about 25% of the sample). For this sub-sample, non-bank institutions participate in about 23% of the loan facilities (1,282 of 5,624). When they participate in the loan facility, non-bank syndicate members together own 44% of the facility, with finance companies and hedge/private equity funds each owning about a third of the loan facilities in which they invest. In addition, when non-bank institutional investors participate in a loan facility, they are the largest investor 46% of the time (Panel D).

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[7] All results are similar when we exclude sole-lender loans from the sample.

The Term Loan A facility often is referred to as the bank facility and Term Loan B facility as the institutional facility (see for example Nandy and Shao (2010)). However, our data indicate this description can be somewhat misleading since non-bank institutions do invest in Term Loan A and revolver facilities as well, and sometimes Term Loan B facilities are held entirely by banks. As Panels B through D show, contrary to the common terminology, non-bank institutions invest in Term Loan A facilities and banks invest in Term Loan B facilities. Conditional on investing in Term Loan A facilities non-bank institutions together own 25% of the facility and when bank invest in Term Loan B facilities, they together own 86% of the loan facility.

3. Differences between bank-only and non-bank loan facilities

3.1. Univariate differences

Table III summarizes the univariate differences between the 6,279 non-bank and 13,752 bank-only loan facilities in our sample. Non-bank facilities are less likely to be revolvers than bank-only facilities loans (49.3% vs. 67.8%), and this difference is statistically significant at the one percent level. The remainder of the loan facilities in the sample are Term Loans, so non-bank facilities are more likely to be Term Loan facilties than are bank-only facilities. Facilities designated "Term Loan A" are usually amortizing, while those "Term Loan B" more often have one final "bullet" payment.[8]

Within the sample of leveraged loan facilities, the non-bank facilities tend to be more risky than bank-only facilities. Of the borrowers that do have ratings, non-bank facilities tend to have borrowers with lower ratings.[9] For example, of the non-bank loan facilities with issuer ratings, 56% have a B rating

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[8] We treat facilities with B or higher designations (e.g. C, D, etc.) as Term Loan B. Moreover, about 49% of the term loans in our sample has no letter designation but is just called 'Term Loan'. In all reported tables, we treat these undesignated term loans as Term Loan B. We do so because the facility attributes, such as the spread and payment schedule, of the unlabeled Term Loans in our sample appear to be more like the Term Loan B's than the Term Loan A's. Detailed comparisons of attributes across different facility types are provided in Appendix C. In addition, when a facility is first launched and appears in the 'Calendar', which is the weekly record of outstanding loans published by Reuters Loan Pricing Corporation (LPC), often its type is originally described as "Term Loan", but ultimately is classified in *DealScan as* "Term Loan B", or vice versa. We have re-estimated all equations reported in the paper treating unclassified term loans separately and all results are similar to those reported below.

[9] We use issuer rating as of the fiscal year-end prior to the loan origination, not ratings for individual loans, because information on ratings for individual loans is more often missing. Therefore the sample includes 1,100 loan facilities

or lower, compared to 36% of the bank-only loan facilities. In addition borrowers of non-bank facilities have higher leverage, a lower Z-score, are more likely to have negative net worth, and lower ROA than bank-only facilities.[10]

3.2. Differences in spreads

The goal of this paper is to understand why we observe investors with different required returns investing in the same syndicated loan facilities. Within a particular facility, all investors receive the same return; however, facilities differ cross-sectionally, both in terms of the syndicate composition and the spreads that they offer investors. To attract investors with a higher required rate of return, facilities must offer higher spreads. Therefore, we expect to observe higher spreads for loan facilities with non-bank syndicate member than for loan facilities with bank-only participants.

To evaluate this hypothesis empirically, we estimate equations predicting the interest rate on a particular loan facility. Because the loans in our sample are floating rate with LIBOR as their index, we estimate equations predicting the "All-in-Drawn Spread", which is the spread of the loan facility over LIBOR plus any annual fees that the borrower must pay the lenders. Our goal is to estimate the incremental effect of a non-bank institutional investor on the spread, holding other factors that could affect the spread constant. Therefore, we estimate the following equation:

$$All-in-drawn\ spread = \alpha + \beta \times Non-bank\ syndicate\ member + \gamma \times X + \varepsilon \tag{1}$$

where X is a vector of covariates that include facility- and firm-specific control variables. The control variables include the facility amount, the number of participating lenders and the lenders' past relationships with the firm, the maturity of the facility, whether the facility is secured or second-lien, whether the loan has covenants, as well as the borrowing firm's size, ratio of fixed to total assets, Z-score,

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(out of the total 20,031) made to investment grade borrowers, despite the fact that all of our loan facilities are classified as "leveraged".

[10] "Z-score" is intended to be a negative function of bankruptcy probabilities. It is taken from Altman (1968) and defined by: Z = 1.2 Working Capital / Total Assets + 1.4 Retained Earnings / Total Assets + 3.3 EBIT / Total Assets + 0.6 Market Value of Equity / Book Value of Total Liabilities T_4 + 0.999 Sales/ Total Assets.

leverage, industry-adjusted ROA, log of the number of analyst following, and total institutional holdings. We also control for the high-yield spread in the month of facility origination to take into account time-series variations in market-wide risk premia. Definitions of all variables are provided in Appendix A.

The loan facilities are generally either revolvers or term loans. The term loan facilties are of two types, Term Loan A facilities, which are often syndicated to banks, or Term Loan B facilities (sometimes labeled just "Term Loan" in the *Dealscan* database), which are typically structured for non-bank institutional investors. Nandy and Shao (2010) document that Term Loan B facilities generally have higher spreads than Term Loan A facilities, which is consistent with the amortizing nature of Term Loan A facilities leading to a substantially shorter effective maturity than Term Loan B facilities. For this reason, it is important to control for differences in type of facility when estimating Equation (1).

A key factor in determining the spread on a loan facility is its default risk. It is possible that differences in spreads between non-bank and bank-only facilities could reflect the fact that non-bank facilities tend to be for riskier borrowers (See Table III). To measure the incremental impact of a non-bank institutional investor on spreads, it is important to control as well as possible for the default risk of the loan.

About 40% of the firms in our sample has issuer credit ratings at the end of fiscal year prior to the loan origination. The credit ratings presumably reflect the risk of the issuer as assessed by professionals around the time the loan is issued. However, relying solely on credit ratings to measure risk necessitates dropping loan facilities made to firms that do not have ratings. Therefore, we estimate specifications using issuer credit ratings as a measure of risk for the loan facilities for which credit ratings are available, as well as equations using the Z-Score and leverage to control for default risk for the larger sample that includes loan facilities without credit ratings.

We present the OLS coefficient estimates of Equation (1) and the corresponding *p-values* on the full sample in Panel A of Table IV, and on the sub-sample with firm credit ratings in Panel B of Table IV. Each equation includes facility-purpose fixed effects, and year fixed effects, and the reported standard

errors are clustered by borrower. When we consider the sample of all facility types, we include facility-type fixed effects in the equation as well.

Column (1) of Panel A of Table IV presents estimates of Equation (1) using all observations for which all required data are available (12,346 loan facilities). In this column, the coefficient on the non-bank syndicate member indicator variable is 56.4, and is statistically significantly different from zero. This coefficient indicates that holding other things constant, loan facilities with at least one non-bank syndicate member have spreads that are 56.4 basis points higher than bank-only loan facilities. This spread difference is relatively large, given the average spread of 249 basis points, so the estimated non-bank premium equals 22.7% of the total spread.[11]

The coefficients on the other variables, which control for other factors that potentially affect spreads, are consistent with the notion that spreads are a function of borrower and loan risk. Larger loan facilities with more syndicate members, especially when the participants have past relationships with the borrowers, tend to be less risky and therefore have lower spreads. Secured and second-lien facilities tend to be more risky, and hence have higher spreads.[12] Z-Score has a negative coefficient and leverage a positive one, suggesting that riskier firms have loan facilities with higher spreads, and profitability in the form of industry-adjusted ROA, not surprisingly, is associated with lower spreads. We also control for market-wide risk premium by including the high-yield credit spread, measured as the difference between the average spread on AAA-rated loan index and the average spread on BB-rated loan index in the month of loan origination. Not surprisingly, since our sample is relatively risky leveraged loans, the high yield spread is positively (and statistically-significantly) related to the all-in-drawn spread.

In Column (2) of Panel A of Table IV, we present estimates of Equation (1) for the sub-sample of revolvers, in Column (3) for all term loan facilities, and in Column (4) for only the Term Loan B facilities. In each column, the coefficient on the non-bank syndicate member indicator variable is positive and

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[11] The average spread for the 12,346 facilities that have all required data is 249 basis points (Appendix B).
[12] Security by itself lowers the risk of a loan. However, secured loans tend to be issued by younger, riskier firms with lower cash flows, so the positive relation with spreads likely reflects this additional risk. See Berger and Udell (1990) and Erel, Julio, Kim, and Weisbach (2012).

statistically significantly different from zero. For revolvers, this coefficient implies that loan facilities having non-bank syndicate members have 47.5 basis-point higher spreads than bank-only loan facilities. For all term loans pooled together (Column (3)), the premium is 70.3 basis points, and for just Term Loan B facilities (Column (4)), it is 76.2 basis points. These results imply that there is a positive premium associated with different types of non-bank loan facilities.

In these equations, we control for default risk based on the borrowing firm's financial data using measures such as leverage and the firm's Z-Score. An alternative way of controlling for risk is to use the issuer's credit rating. Since credit ratings are constructed by professionals to measure firms' comprehensive default risk, it is likely a preferable approach. However, credit ratings are not available for all firms, so the use of credit ratings is limited to those firms that have them.

