NBER WORKING PAPER SERIES

NONBANK LENDING

Sergey Chernenko
Isil Erel
Robert Prilmeier

Working Paper 26458
http://www.nber.org/papers/w26458

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
November 2019

Chernenko is with Purdue University (schernen@purdue.edu); Erel is with Ohio State University, NBER, and ECGI (erel@fisher.osu.edu); and Prilmeier is with Tulane University (rprilmei@tulane.edu). We thank Gus De Franco, Daniel Green, Rustom Irani, Jessica Jeffers, Candace Jens, Elena Loutskina, Philipp Schnabl, Jeremy Stein, Rene Stulz, Amir Sufi, Adi Sunderam, Mike Weisbach, and seminar participants at 2019 AFA Meetings and Cavalcade, 2018 EFA Meetings, 2018 FDIC-JFSR Banking Research Conference, Boston College, HEC Paris, Koc University, NBER Corporate Finance Meeting, Peking University GSM, Tsinghua PBCSF, Tulane University, and UMass Amherst for helpful comments. This research has been funded in part by the National Center for the Middle Market. Emily Braverman, Daniel Brennan, Alex Denman-Still, Yifeng Gu, Farrah Kharche, Yimeng Li, Kateryna Parke, Bianca Pelletti, Mutian Rui, and Shiyao Zhang provided excellent research assistance.

Internet Appendix is available at:
https://www.dropbox.com/s/vd0k2w07tm5ipdv/NonbankLendingInternetAppendix.pdf?dl=0

Nonbank Lending
Sergey Chernenko, Isil Erel, and Robert Prilmeier
NBER Working Paper No. 26458
November 2019
JEL No. G21,G23,G30,G32

ABSTRACT

We provide novel systematic evidence on the extent and terms of direct lending by nonbank financial institutions, and explore whether banks are still special in lending to informationally opaque firms. Analyzing hand-collected data for a random sample of publicly-traded middle-market firms during the 2010-2015 period, we show that nonbank lending is widespread, with 32% of all loans being extended by nonbanks. Nonbank borrowers are less profitable, more levered, and more volatile than bank borrowers. Firms with a small negative EBITDA are 34% more likely to borrow from a nonbank than firms with a small positive EBITDA. While nonbank lenders are less likely to monitor by including financial covenants, they are more likely to align incentives through the use of warrants. Controlling for firm and loan characteristics, nonbank loans carry 190 basis points higher interest rates. Overall, our results provide evidence of market segmentation in the commercial loan market, where bank and nonbank lenders utilize different lending techniques and cater to different types of borrowers.

Sergey Chernenko
Krannert School of Management
Purdue University
403 W. State Street
West Lafayette, IN 47907
schernen@purdue.edu

Robert Prilmeier
Tulane University
A.B. Freeman School of Business
7 McAlister Drive
New Orleans, LA 70118
rprilmei@tulane.edu

Isil Erel
Fisher College of Business
Ohio State University
2100 Neil Avenue
Columbus, OH 43210
and NBER
erel@fisher.osu.edu

A data appendix is available at http://www.nber.org/data-appendix/w26458

1 Introduction

Privately placed debt is an important source of financing to informationally opaque firms, and commercial banks have traditionally been the primary lenders in this market. However, little is known about who, other than banks, provides capital to such firms, nor the extent and terms of such lending. Do different types of intermediaries specialize in lending to different types of borrowers? If so, what explains such specialization? How do different types of lenders set the price and nonprice terms of the debt financing they provide? Do all lenders use the same lending techniques, or do some rely more on screening borrowers ex ante while others monitor borrower behavior ex post? These questions go to the heart of theories of financial intermediation, but are largely unexamined by the existing literature.

