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TWO ESSAYS ON NONBANK FINANCIAL INSTITUTIONS

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TWO ESSAYS ON NONBANK FINANCIAL INSTITUTIONS

DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Business and Economics
at the University of Kentucky

By

Di Kang

Lexington, Kentucky

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and Dr. Kristine Hankins, Assistant Professor of Finance

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ABSTRACT OF DISSERTATION

TWO ESSAYS ON NONBANK FINANCIAL INSTITUTIONS

Evidence shows that nonbanks, which are now significant participants in the corporate loan market, exploit information gained from lending to trade in public securities. In the first essay, I examine whether these institutions use loan-based information to facilitate merger and acquisition (M&A) deals. I find that firms are more likely to become targets if they borrow from nonbanks rather than banks. Borrowing from a larger number of nonbanks or from those with a sizeable client network also enhances a firm's acquisition prospects. When nonbanks gain more information about borrowers through loan amendments or multiple loans, the impact of nonbank lending grows stronger. I also identify three channels that might allow nonbanks to exploit loan-based information in the M&A market.

In the second essay, I focus on the difference in covenant structure between nonbank loans and bank loans. Previous studies show that loans to riskier borrowers are more likely to have stronger financial covenants in order to mitigate agency problems and conflicts of interest between debt and equity holders. Interestingly, I find that nonbanks loans have fewer, less restrictive financial covenants than commercial banks, all else equal. Although the prior literature shows that banks play an active role in corporate governance following covenant violations, I find that nonbanks are less likely to intervene in borrowers' decision making in similar circumstances. Nonbank borrowers are significantly more likely than bank clients to experience severe financial distress.

KEYWORDS: Nonbanks, syndicated loans, mergers and acquisitions, financial contracting, covenant structure

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June 17th, 2014
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TWO ESSAYS ON NONBANK FINANCIAL INSTITUTIONS

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To my husband and daughter

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Chapter One: Introduction

Since the turmoil generated by the financial crisis of 2007-09, non-commercial bank financial institutions (nonbanks) have received much more attention in the academic literature, given the perception that their risky activities played a causal role in the crisis. My dissertation examines the actions and relevance of nonbank participants in the loan market, specifically, in the syndicated loan market. Today, most large corporate loans are syndicated. A syndicated loan is funded by a group (or a syndicate) of lenders rather than one lender. The number of lenders in a syndicated loan can range from two to hundreds. An important recent development in the market is that most syndicated loan participants are no longer commercial banks, but nonbanks. Following the introduction of syndicated loan ratings in 1995, institutions such as investment banks, private equity firms, hedge funds, and other institutional investors have frequently participated as syndicate members and, in some cases, act as loan arrangers (Boot, Milbourn and Schmeits 2006; Sufi 2009). A lead arranger negotiates the relevant terms of the loan with the borrower and markets the loan to potential participants. The proportion of nonbank participants in the syndication market increased from 11% in 1987 to 26% by 2007. Commercial banks, once the major providers of loans to corporations, were 52% of participants in 1987, but only 13% in 2007.

The entry of nonbanks into the loan market raises a number of important questions and issues that research has yet to address. Nonbank lenders do not accept deposits and consequently face much less regulation than commercial banks. Harjoto, Mullineaux and Yi (2006) show that nonbanks typically assume more credit risk in their syndicated lending than commercial banks. My dissertation investigates whether nonbanks play different roles than banks in firm governance in the market for corporate

control (via mergers and acquisitions) or by exercising control rights with different covenant structures than banks.

My first essay investigates whether lending by nonbanks affects the probability that a borrower will subsequently be acquired. Participating in a loan can generate more value than simply the return on lending money. One reason why is that loan origination and loan administration generate information about borrowers, ranging from current business conditions to their financial projections (Dennis and Mullineaux 2000; Bruner 2004). Some of this information is private and consequently available only to the lenders. Bruner (2004) emphasizes the importance of high quality, credible information about target firms in the process of acquisition search, due diligence, and deal negotiation, and calls special attention to the value of private information. The loan market could be a source of such information to potential acquirers because loan providers typically seek a broader and deeper set of information than bond-market lenders when underwriting deals (LSTA 2007). One of my main contributions to the literature is to demonstrate that nonbanks, rather than commercial banks, are the primary capital market participants linking lending activity to future M&A transactions. In a sample of public firms from 1987 to 2010, I find that a nonbank borrower is 1.6% more likely to become an M&A target than a bank borrower. I also find that borrowers are more likely to receive acquisition bids when they contract with larger numbers of nonbank lenders, especially if they are institutional asset managers. When nonbanks gain more information about borrowers through loan amendments or multiple loans, the impact of nonbank lending grows even stronger. I also identify three channels that might allow nonbanks to exploit loan-based information in the M&A market. First, nonbank lenders could transfer loan-

based information about borrowers to other clients who subsequently become acquirers of these borrowing firms. Second, nonbank lenders could exploit private information by launching their own M&A bids for borrowers. I show that firms borrowing from institutional asset managers are more likely to become their lenders' targets. Finally, nonbank lenders might use information gained from lending to reap advisory fees from M&A activity. I find that firms borrowing from investment banks are significantly more likely to receive takeover bids in which the investment bank lender acts also as an advisor to the acquirer.

My second essay focuses on the covenant structure of nonbank loans. Debt covenants are restrictions or limitations that the lender places on the borrower to enhance the probability of repayment. For example, the lender might require the firm to maintain a certain amount of equity, limit the firm's ability to sell assets, or disallow any additional financing. Although nonbank loans are an economically important financing source, prior empirical work on debt covenants has not distinguished between nonbank and bank providers, implicitly assuming that the distinction is of no empirical relevance. Studies have usually focused on bond covenants, where borrower characteristics are the major factors affecting covenant structures. In private debt contracts like loans, however, the covenants are negotiated between borrowers and lenders. I believe that supply-side factors, particularly the institutional nature of the lender, could play a role in shaping the terms of the loan contract. In a sample of commercial loans from 1995 to 2012, I compare the "tightness" of loan covenants contained in commercial bank and nonbank loan contracts. Holding borrower risk and other loan characteristics fixed, I find that nonbanks impose less restrictive constraints on the financial condition of their borrowers than banks

do. Although the prior literature shows that banks play an active role in corporate governance following covenant violations, I find that nonbanks are less likely to intervene in borrowers' decision making in similar circumstances. I also investigate the implications of nonbank lending on firm behavior in states of serious financial distress, and find that nonbank borrowers are significantly more likely than bank clients to experience severe financial distress.

Chapter Two: The Impact of Nonbank Lending on Mergers and Acquisitions

1. Introduction

Recent publications in the academic and practitioner literature reveal that nonbanks view the commercial loan market a fruitful source of information for a variety of purposes. One line of research demonstrates, for instance, that nonbanks use confidential information gained in the lending process to trade in the stocks of their borrowers before the information becomes public (Ivashina, Nair, Saunders, Massoud and Stover 2009; Bushman, Smith and Wittenberg-Moerman 2010; Massoud, Nandy, Saunders and Song 2011). Another line of inquiry indicates that hedge funds sometimes purchase small amounts of loans to get inside information about borrowers and exploit that information in stock market trading (Sargent 2005; Anderson 2006; Smith and Wittenberg-Moerman 2011). We explore a third prospect, that nonbanks might seek to enhance revenues by using loan-based information to facilitate mergers and acquisitions.

Non-commercial bank financial institutions (nonbanks) are increasingly active in the corporate loan market.[1] While commercial banks dominated business lending through the late 1980's, investment banks, private equity firms, insurance companies, and hedge funds became increasingly active lenders thereafter, especially following the introduction of syndicated loan ratings in 1995 (Boot *et al.* 2006; Sufi 2009). The proportion of nonbank participants in the syndication market increased from 11% in 1987 to 26% in 2007, and there were more nonbank than commercial bank lenders in every year from 1992-2009 (Figure 2.1).

[1] We identify "nonbanks" as financial institutions that do not accept FDIC-insured deposits. Nonbank lenders include investment banks, private equity firms, hedge funds, collateralized loan obligations (CLO), mutual funds, insurance companies, and a small set of specialized lenders. Bank lenders are "depository institutions."

Unlike commercial banks, nonbank lenders do not accept deposits and consequently face less regulation. Harjoto *et al.* (2006) show that nonbanks typically assume more credit risk than commercial banks and view leveraged loans (those to borrowers with speculative credit ratings) as especially attractive. In 2005, nonbanks, attracted by high fees and substantial risk premiums, financed more than 75% of all leveraged loans (Taylor and Sansone 2007). Nonbanks are less likely than commercial bank to be focused on "relationship-driven lending," which typically involves the sale of multiple financial products over an extended period of time.[2] Consequently, nonbanks might be willing to take actions that commercial banks would not (e.g., exploit private information) for fear of losing the future stream of revenues that flows from an established relationship (Boot 2000). Therefore, we contend these institutions have stronger incentives and capabilities than commercial banks to use loan-based information in the acquisitions market.

Bruner (2004) emphasizes the importance of high quality, credible information about target firms in the process of acquisition search, due diligence, and deal negotiation, and calls special attention to the value of private information.[3] One might argue that lenders should shrink from using information gained in due diligence and ex-post monitoring lest they find themselves in agency conflicts with their clients. Indeed, borrowers typically insert clauses in information memoranda and loan-agreement contracts that mandate confidentiality and enjoin lenders from using loan-related

[2] For example, commercial banks might provide clients with packages of services that include loans, checking accounts, payments services, cash management, payroll services, and custody and pension management services.

[3] Some examples of valuable private information might include strategic options, management quality, the nature and scope of risk exposures, access to future finance, and the value of intangible assets.

information for any purpose other than "in connection with the loan" (Taylor and Sansone 2007). Buyers of loans in the secondary market face similar constraints. These contractual provisions may prove difficult to enforce, however, since the "use" of information is a relatively amorphous concept. Claims of contract breach are expensive to prosecute and some cases have been dismissed by courts or found groundless by juries. [4]

One of our main contributions to the literature is to demonstrate that nonbanks, rather than commercial banks, are the primary capital market participants linking lending activity to future M&A transactions. Institutional asset managers, such as hedge funds and private equity funds, provide financing to prospective M&A participants. Activist hedge fund managers sometimes "lobby" companies to seek partners in the M&A market. Private equity firms are themselves major players in the acquisitions market and typically pay smaller premiums for targets than operational buyers.[5] Investment banks advise buyers and sellers in M&A transactions and receive lucrative advisory fees for their services. These fees average about 2% of deal value.[6] Investment banks also earn fees from any equity or debt underwriting services provided to acquirers.

In a sample of public firms from 1987 to 2012, we find that a nonbank borrower is 1.6% more likely to become an M&A target than a bank borrower. Commercial bank

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[4] There have been a number of such claims. In February 1997, ADT sued Chase Manhattan, asserting that the bank leaked information gained in during loan due diligence to an ADT rival, Western Resources. ADT complained that Chase learned sensitive confidential financial information, including internal projections, detailed profit and loss statements, and trade secrets, and then used the information to advise Western Resources in its hostile bid for ADT. The court dismissed the claim that Chase Manhattan improperly released confidential information to Western Resources. Other litigation on lenders exploiting confidential information to facilitate M&A bids includes Mannesmann *vs.* Goldman Sachs, Dime *vs.* Salomon Smith Barney, and Dana vs. UBS. In each case, the plaintiff was unsuccessful in proving its claim.

[5] In 2005, private equity buyers accounted for 15% of total M&A deal value in the U.S. and 18 of the top 100 deals in size (Bargeron, Schlingemann, Stulz and Zutter 2008).

[6] We compute this figure as the average ratio of advisory fees to deal value for all acquisitions recorded in the SDC database from 1987 to 2010. Advisory fees are the sums of target advisory fees and acquirer advisory fees. The average deal value over this time horizon was $209.8 million.

lending does not affect takeover prospects when we control for firm fixed effects in the analysis. We classify nonbank lenders into three categories -- institutional asset managers, investment banks, and other nonbanks -- and find that lending by institutional asset managers (mutual funds, hedge funds, private equity investors, and finance companies) is most likely to result in future takeover attempts.

We also find that borrowers are more likely to receive acquisition bids when they contract with larger numbers of nonbank lenders, especially if they are institutional asset managers. The size of a nonbank lender's client network also has a significant impact on M&A activity, presumably because the prospect for information exchange increases with network size. Once again, the main locus of the effect is with lending by institutional asset managers. Since the factors and attributes that drive firms to borrow from nonbanks may also make them attractive acquisition candidates, our results may be affected by selection problems. We use a panel regression with firm fixed effects, a propensity-score matching analysis, and an instrument variable estimator to address the identification issue and continue to find robust, positive impacts of nonbank lending on the probability their borrowers will receive M&A bids.

We also examine cases where nonbank lenders make multiple loans to the same borrower or renegotiate the original loans, since information flows may be enhanced and/or revised relative to the initial information set in these situations. When nonbanks repeatedly participate in loan originations, the estimated effect on prospective M&A increases relative to borrowers taking one-time loans. The effect is also stronger when nonbank borrowers have their contract terms amended. We find the marginal impact is most significant among institutional asset managers in both instances.

Finally, we investigate the relevance of several channels that nonbanks might employ to exploit loan-based information in the M&A market. For instance, nonbank lenders could transfer loan-based information about borrowers to other clients who subsequently become acquirers of these borrowing firms. While the evidence is only suggestive, we find that nonbanks are better able to connect loan clients than commercial banks in the M&A market. Nonbank lenders also could exploit private information by launching their own M&A bids for borrowers. We show that firms borrowing from institutional asset managers are more likely to become their lenders' targets. Finally, nonbank lenders might use information gained from lending to reap advisory fees from M&A activity. We find that firms borrowing from institutional asset managers and investment banks are significantly more likely to receive takeover bids in which the lender also acts as a financial advisor to the acquirer or target firm.

2. Background and Literature Review

2.1. Private information in the syndicated loan market

Like debt markets in general, the syndicated loan market cannot function unless creditors obtain information about the past, current, and prospective financial condition of borrowers. But finance research has long held that private debt markets provide lenders with an enhanced set of information relative to public markets (Fama 1985). Syndicated loans are a hybrid of private and public debt (Dennis and Mullineaux 2000).[7] The syndication process starts when the borrower awards a mandate to an arranger and provides that institution with details about its business and operations. The loan arranger

[7] Dennis and Mullineaux (2000) and Sufi (2007) provide a detailed description of the characteristics of the syndicated loan market.

prepares an "information memorandum" and distributes it to potential syndicate participants.[8] Arrangers and potential participants typically meet or hold conference calls with borrowing company management and may request follow-up information based on those discussions (Taylor and Sansone 2007).

Some parts of the information memorandum contain public information (and consequently can be posted on the Securities and Exchange Commission's EDGAR service), while other parts contain private information, such as the extent of covenant compliance, management's financial projections, and prospective plans for acquisitions or dispositions (Standard and Poor's 2010). Potential loan participants must declare a preference for the "public side" or "private side" of the syndication. Participants gain contractual rights to private information about borrowers only if they acknowledge an intent to comply with all securities laws, including precluding information flows to parties within the same firm that are responsible for investment decisions (Taylor and Sansone 2007). This practice aims to protect borrowers issuing tradable securities and to prevent insider trading. The participants on the public side are blocked from access to "material nonpublic information," as defined under the U.S. federal securities laws.[9] However, the prohibition may not be fully efficacious.[10]

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[8] According to Standard and Poor's (2010), a typical information memorandum includes an executive summary, investment considerations, an industry overview, and a financial model.

[9] Information is defined as "material" under the U.S. federal securities laws when (1) there is a "substantial likelihood" that a "reasonable investor" would consider the information important in making an investment decision, (2) the disclosure of the information would be "viewed by the reasonable investor as having significantly altered the 'total mix' of information made available," or (3) the disclosure of the information is "reasonably certain to have a substantial effect on the market price of the security" (Taylor and Sansone 2007).

[10] For example, on March 6, 2006, a large movie rental company, Movie Gallery, held separate conference calls for private side and public side participants to request amendments that would relax existing financial covenants. Some contents of the private meeting were disclosed publicly on Debtwire (a website that delivers news about the fixed income market) that evening. Abnormal trading was detected the following day. See the article in *The New York Times*, October 16, 2006, titled "As lenders, hedge funds draw insider scrutiny."

In fact, even the information awarded to "public side" lenders is not available to all investors. For instance, participants on the public side have access to quasi-private information in the form of various financial documents not made available in SEC reports. Some examples include product-line and division financial reports, internal projections of earnings and cash flows, internal budgets for each subsidiary, and descriptions of management expertise (Taylor and Sansone 2007). In addition, both public and private side lenders have access to management. Some of this non-public, quasi-private information could prove useful to protential acquirers in the M&A market.

After a syndication closes, participants continue to obtain information about a borrower through routine administration of the loan. Standard loan documentation grants all participants the right to receive information such as monthly financial reports, material information about the business, and various consultancy reports while the loan is outstanding (Taylor and Sansone 2007). If borrowers seek to amend loan contracts, they must provide fully updated financial information and explain the reasons for requested adjustments in loan terms. Discussions take place in one or more conference calls involving the borrower and all syndicate members. The new information disclosures include financial condition updates, revised projections, and product-line and divisional details. Roberts and Sufi (2009b) report that about 75% of all syndicated loans are amended prior to maturity. Thus, lenders frequently gain updated borrower information, some of it private, through the loan amendment request process.

2.2. Brief review of related literature

While the academic literature has little to say on whether nonbanks exploit information gained from lending activities in the M&A market, Ivashina and Sun (2011)

show that nonbank institutions participating in loan amendment discussions subsequently trade the stocks of the relevant borrowers. When comparing the abnormal stock returns generated by nonbank investors following loan amendments with the returns generated by others, they find significantly better performance by the nonbanks, especially when amendments result in changes in loan spreads. Massoud *et al.* (2011) find that hedge funds, which are increasingly active in the loan market, sell the stocks of their borrowers' short more actively prior to announcements of loan originations and amendments. They also show that short selling is larger when hedge funds act as lead syndicate arrangers and in the days just prior to unfavorable loan amendments.

Bushman *et al.* (2010) also investigate whether nonbank institutional investors exploit confidential loan information in the stock market. They find that participation by nonbanks in loan syndications speeds up the arrival of private information in borrowers' stock prices. In particular, the speed of price discovery increases when nonbank loans are subject to more financial covenants, when borrowers violate covenants, when nonbank loans have high default risk, and when loans are syndicated by relationship-based nonbank lenders or by highly reputable lead arrangers. They also find that the impact of nonbank lending is stronger when less public information is available about borrowing firms.[11]

There is some research examining the roles and impacts of nonbank insitutions in the M&A market. Bodnaruk, Massa and Simonov (2009) find that investment banks exploit information gained as advisers to take equity positions in M&A targets prior to takeover announcements. Investment adviser stakes are positively related to bid prospects

[11] Bushman *et al.* (2010) treat firms that issue no management forecasts and relatively few press releases as those with less publicly available information.

and to the size of the premiums paid for targets. They show that this strategy generates much higher returns than a standard merger-arbitrage trading strategy. Dai, Massoud, Nandy and Saunders (2011) find that hedge funds use material, nonpublic information to take abnormally long positions in M&A target stocks and short positions in acquirer stocks before deals are announced. They show that hedge funds' holdings of target shares in the quarter prior to M&A announcements are positively related to the target's premium. Anecdotal evidence shows that hedge fund managers use personal connections in various industries to gain private information. Our paper reveals that information obtained in the lending process could be another source of valuable information.

Another related strand of literature shows that relationship can generate informational advantages for lenders. Drucker and Puri (2005) and Bharath, Dahiya, Saunders and Srinivasan (2007) find that banks are more likely to win equity underwriting assignments when they have a prior lending relationship with the issuer. Yasuda (2005), Ljungqvist, Marston and Wilhelm (2006),and Bharath *et al.* (2007) report similar findings for firms issuing new debt. Ivashina *et al.* (2009) investigate the impact of the past history of firm borrowings on the prospect they will become acquisition candidates. They find that relationship banks transmit private information about borrowers to potential acquirers. Bank lending intensity is positively related to the probability a borrower will be acquired within three years of loan origination. Our study extends their research by focusing primarily on nonbank lending and finds that nonbanks are more likely than commercial banks to foster future M&A activity. Ivashina *et al.* (2009) show that relationship banks transfer information about poorly performing borrowers to potential acquirers in order to preserve portfolio credit quality. They find no

support for the hypothesis that banks transmit information to gain merger-related fees or financing. We do find evidence that certain nonbank lenders use information gained from lending to earn advisory fees.

3. Data and Empirical Design

3.1. Sample construction

We use data on takeover announcements from the Securities Data Corporation (SDC) database and loan information from Reuters Loan Pricing Corporation's DealScan database for the period 1987 to 2010.[12] From SDC, we keep M&A activities that include tender offers, mergers, and acquisitions of majority interests. If an acquirer tries several bids for the same target within one year, we keep only the first bid. We extract lender information at the facility level from DealScan because a significant portion of the deals in our sample involves different lenders across the facilities.[13]

To construct the sample, we start with an annually merged CRSP-Compustat database of all nonfinancial U.S. firms during the years 1987 to 2012.[14] We first match the M&A bids from SDC that occur within the fiscal year of each firm observation to the CRSP-Compustat database by historical 6-digit CUSIPs, ticker names, and announcement dates. This yields 9,455 takeover bid observations. Then, we aggregate loan financing activities by each borrowing firm during the past three years and merge these with our main sample by using the DealScan-Compustat link file from Chava and

[12] Although SDC data contains records for M&A announcements since 1980, DealScan tracks loan originations and amendments only since 1987.

[13] Jiang, Li and Shao (2009) also point out that members of a syndicate may hold different proportions of each loan facility within the same deal. We also use deal-level data to perform the analysis and get similar results.

[14] We exclude financial institutions with two-digit SIC code 60 through 64, given the significant volume of acquisition activity in the banking industry over our sample period. The results are similar when financial firms are included, however.