Panel B of Table IV presents coefficient estimates of Equation (1) for different credit ratings (Columns (1) through (4)) and for issuers with no credit ratings (Column (5)). Column (1) contains estimates for all facilities from issuers with credit ratings, including indicator variables for different credit rating categories. Columns (2), (3), and (4) present estimates for BBB- and above rated firms, BB-rated firms, and B-rated firms and below rated firms, respectively. As in Panel A, we include control variables for facility and firm characteristics, facility-type, facility-purpose and year fixed effects. The reported standard error estimates are clustered by borrowing firm.

In each column in Panel B of Table IV, the coefficient on the non-bank syndicate member indicator variable is positive and statistically significantly from zero. For all firms with ratings (Column (1)), the estimates indicate that there is about a 23.6 basis-point premium for facilities with non-bank participation. This premium equals 28.1 basis points for firms rated BBB and higher, 21.8 basis points for BB-rated firms, and 24.1 basis points for B-rated and below firms. In addition, for firms without ratings, there is an estimated non-bank premium of 78.6 basis points.

3.3. Within-loan estimates.

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One clear pattern emerging from Table IV is that the estimates of the non-bank premium are substantially smaller when ratings are used to control for risk when we use borrower-level controls (Panel A), or for the subsample of firms without ratings in (Panel B, Column (5)). This observation suggests that the estimated non-bank premium could reflect borrower risk. Credit ratings are themselves imperfect measures of default risk, since there is variation in risk within rating classes and errors in assigning ratings to firms. It is unclear if the positive estimated premium for non-bank participation reflects residual risk not reflected in ratings, or if it reflects an economic premium to attract non-bank institutional lenders with relatively high required rates of return.

A method of measuring non-bank syndicate member premiums that is unlikely to be affected by risk or other potential unobserved firm-level heterogeneity comes from the relative pricing of different facilities within the same loan.[13] Since each facility of a multiple facility loan has the same seniority and covenants, the default risk of facilities and the creditor rights attached to the facilities in the same loan is essentially the same. Different facilities in the same loan will generally have different maturities and implicit options from one another that will affect their pricing. However, once these other differences are controlled for econometrically, the incremental effect of a non-bank participant on the relative pricing of facilities within a given loan should reflect the impact of non-bank syndicate participation. This approach will not be affected by differences in risk or some other form of unobservable firm-level heterogeneity causing a spurious relation between the existence of non-bank institutions in the facility's syndicate and the facility's spread.

Within-loan estimates can help to distinguish between alternative explanations for the non-bank premium. Any firm-level factor that potentially affects its attractiveness to a lender such as its historical cash flows, future projects and risks, should affect the spreads on all facilities of the loan similarly. In contrast, a systematic difference in the *relative* spread between different facilities that depends on syndicate composition for a particular facility has to be a function of facility-level rather than firm-level

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[13] This approach was developed by Ivashina and Sun (2011a) and was recently adopted by Nadauld and Weisbach (2012).

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factors. One such possibility would be if different types of facilities have different liquidity and demand. For example, banks, typically the lead arrangers, hold the Term Loan A or revolver portion of the loan and sell the Term Loan B portion to non-bank institutional investors. If the lead arranger is worried about being able to sell a particular Term Loan B facility to banks, it can increase the spread, making the facility more attractive to non-bank investors such as hedge funds or finance companies. In this situation, the facilities with non-bank syndicate members are likely to receive unusually high spreads, measured relative to the Term Loan A or revolver facility of the same loan.

To estimate the incremental effect of a non-bank investor on the differences in spreads between facilities of a given loan, we estimate the following equation:

$$Spread\ Gap = \alpha + \beta \times Facility\ has\ non\text{-}bank\ syndicate\ member + \gamma \times X + \varepsilon \qquad (2)$$

where X includes differences in facility-specific characteristics such as facility size, the number of participating lenders, maturity, and whether the facility is secured by collateral, as well as firm-level characteristics and the high-yield spread. The dependent variable in Equation (2) is the difference between the spreads of different facilities within the same loan (spread gap). The indicator variable denoting which facility has a non-bank syndicate member measures the incremental effect of a non-bank institution on the spread gap, and the control variables are intended to capture other differences between the facilities that could be related to spreads. We estimate Equation (2) on the sample of loans that have multiple facilities of the type considered in that specification.

Term Loan B facilities tend to have a longer effective maturity than Term Loan A facilities because the vast majority of Term Loan A facilities are amortizing while Term Loan B facilities are more often bullet (see Appendix C). With a longer duration, Term Loan B facilities will have higher spreads regardless of whether there is a non-bank institution participating in the facility. Consistent with this argument, Nandy and Shao (2010) document that Term Loan B facilities have higher spreads than Term

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Loan A facilities or revolvers. The hypothesis that non-bank investors receive premiums relative to otherwise similar bank-only facilities implies that there should be an additional premium over the corresponding Term Loan A facility for the Term Loan B facilities in which non-bank institutions invest, relative to that of an otherwise similar bank-only Term Loan B facility.

Column (1) of Panel A of Table V presents estimates of Equation (2) for the subsample of 246 loans that have both Term Loan A and Term Loan B facilities.[14] In this subsample, the non-bank investor usually participates in the Term Loan B portion of the loan: Of the 246 loans, there were 59 in which non-bank institutions were syndicate members in the Term Loan B facility and only nine in which the non-bank institutions participated in the Term Loan A facility. Therefore, we estimate whether the existence of a non-bank syndicate member in the Term B facility affects the difference in spreads between the two facilities. The coefficient estimates indicate the presence of a non-bank investor in the Term Loan B facility increases the difference in spreads between Term Loan B and Term Loan A facilities by 5.3 basis points. However, this estimated difference in spreads is not statistically significantly different from zero at conventional levels.

There are 1,608 loans in our sample that have complete data and contain both a Term Loan B facility and a revolver.[15] Of these 1,608 cases, it was more common for the non-bank investor to participate in the syndicate of the Term Loan B portion of the loan than the revolver portion: non-bank institutions participated in the syndicates of 131 Term Loan B facilities and only 34 of those of the revolvers. For this reason, we estimate Equation (2) on this subsample of loans, considering the effect of the non-bank institution participating in the syndicate of the Term Loan B facility in Column (2). The dependent variable in these equations is the difference in spreads between the Term Loan B facility and the revolver. Therefore, the coefficient estimate of 42.3 on the non-bank syndicate member indicator

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[14] We exclude cases in which non-bank investors are present on both Term Loan A facilities and Term Loan B facilities.

[15] Again, we exclude cases in which non-bank investors are present on both Term Loan B facility and revolver.

variable in Column (2) implies that the spread between Term Loan B facilities and revolvers is 42.3 basis-points higher when a non-bank institution is present in syndicate of the Term Loan B facility.

A potentially cleaner test of the hypothesis that non-bank institutions receive premiums when investing in syndicated loan facilities comes from cases in which the non-bank invests in one of multiple facilities of the same type in a particular loan. Our sample contains 217 such facilities, in which non-banking institutions invested in 106 facilities. In Panel B of Table V, we estimate equations similar to Eqn. (1) on this sub-sample of loan facilities. In Column (1) we present estimates of Equation (1) without firm-level controls and in Column (2), we report estimates including these controls. In each equation, the coefficient estimate on the non-bank syndicate member indicator variable is positive and statistically significantly different from zero, implying 40.6 and 27.9 basis point premiums to facilities with a non-bank institutional investor.

Finally, there are 841 cases in which a borrower issues more than one of the same facility type in the same year, but not necessarily in the same loan. We re-estimate the equation for this subsample in Columns (3) and (4) of Panel B of Table V. In these equations, the estimated non-bank premium is 33.8 and 34.0 basis points, respectively, each of which is statistically significantly different from zero.

Overall the results from Table V, in which we compare facilities within a given loan, or across similar facilities from the same borrower within a short period of time, are consistent with the results in Table IV that are based on comparisons across different facilities. When a non-banking institution participates in a syndicated loan facility, syndicate members receive a premium on the particular facility in which non-bank institution invests relative to bank-only facilities. These premiums do not appear to be a result of unobserved heterogeneity across facilities that is correlated with the facilities' risk.

4. Types of non-bank institutional syndicate members and spreads

The within-loan results suggest that the premiums to loan facilities that include non-bank investors in their syndicate occur because of facility-specific and not firm-specific factors. The most plausible explanation for these premiums is that facilities in which non-bank institutions participate are

relatively more difficult to market than bank-only facilities. When the arranger can structure a syndicate made up entirely of banks, he can charge the borrower a relatively low spread. However, if banks are not willing to provide the necessary capital, then the arranger will have to charge the borrower a higher spread to attract capital from investors with higher required rates of return.

This argument has a clear prediction about the premiums we should observer when different types of non-bank institutional investors are part of the loan facility syndicate. When investors like hedge funds or private equity funds with high required rates of return invest in a loan facility, it means that the facility's arranger had to increase the facility's spread beyond what would have been necessary if only banks were the investors. In addition, hedge funds and private fund managers have unusually high pecuniary incentives, which are likely to motivate them to seek out investments in facilities with unusually high spreads.[16] In contrast, non-bank institutional investors such as insurance companies have required returns similar to banks, and tend to focus on ensuring that their loan portfolio has the right term structure and risk profile, rather than seeking out unusual opportunities to achieve abnormal returns. Therefore, we expect that, controlling for risk, facilities for which hedge and private equity funds are in the syndicate to have higher spreads than those for which insurance companies invest.