This paper contributes to answering these questions by providing novel systematic evidence on the sources and terms of direct commercial lending during the post crisis period. Following the incremental debt choice approach used by Denis and Mihov (2003), we construct a hand-collected data set of credit agreements signed between 2010 and 2015 by a random sample of publicly-traded middle-market firms. Defined as firms with revenues between $10 million and $1 billion, middle-market firms make up the middle 50% of firm revenues in Compustat and account for about one third of all U.S. jobs and of private sector GDP.[1] According to theory (Diamond 1991a), these are the firms whose lenders are most likely to rely on monitoring to alleviate moral hazard problems. These firms are also generally not large enough to have credit ratings and access to market-based debt financing (Faulkender and Petersen 2005). At the same time, because they are listed on a stock exchange, these firms are required by law to disclose the terms of their credit agreements in their SEC filings, thereby allowing us to study both the price and non-price terms negotiated by different types of lenders.

We start by documenting the prevalence of direct nonbank lending, cases where a nonbank financial institution negotiates directly with a borrower rather than participating in a syndicate led by a commercial bank. Such nonbank lending is widespread: about one third of all commercial and industrial (C&I) loans taken out by publicly-traded middle-market firms during the 2010-2015

[1] National Center for the Middle Market info sheet
http://www.middlemarketcenter.org/Media/Documents/NCMM_InfoSheet_2017_web_updated.pdf

period were extended by nonbanks. These lenders represent a variety of financial institutions including finance companies (FCOs), private equity/venture capital (PE/VC) firms, hedge funds, bank-affiliated finance companies (bank FCOs), investment banks, insurance companies, business development companies (BDCs), and investment managers. Strikingly, we find that even for publicly-traded firms, standard databases such as DealScan cover only about half of bank loans and almost none of the loans extended directly by nonbank lenders.

After establishing the prevalence of nonbank lending, we explore the characteristics of firms that borrow from nonbank lenders versus banks. Compared to firms that borrow from banks, nonbank borrowers are less profitable, more levered, and more likely to use the new debt financing to either expand or shrink their business. Profitability is a particularly important driver of the choice of lender. Concentrating on firms with EBITDA between -$5 and +$5 million, firms with small negative EBITDA are 34% more likely to borrow from a nonbank lender than are firms with small positive EBITDA. This finding suggests a certain degree of market segmentation with banks finding it costly to lend to unprofitable firms. It also indicates that banks are not necessarily special in lending to borrowers subject to informational and moral hazard problems, especially when borrowers are not profitable and therefore harder to monitor (Carey, Post, and Sharpe 1998, Denis and Mihov 2003).

A natural question to ask is whether capitalization of local banks affects firms' propensity to borrow from nonbank lenders. This is exactly what we find. When banks with branches in a given county are better capitalized, firms headquartered in that county are less likely to turn to nonbank lenders for funding. Although it is difficult to establish causality, these results hold controlling for a wide array of other variables capturing local economic conditions. The strength of the relation between capitalization of local banks and the propensity to borrow from nonbanks is economically important. A one percentage point increase in the tier 1 leverage ratio of such banks is associated with a 4.5% decline in the probability of borrowing from a nonbank lender. Our results thus point to the importance of local credit supply shocks not only for small privately-held firms, as shown recently by Chen, Hanson, and Stein (2017) and Cortes et al (2018), but also for medium-size publicly-traded firms.

Turning to the matching between borrowers and different types of nonbank lenders, we find that asset managers are especially likely to lend to unprofitable and levered firms, with private

equity and venture capital firms also lending to faster growing, R&D-intensive firms. Insurance companies and bank-affiliated finance companies are the closest to banks in terms of borrower characteristics, although bank-affiliated finance companies focus relatively more on borrowers with lower market-to-book ratios.

How do the price and nonprice terms vary across loans extended by different types of lenders? We start by examining a large number of nonprice terms including maturity, security, presence of financial covenants, and warrants. Our results on maturity are consistent with lenders trying to match the maturity of their assets and liabilities. Hedge funds and other asset managers are vulnerable to investors asking to redeem their capital at relatively short notice. To help manage redemption risk, hedge funds extend shorter-term loans to less profitable firms that cannot borrow long-term due to asymmetric information and moral hazard considerations (Diamond (1991b)). Insurance companies, on the other hand, have very stable funding and lend long-term to more established firms with more tangible assets. Importantly, with the exception of insurance companies, differences in maturity across nonbank lender types disappear once we control for firm characteristics. Thus, maturity appears to be determined primarily by firm fundamentals, with lenders and borrowers matching based on what would be the optimal debt maturity for a given borrower.