Roberts (2008). They build the file by matching company names and loan origination dates from DealScan to company names and corresponding active dates in the CRSP historical header file.[15] With the link file, we are able to add loan financing activities and lender information by each borrowing firm from DealScan to our main sample based on gvkey and loan origination or amendment dates. In the end, we have 101,464 observations in the sample.

Table 2.1 shows some descriptive statistics of the final sample. Panel A shows the number and percentage of observations for firms with different types of financial activities. The first column shows that 47% of observations in the sample of U.S. firms involve loan-financing activities and 20% include nonbank participation. The second column focuses on amended loans and shows amendments occur during the three years following origination in 8% of the final sample, but amendments surface in over 20% (4,139 out of 20,473) of the nonbank loan observations. The last column shows the bank and nonbank breakdown for lenders that have participated in more than three loans ("frequent lenders') to the same borrower during the past five years. Among the 12,943 observations that involve frequent lenders, 18% (2,373 out of 12,943) borrow from nonbanks.

In Panel B of Table 2.1, we show summary statistics for some key characteristics of the firms in our sample. The first column involves all firms, while the second and third columns show firm characteristics in subsamples of nonbank borrowers and M&A targets, respectively. We define each variable in the Appendix. In our sample, the unconditional probability of receiving an M&A bid is 9%, and the probability increase to

[15] See Chava and Roberts (2008) for the details of data construction.

10% if the firm is a nonbank borrower. Relative to an average firm in our sample, borrowers taking nonbank loans are larger, more profitable, have more institutional ownership, and more likely to have a credit rating. They are also more leveraged, grow less rapidly, have less liquidity, and less investment in research. Nonbank borrowers also have lower Z-scores, implying that firms with low credit quality gravitate to such lenders (Denis and Mihov 2003). The third column presents summary statistics for a sample of firms who receive M&A bids. In general, these target firms are smaller, have lower credit quality, and underperform in the stock market in the 24 months prior to a bid relative to the average firms in our main sample.

3.2. The role of nonbank lenders

We capture the potential relevance of nonbank participation on the likelihood of acquisitions in three ways. First, we use sets of dummy variables to identify the presence of any nonbank lender. We define *Nonbank* as a dummy variable equal to one if a firm in our sample has borrowed from at least one nonbank lender during the past three years.[16] To determine whether different types of nonbank lenders have differential effects on the prospect of future M&A activity, we disaggregate the variable *Nonbank* into three categories: *Institutional Asset Manager, Investment Bank, and Other Nonbank*.[17] For instance, the indicator variable *Institutional Asset Manager* is equal to one if a firm has borrowed from at least one institutional asset manager during the past three years. The first column in Panel C of Table 2.1 shows that 68% of the firms relying on nonbank

[16] We create a three-year window to analyze the impact of nonbank lending because the mean maturity of a loan in the LPC database is approximately three years (Ivashina *et al.* 2009). We show later that our results are robust to using other time horizons.

[17] Institutional asset managers include finance companies, mutual funds, hedge funds, and private equity investors. Other nonbanks include insurance companies, CDOs, pension funds, leasing companies, vulture funds, and trust companies.

borrowers relied on at least one institutional asset manager over three years, and 44% and 33% borrowed from at least one investment bank or other nonbank over three years, respectively.

To capture variation in nonbank lending activity in each category, we use the number of institutions lending to a firm over three years. We assume that the "amount" of potential information that is prospectively transferable in the M&A market increases when more lenders participate in a syndicated loan. We count the number of different nonbank lenders participating in loans originated or amended to a given borrower during the past three years. If a nonbank lender participates in multiple loans to the same borrower simultaneously, we count it once. In the second column of Panel C, we show that an average of 3 lenders participates in loans to nonbank borrowers during three years. When we segregate nonbank lenders into the three categories, a nonbank borrower obtains loan financings from about 1.77 institutional asset managers, 0.67 investment banks and 0.94 other nonbanks.

We also employ the size of lender-generated client networks as an additional measure of the capacity of nonbanks to generate and transmit information. If lenders convey potentially useful information about borrowers to other clients, the likelihood of acquisitions should increase with the size of lender client networks. Ivashina *et al.* (2009) find that the probability of M&A bids increases with the size of relationship-bank client networks, but limit network measures to clients in the same industry as the borrower. Our network size variable takes account of all potential acquirers, regardless of industry. We count the number potential acquirers as the total number of other firms that borrow from

the same lender as the potential target over a given time period.[18] Once again, we disaggregate among nonbank types and count the numbers of all client firms borrowing from each type of nonbank lender. The last column of Panel C of Table 2.1 shows the average number of nonbank clients for nonbank borrowers. During three years, nonbank lenders extend credit to 72 companies that could be potential acquirers of the average firm. Across the categories of nonbanks, investment banks have the largest networks in the loan market with an average of 39 clients.

4. Nonbank Lenders and the Likelihood of Takeover Bids

We first analyze whether firms are more likely to become acquisition targets when they have some history of borrowing from nonbank institutions. Ivashina *et al.* (2009) show that companies are significantly more likely to be acquired when they have relied on relationship loans as a source of funds. However, their analysis does not take account of differences in lender type in the loan market. We contend that nonbank lenders, such as investment banks, hedge funds, and private equity firms, are better able to exploit information gained from lending in the M&A market than commercial banks. Commercial banking organizations cannot trade equities or sell stocks short unless they do so from a subsidiary or entity that is legally separate from the bank itself. Regulations

[18] Solectron Corp is a firm in our sample that can serve to show how we construct the client network variables. On August, 31, the end of its 2004 fiscal year, Solectron Corp had borrowed from 21 U.S. banks over the last three years, including Citicorp, Wachovia, and BOA, and from three nonbanks--Goldman Sachs Credit Partners, Goldman Sachs & Co., and Morgan Stanley Senior Funding. To calculate *Nonbank Client Network*, we first identify all borrowers in our sample at each of the three nonbank lenders over the three years period prior to the end of Solectron's 2004 fiscal year. There were 62 companies borrowing from Morgan Stanley Senior Funding, 135 from Goldman Sachs & Co., and 73 from Goldman Sachs Credit Partners between September, 2001 and August, 2004. Some borrowers, such as AT&T, GE, and Wal-Mart, took loans with more than one lender, so there were 236 companies having potential linkages to Solectron through this nonbank lender network over the period. Similarly, we search for clients of the 21 bank lenders and identify 3,498 different clients with prospective information links to Solectron via the total lender network.

would preclude the transfer of information gained in the bank lending process to a subsidiary engaged in trading. Nor can commercial banks acquire non-bank firms, save for those judged "closely related to banking" by the Federal Reserve. While the largest commercial banking organizations do play some role in the M&A market as advisers and lenders, investment banks are equally, if not more, active as M&A advisers and underwriters. Other nonbanks, such as private equity and hedge funds, can themselves be acquirers of any type of firm.

4.1. Nonbank participation and the likelihood of M&A bids

Our dependent variable is binary with a value equal to one if the firm becomes a target during the next fiscal year and zero otherwise. The key explanatory variable *Nonbank* is an indicator variable of nonbank participation that equals one if a firm borrowed from at least one nonbank lender during the past three years and zero otherwise. To examine the differential effect of loans from nonbanks, we also add *Loan* as a control variable that equals one if a firm in our sample has at least one loan origination or loan amendment with any lender--bank or nonbank--during the past three years, and zero if the firm is not a loan borrower.

In addition to our lending-related variables, we also include control variables used in prior studies that focus on predicting acquisitions. These include the target's return on equity, sales growth rate, liquidity ratio, leverage ratio, market-to-book ratio, price-to-earnings ratio, and market capitalization. We also include an industry takeover dummy, the extent of institutional ownership, and the target's past abnormal returns (Palepu 1986; Mitchell and Stafford 2000; Schwert 2000; Officer 2003; Gaspar, Massa and Matos 2005; Billett and Xue 2007; Massa and Zhang 2009). Following Schwert (2000), we average

these variables (except the dummy variables) over the two years prior to the announcement of a takeover bid and trim the variables at the 1st and 99th percentiles. To control for macroeconomic conditions, we also include a recession indicator and a merger wave dummy. A recession indicator equals one during years defined as a recession according to the National Bureau of Economic Research. Based on the findings of Harford (2005) and Garfinkel and Hankins (2011), we create a wave dummy equal to one for the years 1995 to 1999, 2001, and 2006, and zero otherwise.

We employ both linear and non-linear regressions to estimate the effect of nonbank lending on the probability of an acquisition bid. The OLS estimates of a linear probability model provide a convenient approximation to the underlying response probability that is easy to interpret (Wooldridge 2011).[19] A logit model estimated by maximum likelihood estimator (MLE) techniques restricts the response probability to the [0,1] interval and allows a nonlinear relationship between the explanatory variables and the dependent variable. We use both cross-sectional and panel regressions with firm-fixed effects.

We present estimation results for linear (OLS) and non-linear (logit) models, with and without firm fixed effects in Table 2.2. Columns (1) and (2) shows the results of cross-sectional regressions. The coefficient of *Loan* reveals that a firm is significantly more likely to receive an M&A bid if it has borrowed from *any* lender during the past three years. This result, estimated without firm fixed effects, is consistent with the

[19]The linear model has two shortcomings: 1) Some of the OLS fitted values might fall outside the unit interval for probability; and 2) The linear probability model assumes each independent variable exerts a constant effect on probability, regardless of its initial value. Adding nonlinear elements, such as interaction terms, to the OLS estimation, might mitigate the second weakness.

findings of Ivashina *et al.* (2009).[20] When we distinguish between bank and nonbank loans, the evidence reveals a positive and significant impact on the likelihood of future M&A bids when nonbanks provide loans to potential targets. The coefficient of *Nonbank* shows that the probability of receiving an M&A bid is significantly higher if a firm borrows from nonbanks rather than commercial banks. For example, in column (2), a firm with prior loan financings is 1.3 % more likely to receive an M&A bid if it has borrowed from nonbanks rather than banks.

In cross-sectional regressions, any unobserved heterogeneity (stemming perhaps from variations in managerial quality) that is correlated with lending decisions across firms could result in inconsistent estimates in cross-sectional regressions. Therefore, we add firm fixed effects to each model in columns (3) and (4). Li and Prabhala (2007) demonstrate that panel regressions with firm fixed effects can control for self-selection stemming from unobserved attributes that are fixed over time.

The *Nonbank* coefficient becomes more significant than in our initial estimation, while the *Loan* coefficient becomes insignificant, indicating that *only* loans involving nonbanks have a significant impact on the prospect a borrower will become an acquisition target. Based on the results in column (4), a firm is 1.6% more likely to become a target if it has borrowed from nonbanks rather than banks. The impact is economically significant, since the unconditional probability of an M&A bid for firms in our sample is 9%.

[20] Ivashina *et al.* (2009) find that the probability a firm becomes the target of a hostile bid increases from 3.3% when the firm has no bank loans to 4.1% when the firm had one loan over past three years. We find the probability a firm receives any type of bid increases from 7.5% to 9% when the firm had at least one loan over past three years.

With respect to the remaining variables, the models without firm fixed effects shown in columns (1) and (2) produce results similar to those of previous studies using cross-sectional regressions. Smaller firms with weaker earnings, higher leverage, lower market-to-book values, and lower past abnormal returns are more likely to become targets. When we add firm fixed effects to the models in columns (3) and (4), firms with weaker sales and lower liquidity become attractive targets, but leverage ratio does not matter. For macro controls, M&A bids are more likely during M&A waves and less likely during the recession.

4.2. Subcategories of nonbanks and additional measures of nonbank roles

We next examine whether the impact of nonbank lending on acquisition prospects varies with the type of lender. We segregate nonbanks into three categories: institutional asset managers, investment banks, and other nonbanks. In addition to a participation dummy for all nonbanks, we include three dummy variables to capture nonbank participation in each subcategory as explanatory variables in the linear probability model with firm fixed effects. The dummies equal one if a firm borrowed from at least one nonbank lender in the specific category during the past three years, and zero otherwise.

Consistent with results in Table 2.2, the first column of Table 2.3 shows that a borrowing firm is more likely to receive an M&A bid if it borrows from nonbanks during the past three years. In terms of economic significance, the estimated coefficient of 0.018 indicates that, compared to bank borrowers, the probability of receiving M&A bids for nonbank borrowers increases by 20% from their average (0.09) in the sample of borrowers. In column (2), the coefficient for the presence of institutional asset managers is positive and significant, while the impacts of the presence of other types of nonbank

lenders are either negative or insignificant. This indicates that lending by institutional asset managers (private equity firms, hedge funds, and mutual funds) primarily accounts for the observed influence of nonbank lending on merger probabilities.

We next allow for variation in our measures of nonbank influence across the three subclasses, employing the logarithm of one plus the number of all nonbank lenders in total and for each type of nonbank participating in loan originations or amendments during the past three years in the model. Column (3) in Table 2.3 shows a significant positive impact of more nonbank lenders in general and Column (4) reveals that ending by institutional asset managers is again the primary source of the link between nonbank lending and future acquisitions.

The final set of tests includes client network variables constructed by type of nonbank lender. We use the logarithm of one plus the total number of other firms that borrow from the same nonbank lender as a potential target over three years as the proxy for the size of the client network. We again disaggregate among nonbank types and include the size of client network for each type of nonbank as well. In columns (5) and (6), the coefficients of the client network variables associated with nonbanks in general and with the institutional asset manager subgroup have the hypothesized positive sign.

In sum, under various specifications and using different estimation methods, we find that firms are more likely to become M&A targets if they borrow from nonbank lenders, especially if the lenders fall in the institutional asset manager group. [21]

[21] In Appendix Table I, we show the results also hold for logit models for each type of nonbank lender using alternative measures of nonbank participation.

5. Investigating Causality

5.1. Propensity score matching

A drawback of our nonbank participation measures is that a firm's decision to borrow from a nonbank lender may be endogenous (Massoud *et al.* 2011). Although firm fixed effects estimation can mitigate the endogeneity problem associated with unobserved attributes, this technique assumes the unobserved factors are time invariant. Firms with certain characteristics may be more likely to borrow from nonbank lenders and also more likely to become merger targets, and we cannot be confident that any unobserved factors are constant over time. Ideally, we would like to run an experiment with groups of matched firms that are identical in all respects except for nonbank participation. One firm in each group would borrow from a nonbank lender, while the other borrows from a bank lender. The observed difference in M&A likelihood between the groups would then be a robust estimate of the effects of nonbank participation on merger probabilities. Since such an experiment is not feasible, we follow Dehejia and Wahba (2002) and Heckman, Ichimura and Todd (1997) who use propensity score matching methods (PSM) to address the identification problem based on observable characteristics.

PSM allows us to examine future acquisition bids for firms in the treatment sample (firms that borrowed from nonbanks) by conditioning selection on certain observables that we compare with a matched control sample containing firms that borrow from commercial banks. We first estimate a logit model to create a propensity score that indicates the probability a firm borrows from a nonbank. A binary dependent variable equals one if a firm borrows from a nonbank institution over the past three years and zero otherwise. We include borrower characteristics that affect the likelihood a firm borrows

from nonbanks as explanatory variables. Following Massoud *et al.* (2011), Maskara and Mullineaux (2011), and Agarwal and Meneghetti (2011), we use the leverage ratio and the Altman z-score as proxies for firm credit risk, profitability and sales growth as measures of firm performance, and asset size, book-to-market, and cash flow as measures of idiosyncratic risk. Sufi (2007) finds that the extent of information asymmetry affects the composition of lending syndicates. Consequently, we add positive accruals, R&D expenses, and a dummy for the existence of a credit rating to our model to measure the scope of information asymmetries.

Panel A of Table 2.4 shows the results of logit regressions on the likelihood of being in the treatment sample: firms taking loans in which nonbanks participate. Column (1) indicates that nonbank borrowers have more assets, higher sales growth, and less liquidity (lower EBIT and a lower cash ratio) than other firms. Nonbank borrowers also pose less information asymmetry, as measured by R&D expenditures, positive accounting accruals, and the existence of a credit rating. Firms borrowing from nonbanks have significantly higher default risk in terms of leverage ratios or z-scores. Columns (2) and (4) show that firms borrowing from insitutional asset managers or other nonbanks have characteristics similar to nonbank borrowers in general, except that investment bank borrowers have more liquidity. Year dummies and industry dummies are also included in the regressions.

Based on the logit regression, we calculate each firm's propensity score, the probability the firm will borrow from nonbanks rather than banks during a three-year period. We then match each nonbank borrower with a group of bank borrowers that have

propensity scores similar to the nonbank borrowers using Leuven and Sianesi's (2010) PSM procedure at the nearest one-to-one neighborhood with replacement.[22]

Panel B of Table 2.4 reports the average probability of future M&A bids for firms that borrow from nonbank lenders and a sample of matching firms that borrow from bank lenders. The first row shows that the probability of receiving M&A bids for nonbank borrowers is 3% higher than bank borrowers. The mean difference between the two groups is significant at the 1% level with adjusted stadared errors bootstrapping with fifty replications. When we perform the propensity matching analysis for the three types of nonbank lenders, firms borrowing from insitutional asset managers and investment banks are associated with higher M&A bids prospects, while the role of other nonbanks is not as significant. In Appendix Table II, we also report a placebo test for bank borrowers with the same PSM procedure and do not find treatment effects similar to those for nonbank borrowers. In sum, the PSM findings are consistent with the postive efects of nonbank participation on merger probabilities reported in Table 2.2.[23]

5.2. Instrumental variable estimation

While propensity score matching can alleviate the problem of self-selection, we cannot fully rule out the possibility that omitted variables may be driving the relation between the likelihood of being a target and nonbank lending. For instance, complete information about a borrower's financial strength or managers' capabilities might be unobservable to lenders or be measured with error. To clarify identification of the

[22] Appendix Table II shows the PSM results are robust when we use alternative matching methods with nearest neighbor estimators with n= 10 and n=50, and kernel estimators with more weight given to bank borrowers with propensity scores that are closer to the nonbank borrower propensity scores.

[23] We also compare the average probability of M&A bids for firms borrowing from nonbanks versus matched firms that do not borrow at all. The unreported results show that the treatment effects of nonbank participation are more positive and significant.

nonbank-M&A relation, we use an instrument variable (IV) that is correlated with nonbank lending but does not affect M&A likelihood itself: the introduction of syndicated loan ratings.

Yi and Mullineaux (2006) and Sufi (2009) show that syndicated loan ratings led to an explosive increase in nonbank participation in the loan market. In March and December of 1995, Moody's and S&P began rating syndicated loans to cater to a growing number of nonbanks that had weak monitoring and screening abilities, but a strong desire to enter the syndicated loan market.[24] A key identification assumption of the IV approach is that the introduction of syndicated loan ratings does not affect the M&A prospects of nonbank borrowers for reasons other than receiving nonbank loans. We believe this assumption is valid. Anecdotal evidence suggests that the introduction of syndicated loan ratings was supply-driven rather than a response to changes in borrower financial conditions or demand for financing. For instance, an *American Banker* article in 1996 stated that "the increase (in syndicated loan ratings) underscores efforts by corporate customers to cater to the growing number of institutional investors who want a piece of the bank loan syndication market." [25] Sufi (2009) studies the introduction of syndicated loan ratings and shows that borrowers relied on an expanded the set of creditors following the ratings introduction.

We create an indicator for the introduction of syndicated loan ratings that equals one for the period later than 1995 as an instrument for nonbank participation in a panel setting. In the first-stage estimation, we predict the type of firms that receive nonbank

[24] For research on the importance of information asymmetry in the syndicated loan market, see Dennis and Mullineaux (2000), Lee and Mullineaux (2004), Sufi (2007), and Ivashina (2009).
[25] See more anecdotal evidence of reasons to introduce loan rating in Sufi (2009).

loan participation. We use three measures to proxy for nonbank participation: a dummy of nonbank participation, the number of nonbanks, and the size of the client network of nonbank lenders. Table 2.5 shows our results using the IV approach in 2SLS regressions with firm fixed-effects. Panel A of Table 2.5 shows the results of the first-stage regression. The coefficients of *introduction of syndicated loan rating* are positive and significant, implying more nonbank participation after the rating introduction. The first-stage F-statistics reject the null that the coefficients on the instrument are insignificantly different from zero at the 1% level.

We show the IV results in Panel B of Table 2.5. In the first column, we use the dummy of nonbank presence as proxy for nonbank participation. We find the coefficient of nonbank participation is 0.23, or about 12 times larger than the coefficient in Table 2.3, when it is instrumented using the introduction of loan ratings. The positive and significant coefficients on nonbank participation in the last two columns reveal that participation by more nonbanks or the presence of a larger nonbank client network also significantly increases the likelihood borrowers will receive M&A bids using the IV estimation technique. Although we cannot verify the key assumption underpinning IV estimation empirically since the error term is by definition unobservable, we can use the Heckman selection model as a robustness test of the IV estimation results. In Appendix Table III, we show our IV results are robust when we estimate a Heckman selection model.

In sum, we seek to support the causal nature of our earlier results by using PSM and IV estimation to confirm the results of the firm fixed effects model. The strong relationship between nonbank lending and future M&A activity continues to hold.

6. Relevance of Repeat Transactions and Loan Amendments

In this section, we examine whether the estimated impact of nonbank participation on M&A activity grows larger when lenders gain more information about borrowers through repeat loan transactions or obtain updated information via the loan amendment process.

6.1. Frequent lenders and the likelihood of M&A

Nonbank lenders could gain more and updated information in the syndication market if they participate frequently in loans to the same borrower. Frequent lenders will have access to multiple information memos and could obtain updates about the borrower's condition, which could prove useful in the M&A market. We define a frequent lender as one that participates in more than three loans to the same borrower during the past five years. To examine whether the impact of nonbank participation is stronger when firms borrow frequently from the same lender, we first restrict our sample to all nonbank borrowers. Then we define a frequent dummy that equals one if a firm has borrowed from at least one frequent nonbank lender over the three-year period. We hypothesize that the impact of nonbank participation on the probability of an M&A bid will be stronger if borrowers seek loans from frequent nonbank lenders.