4.1. Abnormal spreads across types of non-bank institutional syndicate members.

In Columns (1) and (2) of Table VI, we re-estimate Equation (1) with the non-bank syndicate members broken down by institutional type. To do so, we include separate indicator variables for insurance companies, finance companies, hedge and private equity funds, mutual funds, and other non-bank investors who could not be classified or are of a type that participated in less than 1% of the full sample for which all required data are available (about 123 facilities). Column (1) presents estimates of

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[16] General partners of private equity and hedge funds receive direct incentives through carried interest that usually equals 20% of profits. In addition, they receive indirect incentives because their performance affects their future incomes. These indirect incentives are likely to be of similar magnitude as the direct incentives. [See Chung, Sensoy, Stern and Weisbach (2012) for estimates for private equity funds and Lim, Sensoy and Weisbach (2012) for estimates for hedge funds.]

this equation using all loan facilities, while Column (2) restricts the sample to just those facilities with at least one non-bank syndicate member.

The coefficient estimates indicate that the premiums vary substantially between types of non-bank institutional investor. The largest premiums appear to be for facilities with hedge and private equity fund syndicate members. In Column (1), the coefficient on hedge and private equity funds indicator variable is 47.2, which implies that loan facilities in which hedge and private equity funds invest have an abnormal spread of 47.2 basis points relative to the sample of all facilities. When we restrict the sample to facilities with non-bank syndicate members, the coefficient declines to 29.4, but is still significantly different from zero. The difference between the two coefficients comes from the implied benchmark from the sample used; since Column (2) contains only facilities which have non-bank syndicate members, the sample average spread is higher than for bank-only facilities (controlling for other characteristics).

The other significantly positive premiums occur for facilities with "other" non-bank syndicate members, which potentially includes hedge funds that we could not classify, and finance companies (significant only in Column (1)). The coefficients on insurance companies and mutual funds are small and not statistically significantly different from zero. These results imply that the spread premium varies across non-bank institutional investor types, and is highest for hedge and private equity funds.

4.2. Within-loan estimates by type of non-bank institutional investor.

The spread premium estimates in Table VI control for the risk of the loan using the borrower's financial data. As discussed above, while this approach captures the risk of the facility to some extent, it does so imperfectly, and it is possible that some of the measured premiums to facilities associated with non-bank institutional investors could reflect the fact that these investors tend to invest in loans of riskier firms. To evaluate the extent to which this effect is important, we also estimate spread gap premiums for different types of non-bank institutional investors using the within-loan approach that compares spreads of facilities of the same loan.

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We present the within-loan estimates of the spread gap premiums by type of non-bank institutional investor in Table VII. Column (1) presents estimates of the difference between the spreads on the Term Loan B and Term Loan A facilities of the same loan for the loans in our sample that contain both types of facilities, and Column (2) presents comparable estimates for the difference between Term Loan B facilities and Revolvers. The positive and statistically significant coefficients on the variable that indicates that a hedge or private equity fund participated in the syndicate of the Term Loan B facility implies that when a hedge or private equity fund invests in the Term Loan B facility, the spread gap between the Term Loan B and Term Loan A facilities appears to be 20 basis points abnormally high. None of the comparable coefficients indicating that other types of non-bank institutional investors participated in the syndicate of the Term Loan B facilities are statistically significant. These results suggest that loan facilities in which hedge and private equity funds invest have higher spreads than otherwise similar facilities in which other types of institutions invest.

4.3. The size of the non-bank syndicate members' loan share.

The results so far are consistent with the view that when arrangers are concerned about being able to raise capital from banks, they increase spreads to attract non-bank institutional investors. An additional implication of this logic is that arrangers should increase spreads by a larger amount when they require a greater quantity of capital from the non-bank institutional investors. Therefore, we expect to observe higher spreads when non-bank stakes in loan facilities are larger.

We evaluate this prediction in Table VIII, using the sub-sample of 3,826 loan facilities for which *DealScan* contains data on syndicate member ownership and all other required data are available.[17] In Columns (1) and (2), we include all facilities for which ownership data are available and in Columns (3) and (4) we restrict the sample to non-bank facilities. Columns (1) and (3) contain the non-bank syndicate

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[17] We only include facilities for which more than 90% of ownership can be identified. When we further restrict the sample to facilities having 100% of ownership identified, the sample size decreases to 3,641. The results when we re-estimate all equations in Table VIII using this smaller sample are similar to those reported in Table VIII.

members' facility share, while Columns (2) and (4) contain an indicator variable that indicates whether the non-bank institutional investor purchased the largest stake in the loan facility.

The coefficient estimates in Table VIII all suggest that when the non-bank institutional investor takes a larger stake in the loan facility, spreads are higher. The coefficients on the non-bank syndicate members' loan shares in Columns (1) and (3) are positive and statistically significant, as are the coefficients in Columns (2) and (4) on the indicator variable indicating whether the non-bank institutional investor has the largest loan share in the loan facility. These results are consistent with the view that arrangers increase the loan facility's spread to attract non-bank institutional investors, and the more capital they have to raise from these investors, the greater the arrangers increase the spread.

4.4. "Dual" holders of both debt and equity.

A number of non-bank investors in syndicated loan facilities also are equity holders in the firm. Such "dual holding" has become increasingly common in recent years (see Jiang, Li and Shao (2010)). Presumably, institutional equity holders would utilize their informational or strategic advantage inside the borrowing firm to improve their other investments including those in the firm's syndicated loan facilities. In addition, larger equity ownership implies that the investor will share a larger fraction of the gains created through a value-increasing loan. We evaluate the extent to which equity ownership influences the size of the non-bank premium.

To identify whether the non-bank institutional lender held an equity stake in the borrower prior to the loan origination, we create a list of shareholders of the borrowing company from *Thompson Reuters Institutional Holding Database* (13F) for the one-year period leading up to the current loan, as well as the list of lenders who are participating in the current loan. For example, for a loan originated in April 2000, we create a list of equity holders using four 13F filings: filings for the quarters that end in June 1999, September 1999, December 1999, and March 2000, respectively. An institutional investor's equity stake is measured as the average of the holdings that appear in these four filings. We focus on the equity stake held by lenders *prior* to loan origination because we wish to evaluate the effect of holding an equity

position on the loan decision. We then match lender information from *DealScan* to the institutional

investors in the 13F by the lender's name, and the lender's ultimate parent's name.

In Column (1) of Table IX, we re-estimate Equation (1) including a variable indicating whether

there is a non-bank syndicate member that is a dual holder. The regression includes 314 loan facilities

with participation by a non-bank dual holder. The coefficient on this variable is positive, but not

statistically significantly different from zero. In Column (2) of Table IX, we break up this variable by

type of non-bank institutional investor, and also include the type indicator variables.[18] When a hedge fund

or private equity fund is a member of the facility's syndicate facility's spread is 29.3 basis points higher.

When a hedge fund or private equity fund also owns at least 0.1% of the borrowing firm's equity the

facility trades at a premium of 57.7 basis points (= 29.29 + 28.46), which is significant at the 1% level.

This finding suggests that, especially when they are equity holders, hedge and private equity funds can be

viewed as lenders of last resort, and will lend to firms but only at a large premium.

5. The Uses of Funds

Thus far the results indicate that arrangers increase the loan facility spread when it is necessary to

attract non-bank institutional investors who have a relatively high required rates of return. An additional

implication of this result is that firms are likely to seek out non-bank institutional investors as participants

in the loan facility if the hard-to-fund facility also is particularly important to the firm. The idea is that, if

it is difficult to raise a specific facility, firms will only be willing to pay a higher spread to get a non-bank

institutional investor to participate if the capital being raised has a valuable use that cannot be delayed to a

point in time in the future when it could be unnecessary to pay an additional premium to acquire capital.

This argument predicts that firms borrowing at abnormally high spreads will spend a higher proportion of

the raised cash relatively quickly, rather than saving it as additional cash.

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[18] The regression includes 17 facilities with insurance company dual holders, 105 facilities with finance company
dual holders, 47 facilities with hedge fund and private equity fund dual holders, 215 facilities with mutual fund dual
holders, and 23 facilities with other types of non-bank institutional dual holders.

To test this prediction, we estimate models similar to those in Kim and Weisbach (2008) that predict the change in cash holdings in a particular time period following the capital raising. The idea is that an abnormally high spread should lead firms to spend the capital they raise more quickly, so that they should save less of it in cash. The measure of abnormal spread we use is the residual from the equation presented in Column (1) of Panel A of Table IV, but excluding the non-bank syndicate member indicator. We estimate whether it predicts the change in cash holdings subsequently, using the following equation:

$$
\begin{aligned}
ln\left[\left(\frac{cash_t - cash_0}{total\ assets_0}\right) + 1\right] = \beta_0 + \beta_1 \cdot ln\left[\left(\frac{loan\ proceed}{total\ assets_0}\right) + 1\right] \\
+ \beta_2 \cdot ln\left[\left(\frac{loan\ proceed}{total\ assets_0}\right) + 1\right] \times Spread\ Residual \\
+ \beta_3 \cdot Spread\ Residual + \beta_4 \cdot ln[total\ assets_0] + \sum_{i=1997Q1}^{2007Q4} \theta_i Year\text{-}Qtr + \varepsilon
\end{aligned}
\tag{3}
$$

where time is indexed by quarters subsequent to the loan issuance quarter.

We present estimates of this equation in Panel A of Table X. Each row of this table represents a regression predicting the change in normalized cash as over a specified time period. The top row predicts the change in cash during the first quarter following the capital raising, the second, the change in cash during the four quarters following the capital raise, and the third row the change in cash during the eight quarters following the capital raising. In the first row, the positive coefficient on β_1 means that a significant portion of capital raised is used to increase cash holdings in the first quarter following a loan facility. However, the negative coefficient on β_2 implies that the fraction of loan facility used to increase cash holdings is smaller for firms that raised capital at higher spreads, consistent with the view that when spreads are higher, firms are more likely to spend a higher fraction of the money raised and save less as cash.