Nonbank loans are 37 percentage points less likely to include financial covenants. Instead of ex-post monitoring through financial covenants, which may be difficult to set accurately for unprofitable firms, nonbank lenders align incentives through the use of warrants and appear to engage in significant ex-ante screening. Consistent with the latter, we find that nonbanks lend to firms that are either shrinking or expanding their balance sheets and which are therefore likely to require more ex-ante screening. Furthermore, we find that origination of nonbank loans is associated with significantly higher positive abnormal announcement returns than origination of bank loans. Overall, our results suggest that bank and nonbank lenders may utilize different lending techniques and specialize in lending to different types of borrowers or to finance different types of projects.[2] While banks appear to rely more heavily on ex-post monitoring of more stable

[2] Paravisini et al. (2017) measure specialization in bank lending and study the real effects of specialization.

borrowers through financial covenants, nonbank lenders may rely more on ex-ante screening and alignment of incentives.

Next, we examine loan pricing. Controlling for observable borrower and loan characteristics, nonbank loans carry about 190 basis points higher initial interest rate than bank loans. The difference in interest rates is largest at 410 basis points for loans extended by hedge funds, private equity, and venture capital firms.

Why would nonbank borrowers pay higher interest rates on their loans than observationally similar bank borrowers, controlling for other loan terms? We examine a number of alternative explanations. The primary concern is that nonbank borrowers may be riskier on dimensions that are not observable to researchers. To test for such differences, we look at the ex-post operating performance, stock returns, and propensity to file for bankruptcy.[3] Controlling for observable firm characteristics, we do not find any significant differences in operating performance, stock returns, or probability of bankruptcy in the three years following loan origination. Performing back-of-the-envelope calculations and power analyses, we show that for differences in bankruptcy rates to fully explain the observed interest rate spread, differences in bankruptcy rates would have to be so large that they would be easy to detect statistically. A limitation of this analysis is that our sample period does not include a recession, though it does include a spike in defaults in the oil and gas sector. However, our back-of-the-envelope calculations show that if bankruptcy differences primarily appear during recessions, they would have to be economically far in excess of historically observed bankruptcy rates for speculative grade debt even during the Global Financial Crisis.

With differences in risk and other loan terms unable to explain the difference in interest rates, we suggest that the spread in rates can be explained in large part by market segmentation and differences in funding costs. Consistent with bank regulation inducing market segmentation, we find a large positive coefficient on the interaction of negative EBITDA with the nonbank lender dummy. Thus nonbanks charge higher interest rates when they face less competition from banks. We also find that when we restrict the sample to positive EBITDA borrowers with debt-to-EBITDA ratio of less than six, in other words, borrowers for which banks and nonbanks are likely

[3] In unreported analyses we also look at the probability of default from the Bharath and Shumway (2008) implementation of Merton (1974) distance-to-default model.

to compete on a more level playing field, the effect of nonbank lender origination shrinks to 121 basis points, or about two-thirds of its value in the full sample.

Using the framework in Hanson, Kashyap, and Stein (2011) we conduct bank-of-the-envelope calculations showing that differences in funding costs, driven by leverage and the money premium of short-term bank debt, can explain a large fraction of the observed differences in interest rates charged by different types of lenders. While this still does not explain why borrowers would turn to lenders with high funding costs, we suggest that, besides regulatory obstacles, potential reasons include speed of decision making, banks' reluctance to lend to firms with unusual business models, and nonbanks offering more innovative lending solutions that are hard to capture with the existing proxies. Disentangling these motivations would be a fruitful avenue for future research.

Overall, our results provide evidence of market segmentation in the commercial loan market, where bank and nonbank lenders utilize different lending techniques and cater to different types of borrowers. Lender specialization appears to be driven at least in part by regulation, funding stability, and cost of funding. Insurance companies and banks lend at longer maturities to less risky firms, while hedge funds lend at shorter maturities to riskier firms. These differences are further correlated with the use of financial covenants and warrants to help mitigate moral hazard problems.