The first two columns of Panel A in Table 2.6 show the impact of frequent lender on the likelihood of M&A bids in the linear probability model with firm fixed effects. The coefficient of nonbank in the first column is 0.025, statistically significant at 1% level. The coefficient shows that a nonbank borrower is 2.5% more likely to receive an M&A bid if it borrows from a frequent nonbank lender than a one-time lender. We also

segregate frequent nonbank lenders into the 3 subcategories to again examine the prospect of differential effects. Column (2) of Panel A shows that the impact is stronger when institutional asset managers participate repeatedly in loans to the same borrower. In Panel B of Table 2.6, we show similar results based on a PSM analysis, again applying the one-to-one nearest neighbor matching scheme. We first create propensity score using a probit model to calculate the probability a firm will borrow from a frequent nonbank lender rather than a one-time nonbank lender.[26] We then compare the merger probability of firms borrowing from frequent nonbank lenders with a group of firms borrowing from first-time nonbank lenders that have similar propensity scores.

In the first row, the mean difference between the two groups is 0.017, statistically significant at 10% level. The PSM result is consistent with the linear probability model findings with firm fixed effects, but less statistically significant. We also conduct the PSM analysis within each category of nonbank lender and find an M&A bid is more likely when firms borrow frequently from institutional asset managers. In general, we find stronger impacts of nonbank lending when these lenders have repeat access to borrower information through frequent lending.

6.2. Nonbank participation in loan amendments

In the syndicated loan market, participating lenders routinely obtain updated information when firms request amendments to the terms of their original loan contracts. The arrival of new information about default prospects can trigger loan renegotiation (Roberts and Sufi 2009b). Borrowers must report any breaches of financial covenants and

[26] We also use the linear probability model with firm fixed effects to calculate the propensity score and get similar matching results.

provide lenders with reasons for any requests to amend loan terms.[27] All public and private side lenders will vote on any proposed alterations to loan contract terms, such as changes in principal, interest, maturity, or collateral (Standard and Poor's 2010). Lenders consequently receive updates on various aspects of a borrower's business each time an amendment request occurs and loan renegotiations serve as fertile sources of new, and possibly private, information about borrower conditions. In our sample of nonbank borrowers, we construct an amended loan dummy equal to one if at least one of a borrower's loans is amended over three years and zero otherwise. We hypothesize that the influence of nonbank lending on the probability of M&A bids will grow stronger when borrower loans are amended.

In Panel A of Table 2.6, we show the linear probability model results with firm fixed effects. The coefficient of the nonbank dummy in column (3) is positive and significant, confirming the hypothesis. In column (4), we report the effects of amended loans for each category of nonbank. The positive coefficient for the institutional asset manager dummy indicates that borrowers are more likely to receive M&A bids when institutional asset managers participate in past loan amendments. We also conduct a PSM analysis for the amended loans, using the basic one-to-one nearest neighbor matching scheme. In the first row of Panel B in Table 2.6, the mean difference between two groups is 0.026, statistically significant at 1% level. This is twice as strong as the coefficient in the fixed effects model. When we segregate nonbank lenders into three groups and

[27] Violations of one or more financial covenants in the loan contract can prompt requests for amendments. Financial covenants establish hurdle values for factors such as net worth, the current ratio, leverage ratio, the interest coverage ratio and capital expenditures. However, loan amendments do not necessarily reflect deterioration in a borrower's financial condition. Roberts and Sufi (2009b) demonstrate that more than 90% of long-term loans are amended prior to their stated maturity, yet fewer than 18% of loan amendments are associated with a violation or payment default.

conduct the PSM within each category separately, we consistently find borrowers are more likely to receive an acquisition offer when they rely on amended loans from institutional asset managers. In sum, nonbank borrowers with amended loans are even more likely to receive an acquisition bid than borrowers without amended loans.

7. Information Transmission Channels

Our evidence indicates that nonbank lenders facilitate acquisitions in some fashion. An obvious question is how they might do so. We contend that loan-based information could affect the likelihood of acquisitions through a variety of channels, ranging from casual gossip among the various players in the loan and M&A markets to an effort to earn merger-related fees to becoming the actual acquirer in a deal. We next consider three explicit channels that could link borrowing from a nonbank to the chance of becoming an M&A target.

7.1. Nonbanks could pass information about borrowing firms to other clients

Nonbank lenders could transfer information about a borrower to other clients that subsequently bid to acquire that firm. For instance, one nonbank lender in our sample, GE Capital, participated in a $1.45 billion loan to NRG Energy at the end of 2003. Mirant Corp, another GE Capital loan client, made a bid for NRG Energy in 2006. We have no way to know whether GE Capital provided information about NRG Energy to Mirant, but the prior lending relationship provides the potential for an information transfer tied to the acquisition bid.

Our approach to the issue of information transfer will be to ask whether nonbank lenders are more likely than commercial banks to form large networks of borrowers that could become future merger partners. We have already argued that nonbanks have more

to gain in the M&A market than commercial banks, so observing more network linkages for nonbank lenders could constitute evidence consistent with information transfer. We create a lender-year panel for all credit providers in the DealScan database and collect their borrowers' information over three years. The dependent variable in our model is the number of M&A bids that a borrower receives from acquirers that are loan customers of the same lender. We call such acquirers "connected" in the sense that they could be potential recipients of information transfers. The explanatory variables include indicators for the types of nonbanks, as well as variables interacting these dummies with an indicator for whether the lender serves as lead arranger in the syndicated loan transaction. We hypothesize that lead arrangers are less likely to transfer information to loan clients for reputational reasons. The lead arranger typically earns the largest fees among the syndicate participants and has strong incentives to seek repeat transactions with any given borrower (Dennis and Mullineaux 2000). For most lenders, the number of annual M&A bids that borrowers receive from connected acquirers is zero. Therefore, we employ Poisson regression to estimate whether nonbank lenders are more likely to connect clients that might engage in M&A.

Table 2.7 presents univariate and multivariate results. The coefficient in column (1) shows that nonbanks, in general, do not have more clients connected to firms receiving acquisition bids than commercial banks. But when we disaggregate by nonbank type, the results in column (2) reveal that investment banks do have significantly more borrowers receiving bids from connected clients. Other nonbank types are less likely to have such borrowers. The results in column (3) capture the impact of taking account of lead arranger status and show that such lenders are significantly less likely to have

borrowers that garner bids from other clients. While our evidence does not reveal that nonbank lenders pass information to clients about other customers, it is consistent with the prospect that such transfers could take place, at least in the case of investment banks.

7.2. Nonbanks could launch M&A bids themselves

Nonbank lenders might use loan-based information about borrowers to launch their own M&A bids. Some prior literature reports that information flows within financial conglomerates can result in conflicts of interests (Aggarwal, Nagpurnanand and Puri 2002; Drucker and Puri 2005; Massa and Rehman 2008).[28] Within nonbank institutions, private information could flow from the loan division to the acquisitions division, assuming both exist within the same firm. As a possible example of such a flow in our sample, High River LP participated in a $100 million syndicated loan to Philip Services in 2000 and High River successfully acquired Philip Service in 2003. In our sample, we are able to identify 34 cases where lenders launched bids for their borrowers.

To determine whether firms borrowing from nonbanks are more likely to receive bids directly from their lenders, we find 1,571 control firms from Compustat that do not receive any M&A offers that we match to the 34 acquired firms based on event year and one-digit SIC codes.[29] The dependent variable in our model is an indicator for this specific channel, equal to one if a firm receives a bid from its lender, and zero otherwise. The results in column (1) of Table 2.8 show that firms with prior loan financings are not more likely to receive M&A bids from their borrowers unless they borrowed from

[28] For instance, Massa and Rehman (2008) find evidence that lending divisions transfer private information to investment divisions within financial conglomerates. They contend that such information transmission could result from personal acquaintances within the firm.

[29] We also use match firms with the same two-digit SIC codes and allow matched firms to be in the finance industry as in Ivashina *et al.* (2009). The results are not significantly different.

nonbanks. When we disaggregate by nonbank category, the coefficient of *Loan*Institutional Asset Manager* in column (2) is positive and significant at the 1% level, indicating that mutual funds, hedge funds and private equity firms are the more likely than other nonbanks to pursue acquisitions directly.

7.3. Exploiting information to gain advisory fees

Nonbank lenders that provide M&A advisory services might seek to exploit loan-based information to gain the fee income associated with these activities. A nonbank lender active in the advisory market could transfer borrower information to a prospective bidder in its advisory capacity, for instance. Some advisers have faced lawsuits over this issue. As one example, UBS Warburg participated in a $1 billion syndicated loan to Dana Corp in November, 2000. Thirty-six months later, UBS Warburg acted as a financial adviser to Arvin Meritor, which pursued Dana in a hostile takeover. Dana sued UBS for passing substantial amounts of confidential information it gained from the loan to its rival.[30] In our sample, there are 13,981 cases where lenders serve as advisors to acquirers or targets in the M&A market.

We examine the potential relevance of this channel with a model that uses an indicator variable equal to one if a lender also acts an adviser to a borrower that makes a bid for another of the lender's clients, and zero otherwise. We locate 67,798 control firms in Compustat that do not face any M&A offers, matching to the aforementioned 13,981 cases based on event years and one-digit SIC codes. The results in column (1) of Table 2.9 show that a borrowing firm is more likely to receive a takeover bid when its lender

[30] The lawsuit claimed that UBS was given "substantial amounts of confidential information about Dana, its financial condition, its business plan and prospects, its competitive postures, its trade secrets, and its potential liabilities" as a result of its participation in the loan and the amendment process.

acts as an adviser to an acquirer or provides advisory service to the borrower target. This probability increases significantly if the lender is a nonbank. The results in column (2) reveal that institutional asset managers and investment banks are the primary sources of this linkage.

8. Other Robustness Tests

We next examine whether our main results continue to hold for alternative samples and for different specifications of the dependent variables. In Table 2.10, we show the results of linear probability model with firm fixed effects when we focus only on successful takeover bids, when we use a different sample period, and when we take account of the roles of very large participants in the loan market and the M&A advisory business.

When we limit our analysis to successful M&A bids, the results in column (1) of Table 2.10 on the predictive relevance of nonbank lenders show even stronger results than those already reported. In column (2), we present results from re-estimations using a subsample from 1995 to 2010. We might argue that observations in the period from 1987 to 1994 should be excluded from the sample, since nonbanks became significantly more active in the syndicated loan market following the introduction of loan ratings in 1995. We find a robust estimated impact of nonbank lending on future M&A using the shorter estimation period.

The M&A advisory business is extremely concentrated, with the top ten advisers accounting for the lion's share of the business (Morrison and Wilhelm 2007). If these advisers also participate in the loan market, our results could be driven primarily by the activities of these top advisers. In addition, large nonbank lenders might drive our results.

In columns (3) and (4), we re-estimate our baseline model, but excluding the top ten M&A advisers and the top ten nonbank lenders from our sample. The top ten M&A advisers are from rankings in *buyouts* magazine in 2009 and the top ten nonbank lenders are calculated from the total amount of loan originations in our sample. The coefficients of *Nonbank* remain positive and statistically significant at the 1% level.

In the prior estimations, we use a three-year window to capture the amount of information obtained by nonbank lenders from loan originations and amendments and a one-year window to capture M&A activity. To verify that our results are not driven strictly by the selection of these time horizons, we also measure the information horizons based on one, two, three, and four-year windows and M&A activities based on one- and two-year windows. The results in Table 2.11 show that the impact of nonbank lending is robust to different lengths of estimation windows.

9. Conclusions

Prior research emphasizes the relevance that information plays in the M&A market and identifies the capital markets as an important source of information. We connect these lines of research with evidence supporting the hypothesis that firms borrowing from nonbanks are more likely to become acquisition candidates than bank borrowers. We use panel model regression with firm fixed effects, propensity score matching techniques, and an IV approach to identify the causal link between nonbank lending and future M&A prospects. The impact of nonbank lending on M&A deals remains positive and significant when we use either the number of nonbank lenders or the extent of a nonbank's client network to proxy for information flows. The estimated effects are stronger if the lender is an institutional asset manager, such as a private equity

firm, hedge fund, or mutual fund. Activist hedge fund managers sometimes "lobby" companies to seek partners in the M&A market. Private equity firms and finance companies are themselves major players in the acquisitions market.

Nonbank lenders could gain more and updated information in the syndication market if they participate frequently in loans to the same borrower. When nonbanks repeatedly participate in loan originations, the estimated effect on prospective M&A increases relative to borrowers with one-time lenders. When new or revised information is produced during the loan amendment process, the prospects for future acquisitions are again enhanced. A borrowing firm is significantly more likely to be acquired if it has at least one nonbank loan amendment during the past three years.

We also examine three potential channels that different types of nonbanks could exploit to take advantage of information gained in the loan market for M&A-related purposes. We find that investment banks build larger networks of potential targets and bidders than commercial banks. Institutional asset managers are more likely to launch M&A bids themselves. Finally, we find that firms borrowing from institutional asset managers and investment banks are more likely to receive M&A bids from acquirers advised by investment banks that have made loans to the target. The fact that professionals that work for financial firms frequently change jobs and spend time socializing with one another could prove another prospective means of information transfer, but we are not able to explore these channels empirically. We plan to examine the role informal networks might play in M&A in further research.

Table 2.1: Sample characteristics

This table reports summary statistics for U.S. firms in our sample over the period 1987 to 2012. Panel A shows the number and percentage of observations for firms borrowing from banks and nonbanks for total loans, amended loans, and loans that involve multiple extensions of credit. Panel B contains data on some key characteristics of the firms in our sample. The first column show characteristics for all firms; the second and third columns show firm characteristics in subsamples of nonbank borrowers and M&A targets, respectively. The definitions of each variable are in the Appendix. Panel C presents mean values corresponding to our various measures of nonbank lending.

Panel A

	All Loans		Amended Loans		Frequent Lender Loans	
	N	%	N	%	N	%
Nonbank	20,473	20.2%	4,139	4.1%	2,373	2.3%
Bank	27,528	27.1%	4,251	4.2%	10,570	10.4%
All Loan Financings	48,001	47.3%	8,390	8.3%	12,943	12.8%
All Observations	101,464	100%				

Panel B

	All Borrowers		Nonbank Borrowers		M&A Targets	
	N	Mean	N	Mean	N	Mean
M&A bids	101,464	0.09	20,473	0.10	9,456	1.00
ROE	101,464	-0.01	20,473	0.02	9,456	-0.04
Sale Growth	101,464	0.14	20,473	0.13	9,456	0.15
Liquidity	101,464	0.26	20,473	0.15	9,456	0.25
Leverage	101,464	0.31	20,473	0.46	9,456	0.33
Market-to-Book	101,464	2.73	20,473	2.47	9,456	2.60
PE	101,464	13.62	20,473	14.55	9,456	11.50
Firm Size	101,464	12.16	20,473	13.41	9,456	11.86
Z-Score	92,589	8.37	18,136	5.06	8,619	6.84
Positive Accruals	92,637	23.80	18,076	24.45	8,631	9.03
R&D	101,464	0.04	20,473	0.01	9,456	0.05
Rating	101,464	0.21	20,473	0.51	9,456	0.20
Industry Bid	101,464	0.98	20,473	0.97	9,456	0.99
Institutional Ownership	101,464	0.37	20,473	0.53	9,456	0.37
Past Abnormal Returns	101,464	0.00	20,473	0.00	9,456	-0.01

Table 2.1, continued

Panel C

	Dummy for Nonbank Presence	Number of Participating Nonbanks	Number of Nonbank Clients
Institutional Asset Managers	0.68	1.77	29.17
Investment Banks	0.44	0.67	38.89
Other Nonbanks	0.33	0.94	8.80
Nonbank	1.00	3.38	72.54
Observations		20,473	

Table 2.2: Nonbank lenders and the likelihood of M&A bids

This table reports the estimated effects of nonbank lending on the probability of subsequent M&A bids for borrowers. The dependent variable is a dummy equal to one if the firm becomes a target, and zero otherwise. Definitions of the variables are in the Appendix. The results in column (1) are for a pooled logit model; column (2) for a pooled linear probability model; column (3) for a fixed effects logit model; and column (4) for a fixed effects panel model. Industry fixed effects are the 48 industry dummies designated by Fama and French (1997). The *t*-statistics in parentheses are based on standard errors clustered at the firm level. For the fixed effects logit model, we adjust the *t*-statistics based on bootstrapped standard errors. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)		(2)		(3)		(4)	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Loan	0.151**	2.3	0.014***	5.1	-0.059	-1.3	-0.005	-1.5
Nonbank	0.133***	2.7	0.013***	3.7	0.162***	3.5	0.016***	4.4
Control variables:								
ROE	-0.642***	-5.7	-0.066***	-10.6	-0.398***	-4.8	-0.034***	-4.8
Sale Growth	0.060	1.1	0.013***	3.1	-0.365***	-5.1	-0.035***	-7.7
Liquidity	0.088	1.0	0.009	1.5	-1.127***	-7.6	-0.083***	-7.8
Leverage	0.368***	5.4	0.024***	4.1	0.023	0.2	0.009	0.9
Market-to-Book	-0.030***	-5.2	-0.001***	-3.0	-0.039***	-5.7	-0.003***	-6.6
PE	-0.001***	-2.6	-0.000***	-2.9	-0.001	-1.5	-0.000	-1.4
Firm Size	-0.050	-0.8	-0.003***	-4.5	-0.142***	-5.5	0.002	1.0
Industry Bid	0.139	1.0	0.021***	3.8	0.038	0.3	0.001	0.1
Institutional Ownership	0.466	0.5	0.001	0.8	1.370***	10.5	0.001	1.1
Past Abnormal Returns	-1.875***	-5.4	-0.194***	-6.6	-0.832*	-1.8	-0.094***	-3.2
Merge Wave	-0.113*	-1.7	-0.009	-1.4	0.261***	8.8	0.016***	7.3
Recession	-0.196***	-2.7	-0.014**	-2.3	-0.283***	-8.8	-0.017***	-7.4
Regression Method	MLE		OLS		MLE		OLS	
Firm Fixed Effects	No		No		Yes		Yes	
Industry Fixed Effects	Yes		Yes		No		No	
R-Square (Pseudo *R*-Square)	0.04		0.02		0.03		0.01	
Number of Firms	12,329		12,329		5,389		12,329	
Observations	101,464		101,464		52,342		101,464	

Table 2.3: Results for different types of nonbank lenders and additional measures of nonbank roles

This table reports the differential impact for each type of nonbank lender on the probability of subsequent M&A bids for borrowers. The dependent variable is a dummy variable equal to one if the firm becomes a target, and zero otherwise. The key independent variables are dummies for loans involving nonbanks in columns (1) and (2), logarithms of one plus the number of participating nonbanks in columns (3) and (4), and the logarithms of one plus the number of nonbank clients in columns (5) and (6). We also include other control variables as in Table 2.2 but do not report results. The *t*-statistics in parentheses are based on standard errors clustered at the firm level. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	Dummy for Nonbank Lending		Number of Lenders		Client Network Size	
	(1)	(2)	(3)	(4)	(5)	(6)
Nonbank	0.018***		0.007**		0.004***	
	(4.5)		(2.1)		(3.7)	
Institutional Asset Manager		0.023***		0.015***		0.006***
		(5.0)		(3.4)		(4.5)
Investment Bank		0.007		0.009		0.001
		(1.3)		(1.6)		(0.4)
Other Nonbank		-0.018***		-0.019***		-0.005***
		(-3.4)		(-3.9)		(-2.9)
R-square	0.007	0.007	0.006	0.007	0.006	0.007
Firm fixed effects	Yes		Yes		Yes	
Other Control variables	Yes		Yes		Yes	
Number of firms	7,213		7,213		7,213	
Observations	48,001		48,001		48,001	

Table 2.4: The estimated impact of nonbank lending with propensity score matching

This table reports the results of a propensity score matching analysis on the probability of M&A bids for borrowers that rely on nonbank lenders. Panel A reports the results of a probit model that predicts which firms borrow from nonbanks. The binary dependent variable *All Nonbank/Institutional Asset Manager/Investment bank/ Other Nonbank* equals one if there is at least one nonbank lender/institutional asset manager lender/investment bank lender/other nonbank lender participated in prior loans, and zero otherwise. The definitions of the independent variables are in the Appendix. Industry fixed effects are the 48 industry dummies of Fama and French (1997). The *t*-statistics in Panel A are based on standard errors clustered at the firm level. Panel B shows the results of propensity score matching. The *t*-statistics in Panel B are based on standard errors obtained by bootstrapping with fifty replications. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Probit regressions for nonbank borrowing

	(1)		(2)		(3)		(4)	
	All Nonbank		Institutional Asset Manager		Investment Bank		Other Nonbank	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Firm Assets	0.244***	26.2	0.096***	9.6	0.459***	37.1	0.282***	23.7
Cash Ratio	-0.787***	-6.5	-1.100***	-7.8	1.066***	6.0	-1.274***	-6.7
Leverage	0.559***	10.7	0.588***	10.5	0.246***	4.1	0.136***	2.9
Book-to-market	0.000	0.6	0.000	0.4	0.001	0.6	0.001	1.6
EBIT	-1.209***	-9.7	-1.583***	-11.4	0.696***	3.4	-0.479***	-2.8
Sale Growth Rate	0.269***	7.1	0.186***	4.6	0.400***	8.0	0.405***	8.4
Z-Score	-0.006***	-2.6	-0.011***	-3.2	-0.023***	-4.6	-0.002	-0.6
Positive Accruals	-0.000	-1.3	-0.000*	-1.9	-0.000	-0.7	-0.000**	-2.0
R&D	-1.730***	-5.6	-2.227***	-6.4	-3.717***	-6.2	-1.847***	-3.3
Credit Rated	0.406***	11.5	0.454***	12.2	0.452***	10.9	0.143***	3.2
Institutional Ownership	-0.016	-0.7	-0.001	-0.1	0.002	0.1	-0.019	-0.7
Year Fixed Effect	Yes		Yes		Yes		Yes	
Industry Fixed Effect	Yes		Yes		Yes		Yes	
Pseudo *R*-squared	0.152		0.156		0.207		0.091	
Observations	33,231		33,231		33,231		33,231	