We also test the prediction that the effect of higher loan facility pricing on the uses of funds should be larger when a non-bank investor is included in the syndicate. To perform this test, we estimate

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Equation (3) separately for non-bank participated facilities and bank-only facilities. The results using this specification are presented in Panel B and C of Table X. The coefficients on the spread residual (β_2) are all negative for non-bank participated facilities, while they are mostly positive for bank-only facilities. The differences in β_2 are statistically significant at the 10% level for first quarter and for the four quarters subsequent to the capital raising. These results suggest that firms are willing to pay a higher spread to attract non-bank institutional investors when raising capital is particularly important to the firm.

6. Conclusion

Participation by non-bank institutions has become a major part of the syndicated loan market. In our sample of 20,031 "leveraged" loan facilities originated between 1997 and 2007 from the *DealScan* database, 6,279 facilities have at least one a non-bank institution syndicate member. Some of these non-bank institutions have substantially higher required returns than banks, yet both banks and non-bank institutions invest in the same loan facilities. One explanation for this phenomenon is that loan arrangers approach non-bank institutional investors when they cannot fill the syndicate with banks, and consequently have to offer a higher spread to attract non-bank institutional investors.

We estimate the abnormal spread that a non-bank institutional investor receives by comparing spreads on loan facilities with non-bank institutional investors to those on observationally equivalent facilities that do not have a non-bank institutional investor. Our estimates indicate, holding all else equal, that loan facilities with a non-bank syndicate member receive a higher spread than otherwise similar facilities with bank-only syndicates. The positive spread is statistically and economically significant for revolvers as well as term loan facilities and for loan facilities to borrowers of different credit ratings as well as unrated borrowers.

It is possible that the presence of a non-bank institutional investor is correlated with other, potentially unobservable factors related to the loan facility's spread, which could drive the non-bank premiums. For example, it is possible that the risk of the firms in which non-bank institutions tend to invest tends to be higher than is reflected in their ratings. To address this possibility, we use a "within-

loan" estimation approach that compares differences in spreads across facilities of the same loan. Since different facilities of the same loan share the same underlying risk and have the same seniority, unobservable differences in risk cannot explain differences in spreads of facilities of the same loan.

Because factors such as maturity and implicit options affect the spreads of different types of facilities, we test whether the existence of a non-bank institutional investor affects the *relative* difference in spreads, holding other factors constant. Our results suggest that in a loan with both a Term Loan B facility and a revolver, if a non-bank institution invests in a Term Loan B facility, the spread between the two is higher than would be expected without non-bank participation. In the subsample of non-bank loans that have multiple tranches of the same type, the facilities with non-bank institutional investor participation have higher spreads than the facilities without non-bank participation. These results are not consistent with the view that non-bank premiums reflect unobservable risk. Instead, they suggest that non-bank institutional investors can be viewed as lenders of last resort, and receive higher spreads because they are willing to provide capital at times when banks are not.

Our results suggest that there are substantial differences in premiums going to different types of non-bank institutional investors. When private equity and hedge funds are non-bank investors, they receive a 47.2 basis-point premium over other loan facilities. In contrast, other types of non-banks institutional investors such as insurance companies or mutual funds receive essentially no abnormal premium at all. In addition, abnormal spreads are higher when the hedge or private equity funds have equity positions in the firm, and when they purchase a larger share of the loan facility.

Non-bank institutional investors, especially private equity and hedge funds, have become important lenders to corporations through their role in the syndicated loan market. The evidence in this paper suggests that the non-bank institutions obtain higher interest rates than other investors. This spread premium appears to be due to the circumstances under which capital is provided rather than unobserved borrower risk.

As debt markets mature, it seems evident that non-traditional players will provide capital to a larger degree than has been true historically. Our results suggest that non-bank institutions provide capital

when capital raising is important to firms and receive a premium for providing the financing. Why is it optimal to have different types of investors providing the capital for the same loans? To what extent does borrower performance depend on the provider of capital? Is there important variation across banks that leads some to be more prone to co-invest with hedge funds and private equity funds in loans with higher spreads? Understanding the answers to these and related questions would be a useful direction for future research.

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Table I. Trends in non-bank institutional participation in leveraged loan facilities

This table presents the trends in the distribution of loan facility originations during 1997-2007 by number (Panel A) and dollar value (Panel B). Column (1) reports the total number (value) of all leveraged loan facilities from the *DealScan* database. Column (2) reports the total number of loan facilities in which only commercial or investment banks participated. Columns (3) and reports the total number (value) of loan facilities in which at least one non-bank institution is a member of the facility's syndicate. Columns (4) – (10) report the total number (value) of loan facilities by type of institutional syndicate member. The sum of columns (4) to (10) do not add to the total number (value) in column (1) because than one type of institution can participate in the syndicate.

Year of Origination	All facilities	Bank-only syndicate	Non-bank syndicate member	Commercial Bank	Investment Bank	Insurance Company	Finance Company	HF/PE	Mutual Fund	Other
						Type of institutional syndicate member				
Panel A: Number of loan facilities										
1997	2,706	2,267	439	2,527	708	79	331	146	128	42
1998	2,264	1,783	481	2,111	598	80	357	154	111	73
1999	1,915	1,424	491	1,791	606	82	394	192	137	73
2000	1,780	1,324	456	1,656	524	48	349	174	93	68
2001	1,777	1,328	449	1,628	603	57	317	192	67	72
2002	1,800	1,178	622	1,653	623	73	442	280	85	79
2003	1,778	982	796	1,644	745	120	565	420	106	106
2004	1,818	941	877	1,643	879	90	638	484	142	119
2005	1,626	921	705	1,463	920	30	539	304	71	63
2006	1,365	805	560	1,198	806	21	406	228	43	27
2007	1,202	799	403	1,087	711	18	265	180	27	29
Total	20,031	13,752	6,279	18,401	7,723	698	4,603	2,754	1,010	751
Panel B: Value of loan facilities (in $ billions)										
1997	298	242	57	294	192	16	45	20	27	8
1998	258	182	76	254	158	21	58	28	24	14
1999	255	182	73	252	167	20	57	31	32	15
2000	237	159	78	232	139	13	61	32	27	17
2001	256	180	76	246	177	14	65	30	15	13
2002	231	132	99	222	162	17	79	45	20	16
2003	257	115	141	247	181	36	115	83	30	25
2004	327	155	172	307	251	22	138	95	38	22
2005	349	196	153	326	278	10	125	60	22	15
2006	342	210	132	318	272	6	107	40	18	6
2007	345	235	110	328	285	7	85	39	12	6
Total	3,160	1,990	1,170	3,026	2,262	182	935	501	266	156

Table II. Selected facility and lender characteristics

This table presents sample averages of selected facility (Panel A) and lender characteristics (Panel B, C, and D). Averages are reported for the full sample of facilities and for the sub-samples of Revolers, Term Loan A facilities, and Term Loan B facilities. Panel B, C and D include only loan facilities for which more than 90% of loan shares can be identified (5,624 facilities). The sample of leveraged loan facilities is from the *DealScan* database, originated between 1997 and 2007.All continuous variables are winsorized at 1% and 99% level. Definitions of the variables are provided in Appendix A.

		Facility Type		
	All Facilities	Revolver	Term Loan A	Term Loan B
Panel A: Facility Characteristics				
N	20,031	12,421	956	6,654
Non-bank participated	0.313	0.249	0.482	0.409
Facility amount ($M)	158.0	153.0	174.0	164.0
Number of participating lenders	6.110	5.836	9.476	6.136
% of participating lenders with past relationship	0.304	0.302	0.338	0.303
Maturity	46.87	39.91	58.19	58.22
Secured Indicator	0.701	0.666	0.719	0.763
Second-lien Indicator	0.014	0.000	0.005	0.041
Covenants Indicator	0.756	0.762	0.715	0.750
Syndicated Indicator	0.876	0.862	0.978	0.886
All-in-drawn spread (bps)	256.6	230.1	271.4	305.8
Panel B: Participation by syndicate member type - conditional on having loan share information				
All bank	5,333	3,938	134	1,261
Commercial bank	5,274	3,910	133	1,231
Investment bank	1,535	1,127	83	325
All non-bank	1,282	784	61	437
Insurance company	119	27	6	86
Finance company	981	619	53	309
HF/PE	463	246	19	198
Mutual fund	184	47	6	131
Other lenders	125	44	3	78
Panel C Average loan share - conditional on participation (%)				
All bank	94.7	96.0	91.8	90.9
Commercial bank	89.8	91.2	80.0	86.3
Investment bank	20.8	19.2	20.0	26.4
All non-bank	44.2	42.2	24.9	50.6
Insurance company	13.6	13.2	6.9	14.2
Finance company	35.2	35.7	19.3	36.9
HF/PE	31.8	35.6	19.0	28.3
Mutual fund	10.8	6.8	17.2	15.2
Other lenders	31.9	18.7	20.9	24.7
Panel D % of syndicate member type as largest lender - conditional on participation				
All bank	96.5	97.2	97.0	94.4
Commercial bank	94.2	95.5	89.5	90.3
Investment bank	28.9	26.4	32.5	36.6
All non-bank	46.4	48.5	19.7	46.5
Insurance company	13.4	18.5	16.7	11.6
Finance company	40.9	44.3	15.1	38.5
HF/PE	29.6	37.0	15.8	21.7
Mutual fund	15.2	17.0	0.0	15.3
Other lenders	23.2	27.3	33.3	20.5

Table III. Differences in attributes of non-bank facilities and bank-only facilities

This table shows the differences in various attributes between non-bank loan facilities and bank-only loan facilities in our sample. A non-bank facility is a facility for which there is at least one non-bank institution in the syndicate. Definitions of the variables are provided in Appendix A. The total number of loan facilities in our sample with a full set of data is 20,031 of which 13,752 are bank-only facilities and 6,279 are non-bank facilities. Panel A, B, C and D present the differences in the type of facility purchased, issuer credit rating, facility characteristics and borrowing firm characteristics, respectively.