2 Theories of Commercial Lending and Literature Review

This paper challenges the traditional belief that banks are special in being the only type of financial intermediaries that engage in commercial and industrial lending that involves screening and monitoring borrowers. This traditional view goes back to Fama (1985), who argues that, compared with insurance and finance companies, there must be something special about bank loans since the costs of bank regulatory requirements are passed on to borrowers.

Theories of financial intermediation generally focus on either the asset or liabilities side of the balance sheet. On the asset side, intermediaries engage in screening and monitoring of informationally opaque borrowers (Leland and Pyle 1977, Diamond 1984, Diamond 1991a). When borrowers get into financial distress, intermediaries may exert effort to determine whether it is

more efficient to liquidate the firm or to renegotiate its debt (Chemmanur and Fulghieri 1994). On the liabilities side, theory focuses on the special role of bank deposits (Diamond and Dybvig 1983).

Fewer theoretical models link the asset and liability sides of the balance sheet, and in particular model the lending behavior of different types of financial intermediaries such as banks, finance companies, insurance companies, and hedge funds. Diamond (1984), for example, argues that to provide the incentive to monitor their borrowers, intermediaries should be highly levered, but does not offer any predictions as to which types of financial intermediaries would lend to which types of firms. Gatev and Strahan (2006) argue that banks are uniquely positioned to offer liquidity insurance to borrowers in the form of lines of credit because banks tend to benefit from deposit inflows in times of market stress. Banks however do not necessarily have an advantage in extending term loans.

More recently, Hanson, Shleifer, Stein, and Vishny (2015) argue that because bank depositors tend to be "sleepy," making deposits a stable source of funding, commercial banks are able to act as patient fixed-income investors holding illiquid but relatively safe assets. Finally, banks may have a special skill in monitoring borrowers because banks observe private information in the course of providing transaction and other intermediary services (Fama 1985, James 1987, Lummer and McConnell 1989).

If banks have an advantage relative to other financial intermediaries in having access to more stable financing, then we may expect banks to lend to relatively safer borrowers. Nonbank lenders will lend to riskier borrowers for which shorter-term loans are likely to be optimal (Diamond 1991b). Banks may also avoid lending to risky borrowers, in particular borrowers with negative EBITDA, who cannot service their loans out of existing cash flows. Loans to these borrowers are likely to attract regulatory scrutiny, especially for banks that are already poorly capitalized.[4]

If banks develop a reputation for fair dealing with borrowers who become distressed (Chemmanur and Fulghieri 1994), we may expect banks to be more likely to lend to risky, highly levered, and unprofitable borrowers that have a high chance of becoming financially distressed. On the other hand, banks may not have expertise in finding alternative uses for corporate assets.

[4] See Section 4 for a detailed discussion on borrower cash flows and regulatory requirements.

Asset managers who analyze corporate strategy and finance companies that specialize in asset-backed lending may be in a better position to lend to borrowers at high risk of financial distress (Habib and Johnsen 1999).

What about the propensity of different lenders to include financial covenants in their credit agreements? Comparing senior bank lenders with the junior public bond market, Park (2000) argues that under the optimal debt contract, monitoring is delegated to a single senior lender. However, for most of the loans in our setting both nonbank and bank lenders are senior and generally do not lend to the same firms at the same time. Rajan and Winton (1995) argue that lenders with short-term liabilities subject to sudden liquidity demands should make short-term loans without covenants, while lenders with long-term liabilities should make long-term loans with covenants. We therefore hypothesize that asset managers, hedge funds in particular, will extend short-term loans without covenants to riskier firms.

Our paper contributes to a growing empirical literature on the role of the shadow banking system in providing credit to firms. While a number of papers have looked at the participation by nonbank financial intermediaries in loans arranged and syndicated by banks (Berlin, Nini, and Yu 2018, Lim, Minton, and Weisbach 2014, Nadauld and Weisbach 2012, Ivashina and Sun 2011, Massoud et al. 2011, and Jiang, Li, and Shao 2010, Biswas et al. 2018), and on sales of loans by banks to nonbanks (Irani et al. 2017), there is little work on nonbanks lending directly to firms. Since most of the loans made to middle-market firms are direct loans rather than tranches in syndication structures, it is important to understand the role of direct lending by nonbank institutions. In this paper, we document the extent of direct, bank-type lending to commercial customers by nonbank institutions. We also explore the extent to which nonbanks cater to different types of borrowers and/or provide loans with different characteristics than banks do and whether differences in lending are driven by differences in the structure of lenders' liabilities.