Table 2.4, continued

Panel B: Propensity score matching: the probability of M&A bids

	Treated sample (nonbank borrowers)		Matching Sample (bank borrowers)		Mean Difference (ATT)	
	Observations	Mean	Observations	Mean	Difference	*t*-statistics
All Nonbanks	14,771	0.093	14,771	0.063	0.030	6.99***
Institutional Asset Managers	10,153	0.096	10,153	0.071	0.025	4.71***
Investment Banks	6,469	0.085	6,469	0.066	0.019	3.08***
Other Nonbanks	4,817	0.085	4,817	0.073	0.012	1.89*

Table 2.5: The estimated impact of nonbank lending with an instrumental variable (IV) approach

This table reports the results from IV estimations for the effect of the introduction of syndicated loan ratings on firms' likelihoods of receiving future M&A bids. The dependent variable is a dummy variable equal to if the firm becomes a target in the coming year and zero otherwise. Panel A shows the first-stage regression of the 2SLS estimation with firm fixed-effects. The instrument variable is an indicator of introduction of syndicated loan rating that equal to one for the period after year 1995. The variables that we instrument for in each column is a dummy of nonbank presence, the logarithm of one plus number nonbank lenders, and the logarithm of one plus the number of nonbank clients. Panel B shows results of 2SLS regressions for our three measures of nonbank activity in the loan market. The *t*-statistics are based on standard errors clustered at the firm level. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: First-stage regression of 2SLS

	Dummy of Presence		Number of Lender		Client Network Size	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Introduction of Syndicated Loan Rating	0.194***	18.0	0.243***	15.4	1.029***	25.1
ROE	-0.040***	-5.8	-0.050***	-4.9	-0.134***	-4.9
Sale Growth	0.001	0.1	0.007	1.1	0.019	1.1
Liquidity	0.033**	2.5	0.079***	4.5	0.078	1.5
Leverage	0.223***	15.8	0.353***	16.0	0.757***	13.2
Market-to-Book	-0.004***	-6.8	-0.007***	-7.2	-0.018***	-6.9
PE	-0.000*	-1.7	-0.000**	-2.1	-0.000**	-2.5
Firm Size	0.035***	14.6	0.051***	14.2	0.161***	16.0
Industry Bid	-0.013	-1.3	-0.001	-0.1	-0.089**	-2.1
Institutional Ownership	-0.000	-0.7	-0.000	-0.3	0.000	0.1
Past Abnormal Returns	-0.042	-1.4	-0.050	-1.3	-0.360***	-3.2
Merge Wave	-0.049***	-15.7	-0.056***	-13.6	-0.224***	-19.1
Recession	0.006**	2.4	0.003	1.0	-0.036***	-4.1
R-square	0.182		0.130		0.145	
Observations	48,001		48,001		48,001	

Table 2.5, continued

Panel B: IV results of 2SLS

	Dummy for Nonbank Lending		Number of Lenders		Client Network Size	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Nonbank	0.234***	7.2	0.187***	7.0	0.044***	7.5
ROE	-0.016	-1.1	-0.016	-1.1	-0.022*	-1.7
Sale Growth	-0.033***	-3.7	-0.035***	-4.0	-0.035***	-4.0
Liquidity	-0.075***	-3.4	-0.088***	-3.9	-0.069***	-3.2
Leverage	-0.073***	-3.6	-0.103***	-4.3	-0.043**	-2.6
Market-to-Book	-0.001	-0.5	0.000	0.2	-0.001	-1.0
PE	0.000	0.3	0.000	0.5	0.000	0.5
Firm Size	-0.020***	-5.0	-0.023***	-5.2	-0.018***	-4.9
Industry Bid	0.002	0.3	-0.003	-0.4	0.005	0.6
Institutional Ownership	0.000**	2.6	0.000**	2.4	0.000	1.6
Past Abnormal Returns	-0.188***	-3.7	-0.193***	-3.7	-0.169***	-3.4
Merge Wave	0.022***	5.3	0.020***	4.9	0.019***	5.0
Recession	-0.016***	-4.2	-0.014***	-3.6	-0.009**	-2.5
Firm fixed effects	Yes		Yes		Yes	
First-stage F-statistics	84.32***		62.65***		118.52***	
Observations	48,001		48,001		48,001	

Table 2.6: Estimated effects of nonbank lending for cases of frequent lenders and loan amendments

This table reports the effects of nonbank lending on M&A when borrowers have amended loans or borrow multiple times from the same bank. In Panel A, the dependent variable is a dummy variable equal to if the firm becomes a target and zero otherwise. The key independent variables are dummies reflecting nonbank lending. The results in column (1) are for a pooled logit model; in column (2) for a pooled linear probability model; in column (3) for a fixed effects logit model; and in column (4) for a fixed effects panel model. Industry fixed effects are the 48 industry dummies designated by Fama and French (1997). The *t*-statistics in parentheses are based on standard errors clustered at the firm level. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. Panel B shows the mean differences between the treated and matching samples for all nonbank activity and for the s subgroups.

	Frequent Lenders		Loan Amendments	
	(1)	(2)	(3)	(4)
Nonbank	0.025***		0.012*	
	(3.3)		(1.9)	
Institutional Asset Manager		0.043***		0.016**
		(3.7)		(2.0)
Investment Bank		0.009		0.004
		(1.0)		(0.5)
Other Nonbank		0.007		-0.038***
		(0.3)		(-2.9)
R-square	0.001	0.001	0.001	0.001
Firm fixed effects	Yes		Yes	
Other Control variables	Yes		Yes	
Number of firms	3,980		3,980	
Observations	20,473		20,473	

Table 2.6, continued

Panel B

	Treated sample (Amendment)		Matching Sample (No Amendment)		Mean Difference (ATT)	
	Observations	Mean	Observations	Mean	Difference	*t*-statistics
Nonbank	4,139	0.095	4,139	0.070	0.026	3.37***
Institutional Asset Manager	3,330	0.095	3,330	0.068	0.028	3.43***
Investment Bank	1,687	0.091	1,687	0.082	0.009	0.86
Other Nonbank	951	0.096	951	0.087	0.008	0.61

Panel C

	Treated sample (Frequent lender)		Matching Sample (Non-frequent lender)		Mean Difference (ATT)	
	Observations	Mean	Observations	Mean	Difference	*t*-statistics
Nonbank	2,373	0.081	2,373	0.064	0.017	1.94*
Institutional Asset Manager	1,114	0.098	1,114	0.067	0.031	2.51**
Investment Bank	1,307	0.070	1,307	0.057	0.013	1.2
Other Nonbank	285	0.091	285	0.088	0.004	0.14

Table 2.7: Nonbanks pass information to other clients

This table reports the results of Poisson regressions. The dependent variable is the number of M&A bids that a lender's borrower receives from other clients that borrowed from the same lender. The *t*-statistics in parentheses are based on standard errors clustered at the firm level. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)		(2)		(3)	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Nonbank	-0.472	-1.6				
Institutional Asset Manager			-2.107***	-4.1	-2.386***	-4.5
Investment Bank			1.327***	4.0	1.083***	2.9
Other Nonbank			-2.649***	-4.5	-2.649***	-4.5
Lead Arranger					-0.946***	-3.3
Pseudo *R*-Square	0.03		0.08		0.10	
Regression Method	Poisson		Poisson		Poisson	
Year Fixed Effects	Yes		Yes		Yes	
Observations	24,740		24,740		24,740	

Table 2.8: Nonbanks launch M&A bids themselves

This table shows the results of probit regressions, where the dependent variable is an indicator equal to one if a firm receives an M&A bid from one of its lenders, and zero otherwise. The *t*-statistics in parentheses are based on standard errors clustered at the firm level. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)		(2)	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Key independent variables:				
Loan	-0.981	-0.6	0.633	0.6
Nonbank	4.363**	2.4		
Institutional Asset Manager			3.987***	4.7
Investment Bank			0.655	1
Other Nonbank			-0.637	-1.1
Control variables:				
ROE	-0.641**	-2	-0.283	-0.9
Sale Growth	-3.977***	-2.9	-4.189***	-3.5
Liquidity	-2.420**	-2.2	-1.809	-1.4
Leverage	0.111	1.3	0.057	0.7
Market-to-Book	0.046	0.7	0.052	1.3
PE	0	-0.4	0.001	0.8
Institutional Ownership	0.11	0.1	0.582	0.7
Past Abnormal Returns	-2.944	-0.4	-4.202	-0.6
Regression Method	Logit		Logit	
Year Fixed Effects	Yes		Yes	
Industry Fixed Effects	Yes		Yes	
Pseudo *R*-Square	0.3		0.39	
Observations	1,605		1,605	

Table 2.9: Nonbanks transfer information in the role of M&A advisor

This table shows the results of probit regressions, where the dependent variable is an indicator equal to one if a lender to the target firm acts as a financial adviser to the target or acquiring firm, and zero otherwise. The *t*-statistics in parentheses are based on standard errors clustered at the firm level. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)		(2)	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Key independent variables:				
Loan	1.051***	6.2	1.051***	6.4
Nonbank	0.491***	3.7		
Institutional Asset Manager			0.368***	2.7
Investment Bank			0.460***	3.2
Other Nonbank			0.126	0.8
Control variables:				
ROE	-0.008***	-2.6	-0.008***	-2.6
Sale Growth	0.097	0.5	0.084	0.5
Liquidity	-1.855***	-5.4	-1.855***	-5.4
Leverage	0.103*	1.9	0.088*	1.7
Market-to-Book	-0.000	-1.3	-0.000	-1.3
PE	-0.000	-0.1	-0.000	-0.1
Institutional Ownership	0.002	1.1	0.002	1.1
Past Abnormal Returns	-2.105	-1.4	-1.993	-1.3
Regression Method	Logit		Logit	
Year Fixed Effects	Yes		Yes	
Industry Fixed Effects	Yes		Yes	
Pseudo *R*-Square	0.2		0.21	
Observations	71,702		71,702	

Table 2.10**:** Robustness test with alternative samples

This table reports the main results with alternative sample constructions. Column (1) shows the impact of nonbank lending on only successful bids. Column (2) uses a sample from 1994 to 2010. Columns (3) and (4) exclude large M&A advisors and large lenders from the sample. The *t*-statistics in parentheses are based on standard errors clustered at the firm level. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) Successful Bids		(2) Excluding Period 1987-1994		(3) Excluding Big M&A Advisors		(4) Excluding Big Lenders	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Loan	-0.002	-0.6	-0.008**	-2.2	-0.004	-1.3	-0.005	-1.6
Nonbank	0.010***	3.3	0.015***	3.9	0.013***	3.3	0.018***	3.9
Control Variables:								
ROE	-0.021***	-3.5	-0.016**	-2.1	-0.032***	-4.5	-0.035***	-4.9
Sale Growth	-0.037***	-10.0	-0.024***	-4.8	-0.033***	-7.0	-0.035***	-7.4
Liquidity	-0.073***	-8.5	-0.073***	-6.2	-0.085***	-7.9	-0.086***	-7.9
Leverage	0.001	0.1	0.007	0.7	0.003	0.4	0.009	0.9
Market-to-Book	-0.003***	-6.5	-0.002***	-3.5	-0.003***	-6.1	-0.004***	-6.9
PE	-0.000	-0.6	-0.000	-0.4	-0.000	-1.2	-0.000*	-1.9
Firm Size	0.002	1.5	-0.001	-0.7	-0.000	-0.1	0.002	1.0
Industry Bid	0.000	0.0	0.002	0.3	-0.000	-0.0	-0.004	-0.6
Institutional Ownership	0.000	1.1	0.000	1.1	0.018	1.6	0.000	1.1
Past Abnormal Returns	-0.044*	-1.8	-0.143***	-4.4	-0.086***	-2.9	-0.091***	-3.0
Merge Wave	0.018***	9.8	-0.021***	-8.3	0.017***	7.3	0.017***	7.2
Recession	-0.016***	-8.4	0.007***	2.6	-0.018***	-7.6	-0.018***	-7.6
Firm Fixed Effects	Yes		Yes		Yes		Yes	
R-Square	0.01		0.01		0.01		0.01	
Number of Firms	12,329		76,804		97,045		93,612	
Observations	101,464		10,764		12,241		12,179	

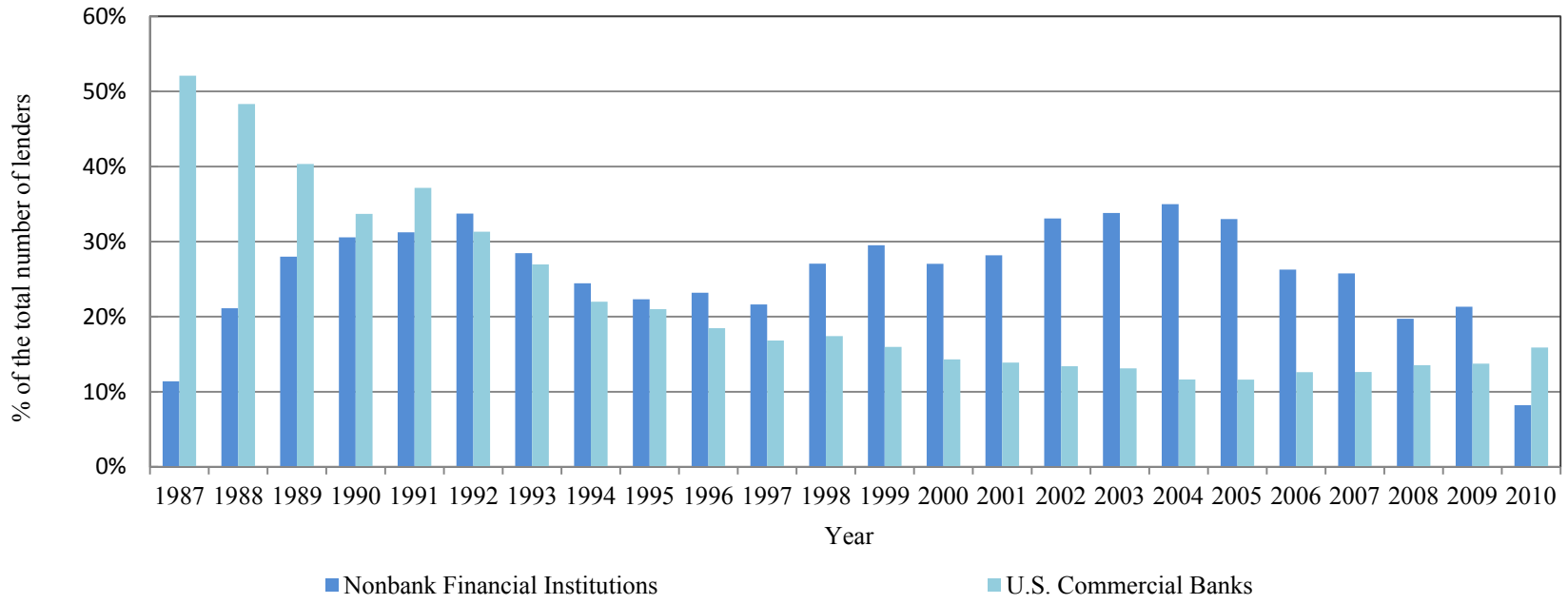
Table 2.11: Robustness tests with different lengths of estimation windows

This table shows our main results using different specifications of dependent variables. In Panel B, [-1, 1] indicates the impact of nonbank lending in past one year on the probability of M&A bids in next one year; [-2, 1] indicates the impact of nonbank lending in past two years on the probability of M&A bids in next one year; [-3, 1] indicates the impact of nonbank lending in past three years on the probability of M&A bids in next one year; [-4, 1] indicates the impact of nonbank lending in past four years on the probability of M&A bids in next one year; [-1, 2] indicates the impact of nonbank lending in past one year on the probability of M&A bids in next two years; [-2, 2] indicates the impact of nonbank lending in past two years on the probability of M&A bids in next two years [-3,2] indicates the impact of nonbank lending in past three years on the probability of M&A bids in next two years; [-3, 2] indicates the impact of nonbank lending in past three years on the probability of M&A bids in next two years; [-4, 2] indicates the impact of nonbank lending in past four years on the probability of M&A bids in next two years. Our results reported in the previous tables are based on [-4, 2]. We do not report results for control variables to save space.

	(1)		(2)		(3)		(4)	
	[-1,1]		[-2,1]		[-3,1]		[-4,1]	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Loan	-0.011***	-3.8	-0.011***	-3.7	-0.005	-1.5	-0.000	-0.1
Nonbank	0.011**	2.6	0.014***	3.8	0.016***	4.4	0.016***	4.4
R-square	0.006		0.007		0.007		0.007	
Firm fixed effects	Yes		Yes		Yes		Yes	
Observations	101,464		101,464		101,464		101,505	
	(5)		(6)		(7)		(8)	
	[-1,2]		[-2,2]		[-3,2]		[-4,2]	
	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics	Coefficient	*t*-statistics
Loan	-0.016***	-3.0	-0.017***	-3.1	-0.007	-1.2	-0.002	-0.4
Nonbank	0.014*	1.8	0.022***	3.2	0.023***	3.5	0.024***	3.6
R-square	0.009		0.009		0.009		0.009	
Firm fixed effects	Yes		Yes		Yes		Yes	
Observations	117,814		117,814		117,814		117,814	

Figure 2.1: Percentage of banks and nonbanks relative to all participants in the U.S. loan market

The bar graphs reflect the number of U.S. commercial bank lenders and non-bank lenders as a percentage of all lenders in the U.S. loan market. The category of lenders not shown in the figure is foreign banks.



Chapter Three: Nonbank Loan Covenants and Their Implications for Borrowers

1. Introduction

Nonbank financial institutions have become significant providers of commercial loans in past two decades, especially following the introduction of ratings on syndicated loans in the mid-1990's (Boot *et al.* 2006; Sufi 2009; Agarwal and Meneghetti 2011; Kang and Mullineaux 2011). According to DealScan, a comprehensive loan database, the proportion of nonbank lenders in the syndication market increased from 25% in 1987 to 80% in 2007, and more nonbank than commercial bank lenders extended such credits in every year after 1998 (Figure 1). Nonbank loans increased from $19 billion in 1988 (12% of total loans outstanding) to $1.5 trillion dollars in 2007 (35% of total loans) before the loan market collapsed during the recent financial crisis (Figure 2). Nonbanks are also more likely to arrange loans, meaning they take more primary responsibility for negotiating the terms of each loan and facilitate monitoring by the syndicate members. In this paper, we study loans that are arranged by non-commercial banks in the private debt market, including finance companies, insurance companies, institutional investors, and some other asset management firms.

Although nonbank loans are an economically important financing source, prior empirical work on debt covenants has not distinguished between nonbank and bank providers, implicitly assuming that the distinction is of no empirical relevance. Studies have usually focused on bond covenants, where borrower characteristics are the major factors affecting covenant structures (Smith and Warner 1979; Malitz 1986; Leland 1994; Billett, King and Mauer 2007; Gârleanu and Zwiebel 2009). In private debt contracts like

loans, however, the covenants are negotiated between borrowers and lenders. We believe that supply-side factors, particularly the institutional nature of the lender, could play a role in shaping the terms of the loan contract.

We find that nonbank borrowers and lenders negotiate fewer and less restrictive financial covenants than those common in commercial bank loans at the time of contract originations. We compare the "tightness" of loan covenants contained in commercial bank and nonbank loan contracts using five different measures of covenant "strictness." Holding borrower risk and other loan characteristics fixed, we find that nonbank loan contracts have different covenant structures than bank loans. Interestingly, although nonbank borrowers are riskier, in general, than bank borrowers, we consistently find that nonbanks impose less restrictive constraints on the financial condition of their borrowers than banks do. We use propensity-score matching to address the identification issue and find a robust, negative relationship between nonbank loans and covenant strictness.

Nonbanks might rely less heavily on financial covenants than bank because they have less incentive to monitor loans. Because banks rely, to some extent, on insured deposits to fund loans, each of their credit decisions is potentially subject to review, and criticism, from bank examiners. Banks with excessive credit risk exposures face costly intervention by regulators, such as increased capital requirements, monetary fines, or restrictions on strategic decisions, such as mergers and acquisitions. Most nonbanks, on the other hand, usually treat commercial loans as an investment and hence are less likely

to place significant value on the "relationship" aspect of lending.[31] Consequently, nonbanks could prove more inclined to sell loans than commercial banks, which could result in relatively less incentive to monitor their borrowers.

Nonbank behavior could also differ from that of banks when borrowers violate the conditions established by the covenants, which represent situations of "technical default." While violating a covenant usually grants the lender the option to demand immediate repayment of the loan, more commonly commercial banks respond by renegotiating the terms of the loan contract, sometimes in ways that limit the borrower's discretion to undertake new investments or seek new financing. Although the prior literature shows that banks play an active role in corporate governance following covenant violations, we find that nonbanks are less likely to intervene in borrowers' decision making in similar circumstances. Using a first-difference specification similar to Nini, Smith and Sufi (2012), we find no evidence that nonbank borrowers change their investment or financing strategies after covenant violations.

We also investigate the implications of nonbank lending on firm behavior in states of serious financial distress. Although covenant violations increase the probability of firm exits through bankruptcy or liquidation, we find again that the outcome differs between bank and nonbank lenders. Nonbank borrowers are significantly more likely than bank clients to experience severe financial distress, such as delisting from stock exchanges or declaring bankruptcy. However, while such outcomes are unambiguously negative events

[31] Commercial banks are more likely to sell commercial customers a package of services, of which loans a just one component. Other services could include transactions processing, treasury and cash management, and payroll or pension-related services. The value of "relationship" to a bank reflects the present value of the cash flows generated by the service package (Petersen and Rajan 1994).

for banks, nonbanks in some circumstances can exploit these situations to create value by means unavailable to banks. In particular, nonbanks might seek to take control of its defaulting borrower via acquisition. Regulations preclude banking organizations from owning nonbank entities.