	Non-bank facilities (1)		Bank-only facilities (2)		Difference (1) - (2)	
	N	Mean	N	Mean	Diff.	(t-value)
Panel A. Facility type						
% of Revolver	6,279	49.3	13,752	67.8	-18.5	(-25.36)***
% of Term A	6,279	7.3	13,752	3.6	3.7	(11.56)***
% of Term B	6,279	43.3	13,752	28.6	14.7	(20.73)***
Panel B. S&P Issuer credit rating						
% of having a credit rating	6,279	52.6	13,752	34.8	17.7	(24.06)***
Conditional on having a credit rating:						
% of BBB and above	3,301	5.1	4,792	19.4	-14.3	(-18.79)***
% of BB	3,301	38.9	4,792	44.6	-5.7	(-5.07)***
% of B and below	3,301	56.0	4,792	36.0	19.9	(18.08)***
Panel C. Facility characteristics						
Facility amount ($M)	6,279	186.0	13,752	145.0	41.0	(10.81)***
Number of participating lenders	6,279	8.882	13,752	4.844	4.038	(37.84)***
% of participating lenders with past relationship	6,279	27.19	13,752	31.88	-0.047	(-8.31)***
Maturity (months)	6,279	54.40	13,752	43.43	10.97	(30.91)***
Secured indicator	6,279	0.791	13,752	0.659	0.131	(18.99)***
Second-lien indicator	6,279	0.025	13,752	0.009	0.016	(9.11)***
Covenants indicator	6,279	0.753	13,752	0.757	-0.004	(-0.63)
Syndicated facility indicator	6,279	0.944	13,752	0.844	0.100	(20.0)***
Panel D. Borrowing firm characteristics						
Total assets ($M)	5,519	1,975.9	12,910	1,602.2	373.8	(5.48)***
Fixed assets/total assets	5,437	0.319	12,678	0.320	0.000	(-0.11)
Z-score	4,032	2.182	10,144	3.546	-1.363	(-19.95)***
Leverage	4,957	0.781	11,979	0.610	0.171	(26.73)***
Industry-adjusted ROA	5,428	-0.110	12,739	-0.074	-0.036	(-10.34)***
Number of analysts following	6,279	3.289	13,752	3.870	-0.581	(-8.03)***
Institutional holdings	6,279	0.290	13,752	0.332	-0.042	(-8.42)***

Table IV. Do loan facilities with non-bank syndicate members have higher or lower spreads?

This table presents the OLS regression coefficient estimates of Equation (1) and corresponding *p-values*. Definitions of all variables are provided in Appendix A. The dependent variable is the all-in-drawn loan spread over LIBOR in basis points, and the analysis is conducted at the loan facility level. Panel A reports the results for regressions estimated by type of facility. Panel B reports the results for regression estimated by credit rating groupings for the sub-sample of firms with S&P issuer credit ratings. The number of loan facilities for which all required data are not missing is 12,346. All specifications include facility-purpose fixed effects and year fixed effects. The specifications in Column (1) of Panel A and all columns in Panel B additionally include facility-type fixed effects, because they consider the full sample of all facility types. Standard errors are clustered at the firm level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: By Facility type

Dependent Var.= All-in-drawn spread	All Facility Types		Revolvers		All Term Loan facilities		Term Loan B facilities	
	(1)		(2)		(3)		(4)	
	coef.	(p-val)	coef.	(p-val)	coef.	(p-val)	coef.	(p-val)
Non-bank syndicate member	56.414***	(0.000)	47.460***	(0.000)	70.287***	(0.000)	76.155***	(0.000)
Log(Facility amount)	-13.840***	(0.000)	-22.128***	(0.000)	-3.205	(0.147)	-4.317*	(0.067)
Log(Number of participating lenders)	-13.755***	(0.000)	-5.460***	(0.001)	-25.956***	(0.000)	-26.447***	(0.000)
% of participating lenders with past relationship	-0.452	(0.885)	3.817	(0.195)	-7.963	(0.160)	-6.920	(0.246)
Log(Maturity)	-16.118***	(0.000)	-9.976***	(0.000)	-27.457***	(0.000)	-25.811***	(0.000)
Secured Indicator	43.085***	(0.000)	46.731***	(0.000)	35.420***	(0.000)	35.137***	(0.000)
Second-lien Indicator	303.904***	(0.000)	252.803***	(0.001)	300.028***	(0.000)	295.064***	(0.000)
Covenants Indicator	-13.517***	(0.000)	-15.885***	(0.000)	-11.107	(0.119)	-8.707	(0.228)
Syndicated facility Indicator	-9.354**	(0.030)	-6.170	(0.124)	-9.568	(0.290)	-11.823	(0.201)
Log(Total assets)	-0.656	(0.655)	0.133	(0.927)	-1.684	(0.478)	-1.174	(0.642)
Fixed assets/total assets	1.628	(0.759)	0.405	(0.936)	-0.516	(0.957)	-3.377	(0.738)
Z-score	-2.361***	(0.000)	-2.328***	(0.000)	-2.257***	(0.004)	-2.349***	(0.005)
Leverage	31.058***	(0.000)	34.549***	(0.000)	21.877***	(0.009)	24.194***	(0.006)
Industry-adjusted ROA	-81.533***	(0.000)	-77.107***	(0.000)	-88.939***	(0.000)	-87.586***	(0.000)
Log(Number of analyst following)	-5.872***	(0.005)	-4.087**	(0.036)	-9.207**	(0.011)	-7.835**	(0.035)
Institutional holdings	-16.004***	(0.001)	-20.306***	(0.000)	-10.433	(0.207)	-8.201	(0.346)
High-yield spread	0.089***	(0.000)	0.063***	(0.002)	0.140***	(0.001)	0.142***	(0.001)
Term A facility					-8.866**	(0.028)		
Number of observations	12,346		8,065		4,281		3,752	
Adjusted R^2	0.464		0.451		0.426		0.421	

Panel B: By issuer credit rating

Dependent Var.= All-in-drawn spread	All ratings		BBB-rated and Above		BB-rated		B-rated and Below		No credit rating	
	(1)		(2)		(3)		(4)		**(5)**	
	coef.	(p-val)	coef.	(p-val)	coef.	(p-val)	coef.	(p-val)	coef.	(p-val)
Non-bank syndicate member	23.554***	(0.000)	28.147**	(0.010)	21.752***	(0.000)	24.109***	(0.000)	78.639***	(0.000)
Log(Facility amount)	-15.929***	(0.000)	-6.207	(0.137)	-12.236***	(0.000)	-20.405***	(0.000)	-13.524***	(0.000)
Log(Number of participating lenders)	-12.451***	(0.000)	-13.534***	(0.003)	-15.397***	(0.000)	-9.116***	(0.007)	-10.800***	(0.000)
% of participating lenders with past relationship	-9.734**	(0.015)	-1.247	(0.899)	-8.782**	(0.050)	-14.546**	(0.041)	0.021	(0.995)
Log(Maturity)	-9.979***	(0.001)	2.268	(0.637)	4.085	(0.305)	-32.726***	(0.000)	-16.284***	(0.000)
Secured Indicator	36.413***	(0.000)	49.944***	(0.000)	39.559***	(0.000)	21.736**	(0.012)	36.267***	(0.000)
Second-lien Indicator	265.633***	(0.000)	305.210***	(0.000)	227.651***	(0.000)	264.135***	(0.000)	314.732***	(0.000)
Covenants Indicator	-4.086	(0.380)	-15.352*	(0.050)	-7.288	(0.189)	9.845	(0.305)	-17.065***	(0.000)
Syndicated facility Indicator	38.407***	(0.007)	45.672	(0.126)	39.432	(0.198)	41.564**	(0.020)	-9.927**	(0.020)
Log(Total assets)	7.016***	(0.000)	11.181***	(0.008)	5.199**	(0.027)	7.329***	(0.007)	-4.909***	(0.005)
Fixed assets/total assets	9.326	(0.129)	21.570	(0.122)	-0.966	(0.899)	16.117	(0.130)	2.417	(0.700)
Leverage	18.067***	(0.001)	-7.818	(0.619)	20.478***	(0.006)	18.923**	(0.013)	23.077***	(0.000)
Industry-adjusted ROA	-66.103***	(0.000)	-45.137	(0.423)	-114.122***	(0.000)	-47.351***	(0.006)	-77.780***	(0.000)
Log(Number of analyst following)	-4.835**	(0.029)	-6.550	(0.177)	-6.227**	(0.023)	-3.085	(0.396)	-3.646	(0.127)
Institutional holdings	-8.321*	(0.087)	5.589	(0.590)	-9.945	(0.116)	-10.766	(0.205)	-17.551***	(0.006)
High-yield spread	0.163***	(0.000)	0.109	(0.169)	0.181***	(0.000)	0.163***	(0.001)	0.050*	(0.068)
BB-rated	32.023***	(0.000)								
B-rated and below	83.975***	(0.000)								
Number of observations	6,879		926		2,984		2,969		8,646	
Adjusted R^2	0.540		0.382		0.485		0.417		0.434	

Table V. Is the non-bank premium driven by unobservable heterogeneity across firms?