Chen, Hanson, and Stein (2017) show that following the pull-back by the top 4 banks from small business lending in the midst of the financial crisis, nonbank finance companies and online lenders have been filling the void in the small business lending market. Compared to Chen, Hanson, and Stein (2017), our data cover larger firms and allow us to study the characteristics of firms that borrow from different types of lenders as well as price and non-price contract terms.

In focusing on the source of incremental debt financing, our paper is related to Denis and Mihov (2003) who study firms' decision to issue public bonds, borrow from banks or from nonbank private lenders. They find that firms with the highest credit quality borrow from public sources while firms with the lowest credit quality borrow from nonbank private lenders. Their sample of private nonbank debt consists of larger issues with longer maturities and is therefore quite different from our sample covering the post crisis period. Furthermore, Denis and Mihov (2003) do not know the identity of private nonbank lenders, which we show to be an important determinant of lending terms. In particular, lending by insurance companies, who were the main source of private nonbank debt financing in the 1980s and 1990s, looks very different from other types of nonbank loans.

Using DealScan data, Kim, Plosser, and Santos (2017) show that after US regulators issued interagency guidance on leveraged lending in 2013, nonbanks increasingly acted as lead arrangers in the syndicated loan market, while funding themselves through bank loans. Carey, Post, and Sharpe (1998) also use DealScan data to study loans arranged by banks versus finance companies and find that the latter tend to lend to observably riskier borrowers. Our paper studies other types of nonbank lenders, including hedge funds, PE/VC firms, and investment managers, covers the more recent period, and includes many nonsyndicated loans that are not included in the DealScan database. Agarwal and Meneghetti (2011) examine the characteristics of firms that borrow from hedge funds as well as the stock price reactions around loan announcements. Their sample consists of 44 loans during the 1999-2006 period and thus cannot speak to the systematic importance of nonbank lending during the post crisis period. In contrast to Agarwal and Meneghetti (2011), our data on contract terms allows us to compare the terms of lending across different lender types and speaks to the differences in lending technologies utilized by bank and nonbank lenders.[5]

The rest of the paper is organized as follows. Section 3 introduces our sample, discusses the data collection process, and presents summary statistics. Section 4 compares the characteristics of firms borrowing from different types of lenders and also relates the propensity to borrow from nonbank lenders to the conditions in the local banking markets where borrowers operate. In

[5] There are also papers that provide evidence on participation of nonbank institutions or individuals in the mortgage and peer-to-peer personal loan markets (e.g., Buchak, Matvos, Piskorski, and Seru (2018) and Di.Maggio and Yao (2018)). These markets are quite different from the commercial lending market studied in this paper.

Sections 5 and 6, we analyze differences in non-price and price term between bank and nonbank loans. Section 7 studies the announcement returns around loan origination. Section 8 concludes.

3 Sample construction and summary statistics

We now describe our sample construction and provide summary statistics on borrowers and loans in our data.

3.1 Sample construction

With the exception of investment banks and a small number of finance companies, nonbank lenders generally do not report their commercial loans to providers of standard databases such as DealScan or Leveraged Commentary and Data (LCD). As a result, our loan data are largely hand collected and supplemented with DealScan whenever loans are in fact reported in DealScan.

We draw a random sample of 750 publicly-traded US-based middle market firms that appear in Compustat at least once during the 2010-2015 period.[6] The sample period is limited by the high cost of manual data collection. As a result, we focus on documenting the extent of nonbank lending during the post-crisis period and on exploring cross-sectional patterns in matching between borrowers and lenders and in the price and non-price terms. While the limited sample period has less to say about any time series changes in this market, we think that our results on the economic forces behind matching between different types of borrowers and lenders are unlikely to be specific to the post-crisis period. Furthermore, in discussing our results, we compare them with prior studies such as Denis and Mihov (2003) and Carey, Post, and Sharpe (1998), who looked at the characteristics of firms borrowing from nonbank lenders in the 1990s. Finally, in the Internet Appendix Tables IA5-IA9, we report our main results using hand-collected data extended through the end of 2017 for the original sample of firms.