2. Literature Review

Loan covenants are conditions that lenders write into loan agreements that borrowers must satisfy continuously over the life of the loan in order to avoid technical default.[32] Rajan and Winton (1995) demonstrate that covenants can be rationalized as mechanisms that provide lenders with an incentive to monitor the borrower. Covenants can require certain behaviors (submit audited financial statements quarterly) or preclude certain actions that might adversely affect borrower cash flow (no sale of assets or change in business strategy). Historically, bank loan contracts have contained an array of "financial covenants," which require borrowers to maintain certain financial ratios above or below specified levels (e.g., debt-to-EBITDA should not exceed 3.25.) Lenders could also include other types of covenants in the credit agreement, such as "excess cash flow sweeps" or dividend restrictions [33]

Prior empirical work on loan covenants focuses mainly on identifying the borrower characteristics that influence covenant structure. Early research by Jensen and Meckling (1976), Myers (1977), and Smith and Warner (1979) shows that covenants in

[32] Technical default differs from "financial default, which occurs when borrowers fail to make required interest or principal payments...

[33] An excess cash flow sweep covenant requires the borrower to use any excess free cash flows to pay down the loan ahead of schedule.

debt contracts help mitigate agency problems and conflicts of interest between debt and equity holders. Billett *et al.* (2007) investigate a large sample of bond covenants and find that covenant protection is increasing in growth opportunities, debt maturity, and leverage. Bradley and Roberts (2004) examine corporate loans, finding that loans to high-growth firms contain dividend restrictions, collateral requirements, and tighter financial covenants than loans to less growth-oriented firms. Nini, Smith and Sufi (2009) focus on one financial covenant, the capital expenditures restriction, and find that creditors are more likely to impose this restriction on borrowers with lower credit quality.

Demiroglu and James (2010) analyze the tightness of covenants by looking at variability in the thresholds established for financial covenants such as the current ratio and the debt-to-cash flow ratio. They find that riskier borrowers and firms with less valuable growth options obtain loans with tighter financial covenants and suggest that borrowers choose tight covenants to credibly signal favorable information about their future performance.

Li, Vasvari and Wittenberg-Moerman (2012) focus on the dynamic thresholds in earnings-based covenants with threshold values that become increasingly restrictive over the life of a syndicated loan contract. They find that riskier borrowers negotiate gradually tightening covenants. Rather than signaling favorable information, they contend that tight covenants convey lenders' concerns about borrowers' future performance. In this paper, we extend the literature by showing that lender type also plays a critical role in shaping loan covenant structure.

Our paper, to the best of our knowledge, is the first to document the differential influence of nonbank creditors on the structure of loan covenants. Carey, Post and Sharpe (1998) compare commercial loans made by banks and finance companies and find that finance-company borrowers are more highly leveraged than bank customers, but do not present significantly different levels of information asymmetry. Denis and Mihov (2003) show that nonbank loans accommodate the financing needs of firms with lower credit quality. Harjoto *et al.* (2006) compare pricing policies between commercial banks and investment banks and find that investment banks lend to less profitable, more leveraged firms, price riskier classes of term loans more generously, and offer relatively longer-term credits, usually with term, not commitment contracts. Lim, Minton and Weisbach (2012) find borrowers pay larger premiums on nonbank loans, especially when borrowers face financial constraints and when capital is less available from banks. We compare covenant structures between nonbank loans and bank loans and find that nonbanks tend to impose some less restrictive covenant structures in debt contracts, despite the fact that their clients are typically more leveraged than bank borrowers.

3. Sample Construction and Covenant Characteristics

3.1. Data sources and sample construction

We obtain a comprehensive sample of loan contracts from Reuters Loan Pricing Corporation's DealScan database over the period of 1995-2012.[34] We begin our sample in 1995 because nonbank lending is fairly minimal prior to that year.[35]

In this paper, we treat non-depository lending institutions as nonbanks, which include an array of institutional investors, investment banks, and some other type of nonbanks. The primary institutional investors participating in the commercial loan market are hedge funds, mutual funds, private equity funds, pension funds, and finance companies. To identify institutional investors, we rely on DealScan's classification and note when the lender's type is "Finance Company," "Institutional Investor – Hedge Fund," "Institutional Investor – Prime fund," "Mutual Fund," "Pension Fund," "Vulture Fund," or "Insurance Company." We also treat a lender as an institutional investor if its name is listed on the hedge/private equity fund database maintained by Barclay. A lender falls in the category of investment bank if the lender's type in DealScan is "investment bank." We group the lenders in the category of "other nonbanks" when the lender's type is "Leasing Company," "Specialty," "Corporation," or "Trust Company." To identify a commercial bank, we start from DealScan's classification as "US Bank," "Thrift/S&L," "Asia-Pacific Bank," "Western European Bank," "East Europe/Russian Bank," or

[34] According to Bradley and Roberts (2004), the database contains most of the sizable commercial loans originated over this period. About half of the Dealscan loan data are from SEC filings, and the remainder comes from contacts within the credit industry and from borrowers and lenders.

[35] S&P first started rating syndicated loans in 1995 and the Loan Syndications and Trading Association (LSTA) was founded in 1995.

"Middle Eastern Bank." We also check and add lenders with primary Standard Industrial Classification (SIC) codes between 6011 and 6082, or between 6712 and 6719, to the category of commercial banks.

Since our focus is on loan covenant structure, we require loans with non-missing information on financial covenants. For each loan, we also obtain characteristics other than the covenant structure from DealScan. We require non-missing data on loan pricing, loan size, and maturity. Borrowers usually obtain multiple loan "facilities" or "tranches" at the same time and group them in one "package" of loans or "deal." Although covenant structure remains the same for each loan in a deal, some loan characteristics such as loan spreads and maturities are specific to the facility level. Since our main interest is loan covenants, we carry out our analyses at the deal level and create an average of loan spreads and maturities across all facilities in each deal, weighted by the size of the loan in each facility as a percentage of the full deal.

We obtain control variables for borrower characteristics by matching each loan contract with the quarterly Compustat database based on the DealScan-Compustat link file from Chava and Roberts (2008). We limit the sample to all nonfinancial U.S. firms with average book assets greater than $10 million in 2011 dollars and to firm-quarters at loan originations with five available data items: total assets, total sales, common shares outstanding, closing share price, and the calendar quarter of the filing. There are 10,552 contracts issued by 4,723 publicly traded firms matched successfully to the quarterly Compustat. We also add an indicator of financial covenant violations for each firm

quarter from 1996 to 2008, which is collected from SEC 10-K and 10-Q filings by Nini *et al.* (2012).[36]

3.2. Measures of covenant strictness

Dealscan provides detailed information about financial covenants and whether a loan includes prepayment or dividend restrictions. We measure the strictness of a given covenant structure in several ways. By "strictness," we mean the extent to which the covenants constrain the borrower's capacity to make various business decisions. The first set of measures are based on financial covenants, which are contractual provisions requiring that specified accounting variables or ratios be maintained above (below) established minimums (maximums) over the life of the loan contract. We collect 17 types of financial covenants that are relatively common components of loan contracts from DealScan.[37] We use the *Number of Covenants* as a simple count index of the total number of financial covenants included in a loan contract. The index assumes that a contract is more stringent if there are more financial covenants in the contract. A loan with more covenants will give the lender more monitoring power, enhanced prospects for technical default, and greater capacity to constrain borrower activity. For instance, a loan with a

[36] Nini *et al.* (2012) provide details on how the data base is constructed. Their dataset reveals when covenant violations occur, but does not report which covenant was breached or on what loan. We assume the borrower violates covenants during the life of the most recent effective contract.

[37] The financial covenants includes maximum debt to EBITDA, minimum interest coverage, minimum fixed-charge coverage, maximum capital expenditure, maximum leverage ratio, maximum debt to tangible-net-worth, minimum current ratio, minimum debt-service coverage, maximum senior-debt to EBIDTA, maximum debt to equity, maximum loan to value, maximum senior leverage, minimum cash-interest coverage, minimum quick ratio, minimum EBIDTA, minimum net-worth, and minimum tangible-net-worth. We give detailed definitions of each covenant in the Appendix.

single net worth covenant is less restrictive than a loan with both a net worth and cash flow covenant.

One shortcoming of the count index is that it fails to capture the initial degree of "slack" in each covenant, measured as the distance between the borrower's accounting numbers at loan initiation and what is allowed under the specified financial covenants. With the same number of covenants, borrowers should be more likely to breach a covenant with ratios set closer to the borrower's current levels.[38] To take account of both the number of covenants and the degree of slack of each covenant, we follow Murfin (2012) and create a comprehensive measure of covenant strictness. The *Murfin Index* also considers the scale of contractual slack and the covariance between covenant ratios. First, the same slack for different covenant ratios/levels could indicate very different distances to trigger default.[39] Also, because renegotiation could be triggered by any single covenant violation, a loan contract with more independent covenant ratios has higher probability of a violation, holding all else equal.[40] In general, the *Murfin Index* captures the ex-ante probability of a forced renegotiation between lender and borrower by considering the number, slackness, scale, and covariance of financial covenants. It is estimated as:

$$1 - F\left(\frac{r-\underline{r}}{\sigma}\right),\ F \sim \mathcal{N}_N(0, \Sigma),\ N = 12 \quad \text{.....(1)}$$

[38] For example, a firm with a leverage ratio (defined as total debt to equity) of 1.5 at the time of loan inception is more likely to violate the covenant if the lender requires a maximum leverage ratio of 1.6 rather than 1.8.

[39] For example, a slack equal to one for capital expenditure indicates a one-dollar increase in capital expenditures would trigger the covenant violation, while the same slack for a leverage ratio covenant means the ratio of debt to total assets can change between 0.01 and 1 without any consequence.

[40] For instance, a contract having a leverage covenant and an equity-to-asset ratio covenant should be less stringent than a contract with a leverage covenant and a cash-flow covenant since constraints on leverage also have implications for a borrower's equity to asset ratio but not its cash flow.

where F is the multivariate normal cumulative distribution function with mean 0 and variance Σ; Σ is the covariance matrix associated with quarterly changes in the logged financial ratios of borrowers. We use rolling 10-year windows of backwards-looking data to estimate Σ on each one-digit SIC industry. $r - \underline{r}$ is the slack of each covenant calculated as the absolute difference between the observed ratio in Compustat and the contractual threshold in DealScan at the inception of the loan. σ is the variance of each covenant slack.[41]

Although taking account of covenant slack makes the strictness measure more complete, there are also some potential drawbacks with using such measures. First, we lose some observations by requiring that the financial ratios are also calculable in Compustat. Second, covenant slack is usually measured with error due to the fact that lenders often rely on different definitions of financial concepts in establishing covenant ratios (Dichev and Skinner 2002; Li *et al.* 2012).

Many loan contracts contain "covenant grids" which establish a dynamic threshold with either a tightening or loosening trend for the relevant variable or ratio over the life of the loan agreement. For instance, Johnstown America has such a covenant on maximum capital expenditures in its syndicated credit agreement arranged by Chase Manhattan (April 29, 1999). The covenant gets progressively less restrictive or "looser" over time. According to the covenant, Johnstown America cannot spend more than $25 million on capital goods prior to December 31, 1999, but the limit increases to $30 million after the end of that year. The contract also contains a covenant specifying a

[41] See Murfin (2012) for more detail on the construction of this variable.

maximum debt-to-EBITDA that gets progressively tighter over time, requiring Johnstown America to maintain this ratio below 4 for the first four quarters, then 3.75 for the next four quarters, and 3.5 thereafter.

In our sample, 60% of loans have at least one covenant grid in the financial covenants. We label covenants as "build up" when a specified trend becomes progressively more restrictive and "build down" when the trend becomes less restrictive over the contract's life.[42] We construct two indicator variables to measure the dynamic strictness of covenants: *Build Up* and *Build Down*. *Build Up* equals one if there is any covenant in the contract reflecting a more restrictive trend; *Build Down* equals one if any covenant has a less restrictive trend. For contracts with the same number of financial covenants, we expect a borrower to have less financial flexibility if the *Build Up value* equals one.

In addition to financial covenants, a loan contract can contain prepayment covenants and/or dividend restrictions. DealScan contains several types of prepayment covenants: equity sweeps, debt sweeps, and asset sweeps, which designate the percentage of the loan that must be repaid if certain conditions occur.[43] Also, lenders can include a dividend restriction to limit the ability of the firm to distribute cash to its stockholders under certain conditions. DealScan contains a flag variable indicating the presence of such a restriction. We use Bradley and Robert's (2004) covenant intensity index to take

[42] Demiroglu and James (2010) define the strictness of covenants based on the level of covenant thresholds. However, most financial covenants suffer significant measurement errors because lenders often make substantial adjustments to GAAP numbers when defining covenant thresholds (Dichev and Skinner 2002; Li *et al.* 2012) .

[43] For example, a loan contract containing a 30% of equity sweep means that if the firm sells more than a certain dollar amount of equity, it must repay 30% of the principal value of the loan.

account of non-financial covenants. The *Bradley and Roberts Index* assigns one point for the presence of each of the following six conditions: a dividend restriction, more than two financial covenants, an asset sweep, a debt sweep, an equity sweep, or the loan is secured. The *Bradley and Roberts Index* measures the scale of restrictions on borrowers and whether lenders can intervene under adverse future events. The index ranges from 0 to 6 and a contract becomes more stringent as the index value increases.

3.3. Summary of sample

Table 3.1 shows summary statistics on the use of financial covenants by banks and nonbanks, borrower characteristics, and loan contract terms in our final sample. We identify a contract as a nonbank loan if the lead arranger of each loan in the contract is a nonbank institution.[44] On average, nonbank loans contain an almost identical number of covenants (2.64) to bank loans (2.65), but nonbank loans contain more covenants with a build-up or build-down threshold trend. As in Li *et al.* (2012), our sample reveals that covenants with a less restrictive trend are uncommon. Although the Bradley and Roberts Index shows that nonbanks impose more restrictions in their contracts, the Murfin Index for the median loan indicates that bank loans (0.42) are slightly more restrictive than nonbank loans (0.41).

Panel B of Table 3.1 is a summary of other loan contract terms. On average, a bank loan contract has a size of $170 million and 9 syndicate lenders, while nonbank loans are larger ($204 million), but have slightly fewer syndicate lenders (8 lender per

[44] We have 434 loan contracts that are co-led by nonbanks and banks. To avoid any potential bias, we do not identify these contracts as nonbank loan contracts and delete them from the sample. However, the main results of this paper are qualitatively similar with and without the observations.

loan). More banks (76%) than nonbanks (64%) include performance pricing in loan contracts, which means the interest spreads on bank loans are more likely to vary with the borrower's performance in a specified manner. As noted above, lenders also impose restrictions other than financial covenants in loan contracts. In our sample, more nonbank loan contracts (83%) have restrictions on dividend payouts to shareholders than bank loans (76%), and over half nonbank loans include sweep provisions that require a portion of any cash generated by asset-sales, security issuance, or insurance payments to be used to pay down loan principal. The weighted average maturity of a nonbank loan is 4 months longer than a bank loan, and nonbank loan premiums are almost 100 basis points higher than bank premiums. Consistent with prior literature, nonbank loans are more likely to be leveraged loans and secured by some collateral. With respect to loan purposes, borrowers tend to borrow more often from nonbanks for takeover deals and go to banks more for other purposes, such as debt repayment and working capital. All of the differences identified pass the standard statistical significance test.

We show borrower characteristics at the time of loan origination in Panel C of Table 3.1. Nonbank borrowers are similar in asset size to bank borrowers, but have lower market-to-book ratios, current ratios, and net worth ratios. Nonbank borrowers in general present less information asymmetry problems, since more of them have S&P loan credit ratings (49%) than bank borrowers (44%). In terms of credit quality, nonbank borrowers are significantly riskier than bank borrowers, as reflected in their higher leverage ratios and lower z-scores.

We also segregate the group of nonbanks into three categories: institutional asset managers, investment banks, and other nonbanks. Institutional asset managers are finance companies, hedge funds, prime funds, private-equity funds, mutual funds, and insurance companies. Other nonbanks include corporations, CDOs, leasing companies, pension funds, and trust companies. Panel D of Table 3.1 shows the covenant structure for different types of nonbank loans. Although nonbanks such CDOs, trust companies, and some corporations are active participants in the commercial loan market, they rarely arrange loans themselves. In our sample, most nonbank loan arrangers are institutional asset managers. Panel D indicates that investment banks are the primary driver of the more restrictive covenants on nonbank loans reported in Panel A.

Table 3.2 reports the frequency of covenants and the distribution of different covenant types. Among the 17 financial covenants in our sample, the most common is a maximum for a borrower's debt-to-EBIDTA. It appears in 6,154 loan contracts (58% of the sample), and 45% of them are build-ups, while only 1% are build-downs. Restrictions on net worth, interest coverage, fixed charge coverage and capital expenditures are also relatively popular in loan agreements.[45] Although a minimum EBITDA covenant only appears in 10% of the sample loan contracts, over half of them are build-ups (66%).

4. Nonbank Loans and the Covenant Strictness

We now examine the impact of nonbank lending on the tightness of financial covenants. Theory suggests that the allocation of control rights, which is determined in

[45] All of the covenants on minimum net worth in DealScan are build-ups.

part by covenant structure, could be related to uncertainty concerning the borrowing firm's prospects, asymmetric information, monitoring and renegotiation costs, or incentive conflicts (Gârleanu and Zwiebel 2009). The extant empirical literature finds that loans to firms with low credit quality contain more covenants (Bradley and Roberts 2004; Billett *et al.* 2007; Nini *et al.* 2009; Demiroglu and James 2010). We examine the effects of nonbank lending on contract strictness, measured in several different ways, using the following regression model:

$$Strictness_{i,t} = \beta * Nonbank_{i,t} + \theta_1 * BorrowerControl_{i,t} + \theta_2 * LoanControl_{i,t} + LoanPurpose_i + Industry_i + Quarter_t + \varepsilon_{i,t}, \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

where *Nonbank* is an indicator variable equal to one if the loan's lead arranger is a nonbank institution, *LoanPurpose* is a set of dummies variables capturing one of four stated purposes at the time of loan origination (acquisition, debt repayment, general corporate, or working capital),, *Industry* represents the 49 industry dummies designated by Fama and French (1997), and *Quarter* represents calendar quarter indicator variables.

Strictness is the dependent variable. We construct five measures of the "tightness" of covenant and estimate separate regressions for each. We first use *Number of Covenants*, the total number of covenants in a loan contract, assuming that a contract is more restrictive when it contains more covenants. Second, we use *Build-Up*, an indicator of any financial covenant with a tightening trend over the life of the contract. Third, we also include *Build-Down,* an indicator of any financial covenant with a loosening trend over the life of the contract. We also use the *Bradley and Roberts Index,* which assigns one point for the presence of each of the six indicators mentioned above: collateral,

dividend restrictions, more than two financial covenants, asset sweeps, debt sweeps, or equity sweeps. The last measure is the *Murfin Index*, a proxy for the ex-ante probability of a forced renegotiation between lender and borrower considering the number, slackness, scale, and covariance of financial covenants.

The set of *BorrowerControl* variables include proxies for a firm's default prospects and information asymmetry characteristics and includes a firm's size, z-score, credit rating, current ratio, leverage ratio, net worth ratio, and market-to-book ratio. Following Massoud *et al.* (2011), Maskara and Mullineaux (2011), and Agarwal and Meneghetti (2011), we use the leverage ratio and the Altman z-score as proxies for firm credit risk, and asset size, the book-to-market and net worth ratios as measures of idiosyncratic risk. We also add an indicator variable, which is equal to one if the firm has a S&P long term rating, to our model to measure the scope of information asymmetries.[46] Following Demiroglu and James (2010) and Li *et al.* (2012), we also control for a number of loan characteristics. The set of variables labeled *LoanControl* includes loan size (the logarithm of loan contract amount), performance pricing (an indicator equal to one if the loan contract contains a performance-based pricing provision), sweep provision (an indicator equal to one if the loan contract requires a portion of cash generated by asset-sales, security issuance, or insurance used to pay down principal), dividend restriction (a dummy variable equal to one if the borrower is restricted from paying dividends to its shareholders), syndicate size (the total number of lenders in a loan

[46] Since many of the firms in our sample are unrated, we use a dummy for rated/unrated borrowers instead of a numerical level corresponding to S&P credit ratings. When we replicate the analysis by using S&P credit ratings for the 4,367 available observations, the coefficient of credit rating remains negative and significant at the 1% level.

contract), loan spread (the weighted average interest spread across facilities in the loan package, where the weights are the size of each facility), loan maturity (the weighted average of loan maturities in months across facilities in the loan package, where the weights are the size of each facility), secured (an indicator variable equal to one if lenders hold collateral against any facility in the loan contract), and leveraged loan (an indicator variable equal to one if any facility in the contract is a leverage loan or non-investment grade loan). We expect loan size and maturity to be positively associated with the tightness of covenants because empirical evidence shows that credit risk increases with both. Dennis and Mullineaux (2000) and Sufi (2007) show that larger syndicate size involve higher negotiation and administrative costs, so we expect larger syndicates to be associated with more covenant restrictions.[47]

Table 3.3 reports results for the five models. We use Poisson estimation for the dependent variable *Number of Covenants* and *Bradley and Roberts Index,* Probit estimation for *Build Up* and *Build Down*, and linear regression for *Murfin Index*. For the regression on the Bradley and Roberts Index, we exclude sweep provision, dividend restriction, and secured as explanatory variables since the index includes these variables in its construction. Standard errors are robust to heteroscedasticity and clustered at the borrower level.

In Panel A, the results in columns (2) to (5) show that covenant tightness increases significantly for smaller borrowers with higher leverage. We also find that

[47]In most cases, however, covenant structure is determined before the syndicate size is determined. We also estimate specifications without syndicate size and find that our main results do not change.

some loan characteristics are important determinants of covenant structure.[48] The positive and significant coefficients of the dummies for pricing provisions, sweep provisions, and dividend restrictions suggest that these covenants act as complements to financial covenants. Consistent with the prior literature, we find that covenants become more restrictive with increases in syndicate size. The coefficients for loan maturity is positive and significant, suggesting that monitoring via short-term debt or via covenants on longer-term debt are substitutes. Although Bradley and Roberts (2004) find a negative relationship between loan spreads and covenant intensity, we find a slightly positive relationship, consistent with the findings in Bharath *et al.* (2007).