Panel A presents the OLS regression coefficient estimates of Equation (2) and corresponding *p-values* on the sample of loans that have multiple facilities. Definitions of all variables are provided in Appendix A. The dependent variable is the *spread gap* between the all-in-drawn spreads of different facilities *within* the same loan in basis points. The indicator variable denoting the non-bank facility measures the incremental effect on spread gap of the non-bank institution participating in the syndicate of the loan facility, and the control variables are intended to capture other differences between the facilities. Column (1) of Panel A presents estimates for the sub-sample of 246 facility pairs that have both Term Loan A and Term Loan B facilities, and Columns (2) and (3) present estimates for the sub-sample of 1,608 facility pairs that have both a Term Loan B facility and a Revolver. Panel B presents the OLS regression coefficient estimates of Equation (1) and corresponding *p-values* on the sample of non-bank loan facilities and the matched bank-only loan facilities of the same facility type. Column (1) employs 106 loans (217 facilities) that have both a non-bank facility and a bank-only facility of the same facility type *within* the same loan. Column (3) considers 420 non-bank loan facilities and 421 matched bank-only loan facilities of the same facility type issued by the same borrower in the same year, but not necessarily in the same loan. Number of observations drops in Column (2) and (4), as we include firm-level control variables. All specifications include facility-purpose fixed effects and year fixed effects. All regressions in Panel B additionally include facility type fixed effects. Standard errors are clustered at the firm level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Within-deal spread gap between facilities

Dependent Var.: Within-loan spread gap between facilities	(Term B facility – Term A facility) spread in the same loan		(Term B facility - Revolver) spread in the same loan	
	(1)		(2)	
	coef.	(p-val)	coef.	(p-val)
Non-bank syndicate member in Term B facility	5.298	(0.546)	42.291***	(0.000)
Differences in Log(Facility amount)	-0.788	(0.889)	-7.177***	(0.000)
Differences in Log(Number of participating lenders)	3.473	(0.525)	-10.178**	(0.018)
Differences in % of participating lenders with past relationship	2.824	(0.898)	13.057	(0.320)
Differences in Log(Maturity)	-24.965	(0.191)	-1.287	(0.699)
Differences in Security	-47.639	(0.233)	-12.709	(0.246)
Differences in Second-lien	246.379***	(0.000)	255.352***	(0.000)
High-yield spread	-0.102	(0.365)	0.039	(0.240)
Firm-level controls	Yes		Yes	
Number of observations	246		1,608	
# Non-bank syndicate member in Term B facility	59		131	
Adjusted R^2	0.234		0.196	

Panel B. Differences in spreads between non-bank facilities and matching bank-only facilities

Matching	Same facility type within the same oan				Same facility type to the same borrower in the same calendar year			
Dependent Var.: All-in-drawn spread	(1)		(2)		(3)		(4)	
	coef.	(p-val)	coef.	(p-val)	coef.	(p-val)	coef.	(p-val)
Non-bank syndicate member	40.618***	(0.001)	27.851**	(0.048)	33.800***	(0.000)	34.021***	(0.005)
Log(Facility amount)	-13.308***	(0.009)	-6.867	(0.254)	-22.525***	(0.000)	-14.430*	(0.056)
Log(Number of participating lenders)	-28.216***	(0.000)	-21.715***	(0.005)	-25.112***	(0.000)	-25.901***	(0.004)
% of participating lenders with past relationship	-37.405**	(0.028)	-30.042	(0.156)	-28.295**	(0.031)	-14.573	(0.403)
Log(Maturity)	17.845	(0.184)	6.948	(0.728)	-9.238	(0.279)	-13.282	(0.206)
Secured Indicator	40.528***	(0.007)	39.763**	(0.021)	30.491**	(0.022)	30.709*	(0.063)
Second-lien Indicator	329.106***	(0.000)	256.792***	(0.000)	278.000***	(0.000)	299.089***	(0.000)
Covenants Indicator	-9.758	(0.781)	-59.703*	(0.090)	2.183	(0.889)	16.528	(0.408)
Syndicated facility Indicator	-19.072	(0.576)	-63.791*	(0.079)	36.358	(0.340)	-25.584	(0.602)
High-yield spread	0.110	(0.379)	0.105	(0.432)	0.088	(0.358)	0.078	(0.571)
Firm-level controls	No		Yes		No		Yes	
Number of observations	217		130		841		496	
# Non-bank facilities	106		64		420		243	
Adjusted R^2	0.715		0.763		0.418		0.441	

Table VI. Does the type of non-bank syndicate member affect the pricing of the loan facility?

This table presents the OLS regression coefficient estimates of Equation (1) and corresponding *p-values*, with the non-bank institutions broken down by the type of institution. Definitions of all variables are provided in Appendix A. The dependent variable is the all-in-drawn loan spread over LIBOR in basis points, and the analysis is conducted at the loan facility level. Column (1) uses the full sample of loan facilities and column (2) uses the sub-sample of non-bank loan facilities. All specifications include facility-type fixed effects, facility-purpose fixed effects, and year fixed effects. Standard errors are clustered at the firm level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	All loan facilities		Non-bank loan facilities	
Dependent Var.= All-in-drawn spread	(1)		(2)	
	coef.	(p-val)	coef.	(p-val)
Insurance company syndicate member	-3.544	(0.655)	0.463	(0.947)
Finance company syndicate member	30.906***	(0.000)	3.587	(0.539)
HF/PE syndicate member	47.169***	(0.000)	29.399***	(0.000)
MF syndicate member	0.709	(0.906)	6.587	(0.259)
Other non-bank institutional syndicate member	32.746***	(0.000)	27.337***	(0.000)
Log(Facility amount)	-13.642***	(0.000)	-26.093***	(0.000)
Log(Number of participating lenders)	-15.340***	(0.000)	-21.939***	(0.000)
% of participating lenders with past relationship	0.957	(0.760)	-16.211**	(0.024)
Log(Maturity)	-14.975***	(0.000)	-19.765***	(0.000)
Secured Indicator	44.047***	(0.000)	18.138**	(0.020)
Second-lien Indicator	301.199***	(0.000)	304.136***	(0.000)
Covenants Indicator	-14.155***	(0.000)	0.393	(0.962)
Syndicated facility Indicator	-8.852**	(0.042)	-16.253	(0.249)
Log(Total assets)	-0.522	(0.725)	-1.247	(0.642)
Fixed assets/total assets	-0.072	(0.989)	18.508*	(0.094)
Z-score	-2.441***	(0.000)	-3.017***	(0.006)
Leverage	31.533***	(0.000)	10.928	(0.206)
Industry-adjusted ROA	-82.095***	(0.000)	-66.242***	(0.000)
Log(Number of analyst following)	-6.230***	(0.003)	-7.174*	(0.067)
Institutional holdings	-15.433***	(0.002)	-12.937	(0.134)
High-yield spread	0.092***	(0.000)	0.089**	(0.042)
Number of observations	12,346		3,460	
Adjusted R^2	0.461		0.500	

Table VII. Does the type of non-bank syndicate member affect the pricing of the loan facility? – Within-loan analysis

This table presents the OLS regression coefficient estimates of Equation (2) and corresponding *p-values* on the sample of loans that have multiple facilities. Definitions of all variables are provided in Appendix A. The dependent variable is the *spread gap* between the all-in-drawn spreads of different facilities *within* the same loan in basis points. The indicator variable indicating the type of non-bank syndicate member measures the incremental effect on spread gap of that type of non-bank institution participating in the syndicate of the loan facility, and the control variables are intended to capture other differences between the facilities. Column (1) presents estimates for the sub-sample of 252 facility pairs that have both Term Loan A and Term Loan B facilities, and Column (2) estimates for the sub-sample of 1,615 facility pairs that have both a Term Loan B facility and a Revolver. All specifications include firm-level control variables, facility-purpose fixed effects and year fixed effects. Standard errors are clustered at the firm level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Term loan B facility spread – Term loan A facility spread		Term loan B facility spread - Revolver spread	
Dependent Var.: *Within-loan* spread gap between facilities	(1)		(2)	
	coef.	(p-val)	coef.	(p-val)
Insurance company syndicate member in Term loan B facility	19.298	(0.142)	8.263	(0.465)
Finance company syndicate member in Term loan B facility	-18.905*	(0.096)	-8.551	(0.530)
HF/PE syndicate member in Term loan B facility	20.049**	(0.049)	66.224***	(0.005)
Mutual fund syndicate member in Term loan B in facility	-6.489	(0.436)	-24.694	(0.200)
Other non-bank syndicate member in Term loan B facility	1.818	(0.864)	-0.859	(0.953)
Differences in Log(Facility amount)	0.543	(0.925)	-7.187***	(0.000)
Differences in Log(Number of participating lenders)	4.695	(0.410)	-10.768**	(0.018)
Differences in % of participating lenders with past relationship	13.948	(0.523)	6.886	(0.600)
Differences in Log(Maturity)	-25.348	(0.181)	-0.891	(0.786)
Differences in Security	-48.607	(0.227)	-14.581	(0.171)
Differences in Second-lien	252.945***	(0.000)	271.356***	(0.000)
High-yield spread	-0.114	(0.303)	0.032	(0.334)
Constant	123.074***	(0.009)	24.271**	(0.036)
Firm-level controls	Yes		Yes	
Adjusted R^2	0.199		0.222	
Number of observations	252		1,615	
# Insurance company syndicate members in Term loan B facility	32		54	
# Finance company syndicate members in Term loan B facility	45		87	
# HF/PE syndicate members in Term loan B facility	53		110	
# Mutual fund syndicate members in Term loan B facility	55		87	
# Other non-bank syndicate members in Term loan B facility	30		59	

Table VIII. Does the size of non-bank institutional syndicate members' loan facility share affect the pricing of the loan facility?