Following the definition used by the National Center for the Middle Market, middle market firms are firms with revenues between $10 million and $1 billion.[7] Unlike EBITDA-based definitions frequently used by lenders in the leveraged loan market, this revenue-based definition allows us to include unprofitable firms in the analysis. Consequently, our sample is a more

[6] Detailed discussion of sample construction and data extraction can be found in Appendix A.
[7] http://www.middlemarketcenter.org

heterogeneous and representative set of mid-sized, publicly-traded firms than one could obtain from extant databases that typically focus on the leveraged loan market. To focus on firms that are likely to have entered into significant debt contracts, we require our firms to report book leverage of at least five percent at some point during the 2010-2015 period. Financial firms and utilities are excluded.

Internet Appendix Table IA11 shows summary statistics for the annual panel of our sample firms compared with the annual panel of all domestic mid-size Compustat firms excluding financials and utilities. Panel A shows that our leverage criterion does result in our sample having higher leverage and lower current ratios than the full population. Our sample also has slightly lower market-to-book ratios, research expenses and slightly higher PP&E. However, most of these differences are smaller than 0.2 standard deviations. Panel B imposes the leverage criterion on the Compustat population and shows that while some differences are statistically detectable in a large panel, the drawn sample is economically very similar to the to the undrawn sample of mid-size Compustat firms that have at least 5% leverage. Importantly, our drawn sample comprises about 34% of all eligible firms.

Regulation S-K requires firms to file material contracts, including loan and credit agreements, as exhibits to the SEC filings. We obtain lists of debt related agreements from Capital IQ. Because Capital IQ's coverage of key documents has improved over time, we focus on a recent sample of debt contracts filed between 2010 and 2015. We exclude documents related to bonds underwritten by investment banks and placed with multiple investors, but retain all other debt contracts such as lines of credit, term loans, and promissory notes. To avoid capturing minor renegotiations and maturity extensions, we restrict our sample to original contracts as well as amended and restated agreements. We exclude simple amendments, covenant waivers, and joinder agreements.

To economize on manual data collection, we first attempt to match all contracts to DealScan based on the origination dates and identities of borrowers and lead lenders. Note that our sample includes bank loans, for which the match rate is still only 53% of the total number of bank loans in our sample. For nonbank loans, the match rate to DealScan drops to 19.3%, with most of the matched loans arranged by investment banks (see Panel B of Table 1). For hedge funds and PE/VC firms the match rates are 5.88% and zero.

For matched contracts, we extract loan characteristics from DealScan. For the remaining contracts, we read the credit agreements and record their characteristics, including amount, maturity, interest rate, fees, priority, security, convertibility, presence of financial covenants, performance pricing, or warrants, and the tranche structure if it exists. Interest rates are recorded as follows. For fixed-rate loans, we record the interest rate as stated in the contract. For floating-rate loans, we record the spread over the London Interbank Offered Rate (LIBOR). We then calculate the initial interest rate as either the fixed rate specified in the contract or the level of LIBOR as of origination plus the stated spread. [8] If a contract stipulates an interest rate floor, we use the greater of the calculated interest rate and the floor. Appendix A provides more detail on sample construction and coding of credit agreements.

We classify lenders into the following types: bank, bank-affiliated finance company, finance company, investment bank, insurance company, hedge fund, private equity/venture capital, business development company (BDC), and investment manager.[9] In doing so, we rely on lenders' business descriptions in Capital IQ as well as lists of business development companies (from Capital IQ), private equity funds (from Preqin), and hedge funds (from SEC form ADV). Although it can be somewhat subjective, our classification is meant to capture broad differences across lenders in funding stability and lending strategies. The Internet Appendix discusses the results of cluster analysis that attempts to identify clusters of loans that are similar to each other but different from loans in other clusters. The results of cluster analysis are broadly consistent with our lender classification scheme. If the lender is an individual, a nonfinancial corporation, or a government entity, we exclude the contract from the sample. Syndicated loans are classified according to the identity of the lead arranger.