Our primary focus is on whether the type of lender also influences the structure of financial covenants. The prior literature and our descriptive statistics indicate that nonbank borrowers are riskier firms with high leverage ratios and lower z-scores (Carey *et al.* 1998; Lim *et al.* 2012). We might consequently conclude that nonbank loans should have covenants that are more restrictive than commercial bank loans. Interestingly, we find that holding borrower and loan characteristics constant, nonbank loans are significantly less restrictive for all the different measures of covenant strictness. In Panel A, the coefficients of *Nonbank* show that nonbanks tend to impose fewer restrictions (column (1) and (5)) and less restrictive covenants (columns (4)) on their borrowers. They are more likely to include loosening financial covenants (column (3)), but less likely to include tightening covenants (column (2)) than banks.

[48] However, as in any study that examines debt contract terms, our regression is subject to endogeneity concerns, because all the contract terms are jointly determined.

We consider a loan to be a "nonbank loan" if at least one nonbank institution acts as lead arranger for the loan. The lead arranger usually negotiates loan contract terms with the borrower, including the covenant structure. In unreported results, we also use an alternative classification process where we identify a loan as nonbank generated if any nonbank institution takes the largest share of the loan, and we find consistent results with those reported in the Table 3.3. We also estimated a model where the count variable included non-financial as well as financial covenants and find a similar result.

In Panel B, we show the results of the same analysis for each type of nonbank lender (asset managers, investment banks, and other nonbank). We find that asset managers drive the finding that nonbanks negotiate less restrictive covenants. The coefficents of *Investment Bank Loans* in Columns (1) and (5) show that these lenders actually are more likely to impose restictive covenants than commercial banks. Other nonbanks such as leasing companies, specialist lending firms, and trust companies do not have a significantly different impact on covenant outcomes than banks.

A possible concern about our results is that a firm's decision to borrow from a nonbank lender might not be random (Massoud *et al.* 2011). We cannot rule out the possibility that the negative relationship between nonbank loans and less restrictive covenants is affected by some unobserved firm characteristics. Ideally, we would like to run an experiment with groups of matched firms that are identical in all respects except for nonbank borrowings. To test the robustness of our results, we follow Dehejia and Wahba (2002) and Heckman *et al.* (1997)'s propensity score matching methods (PSM) to address the potential identification problem.

PSM allows us to examine covenant strictness for borrowers in the treatment sample (nonbank loans) by conditioning selection on certain observables compared with a matched control sample of commercial bank loans. We first estimate a logit model to create a propensity score that indicates the probability a firm borrows from a nonbank. The binary dependent variable equals one for a nonbank loan. We include borrower characteristics and loan contract specifications that might affect the likelihood of choosing a nonbank lender as explanatory variables. Based on the logit regression, we calculate each firm's propensity score, the probability the firm will borrow from nonbanks rather than banks. We then match each nonbank borrower with a group of bank borrowers that have propensity scores similar to the nonbank borrowers using Leuven and Sianesi (2010)'s PSM procedure at the nearest one-to-one neighborhood with replacement.[49]

Table 3.4 reports the average covenant strictness for nonbank loans versus bank loans. The standard errors of mean difference are adjusted by bootstrapping with fifty replications. The first row shows that the average number of covenants in nonbank loans is 0.19 lower than bank loans. The mean difference between the two groups is significant at the 1% level. The second row indicates the probability of including a build-up covenant in nonbank loans is 5% lower than bank loans. The Murfin index for nonbank loans is 0.5 lower than for bank loans with significance at 1% level, implying that nonbank loans are less restrictive. We also find that the Bradley and Roberts index of

[49] We also find our PSM results are robust when we use alternative matching methods with nearest neighbor estimator with n= 5 and n=10, and kernel estimators with more weight given to bank borrowers with propensity scores that are closer to the nonbank borrower propensity scores.

nonbank loans is 0.16 smaller than bank loans. In sum, the PSM findings are consistent with the negative relationship between nonbank loans and covenant strictness reported in Table 3.3.

Overall, our findings suggest that financial covenant structure differs significantly in many cases between nonbank and bank loan contracts. The differences remain significant even when we control for borrower characteristics and loan contract terms. The results suggest that nonbanks tend to grant more flexibility to borrowing firms, perhaps because nonbanks have different preferences for risk taking than commercial banks or face different incentives to monitor borrowers or to assume control rights in the default state. These different incentives are no doubt grounded in the fact that nonbanks are much less regulated entities than banks.

5. What Covenants Do Nonbank Lenders Tend to Impose on Their Borrowers?

We next examine each type of financial covenant to probe into prospective differences in covenant structures between banks and nonbanks at a deeper level. In Table 3.5, we present the mean difference in the frequency of each kind of financial covenant between nonbanks and banks. The univariate tests in Panel A show that nonbank loans usually have more restrictions regarding borrower profitability and cash flow, such as minimum fixed charge coverage and minimum EBITDA requirements, while commercial banks are more likely to focus on debt levels with covenants on the maximum leverage ratio, maximum debt-service coverage, maximum debt-to-tangible net worth, minimum net worth, and minimum tangible net worth. Nonbank loans also are

more often collateralized and more likely to contain negative covenants, such as limits on capital expenditures, sweep provisions, and dividend restrictions.

In Panel B of Table 3.5, we estimate multivariate regressions examining the relationship between nonbank loans and the presence of each covenant type. The dependent variables are a set of dummy variables indicating the inclusion of each covenant, as well as for the inclusion of a build-up trend.[50] The key independent variable is *Nonbank*. As in equation (2), we control for firm characteristics and loan contract terms, and include loan purpose, quarter, and industry fixed effects. To save space, we report only the coefficients of *Nonbank* from Probit regressions. We report marginal effects in the table. Standard errors are robust to heteroscedasticity and clustered at the borrower level.

The results in Panel B yield somewhat different outcomes than the univariate tests. Nonbanks are more likely than banks to place limits on capital expenditures and to require sweep provisions. But nonbanks are significantly less likely to have covenants related to borrower leverage (maximum debt to EBITDA and minimum net worth), cash flow (minimum fixed- charge coverage, minimum debt-service coverage), and liquidity (minimum quick ratio). In nonbank loan contracts, the covenant on maximum capital expenditure also is more likely to have a tightening trend. Where nonbanks are less likely to impose financial covenants than banks, they are likewise significantly less likely

[50] We do not report results for build-down covenants because there are too few observations for any meaningful analysis.

to require increasing degrees of strictness in the covenants that do appear in their loan contracts.

The results reveal that nonbanks negotiate contracts that rely that less heavily than banks on financial covenants. Accordingly, nonbank loans are less likely than bank loans to enter the state of technical default, other things equal. Perhaps this behavior reflects the fact that nonbank loans are more likely to be secured than bank loans and that collateral serves as a substitute for tighter restrictions on borrower financial conditions. Alternatively, nonbanks may be less inclined to engage in the process of loan renegotiation, which a declaration of technical default usually triggers. As we noted above, nonbanks are less likely than banks to place strong values on maintaining the value of customer relationships. But while nonbank rely less heavily than banks on financial covenants, the univariate results indicate that several of them appear in over 40% of nonbank loans. In the next section, we examine how nonbanks respond to violations of these covenants relative to their bank peers.

6. Implications of covenant violation to nonbank borrowers

Several recent studies provide evidence that banks play an active role in the governance of corporations in the event of covenant violations. For instance, Nini *et al.* (2012) find that bank borrowers become more conservative in their financial and investment policy following technical default. They argue that contract terms can become more restrictive following a covenant violation, and the new restrictions influence firm behavior in several ways.

We examine whether nonbank lenders intervene in the corporate governance of a borrowing firm following technical default in ways similar to banks. We follow Roberts and Sufi (2009a) and Nini *et al.* (2012) and use first-difference regressions on a large sample of violating and non-violating firms in a dynamic model of firm outcomes, including both investment and financing decisions. We focus on four-quarter changes in firm outcomes post- covenant violation using Nini *et al.* (2012)'s specification as below:

$$y_{i,t+4} - y_{i,t} = \beta * Violation_{i,t} + \gamma_1 * BorrowerControls_{i,t} + \gamma_2 * HigherOrderBorrowerControls_{i,t} + \gamma_1 * BorrowerControls_{i,t-4} + Industry_i + Quarter_t + FiscalQuarter_{i,t} + \varepsilon_{i,t} \quad (3)$$

The dependent variables are changes in firm behaviors in the areas of fixed investment and financing activity. The measures of fixed investment are total assets, property, plant, and equipment (PPE), capital expenditures scaled by assets, and cash acquisitions scaled by lagged asset, and the measures of financing activity include net debt issuance scaled by assets, total debt, cash scaled by total assets, and total shareholder payouts.

The sample includes all borrowers' firm-quarter observations from 1996Q4 to 2008Q4 because of limited data availability on covenant violations.[51] The variable *Violation* indicates whether the borrower violates any financial covenant at quarter t and we include separate variables for violations of covenants on bank and nonbank loans. To obtain a clean identification of the effect of a violation, we also require that borrowers

[51] We use the covenant violation data from Sufi's website. See the Data Appendix in Nini, Sufi, and Smith (2013) for a detailed description of their data collections.

have not violated covenants in the previous four quarters. Specifically, we separately examine bank and nonbank loan covenant violations as our key independent variable. If a covenant violation occurs when the borrower has multiple or overlapping loans, we assume the strictest loan is violated.[52] Once again, *Industry* represents the 49 industry dummies designated by Fama and French (1997), and *Quarter* represents calendar quarter indicator variables. We also add indicator variables of fiscal quarters to address the possibility that financial covenant violations are more common in firms' annual reports than in quarterly filings.

We also control for borrower characteristics that might influence subsequent firm performance after covenant violations. *BorrowerControls* includes the ratio of operating cash flow to lagged assets, the leverage ratio, the ratio of interest expense to lagged assets, the ratio of net worth to assets, the current ratio, and the market-to-book ratio. We also include higher order measures of these variables in square and the third power designated as *HigherOrderBorrowerControls*. We also include the four-quarter lag of these variables to control for mean reversion of firm performance.

Panel A of Table 3.6 presents estimates of equation (2) for the four measures of investment decisions. Consistent with Chava and Roberts (2008) and Nini *et al.* (2012), the negative and significant coefficients for *Bank Loan Violation* show that bank borrowers experience decreases in capital expenditures and cash acquisitions and a reduction in the growth rate of total assets and PPE. However, in the cases of nonbank

[52] Although DealScan does not disclose this information, some loan contracts have cross-default clause in the loan agreement, which allows the lender to accelerate payment on all outstanding loans whenever a default occurs on any one. To be conservative, we also exclude the overlapping loans and find no significant differences in the response of firm performance.

loan violations, we find no significant effect of on changes of borrowers' investment activities. This suggests that nonbank lenders do not impose restrictions on a borrower's investment decisions after observing violations to the same extent as banks and perhaps not at all.

Panel B of Table 3.6 shows effect of violation on firms' outcome for four measures of financing activity. The significant coefficients of the bank covenant violation variables show that these violations are associated with implementation of a more conservative financing policy, as reflected in decreased net debt issuance, lower total debt, less shareholder payouts, and a buildup in cash. But again, we do not find any significant changes in financing behaviors for nonbank violators. Nonbank borrowers do not shift towards a more conservative financing policy after technical default like bank borrowers do.

Overall, we find the active role of creditors in corporate governance around covenant violations documented in the prior literature is limited to bank lenders. Nonbank borrower behavior with respect to investment and financing decisions does not change following technical default. This finding is consistent with the evidence we have presented indicating that nonbank loans are less onerous than bank loans for borrowers in some respects. Nonbanks seem to take a more tolerant attitude towards credit risk, perhaps because their decisions are not subject to review by third parties such as bank examiners or because nonbanks have less incentive to control risks than banks because they are more likely to sell loans in the secondary market. Still another prospect is that certain nonbank lenders may view borrower financial distress, as reflected in technical or

financial default, as advantageous to them in the sense that it could provide an opportunity to acquire the borrowing firm. For example, In November 2003, Berkshire Hathaway, a lead arranger of a loan to Oakwood Homes, bought the bankrupt borrower for $373 million and combined it with one of Berkshire Hathaway's subsidiaries, Clayton Homes. In another example, Republic Airways Holdings, a lender to Frontier Airlines, acquired the borrower in 2009 during Frontier's efforts to reorganize in Chapter 11 bankruptcy.

Some recent literature documents that nonbank institutions, such as hedge funds and private equity firms, actively participate in restructuring firms in bankruptcy (Ivashina, Iverson and Smith 2011; Jiang, Li and Wang 2011; Lim 2013). These nonbanks push to sell the firm's assets or take a significant ownership interest in the reorganized firm. We next examine whether taking loans from nonbanks makes it more likely the firm will suffer negative outcomes such as delisting or bankruptcy.

7. Nonbank Loans and Borrower Exits

We find that nonbanks tend to give their borrowers more flexibility by requiring less restrictive financial covenants and are less likely to intervene in governance following covenant violations. In this section, we investigate how the relatively passive monitoring by nonbanks affects their borrowers. Our hypothesis is that nonbank borrowers will have more severe default consequences than bank borrowers since they incur less restrictive monitoring and are less likely to alter their spending or financing activities in technical default. We estimate the relationship between nonbank lending and the likelihood of firm exit using Probit estimation as below:

$$\Pr(Firm\ Exit) = \beta * Nonbank + \gamma_1 CovenantViolation + \gamma_2 * BorrowerControls + Industry + Quarter + \varepsilon \quad \ldots\ldots (4)$$

where the dependent variable is an indicator variable equal to one if a firm is delisted from Compustat due to poor performance, declares bankruptcy, or enters liquidation; *Nonbank* is an indicator variable equal to one if the loan's lead arranger is a nonbank institution; *CovenantViolation* is an indicator for whether the firm violates any covenants during the life of loan. We also add a set of variables to control for borrower characteristics including a firm's size, z-score, credit rating, current ratio, leverage ratio, net worth ratio, and market-to-book ratio as *BorrowerControls*. *Industry* represents the 49 industry dummies designated by Fama and French (1997), and *Quarter* represents calendar quarter indicator variables. Standard errors are robust to heteroscedasticity and clustered at the borrower level.

Table 3.7 presents the results. Consistent with the findings in DeAngelo, DeAngelo and Wruck (2002) column (1) reveals a positive coefficient on *Covenant Violation*, indicating that firms are significantly more likely to experience a bad outcome if they have covenant violations. When we analyze the effect of nonbank lending on the probability of firm exits in column (2), we find a positive and significant coefficient on the nonbank loan dummy, after controlling for borrower risk, loan characteristics, and covenant violations, indicating that borrowers are more likely to experience severe consequence is they borrow from nonbanks rather than banks. In column (3), we run the

same regression for each type of nonbank lender and find that institutional asset manager loans and other nonbank loans are driving the results.

8. Conclusions

An extensive literature reveals that covenants facilitate efficient monitoring of borrowers and that violations of these restrictions has significant consequences for firm investment and financing decisions. However, the prior literature implicitly assumes that the identity of the lender does not influence the covenant structure of loan contracts or have implications for firm behavior in the event of a declaration of technical default. Our results indicate that lender identity does matter and that nonbanks rely less heavily on covenants than commercial banks and are less likely to intervene in corporate governance when borrowers breach the contractual covenants. Nonbank lenders impose fewer and less restrictive covenants than commercial banks. More specifically, nonbanks rely less heavily on financial covenants, but are more likely to impose restrictions such as sweep provisions and limits on capital expenditures. The differences remains significant when we control for borrower characteristics and loan contract terms. Since violations of financial covenants often trigger loan restructurings, we might expect that nonbank loans are less likely to be renegotiated than bank loans, a topic we will explore in further research.

Although research shows that commercial banks play an active in corporate governance following covenant violations, we find that nonbank lenders are significantly less likely to intervene in firm decision making in the event of technical default., show significant changes The relatively less aggressive stance of nonbanks in the use of

covenants may reflect a more tolerant preference for accepting default risk exposure or it may indicate that nonbanks may gain benefits when borrowers default that are not available to commercial banks. We also present evidence that firms borrowing from nonbanks are significantly more likely to suffer negative outcomes such as delistings, bankruptcy, or liquidation than bank borrowers and these situations might create opportunities for nonbanks to take ownership control of at least some of their borrowers.

Table 3.1: Summary Statistics

This table reports summary statistics on the use of financial covenants, loan contract terms, and borrower characteristics in our final sample of bank loan contracts and nonbank loan contracts over the period 1995 to 2012. *Total covenants* is the total number of financial covenants in a loan contract; *Build-Up covenants* is the total number of financial covenants with a tightening trend over the loan's life; *Build-Down Covenants* is the total number of financial covenants with a loosening trend; *Loan Size* is the total loan package amount; Performance pricing is a dummy variable equal to one if the loan package contains a performance pricing provision, and zero otherwise; *Sweep Provision* is a dummy variable equal to one if the loan contract requires a portion of cash generated by asset-sales, security issuance, or insurance payments to be used to pay down principal, and zero otherwise; *Dividend Restriction* is a dummy variable equal to one if the borrower is restricted from paying dividends to its shareholders, and zero otherwise; *Syndicate Size* is the total number of different lenders participating in the loan package; *Loan Spread* is the weighted average interest spread across facilities in the loan package, where the weights are the size of each facility; *Loan Maturity* is the weighted average of the maturities in months across all facilities in the loan package, where the weights are the relative size of each facility. We also summarize borrower characteristics at the closest quarter end after loan origination: *Assets* is the logarithm of quarterly total assets; *Z-score* is a measurement that predicts bankruptcy calculated following the Altman (1968) model; *Credit Rating* is a dummy variable equal to one if the borrower is rated by S&P or Moody's at the time of loan origination, and zero otherwise; *Market-to-Book* is the ratio of quarter-end market value over total assets; *Leverage Ratio* is quarter-end total debt over total assets. *Net Worth Ratio* is quarter-end market equity value of stockholders over total assets; *Current Ratio* is quarter-end current assets over current liabilities.

Panel A

	Bank Loans			Nonbank Loans			Bank - Nonbank	
	N	Mean	Median	N	Mean	Median	Difference	*t*-statistics
Covenant Characteristics								
Total Covenants	8,985	2.65	3.00	1,487	2.64	3.00	0.01	0.4855
Build-Up Covenants	8,985	0.89	0.00	1,487	1.21	1.00	-0.32	-9.7163
Build-Down Covenants	8,985	0.09	0.00	1,487	0.21	0.00	-0.11	-10.0405
Murfin Index	3,550	0.42	0.42	519	0.43	0.41	-0.01	-1.1901
Bradley and Roberts Index	2,781	4.26	5.00	640	5.03	6.00	-0.77	-14.0198

Panel B

	Bank Loans			Nonbank Loans			Bank - Nonbank	
	N	Mean	Median	N	Mean	Median	Difference	*t*-statistics
Borrower Characteristics								
Assets (logarithm)	8,985	6.41	6.35	1,487	6.41	6.31	0.01	-1.3679
Z-score	8,985	4.47	3.53	1,487	3.24	2.70	1.23	7.7619
Credit Rating (dummy)	8,985	0.44	0.00	1,487	0.49	0.00	-0.05	-4.7279
Market-to-Book	8,985	1.79	1.41	1,487	1.60	1.28	0.19	4.6253
Leverage Ratio	8,985	0.28	0.27	1,487	0.37	0.34	-0.09	-12.2274
Net Worth Ratio	8,985	0.42	0.44	1,487	0.31	0.35	0.11	10.4006
Current Ratio	8,985	2.11	1.63	1,487	1.96	1.55	0.15	1.3037

Table 3.1, continued

Panel C

	Bank Loans			Nonbank Loans			Bank - Nonbank	
	N	Mean	Median	N	Mean	Median	Difference	*t*-statistics
Loan Contract Characteristics								
Loan Size (logarithm)	8,985	5.13	5.27	1,487	5.32	5.30	-0.18	-6.1811
Performance Pricing (dummy)	8,985	0.76	1.00	1,487	0.64	1.00	0.11	8.4498
Sweep Provision (dummy)	8,985	0.36	0.00	1,487	0.62	1.00	-0.26	-20.6802
Dividend Restriction (dummy)	8,985	0.76	1.00	1,487	0.83	1.00	-0.07	-7.0406
Syndicate Size (number of lenders)	8,985	8.91	6.00	1,487	7.78	5.00	1.12	3.152
Loan Spread (basis point)	8,985	177.86	162.50	1,487	272.17	258.71	-94.31	-24.5814
Loan Maturity (month)	8,985	45.49	48.00	1,487	48.91	48.00	-3.42	-6.4045
Secured (dummy)	8,985	0.25	0.00	1,487	0.40	0.00	-0.16	-12.1591
Leverage Loan (dummy)	8,985	0.61	1.00	1,487	0.83	1.00	-0.22	-20.5385
Loan Purpose: Acquisition	8,985	0.12	0.00	1,487	0.16	0.00	-0.04	-4.8344
Loan Purpose: Corporate	8,985	0.27	0.00	1,487	0.23	0.00	0.04	3.4646
Loan Purpose: Debt Repayment	8,985	0.21	0.00	1,487	0.18	0.00	0.03	3.0387
Loan Purpose: Working Capital	8,985	0.26	0.00	1,487	0.23	0.00	0.03	2.6863

Table 3.1, continued

Panel D

	Nonbank Loans								
	Asset Manager Loans			Investment Bank Loans			Other Nonbank Loans		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
Covenant Characteristics									
Total Covenants	935	2.52	2.00	526	2.87	3.00	98	2.45	2.00
Build-Up Covenants	935	1.09	1.00	526	1.43	1.00	98	1.04	1.00
Build-Down Covenants	935	0.22	0.00	526	0.20	0.00	98	0.20	0.00
Murfin Index	310	0.40	0.40	218	0.45	0.45	17	0.46	0.48
Bradley and Roberts Index	377	4.74	5.00	271	5.42	6.00	28	5.21	5.50

Table 3.2: Frequency of Financial Covenants

This table shows the frequency of each type of financial covenant in our sample. The first column shows the number of loans that contain each type of financial covenant and the percentage of loans containing such a covenant. The second set of columns shows the number of loans that contain a certain type of financial covenant with a tightening trend. The third set of columns shows the number of loans that contain a certain type of financial covenant with a loosening trend. Definitions of each financial covenant are in the Appendix.