This table presents the OLS regression coefficient estimates of Equation (1) and corresponding *p-values*. Equation (1) is augmented to include a measure of the non-bank syndicate members' share in the loan facility (Columns (1) and (3)) and whether a non-bank syndicate member is the largest lender (Columns (2) and (4)). Definitions of all variables are provided in Appendix A. The dependent variable is the all-in-drawn loan spread over LIBOR in basis points, and the analysis is conducted at the loan facility level. Columns (1) and (2) use the full sample of loan facilities and Columns (3) and (4) use the sub-sample of non-bank loan facilities. All specifications include facility-type fixed effects, facility-purpose fixed effects, and year fixed effects. Standard errors are clustered at the firm level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	All loan facilities				Non-bank facilities			
Dependent Var.= All-in-drawn spread	(1)		(2)		(3)		(4)	
	coef.	(p-val)	coef.	(p-val)	coef.	(p-val)	coef.	(p-val)
Non-bank syndicate members' loan facility share	96.360***	(0.000)			95.442***	(0.000)		
Non-bank syndicate member is the largest lender			44.121***	(0.000)			21.531*	(0.051)
Non-bank syndicate member	21.610***	(0.002)	43.891***	(0.000)				
Log(Facility amount)	-16.257***	(0.000)	-16.048***	(0.000)	-11.581**	(0.032)	-12.961**	(0.019)
Log(Number of participating lenders)	-4.573	(0.208)	-7.256**	(0.044)	1.179	(0.904)	-11.279	(0.204)
% of participating lenders with past relationship	-4.232	(0.387)	-5.280	(0.281)	-12.195	(0.392)	-19.783	(0.169)
Log(Maturity)	-18.358***	(0.000)	-18.268***	(0.000)	-30.948***	(0.005)	-28.810***	(0.008)
Secured Indicator	45.898***	(0.000)	44.991***	(0.000)	36.537***	(0.006)	39.759***	(0.003)
Second-lien Indicator	284.408***	(0.000)	299.114***	(0.000)	289.119***	(0.000)	309.414***	(0.000)
Covenants Indicator	-8.334	(0.279)	-9.435	(0.224)	-27.690	(0.157)	-28.110	(0.149)
Syndicated facility Indicator	-21.655***	(0.001)	-21.290***	(0.001)	-22.460	(0.344)	-41.793*	(0.063)
Log(Total assets)	-2.852	(0.250)	-3.081	(0.215)	-9.943*	(0.100)	-9.474	(0.114)
Fixed assets/total assets	-6.842	(0.388)	-6.051	(0.449)	2.849	(0.890)	2.099	(0.921)
Z-score	-2.438***	(0.000)	-2.573***	(0.000)	-5.299***	(0.008)	-5.712***	(0.004)
Leverage	32.343***	(0.000)	33.998***	(0.000)	13.609	(0.453)	18.148	(0.319)
Industry-adjusted. ROA	-89.406***	(0.000)	-92.710***	(0.000)	-51.907**	(0.026)	-53.511**	(0.023)
Log(Number of analyst following)	-5.924*	(0.061)	-5.831*	(0.067)	-10.790	(0.143)	-10.513	(0.159)
Institutional holdings	-9.483	(0.226)	-10.184	(0.199)	-3.576	(0.828)	-11.146	(0.496)
High-yield spread	0.101***	(0.005)	0.096***	(0.008)	0.161*	(0.084)	0.145	(0.123)
Number of observations	3,826		3,826		855		855	
Adjusted R^2	0.544		0.537		0.564		0.553	

Table IX. Do the equity holdings by non-bank syndicate members affect the pricing of the loan facility?

This table presents the OLS regression coefficient estimates of Equation (1) and corresponding *p-values* with indicator variables denoting whether the type of non-bank institution also owned at least 0.1% of the firm's outstanding equity during the one-year prior to the origination of the loan (non-bank syndicate member is a dual-holder). Column (1) includes an indicator variable measuring whether any type of non-bank syndicate member is a dual-holder. Column (2) includes indicator variables denoting the type of non-bank institution and whether that type of non-bank institution is a dual-holder. Column (3) includes indicator variables denoting the non-bank syndicate member is the largest lender and a dual-holder. Definitions of all variables are provided in Appendix A. The dependent variable is the all-in-drawn loan spread over LIBOR in basis points, and the analysis is conducted at the loan facility level. All specifications include facility-type fixed effects, facility-purpose fixed effects, and year fixed effects. Standard errors are clustered at the firm level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Facilities with non-bank syndicate members					
Dependent Var.= All-in-drawn spread	(1)		(2)		(3)	
	coef.	(p-val)	coef.	(p-val)	coef.	(p-val)
Non-bank syndicate member is a dual-holder	9.159	(0.178)			32.710*	(0.078)
Insurance company syndicate member			-0.378	(0.957)		
Insurance company syndicate member is a dual-holder			-9.315	(0.676)		
Finance company syndicate member			4.162	(0.483)		
Finance company syndicate member is a dual-holder			-7.836	(0.403)		
HF/PE syndicate member			29.288***	(0.000)		
HF/PE syndicate member is a dual-holder			28.460	(0.120)		
MF syndicate member			7.671	(0.253)		
MF syndicate member is a dual-holder			-1.939	(0.833)		
Other non-bank syndicate member			29.244***	(0.000)		
Other non-bank syndicate member is a dual-holder			-49.216*	(0.059)		
Non-bank syndicate member is the largest lender					22.911*	(0.058)
Non-bank syndicate member is the largest lender and a dual-holder					-28.837	(0.287)
Log(Facility amount)	-26.771***	(0.000)	-26.072***	(0.000)	-12.351**	(0.025)
Log(Number of participating lenders)	-15.266***	(0.000)	-21.709***	(0.000)	-11.709	(0.191)
% of participating lenders with past relationship	-25.320***	(0.000)	-15.612**	(0.029)	-19.516	(0.176)
Log(Maturity)	-20.602***	(0.000)	-19.799***	(0.000)	-29.327***	(0.007)
Secured Indicator	20.314**	(0.010)	18.152**	(0.020)	38.862***	(0.004)
Second-lien Indicator	308.408***	(0.000)	302.906***	(0.000)	307.149***	(0.000)
Covenants Indicator	-1.214	(0.883)	0.601	(0.941)	-29.019	(0.142)
Syndicated facility Indicator	-16.347	(0.246)	-16.225	(0.251)	-41.372*	(0.066)
Log(Total assets)	-1.282	(0.637)	-1.430	(0.594)	-10.413*	(0.087)
Fixed assets/total assets	21.216*	(0.061)	18.271*	(0.098)	3.716	(0.860)
Z-score	-3.290***	(0.003)	-3.009***	(0.007)	-5.522***	(0.006)
Leverage	11.699	(0.180)	10.761	(0.216)	17.794	(0.329)
Industry-adjusted ROA	-69.581***	(0.000)	-66.632***	(0.000)	-54.158**	(0.021)
Log(Number of analyst following)	-8.142**	(0.044)	-6.848*	(0.082)	-11.813	(0.115)
Institutional holdings	-15.271*	(0.088)	-12.887	(0.139)	-10.894	(0.507)
High-yield spread	0.090**	(0.040)	0.090**	(0.040)	0.140	(0.142)
Number of observations	3,460		3,460		855	
Adjusted R^2	0.487		0.501		0.553	

Table X. Uses of loan facility proceeds

This table presents the results from the following regression specification:

$$ln\left[\left(\frac{cash_t - cash_o}{total\ asets_o}\right) + 1\right] = \beta_o + \beta_1 ln\left[\left(\frac{loan\ proceed}{total\ assets_o}\right) + 1\right] + \beta_2 ln\left[\left(\frac{loan\ proceed}{total\ assets_o}\right) + 1\right] \times Spread\ residual$$

$$+ \beta_3 Spread\ residual + \beta_4 ln[total\ assets_o] + \sum_{i=1997IQ}^{2007 4Q} \theta_i YearQtr + \varepsilon$$

t=1, 4, 8 corresponds to the fiscal quarter following the issuing quarter. All regressions include year-quarter fixed effects. Loan facility proceeds are aggregated within a calendar-quarter. *Dollar changes* are the implied change in the dependent variable when loan facility proceeds are increased by \$1 (calculations are based on a median-sized firm/facility in the sample. Year-quarter fixed-effects are for 2003Q3). ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

| | | β_1 | | β_2 | | β_3 | | β_4 | | $Change | | | Wald-test |
| | | | | | | | | | | Median Spread Residual | Median Spread Residual + σ | | (H₀: $\beta_{2,Non-bank}$ |
t	N	Coeff.	(p-val)	Coeff.	(p-val)	Coeff.	(p-val)	Coeff.	(p-val)			adj-R²	= $\beta_{2,\ Bank-only}$)
Panel A: All facilities													
1Q	7,816	0.1025	(0.208)	-0.0004	(0.321)	0.0001	(0.290)	0.0044	(0.069)	0.088	0.062	0.032	
4Q	7,338	0.1154	(0.146)	-0.0007*	(0.091)	0.0002*	(0.070)	0.0027	(0.287)	0.101	0.050	0.034	
8Q	6,698	0.0421	(0.337)	-0.0009*	(0.077)	0.0002*	(0.052)	-0.0050***	(0.008)	0.045	-0.021	0.018	
Panel B: Non-bank facilities													
1Q	2,019	0.1654	(0.208)	-0.0018	(0.187)	0.0005	(0.199)	0.0020	(0.363)	0.122	-0.025	0.110	3.63* (0.057)
4Q	1,872	0.1564	(0.257)	-0.0020	(0.148)	0.0005	(0.166)	-0.0020	(0.552)	0.106	-0.056	0.106	3.41* (0.065)
8Q	1,686	0.1704	(0.248)	-0.0019	(0.200)	0.0005	(0.194)	-0.0042	(0.187)	0.116	-0.033	0.112	0.45 (0.502)
Panel C: Bank-only facilities													
1Q	5,797	0.1184	(0.319)	0.0004	(0.238)	-0.0001	(0.419)	0.0058*	(0.096)	0.091	0.118	0.034	
4Q	5,466	0.1417	(0.208)	0.0001	(0.903)	0.0000	(0.843)	0.0051	(0.149)	0.117	0.121	0.033	
8Q	5,012	0.0013	(0.968)	-0.0008	(0.209)	0.0002	(0.103)	0.0058**	(0.043)	0.017	-0.038	0.010	