We measure borrower characteristics as of the quarter preceding loan origination. For balance sheet variables, we use the most recent quarterly data, while income and cash flow statement items are calculated on a trailing twelve months basis. Borrower financials, as reported in the original filings and thus seen by lenders at the time of loan origination, are from Capital IQ.

[8] Whenever the contract allows the borrower to choose between several base rates, most commonly LIBOR and prime, we record the spread over LIBOR. In about 13% of the loans, the contract provides for a different base rate such as the bank's prime rate. In these cases, the initial interest rate is the level of the alternative base rate plus the stated spread.

[9] The investment manager category consists of assets managers that are not primarily in the business of managing hedge funds, private equity, or venture capital funds.

A detailed description of all variables used in the analysis can be found in Appendix B. All financial ratios are winsorized at the 1st and 99th percentiles. Because our sample includes many relatively small firms, winsorization does not remove all outliers. To deal with this problem, we cap at one the debt-to-assets ratio, the R&D-to-assets ratio, sales growth, and the level and change in the ratio of EBITDA to assets. The final sample consists of 1,269 debt contracts entered into by 579 borrowers. The remaining firms either do not raise new debt financing during the 2010-2015 period or borrow through public bond markets.

3.2 Summary statistics

Panel A of Table 1 reports the number of bank and nonbank loans taken out by our sample firms during the 2010-2015 period. We aggregate across multiple tranches within each deal, using the average value of each variable across tranches,[10] and report one observation per deal. Nonbank lenders extend almost one third of all loans in our data.[11] Panel B shows the different types of nonbank lenders in our sample: finance companies (FCOs), bank finance companies (bank FCOs), investment banks, insurance companies, business development companies (BDCs), private equity (PE) and/or venture capital (VC) funds, hedge funds, investment managers, and others.[12] FCOs (23%), PE/VC firms (19%), and hedge funds (17%) account for the largest share of nonbank lending in our sample. Again, an important note to emphasize from Table 1 is that only about 19% of nonbank loans are tracked in DealScan. In particular, DealScan rarely covers loans extended by asset managers.[13]

4 Who borrows from nonbanks?

In this section, we explore the characteristics of firms that borrow from banks versus nonbanks. Table 2 reports the means, medians, and standard deviations of various firm and loan

[10] We use the sum for tranche amounts.
[11] Nonbank deals are on average about half as big as bank deals; therefore, the value-weighted fraction for nonbank loans is 16% overall. Among negative EBITDA borrowers, however, even the value-weighted nonbank lending ratio amounts to 51%.
[12] Others include collateralized loan obligations, mutual funds and real estate investment trusts.
[13] We also checked whether nonbank loans show up as private placements in SDC. The vast majority of nonbank loans in our data are not reported in SDC.

characteristics for nonbank and bank loans. We test for differences in means and medians between bank and nonbank loans, allowing for unequal variances across the two groups.

Nonbank borrowers are significantly smaller than bank borrowers in terms of their book assets and EBITDA. The mean (median) nonbank borrower has book assets of $367 (126) million and EBITDA of $28 (1) million. Interestingly, 48% of nonbank borrowers, but only 14% of bank borrowers, have negative EBITDA. The mean (median) bank borrower has book assets of $622 (314) million and EBITDA of $74 (30) million. These results are in contrast to Denis and Mihov (2003), who study debt issuance during 1995-1996 and find that nonbank private borrowers used to be larger than bank borrowers. In their sample, the median nonbank private borrower has total assets of $220 million, while the median bank borrower has total assets of $145 million. These results are also in contrast to Carey, Post, and Sharpe (1998), who compare DealScan loans originated by banks versus finance companies. Carey, Post, and Sharpe (1998) do not find any differences in book assets or sales between bank and finance company borrowers. These differences in the characteristics of bank versus nonbank borrowers indicate that the commercial lending market has changed dramatically over time and underscore the importance of studying nonbank lending.