	Financial Covenants		Build Up		Build Down	
	Percentage of the sample	Number of loans	Percentage of the covenant	Number	Percentage of the covenant	Number
Max. Debt to EBITDA	58%	6154	45%	2746	1%	77
Min. Interest Coverage	39%	4150	32%	1319	1%	37
Min. Fixed Charge Coverage	39%	4141	28%	1157	2%	99
Max. Capex	23%	2423	17%	400	30%	729
Max. Leverage ratio	18%	1923	13%	258	1%	18
Max. Debt to Tangible Net Worth	9%	933	19%	173	1%	13
Min. Current Ratio	11%	1176	7%	82	1%	10
Min. Debt Service Coverage	8%	792	19%	149	2%	19
Max. Senior Debt to EBITDA	10%	1066	55%	585	1%	14
Min. EBITDA	9%	980	66%	651	6%	56
Max. Debt to Equity	1%	70	16%	11	1%	1
Max. Loan to Value	0%	12	17%	2	0%	0
Max. Senior Leverage	0%	16	25%	4	6%	1
Min. Cash Interest Coverage	1%	144	37%	53	2%	3
Min. Quick Ratio	2%	241	18%	43	3%	8
Min. Net Worth	20%	2114	56%	1181		
Min. Tangible Net Worth	17%	1815	49%	882		
Number of Loans	10,552		5,384		1,003	

Table 3.3: Covenant Strictness of Nonbank Loans

This table reports the results of Poisson regression estimation on *number of covenants* and the Bradley and Roberts Index, probit estimation on *Build Up and Build Down*, and OLS regression on the Murfin Index. The key independent variable is Nonbank, a dummy variable equal to one if the loan contract is lead arranged by a nonbank institution, and zero otherwise. *Loan Size* is the logarithm of total loan package amount; Performance pricing is a dummy variable equal to one if the loan package contains a performance pricing provision, and zero otherwise; *Sweep Provision* is a dummy variable equal to one if the loan contract requires a portion of cash generated by asset-sales, security issuance, or insurance payments to be used to pay down principal, and zero otherwise; *Dividend Restriction* is a dummy variable equal to one if the borrower is restricted from paying dividends to its shareholders, and zero otherwise; *Syndicate Size* is the total number of different lenders participated in the loan package; *Loan Spread* is the weighted average interest spread across facilities in the loan package, where the weights are the size of each facility; *Loan Maturity* is the weighted average of the maturities in months across all facilities in the loan package, where the weights are the relative size of each facility. We also summarize borrower characteristics at the closest quarter end after loan originations: *Assets* is the logarithm of quarterly total assets; *Z-score* is a measurement that predicts bankruptcy calculated following the Altman (1968) model; *Credit Rating* is a dummy variable equal to one if the borrower is rated by S&P or Moody's at the time of loan origination, and zero otherwise *Market-to-Book* is the ratio of quarter-end market value over total assets; *Leverage Ratio* is quarter-end total debt over total assets. *Net Worth Ratio* is quarter-end equity value of stockholders over total assets; *Current Ratio* is quarter-end current assets over current liabilities. Industry fixed effects are the 12 industry dummies designated byFama and French (1997). Standard errors Standard errors are robust to heteroscedasticity and clustered at the borrower level. *t*-statistics are reported in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.

Panel A

Dependent Variable	Number of Covenants	Build Up	Build Down	Murfin Index	Bradley and Roberts Index
	(1)	(2)	(3)	(4)	(5)
Nonbank	-0.080***	-0.050***	0.033***	-0.047***	-0.024**
	(-5.9)	(-3.6)	(2.9)	(-4.3)	(-2.0)
Firm Controls					
Firm Size	-0.040***	-0.034***	-0.003	-0.007	-0.063***
	(-6.8)	(-5.2)	(-0.8)	(-1.2)	(-7.2)
Z-Score	0.002*	-0.003***	0.001	-0.002	0.004**
	(1.8)	(-3.0)	(1.2)	(-1.0)	(2.4)
Credit Rating	-0.062***	-0.007	-0.006	-0.021**	-0.035**
	(-4.8)	(-0.5)	(-0.7)	(-2.1)	(-2.4)
Market-to-Book	-0.007	-0.006	-0.003	-0.033***	-0.035***
	(-0.9)	(-1.3)	(-0.9)	(-6.3)	(-4.6)
Leverage Ratio	0.058	0.103***	0.050**	0.627***	0.134***
	(0.8)	(3.0)	(2.0)	(15.8)	(4.2)
Net Worth Ratio	0.036	-0.005	-0.026	0.172***	-0.011
	(0.5)	(-0.2)	(-1.4)	(4.1)	(-0.5)
Current Ratio	-0.001***	0.000***	-0.000	-0.000***	-0.000**
	(-4.0)	(2.6)	(-1.4)	(-5.9)	(-2.3)
Loan Contract Controls					
Loan Size	-0.017**	0.027***	0.003	-0.021***	0.031***
	(-2.5)	(3.8)	(0.6)	(-3.6)	(3.5)
Performance Pricing	0.083***	0.097***	-0.013*	0.036***	0.052***
	(7.8)	(8.2)	(-1.7)	(3.6)	(3.9)
Sweep Provision	0.082***	0.117***	0.045***	0.052***	
	(7.4)	(8.7)	(5.5)	(5.6)	
Dividend Restriction	0.119***	0.099***	0.024***	0.029***	
	(10.9)	(8.2)	(4.0)	(3.6)	
Syndicate Size	0.001***	0.001**	0.000	0.002***	0.001***
	(3.5)	(2.5)	(0.1)	(3.6)	(2.8)
Loan Spread	0.000***	0.001***	0.000***	0.000	0.001***
	(5.7)	(11.8)	(6.5)	(0.5)	(9.8)
Loan Maturity	0.001***	0.001***	0.000	-0.000	0.002***
	(5.8)	(5.1)	(1.6)	(-0.5)	(6.7)
Secured	0.056***	0.077***	0.035***	-0.002	
	(5.1)	(5.8)	(3.5)	(-0.2)	
Leverage Loan	0.102***	0.122***	0.026***	0.072***	0.203***
	(8.1)	(8.3)	(3.6)	(7.1)	(7.4)
Regression Method	Poisson	Probit	Probit	OLS	Poisson
Quarter & Industry Dummy	Yes	Yes	Yes	Yes	Yes
Loan Purpose Dummy	Yes	Yes	Yes	Yes	Yes
Pseudo R-Squared	0.046	0.255	0.187	0.403	0.096
Observations	10552	10552	10552	4037	3,407

Table 3.3, continued

Panel B

	Number of Covenants	Build-Up	Build-Down	Murfin Index	Bradley and Roberts Index
	(1)	(2)	(3)	(4)	(5)
Asset Manager Loans	-0.145***	-0.063***	0.032**	-0.070***	-0.088***
	(-9.0)	(-3.8)	(2.4)	(-5.3)	(-6.0)
Investment Bank Loans	0.056***	-0.012	0.025	-0.010	0.068***
	(3.1)	(-0.6)	(1.4)	(-0.6)	(4.7)
Other Nonbank Loans	0.013	0.017	0.018	0.028	0.014
	(0.3)	(0.4)	(0.5)	(0.5)	(0.4)
Regression Method	Poisson	Probit	Probit	OLS	Poisson
Borrower Controls	Yes	Yes	Yes	Yes	Yes
Loan Controls	Yes	Yes	Yes	Yes	Yes
Quarter & Industry Dummy	Yes	Yes	Yes	Yes	Yes
Loan Purpose Dummy	Yes	Yes	Yes	Yes	Yes
Pseudo R-Squared	0.047	0.304	0.113	0.406	0.097
Observations	10552	10552	10552	4037	3407

Table 3.4: Propensity Score Matching on Covenant Strictness

This table reports the results of a propensity score matching analysis on the covenant strictness between nonbank and bank loans. The *t*-statistics are based on standard errors obtained by bootstrapping with fifty replications. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	Treated Sample (Nonbank Loans)		Matching Sample (Bank Loans)		Mean Difference (ATT)	
	N	Mean	N	Mean	Difference	*t*-statistics
Number of Covenants	1,487	2.642	1,487	2.835	-0.193	-3.98***
Build-Up	1,487	0.607	1,487	0.660	-0.053	-2.52**
Build-Down	1,487	0.190	1,487	0.158	0.032	1.84*
Murfin Index	519	0.430	519	0.480	-0.050	-3.30***
Bradley and Roberts Index	640	5.030	640	5.192	-0.163	-2.38***

Table 3.5: Univariate and Multivariate Tests of Nonbank Financial Covenant Structure

In this table we examine differences in the use of specific financial covenants between banks and nonbanks. Panel A is the univariate test of the equality of the observed differenced. Panel B shows the results of multivariate regressions on the inclusion of each type of covenant against a nonbank loan dummy, as well as controls for borrower and loan characteristics, and quarter, industry, and loan purpose fixed effects. To save space, we only show the coefficients of Nonbank in the table. Industry fixed effects are the 49 industry dummies designated by Fama and French (1997). *t*-statistics are obtained based on the Standard errors Standard errors robust to heteroscedasticity and clustered at the borrower level; * significant at 10%; ** significant at 5%; *** significant at 1%.

Panel A

	Bank Loans	Nonbank Loans	Nonbank vs. Bank	
			Difference	t-statistics
Max. Debt to EBITDA	59.9%	55.4%	0.04	2.64
Min. Interest Coverage	39.9%	41.0%	-0.01	-1.38
Min. Fixed Charge Coverage	38.5%	43.2%	-0.05	-3.22
Max. Capex	20.8%	43.7%	-0.23	-17.79
Max. Leverage ratio	19.5%	9.4%	0.10	12.10
Max. Debt to Tangible Net Worth	8.9%	3.5%	0.05	10.50
Min. Current Ratio	10.8%	6.1%	0.05	7.37
Min. Debt Service Coverage	7.4%	3.6%	0.04	7.23
Max. Senior Debt to EBITDA	9.7%	14.7%	-0.05	-5.62
Min. EBITDA	7.9%	16.8%	-0.09	-8.68
Max. Debt to Equity	0.6%	0.4%	0.00	1.40
Max. Loan to Value	0.1%	0.1%	0.00	-0.27
Max. Senior Leverage	0.1%	0.3%	0.00	-1.08
Min. Cash Interest Coverage	1.4%	1.3%	0.00	-0.12
Min. Quick Ratio	2.3%	0.4%	0.02	8.84
Min. Net Worth	20.6%	13.1%	0.08	8.38
Min. Tangible Net Worth	16.6%	11.0%	0.06	7.11
Secured	24.6%	40.2%	-0.16	-12.16
Sweep Provisions	36.2%	62.2%	-0.26	-20.68
Dividend Provisions	75.6%	83.0%	-0.07	-7.04
Number of Loans	8,985	1,487		

Table 3.5, continued

Panel B

Max. Debt to EBITDA	Min. Interest Coverage	Min. Fixed Charge Coverage	Max. Capex	Max. Leverage ratio	Max. Debt to Tangible Net Worth	Min. Current Ratio	Min. Debt Service Coverage	Max. Senior Debt to EBITDA	Min. EBITDA
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent Variables: Dummies of Covenants									
-0.118***	-0.002	-0.033**	0.066***	-0.011	-0.009	-0.015**	-0.030***	-0.006	0.011
(-9.1)	(-0.1)	(-2.4)	(5.3)	(-1.4)	(-1.5)	(-2.1)	(-4.7)	(-0.6)	(1.1)
0.265	0.114	0.199	0.290	0.281	0.201	0.225	0.108	0.133	0.166
Dependent Variables: Dummies of Build-up Covenants									
-0.053***	0.015	-0.009	0.027***	-0.003	0.002	0.002	-0.009***	-0.011	0.014
(-4.5)	(1.5)	(-0.9)	(3.5)	(-0.7)	(0.5)	(0.8)	(-3.0)	(-1.4)	(1.5)
0.324	0.210	0.118	0.070	0.051	0.046	0.022	0.035	0.133	0.143

Max. Debt to Equity	Max. Loan to Value	Max. Senior Leverage	Min. Cash Interest Coverage	Min. Quick Ratio	Min. Net Worth	Min. Tangible Net Worth	Secured	Sweep Provision	Dividend Restriction
(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Dependent Variables: Dummies of Covenants									
-0.001	-0.001	0.000	-0.003	-0.008***	-0.060***	-0.004	0.033**	0.062***	-0.010
(-0.4)	(-0.5)	(0.2)	(-0.8)	(-3.3)	(-5.6)	(-0.4)	(2.6)	(4.7)	(-0.9)
0.022	0.013	0.014	0.024	0.100	0.107	0.208	0.262	0.308	0.161
Dependent Variables: Dummies of Build-up Covenants									
0.000	-0.001	0.001	-0.001	-0.004***	-0.054***	-0.007			
(0.3)	(-1.4)	(1.3)	(-0.4)	(-4.7)	(-6.6)	(-0.9)			
0.010	0.009	0.011	0.029	0.026	0.092	0.094			

Observations: 10,552

Other Controls: Quarter & Industry Dummies, Loan Purpose Dummies, Firm Characteristics, and Loan characteristics

Table 3.6: Covenant Violations and Firm Investment and Financing Decisions

This table reports the first difference estimates of the marginal effect of a nonbank covenant violation on the financing and investment decisions of firms from the quarter of the violation to four quarters after the violations. Panel A shows the effect of covenant violations on firm investment decisions. ΔASSET is the change in logarithm of total assets from the quarter of violation to four quarters after the violation. ΔPPE is the change of fixed investment. ΔCAPEXP is the change in capital expenditure scaled by average assets, and ΔACQ is the change in cash acquisitions scaled by average assets. In Panel B, we test the impact of nonbank violations on firm financing decisions. ΔNDI is the change in net debt issuance scaled by average assets over the four quarters after a covenant violation. ΔDEBT is the growth rate in total debt. ΔCASH is the changes in cash holdings scaled by average assets, and ΔPAYOUT is the change in shareholder payouts. Industry fixed effects are the 49 industry dummies designated by Fama and French (1997). *t*-statistics are obtained based on the Standard errors Standard errors robust to heteroscedasticity and clustered at the borrower level; * significant at 10%; ** significant at 5%; *** significant at 1%.

Panel A

	(1) ΔASSET		(2) ΔPPE		(3) ΔCAPEXP		(4) ΔACQ	
Bank Loan Covenant Violation	-0.029***		-0.014*		-0.004***		-0.007***	
	(-4.93)		(-1.79)		(-3.44)		(-3.67)	
Nonbank Loan Covenant Violation		0.005		-0.007		0.001		0.003
		(0.46)		(-0.50)		(1.15)		(0.97)
Operating Income Ratio	-0.133***	-0.131***	0.045	0.046	-0.001	-0.001	-0.024**	-0.023**
	(-3.41)	(-3.35)	(1.14)	(1.16)	(-0.21)	(-0.14)	(-2.43)	(-2.38)
Leverage Ratio	0.020	0.020	0.071	0.071	-0.006*	-0.006*	-0.033**	-0.033**
	(0.50)	(0.49)	(1.06)	(1.05)	(-1.95)	(-1.96)	(-2.40)	(-2.40)
Interest Expenditure	-3.190***	-3.190***	0.205	0.206	-0.188	-0.188	-0.784***	-0.784***
	(-5.50)	(-5.50)	(0.53)	(0.53)	(-1.41)	(-1.41)	(-5.50)	(-5.50)
Net Worth Ratio	-0.031	-0.031	0.067**	0.067**	-0.001	-0.001	0.001	0.001
	(-1.02)	(-1.02)	(2.39)	(2.39)	(-0.96)	(-0.96)	(0.21)	(0.22)
Current Ratio	0.002	0.002	0.007***	0.007***	0.001***	0.001***	0.002***	0.002***
	(1.48)	(1.53)	(3.82)	(3.84)	(5.04)	(5.11)	(6.20)	(6.24)
Market-to-Book	0.033***	0.033***	-0.009**	-0.009**	0.000	0.000	0.007***	0.007***
	(8.83)	(8.84)	(-2.32)	(-2.31)	(0.75)	(0.78)	(8.18)	(8.19)
Covenant Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrower Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter & Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.688	0.688	0.563	0.563	0.048	0.048	0.064	0.064
Observations	73,546	73,546	73,512	73,512	73,277	73,277	72,468	72,468

Table 3.6, continued

Panel B

	(1) ΔNDI		(2) ΔDEBT		(3) ΔCASH		(4) ΔPAYOUT	
Bank Loan Covenant Violation	-0.014***		-0.124***		0.006***		-0.064***	
	(-3.37)		(-5.88)		(3.16)		(-2.87)	
Nonbank Loan Covenant Violation		0.002		-0.079		0.001		-0.083*
		(0.21)		(-1.62)		(0.13)		(-1.66)
Operating Income Ratio	-0.016	-0.016	-0.044	-0.042	0.030***	0.030***	0.210***	0.213***
	(-1.44)	(-1.44)	(-0.93)	(-0.89)	(8.37)	(8.41)	(4.69)	(4.69)
Leverage Ratio	-0.383***	-0.383***	-0.636***	-0.637***	0.012	0.012	-0.251***	-0.252***
	(-3.27)	(-3.27)	(-8.86)	(-8.85)	(1.63)	(1.64)	(-2.98)	(-2.98)
Interest Expenditure	-1.045***	-1.046***	2.917***	2.919***	-0.003	-0.003	0.147	0.148
	(-3.41)	(-3.41)	(2.86)	(2.86)	(-0.03)	(-0.02)	(0.50)	(0.50)
Net Worth Ratio	-0.043**	-0.043**	-0.033	-0.033	-0.003	-0.003	0.017**	0.017**
	(-2.57)	(-2.57)	(-0.83)	(-0.83)	(-0.80)	(-0.81)	(2.01)	(2.02)
Current Ratio	-0.000	-0.000	0.021***	0.021***	-0.006***	-0.006***	-0.000	-0.000
	(-1.23)	(-1.20)	(3.64)	(3.65)	(-4.69)	(-4.69)	(-0.11)	(-0.08)
Market-to-Book	0.005***	0.005***	0.052***	0.053***	0.001	0.001	0.017***	0.017***
	(3.94)	(3.96)	(6.43)	(6.47)	(0.82)	(0.80)	(6.66)	(6.68)
Covenant Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrower Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter & Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-Squared	0.129	0.128	0.053	0.053	0.062	0.062	0.025	0.025
Observations	105,000	105,000	94,209	94,209	105,000	105,000	91,441	91,441

Table 3.7: Nonbank Lending and Firm Exits

This table reports the Probit estimation of the effect of nonbank lending on firm exits. The dependent variable *Firm Exit* is an indicator variable equal to one if a firm is delisted from Compustat due to poor performance, or enters bankruptcy or liquidation; *Nonbank Loan* is an indicator variable equal to one if a loan's lead arranger is a nonbank institution*; Covenant Violation* is an indicator for whether the firm has any covenant violation during the life of loan contract. Industry fixed effects are the 49 industry dummies designated by Fama and French (1997). *t*-statistics are obtained based on the Standard errors Standard errors robust to heteroscedasticity and clustered at the borrower level; * significant at 10%; ** significant at 5%; *** significant at 1%.

	(1)	(2)	(3)
Covenant Violation	0.090***	0.085**	0.084**
	(2.72)	(2.55)	(2.53)
Nonbank Loan		0.093***	
		(6.74)	
Asset Manager Loan			0.117***
			(6.82)
Investment Bank Loan			0.027
			(1.35)
Other Nonbank Loan			0.103**
			(2.35)
Borrower Controls	Yes	Yes	Yes
Loan Controls	Yes	Yes	Yes
Quarter & Industry Dummy	Yes	Yes	Yes
Loan Purpose Dummy	Yes	Yes	Yes
Pseudo R-Squared	0.1171	0.124	0.125
Observations	10,552	10,552	10,552

Figure 3.1: Number of banks and nonbanks relative to all participants in the U.S. loan market

The graph shows the number of U.S. commercial bank lenders and nonbank lenders as a percentage of all lenders in the U.S. Loan market from 1995 to 2011.