Appendix A: Variable definitions

Variables	Definition
Non-bank syndicate member	An indicator variable that takes a value of one if the loan facility least one non-bank (neither commercial bank nor investment bank) institutional syndicate member, and zero otherwise. *Source: DealScan*
Non-bank syndicate members' loan share	Sum of loan shares held by non-bank (neither commercial bank nor investment bank) institutional investors. *Source: DealScan*
Non-bank syndicate member is the largest lender	An indicator variable that takes a value of one if non-bank (neither commercial bank nor investment bank) institutional investor(s) funded the largest share of the facility, zero otherwise. *Source: DealScan*
Non-bank syndicate member is a dual-holder	An indicator variable that takes a value of one if the loan facility has the participation of at least one non-bank (neither commercial bank nor investment bank) syndicate member who held at least 0.1% of equity stake in the same borrowing company during the1-year period leading up to the current loan, and zero otherwise. *Source: DealScan, Thompson Reuters Institutional Holding*
Non-bank syndicate member is the largest lender and a dual-holder	An indicator variable that takes a value of one if non-bank (neither commercial bank nor investment bank) institutional syndicate member(s) in the facility is the largest lender and also held at least 0.1% of equity stake in the same borrowing company during the1-year period leading up to the current loan, and zero otherwise. *Source: DealScan, Thompson Reuters Institutional Holdings*
All-in-drawn spread	Basis point spread over LIBOR plus the annual fee and the up-front fee spread, if there is any-. *Source: DealScan*
Log(Facility Amount)	Natural log of the facility size. Source: DealScan
Log(Number of participating lenders)	Natural log of the number of participating lenders in the facility syndicate. *Source: DealScan*
% of participating lenders with past relationship	The portion of lenders in the loan facility syndicate that have made loans to the borrower within the 36-month period prior to the current loan. *Source: DealScan*
Log(Maturity)	Natural log of the maturity of the facility in months. *Source: DealScan*
Secured Indicator	An indicator variable that takes a value of one if the facility is secured, and zero otherwise. *Source: DealScan*
Second-lien Indicator	An indicator variable that takes a value of one if the facility is second-lien, and zero otherwise. *Source: DealScan*
Covenant Indicator	An indicator variable that takes a value of one if the loan has covenants, and zero otherwise. *Source: DealScan*
Syndicated Indicator	An indicator variable that takes a value of one if the loan is distributed to a syndicate of lenders, and zero otherwise. *Source: DealScan*

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Revolver Indicator	An indicator variable that takes a value of one if the facility type is revolving line of credit (Revolver/Line, Revolver, 364-Day Facility, Demand Loan, Limited Line in DealScan), and zero otherwise. *Source: DealScan*
Term Loan A facility Indicator	An indicator variable that takes a value of one if the facility type is Term Loan A facility, and zero otherwise. *Source: DealScan*
Term Loan B facility Indicator	An indicator variable that takes a value of one if the facility type is Term Loan B facility or higher (C, D, …., H) or unlabeled, and zero otherwise. *Source: DealScan*
Log(total assets)	Natural log of the total assets of the borrower at the end of fiscal year prior to the current loan. *Source*: *Compustat*
Fixed assets/Total assets	The borrower's asset tangibility at the end of fiscal year prior to the current loan, calculated as Net Property, Plant, and Equipment (PP&E)/total assets *Source*: *Compustat*
Z-score	Altman's Z-score for the borrower at the end of fiscal year prior to the current loan.. Z-score is calculated as $Z=1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.99X_5$, where X_1 is working capital/total assets, X_2 is retained earnings/total assets, X_3 is EBIT/total assets, X_4 is market value of equity/book value of total liabilities, and X_5 is sales/total assets (Altman (1968)). *Source*: *Compustat*
Leverage	The borrower's book leverage at the end of fiscal year prior to the current loan, calculated as book value of total debt/book value of total assets. *Source*: *Compustat*
Industry-adusted ROA	The borrower's ROA in excess of the median of the corresponding 2-digit SIC industry ROA at the end of fiscal year prior to the current loan. *Source*: *Compustat*
Log(Number of analyst following)	Natural log of the number of analysts following the borrower's stock. Missing values are coded as zero. *Source: I/B/E/S*
Institutional holdings	The sum of the borrower's stock held by all institutional investors at the end of fiscal year prior to the current loan. Missing values are coded as zero. *Source: Thompson Reuters Institutional Holdings*
S&P Issuer Rating	The borrower's S&P long-term domestic issuer credit rating. A lower value corresponds to a lower rating, with the highest rating (AAA) receiving a value of 22 and the lowest rating (D) receiving a value of 1. Missing ratings are assigned a value of zero. *Source: Compustat*
High-yield Spread	Market credit spread in the month of loan issuance. The credit spread is measured as (Bank of America Merrill Lynch US Corporate High Yield BB Option-Adjusted Spread – Bank of America Merrill Lynch US Corporate AAA Option-Adjusted Spread) in basis points. *Source: Federal Reserve Bank*

Appendix B: Summary statistics

This table presents summary statistics for the final sample that has a full set of data (12,346 facilities). All continuous variables are winsorized at the 1% and 99% level.

	N	Mean	25th Pct.	Median	75th Pct.	Std. Dev.
Panel A: Facility characteristics						
Facility amount ($MM)	12,346	159	17	65	200	253
Number of participating lenders	12,346	6.18	1.00	3.00	8.00	7.31
% of participating lender with past relationship	12,346	30.53	0.00	9.52	57.14	37.08
Maturity (months)	12,346	45.68	27.00	47.00	60.00	23.12
Secured indicator	12,346	0.731	0.000	1.000	1.000	0.443
Second-lien indicator	12,346	0.010	0.000	0.000	0.000	0.099
Covenant indicator	12,346	0.821	1.000	1.000	1.000	0.383
Syndicated indicator	12,346	0.877	1.000	1.000	1.000	0.329
Revolver indicator	12,346	0.653	0.000	1.000	1.000	0.476
All-in-drawn spread	12,346	249.4	155.0	225.0	300.0	127.4
Non-bank participated	12,346	0.280	0.000	0.000	1.000	0.449
Panel B: Borrowing firm characteristics						
Total Assets ($MM)	12,346	1,640	96	333	1,128	4,053
Fixed assets/total assets	12,346	0.314	0.120	0.251	0.462	0.236
Z-score	12,346	3.170	1.315	2.462	3.992	3.684
Leverage	12,346	0.598	0.393	0.562	0.731	0.329
Industry adjusted ROA	12,346	-0.080	-0.107	-0.030	0.015	0.202
Number of analyst following	12,346	4.415	1.000	2.833	6.333	4.884
Institutional holdings	12,346	0.427	0.124	0.407	0.702	0.321
Has S&P issuer credit rating	12,346	0.426	0.000	0.000	1.000	0.494
S&P issuer credit rating (conditional on having a credit rating)	5,255	9.944	9.000	10.000	11.000	2.658
Panel C: % of average loan share (conditional on participation)						
All bank syndicate members	3,664	94.8	100.0	100.0	100.0	14.3
Commercial bank	3,620	90.0	85.5	100.0	100.0	17.7
Investment bank	1,034	21.0	9.1	15.1	25.0	20.0
All non-bank syndicate members	855	44.2	13.3	33.3	80.0	35.8
Insurance company	77	11.2	4.0	8.0	13.3	13.6
Finance company	654	35.3	8.2	20.0	50.0	34.7
HF/PE	297	34.5	9.2	19.6	50.0	33.9
Mutual fund	111	16.6	4.0	9.5	20.0	19.0
Other non-bank syndicate members	78	22.4	2.5	6.5	25.8	32.2
Panel D: % of being largest lender (conditional on participation)						
All bank syndicate members	3,664	96.6	100.0	100.0	100.0	18.2
Commercial bank	3,620	94.3	100.0	100.0	100.0	23.3
Investment bank	1,034	28.0	0.0	0.0	100.0	44.9
All non-bank syndicate members	855	47.0	0.0	0.0	100.0	49.9
Insurance company	77	7.8	0.0	0.0	0.0	27.0
Finance company	654	41.4	0.0	0.0	100.0	49.3
HF/PE	297	34.3	0.0	0.0	100.0	47.6
Mutual fund	111	19.8	0.0	0.0	0.0	40.0
Other non-bank syndicate members	78	20.5	0.0	0.0	0.0	40.6

Appendix C: Spread and payment schedule by facility type

	Facility type			
	Revolver	Term A	Term B	Term Loans
Total number of facilities in sample	12,421	956	2,890	3,764
Avg. all-in-drawn spread				
Mean	230	271	311	301
Median	225	250	275	275

Payment Schedule	N	(%)	N	(%)	N	(%)	N	(%)
Payment Schedule information available	27	(0.2)	558	(58.4)	1,655	(57.3)	1,750	(46.5)
Payment Period								
Bullet / Final Payment	3	(11.1)	61	(10.9)	707	(42.7)	397	(22.7)
Annually	2	(7.4)	9	(1.6)	11	(0.7)	33	(1.9)
Semi-annually	0	(0.0)	25	(4.5)	59	(3.6)	49	(2.8)
Quarterly	16	(59.3)	432	(77.4)	815	(49.2)	798	(45.6)
Monthly	6	(22.2)	29	(5.2)	59	(3.6)	463	(26.5)
Other	0	(0.0)	2	(0.4)	4	(0.2)	10	(0.6)

Figure A.1. Distribution of Payment Period by Facility Type

Figure A.1. Distribution of Payment Period by Facility Type