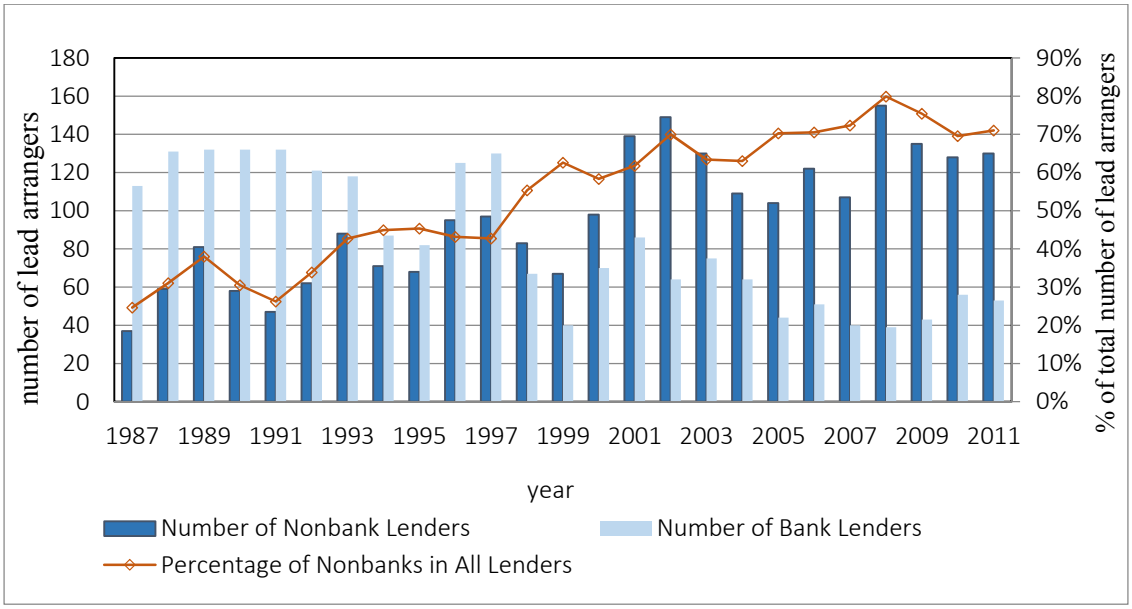
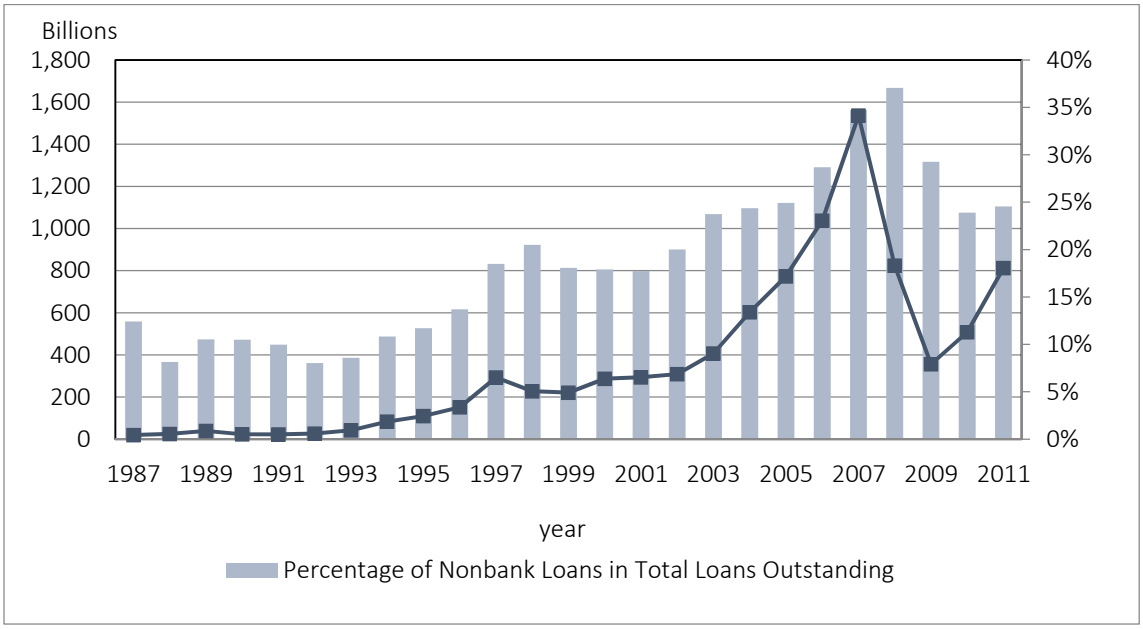


Figure 3.2: Nonbank loans in the U.S. commercial loan market

This bar shows nonbank loans as a percentage of total loans outstanding (right scale) and the line graph is the aggregate value of nonbank loan outstanding each year from 1995 to 2009 (left scale). In this figure, a nonbank loan is a commercial loan in which at least one nonbank institution participates.



Chapter Four: Conclusion

The prior literature assumes that the identity of a firm's lender does not influence borrower outcomes in the area of corporate strategy or the prospects for financial distress. My dissertation disaggregates lenders in the corporate loan market into two groups: commercial banks and non-commercial banks. I find that borrowing from nonbanks has a differential impact on firm governance through the market of mergers and acquisitions than borrowing from banks. I also find evidence that nonbanks exercise control rights differently than banks by utilizing alternative covenant structures.

The main contribution of my first essay is to provide evidence that nonbanks facilitate information transfer from the loan market to the M&A market more actively than banks do. In a sample of public firms from 1987 to 2012, I show that a nonbank borrower is 1.6% more likely to become an M&A target than a bank borrower. I classify nonbank lenders into three categories – institutional asset managers, investment banks, and other nonbanks – and find that lending by institutional asset managers (mutual funds, hedge funds, private equity investors, and finance companies) is most likely to result in future takeover attempts. Borrowers are also more likely to receive M&A bids when they contract with larger numbers of nonbank lenders during a three-year period, especially if they are institutional asset managers. I also investigate the relationship between the size of client and the prospect of takeover bids. The results show the likelihood of M&A bids increases when firms borrow from nonbank lenders with a larger client base. To address potential selection problems in estimating the effect of nonbank lending on M&A activity, I employ a propensity-score matching technique that compares nonbank borrowers with a control sample of bank borrowers that have similar probabilities of borrowing from

nonbanks. To improve the prospects of better identification of the true relationship, I also use the introduction of the syndicated loan rating as an instrument for nonbank participation. Both the propensity-score matching and IV approach show consistently and significantly that nonbank borrowers are more likely to receive takeover bids than bank borrowers. I also examine whether the prospects of an acquisition increase when nonbank lenders obtain a larger set of information about their borrowers or when the information set is updated. I treat frequent nonbank lenders and nonbanks that renegotiate loans as special sources of information and find the impact of nonbank participation is stronger in both situations. Finally, I investigate the relevance of several potential channels of information transmission. The evidence reveals that nonbanks are more able to connect loan clients than commercial banks in the M&A market. When I disaggregate among nonbank lenders, firms borrowing from institutional asset managers are more likely to become their lender's targets. Borrowers from investment banks are significantly more likely to receive takeover bids in which the investment bank lender acts also as an advisor to the acquirer.

In my second essay, I find that nonbanks play a more passive role in monitoring borrowers than commercial banks. Nonbanks employ less restrictive financial covenants and are less likely to intervene in the decisions of their borrowers after covenant violations. I employ five different measures of the strictness of covenants and compare the "tightness" of loan covenants contained in commercial bank with those in nonbank loan contracts. I find that nonbank borrowers and lenders negotiate fewer and less restrictive financial covenants than those common in commercial bank loans at the time of loan originations. When disaggregating nonbanks into three categories (asset

managers, investment banks, and other nonbanks), I find that asset managers drive the finding that nonbank loans have less restrictive covenants. To address the identification issue of nonbank loans, I use propensity-score matching approach and match each nonbank borrower with a bank borrower that has a similar propensity to borrow from nonbanks. The results suggest that nonbanks grant more flexibility to borrowing firms. I also estimate multivariate regressions examining the relationship between nonbank loans and the presence of each covenant type. The results reveal that nonbank lenders rely less heavily than banks on financial covenants, but they are more likely to place limits on capital expenditures and to require sweep provisions. Although research shows that commercial banks play an active role in corporate governance following covenant violations, I find no evidence that nonbank borrowers move towards more conservative investment or financing strategies after covenant violations as bank borrowers. I also investigate the implications of nonbank lending on firm behavior in states of serious financial distress and find nonbank borrowers are significantly more likely to suffer negative outcomes, such as delisting, bankruptcy, or liquidation, than bank borrowers. These findings may reflect a more tolerant preference for accepting default risk exposure among nonbanks or it may indicate that nonbanks could gain benefits when borrowers default that are not available to commercial banks, such as an opportunity to acquire the defaulting firm.

Given the limitations in my data availability, I am not able to explore certain relevant research questions empirically. For instance, the fact that professionals working for financial firms frequently change jobs and spend time socializing with one another could prove another prospective means of information transfer. I plan to examine the role

informal networks might play in M&A in further research. I also plan to collect data about the change in covenant structures following covenant breaches to explore the role of nonbank lenders in loan contracting in more depth.

Appendices

Appendix A: Variable Definitions in Chapter Two

A.1. Variables from LPC's DealScan

Loan: A dummy variable equal to one if a firm has at least one loan origination or loan amendment over a three-year period, and zero otherwise.

Nonbank: A dummy variable equal to one if a firm has at least one nonbank lender in any loan origination or loan amendment over a three-year period, and zero otherwise.

Institutional Asset Manager: A dummy variable equal to one if a firm has at least one nonbank lender that is an institutional asset manager in any loan origination or loan amendment over a three-year period during the past three years, and zero otherwise. Institutional asset managers include finance companies, hedge funds, prime funds, private-equity funds, and mutual funds.

Investment Bank: A dummy variable equal to one if a firm has at least one nonbank lender that is an investment bank in any loan origination or loan amendment over a three-year period, and zero otherwise.

Other Nonbank: A dummy variable equal to one if a firm has at least one nonbank lender that is not an investment bank or institutional asset manager in any loan origination or loan amendment over a three-year period, and zero otherwise. Other nonbanks include corporations, distressed funds, CDO's, insurance companies, leasing companies, pension funds, and trust companies.

Lender: The number of different lenders who participated in any loan origination or amendment during the past three years.

Nonbank Lender: The number of different nonbank lenders who participated in any loan origination or amendment over a three-year period.

Institutional Asset Manager Lender: The number of different institutional asset managers who participated in any loan origination or amendment over a three-year period.

Investment Bank Lender: The number of different investment banks who participated in any loan origination or amendment over a three-year period.

Other Nonbank Lender: The number of other nonbank lenders who participated in any loan origination or amendment over a three-year period.

Amend: A dummy variable equal to one if a loan is amended during the past three years.

Lender Client Network: The number of different clients of all the lenders who participated in any loan origination or amendment during the past three years.

Nonbank Client Network: The number of different clients of all the nonbank lenders who participated in any loan origination or amendment during the past three years.

Institutional Asset Manager Client Network: The number of different clients of all the institutional asset managers who participated in any loan origination or amendment during the past three years.

Investment Bank Client Network: The number of different clients of all the investment banks who participated in any loan origination or amendment during the past three years.

Other Nonbank Client Network: The number of different clients of all the other nonbank lenders who participated in any loan origination or amendment during the past three years.

Lead Arranger: A dummy variable equal to one if the lender acts as the lead arranger in a loan origination, and zero otherwise.

A.2. Variables from CRSP-Compustat

ROE: Ratio of earnings to average equity (COMPUSTAT items 20/ ((60+$60_{(t-1)}$)/2))

Sale Growth: Proportional change in sales (log (COMPUSTAT items 12/$12_{(t-1)}$))

Liquidity: Ratio of net liquid assets to total assets (COMPUSTAT items (4-5)/6). If both items 4 and 5 are missing, we replace the liquidity ratio with the ratio of cash and short-term investments to total assets (COMPUSTAT items 1/6)

Leverage: Total debt over the sum of total debt and book equity (COMPUSTAT items (9+5)/ (9+5+60))

Market-to-Book: Year-end market value of common stock over equity book value (COMPUSTAT items 24*25/60)

PE: Ratio of year-end stock price to earnings per share (COMPUSTAT items 58/24)

Firm Size: The natural log of market capitalization at the beginning of the year before the takeover announcement (log (PRC* SHROUT) from CRSP, where price (PRC) is inflated to 2010 dollars by the Consumer Price Index (CPI) (CPI data are downloaded from U.S. Bureau of Labor Statistics)

Z-Score: Following the Altman (1968) model, z = 12 (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) + 1.0 (Sales/Total assets)

Credit Rating: A dummy variable equal to one if a firm has S&P long-term loan rating, and zero otherwise

Positive Accruals: A dummy variable equal to one if the ratio of accruals to total assets is positive, and zero otherwise; we define accruals similarly to Sloan (1996): (COMPUSTAT item ((4-1) - (5-34) - 71) -14)

R&D: The ratio of research and development (R&D) expense to total assets ((COMPUSTAT items 46/6)

Cash Ratio: The ratio of cash and short-term investments to total assets (COMPUSTAT items 1/6)

EBIT: The ratio of earnings before interest and taxes to total assets

Past Abnormal Returns: The cumulative abnormal return measured relative to a CRSP value-weighted market model regression and estimated using the third year prior to the forecast year

Firm Assets: The natural log of total assets inflated to 2010 dollars by CPI (log (COMPUSTAT items 6))

Merger Wave: A dummy variable for industrial merger waves equal to one for years 1995 to 1999, 2001, and 2006, and zero otherwise. Measures of industrial merger waves are taken from Harford (2005) for the period before 2001 and from Garfinkel and Hankins (2011) for the period after 2001

Recession: A dummy variable equal to one during years (1990, 1994, 2001, 2008, and 2009) defined as a recession according to the National Bureau of Economic Research.

A.3. Variables from SDC

Industry Bid: A dummy variable equal to one if a bid occurred in the same four-digit SIC industry in the year prior to the takeover bid, and zero otherwise

A.4. Variables from Thompson/CDA Spectrum

Institutional Ownership: Institutional ownership at the end of fiscal year, calculated as the ratio of a firm's shares held by institutional investors relative to total shares outstanding. The holdings data are from Thompson/CDA Spectrum, which collects quarterly information from SEC 13f filings.

Appendix B: Variable Definitions in Chapter Three

B.1. Variables from LPC's DealScan

Nonbank: a dummy variable equal to one if one or more nonbank institutions arrange a syndicated loan, and zero otherwise. Nonbank lenders include investment banks, private equity firms, hedge funds, collateralized loan obligations (CLO), mutual funds, and insurance companies

Total Covenants: the total number of financial covenants in a loan contract

Build-Up: an indicator equal to one if at least one of the financial covenants has a tightening trend over the life of loan contract

Build-Down: an indicator equal to one if at least one of the financial covenants has a loosening trend over the life of loan contract

Loan Size: the natural logarithm of loan package amount stated in 2011 dollars by Consumer Price Index (CPI) (CPI data are downloaded from U.S. Bureau of Labor Statistics)

Performance Pricing: a dummy variable equal to one if the loan package contains a performance pricing provision, and zero otherwise

Sweep Provision: a dummy variable equal to one if the loan contract requires a portion of cash generated by asset-sales, security issuance, or insurance payments to be used to pay down principal, and zero otherwise

Dividend Restriction: a dummy variable equal to one if the borrower is restricted from paying dividends to its shareholders, and zero otherwise

Syndicate Size: the total number of different lenders participated in the loan package

Loan Spread: the weighted average interest spread across facilities in the loan package, where the weights are the size of each facility

Loan Maturity: the weighted average of loan maturities (in months) across facilities in the loan package, where the weights are the size of each facility

Secured: an indicator variable equal to one if lenders hold collateral against any facility in the loan contract

Leverage Loan: an indicator variable equal to one if any facility in the contract is a leverage loan or non-investment grade loan

B.2. Variables from Compustat

Assets: the natural logarithm of quarter-end total assets inflated to 2011 dollars by CPI

Z-score: a measurement that predicts bankruptcy calculated following the Altman (1968) model. z = 12 (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) + 1.0 (Sales/Total assets)

Credit Rating: a dummy variable equal to one if the borrower is rated by S&P or Moody's at the time of loan origination, and zero otherwise

Leverage: total debt over the sum of total debt and book equity (COMPUSTAT items (9+5)/ (9+5+60))

Market-to-Book: year-end market value of common stock over equity book value (COMPUSTAT items 24*25/60)

Net Worth Ratio: ratio of quarter-end equity value of stockholders to total assets

Current Ratio: ratio of quarter-end current assets to current liabilities.

B.3. Definitions of Financial Covenants

In our sample, we identify 17 commonly used financial covenants in loan contracts. In loan contracts, lenders can give different definitions for the same covenant. The definition of each kind of covenant in our sample heavily relies on chapter 5 in Taylor and Sansone (2007).

Maximum Debt to EBITDA: a covenant restricts the maximum of the ratio of Debt to EBITDA. Debt usually includes current accounts payable and accrued expenses. EBITDA stands for earnings before interest, taxes, depreciation, and amortization.

Minimum Interest Coverage: a covenant restricts the minimum of the ratio of EBITDA to interest expense. Interest expense is usually refers to cash interest.

Minimum Fixed Charge Coverage: a covenant restricts the minimum of the ratio of EBITDA to fixed charges. Fixed charges include debt services, capital expenditures, and often taxes and regular dividends.

Maximum Capital Expenditure: a covenant restricts the maximum of the aggregate capital expenditures that the borrower may make during a fiscal quarter or fiscal year.

Maximum Leverage ratio: a covenant restricts the maximum of the ratio of total debt to total assets at a given date.

Maximum Debt to Tangible Net Worth: a covenant restricts the maximum of the ratio of debt at a given date to tangible net worth for the rolling four quarters most recently ended prior to that date.

Tangible net worth refers to shareholders' equity excluding intangibles (such as goodwill, research and development costs, and licenses) carried on the balance sheet.

Minimum Current Ratio: a covenant restricts the minimum of the ratio of current assets to current liabilities at a given date.

Minimum Debt Service Coverage: a covenant restricts the minimum of the ratio of EBITDA to debt service during a fiscal period. Debt service usually consists of interest expense and scheduled principal payments.

Maximum Senior Debt to EBITDA: a covenant restricts the maximum of the ratio of senior debt at a given date to EBITDA for the rolling four quarters most recently ended prior to that date.

Minimum EBITDA: a covenant restricts the minimum level of EBITDA at a given date.

Minimum Net Worth: a covenant restricts the minimum level of net worth at a given date. Net worth usually refers to the book value of shareholders' equity.

Appendix C: Appendix Tables in Chapter Two

Appendix Table I: Estimated effects on M&A likelihood for different types of nonbank lenders and additional measures of nonbank roles using logit models with firm fixed effects

This table reports the differential impact of each type of nonbank lenders on the probability of subsequent M&A bids for borrowers using a logit model with firm fixed effects. The dependent variable is a dummy variable equal to one if the firm becomes a target, and zero otherwise. The key independent variables are dummies for nonbank loan participation in columns (1) and (2), logarithms of one plus the number of participating nonbanks in columns (3) and (4), and the logarithms of one plus the number of nonbank clients in columns (5) and (6). We also include other control variables as in Table 2.2 but do not report the coefficients. The *t*-statistics in parentheses are based on bootstrapped standard errors. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	Dummy of Presence		Number of Lender		Size of Client Network	
	(1)	(2)	(3)	(4)	(5)	(6)
Nonbank	0.018***		0.007**		0.004***	
	(4.5)		(2.1)		(3.7)	
Institutional Asset Manager		0.023***		0.015***		0.006***
		(5.0)		(3.4)		(4.5)
Investment Bank		0.007		0.009		0.001
		(1.3)		(1.6)		(0.4)
Other Nonbank		-0.018***		-0.019***		-0.005***
		(-3.4)		(-3.9)		(-2.9)
R-square	0.007	0.007	0.006	0.007	0.006	0.007
Firm fixed effects	Yes		Yes		Yes	
Other Control variables	Yes		Yes		Yes	
Number of firms	7,213		7,213		7,213	
Observations	48,001		48,001		48,001	

Appendix Table II**:** Alternative estimators of propensity score matching

This table reports the results of the propensity score matching analysis contained in Table 2.4 using alternative estimators. We predict propensity scores first as in Panel A of Table 2.4. The *t*-statistics in parentheses are based on standard errors obtained by bootstrapping with fifty replications. *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively. This table shows the PSM results are robust when we use alternative matching methods with nearest neighbor estimators with n= 10 and n=50, and kernel estimators with more weight given to bank borrowers with propensity scores that are closer to the nonbank borrower propensity scores. The last row contains the results of a placebo test for bank borrowers with the same PSM procedure.

	Nearest Neighbor Estimator (k=10)		Nearest Neighbor Estimator (k=50)		Kernel Estimator (Gaussian)	
	ATT	*t*-statistics	ATT	*t*-statistics	ATT	*t*-statistics
All Nonbank	0.014	3.12***	0.012	2.79***	0.012	2.87***
Institutional Asset Manager	0.020	4.64***	0.019	4.46***	0.018	4.5***
Investment Bank	0.008	1.60	0.006	1.26	0.004	0.96
Other Nonbank	-0.002	-0.39	-0.002	-0.45	-0.005	-1.05
Bank	0.004	0.42	0.005	0.48	-0.007	-0.88

Appendix Table III: The impact of nonbank lending using the Heckman selection model

This table reports the results of IV estimations of the effect of nonbank lending the likelihood of M&A using the two-step Heckman selection model. As an alternative to the 2SLS model results in Table 2.5, we add the introduction of syndicated loan ratings as the first-stage instrument to satisfy the exclusion restrictions. The Heckman selection model does not assume the instrument is uncorrelated with the error term, but it does assume the error terms in two steps are bivariate normal, which cannot be justified empirically. Therefore, both 2SLS and Heckman selection models have strengths and weaknesses. We report the second-stage regressions of Heckman selection model with firm fixed effects. The variables that we instrument for in each column are a dummy of nonbank presence, the logarithm of one plus number nonbank lenders, and the logarithm of one plus the number of nonbank clients. The symbols *, **, and *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

	Dummy of Presence		Number of Lender		Size of Client Network	
	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
Nonbank	0.017***	4.1	0.007**	2.1	0.004***	3.3
ROE	-0.006	-0.3	-0.006	-0.3	-0.007	-0.4
Sale Growth	-0.006	-0.5	-0.006	-0.4	-0.006	-0.5
Liquidity	-0.124***	-3.5	-0.132***	-3.5	-0.124***	-3.6
Leverage	-0.036	-1.4	-0.038	-1.4	-0.033	-1.3
Market-to-Book	-0.002	-1.2	-0.002	-1.1	-0.002	-1.2
PE	-0.000	-0.2	-0.000	-0.1	-0.000	-0.1
Firm Size	-0.015***	-2.9	-0.015***	-2.7	-0.015***	-2.9
Industry Bid	0.006	0.4	0.006	0.3	0.007	0.4
Institutional Ownership	-0.000	-0.1	-0.000	-0.1	-0.000	-0.1
Past Abnormal Returns	-0.196**	-2.4	-0.193**	-2.2	-0.195**	-2.4
Merge Wave	0.006	1.2	0.006	1.0	0.006	1.2
Recession	-0.009	-1.5	-0.009	-1.4	-0.009	-1.4
Firm fixed effects	Yes		Yes		Yes	
Lambda	-0.463***		-0.500***		-0.457***	
Observations	48,001		48,001		48,001	

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