Figure 1 further emphasizes the importance of EBITDA in determining lender type. We sort firms into twenty equal-sized bins based on their trailing twelve months EBITDA at loan origination and report the fraction of loans in each bin extended by nonbanks. The fraction of loans originated by nonbanks drops sharply from around 60% to the left of zero EBITDA to 26% to the right of zero EBITDA. Denis and Mihov (2003) do not find any differences in the ratio of EBITDA to book assets, while Carey, Post, and Sharpe (1998) find that finance company borrowers are more likely to have negative cash flows (15%) than bank borrowers (12%).

Compared to bank borrowers, firms that borrow from nonbanks are younger (27 vs. 37 years), spend a larger fraction of their sales on R&D (9% vs. 4%), experience greater stock return volatility (77% vs. 53%), and have poorer past returns (-10% vs. 5%).

Along with being smaller, nonbank borrowers get smaller loans ($74 vs. $185 million), but report higher leverage prior to loan origination (36% vs. 25%) than bank borrowers. They also expand or shrink their balance sheet much more than bank borrowers (33% vs. 15%). The interest

rate on nonbank loans is 463 basis points higher than the interest rate on bank loans, although the results above suggest that a large part of this difference is due to nonbank borrowers being riskier. Nonbank loans also carry larger upfront fees. Interestingly, nonbanks loans are less likely to include financial covenants or performance pricing, but they are significantly more likely to use warrants and convertible debt. Nonbank loans are also more likely to be junior and unsecured. Although mean loan maturity is not significantly different between bank and nonbank loans, median maturity is significantly shorter for nonbank loans.

We next turn to multivariate regression analysis of the characteristics of bank and nonbank borrowers. Table 3 reports estimates from a linear probability model of borrowing from a nonbank lender. Firm size, as captured by the natural log of the firm's assets, has no effect in any of the five specifications. EBITDA and negative EBITDA in particular are important determinants of whether a firm borrows from a nonbank lender. Consistent with the results in Figure 1, the effect of EBITDA is driven largely by whether a firm has positive EBITDA. As mentioned previously, the existing literature provides mixed evidence on the role of profitability. While Carey, Post, and Sharpe (1998) find differences in profitability, as measured by the EBITDA margin, between bank and finance company borrowers in DealScan, Denis and Mihov (2003) do not find any differences in profitability, as measured by EBITDA-to-assets ratio, between bank and nonbank borrowers.

The importance of positive EBITDA for bank lending is consistent with banks lacking expertise in maximizing the value of collateral and therefore relying on cash flow as the principal source of loan repayment (Habib and Johnsen 1999). Banks may also be reluctant to extend loans to firms with negative EBITDA because such loans would be rated "substandard" by regulators. The OCC Comptroller's Handbook on Rating Credit Risk (2001)[14] provides guidance on how banks should design their internal credit risk rating systems. Although banks have considerable leeway over the design of their rating system for credits that do not attract special regulatory scrutiny, the handbook spells out clear definitions of "nonpass" credits, which banks are expected to adhere to regardless of what rating system they otherwise use. According to these definitions,

[14] https://www.occ.treas.gov/publications/publications-by-type/comptrollers-handbook/rating-credit-risk/pub-ch-rating-credit-risk.pdf

loans to unprofitable firms are to be adversely classified as "substandard." Such loans trigger additional regulatory reporting and loan loss reserve requirements.[15]

In addition, the Interagency Guidance on Leveraged Financing of 2001 and the Interagency Guidance on Leveraged Lending of 2013 both emphasize the importance of cash flows in making lending decisions. The 2001 guidance takes an adverse view towards credits to borrowers with insufficient cash flow to meet their debt service obligations. The 2013 guidance tightens this view by imposing a hard limit of 6.0 for the Debt/EBITDA ratio, above which a loan "raises concern." Naturally, firms with negative EBITDA cannot meet any of these definitions. In sum, we expect the probability of nonbank lending to jump as EBITDA turns negative. This jump is apparent in Figure 1.

Relatedly, higher leverage is consistently associated with a significantly higher probability of borrowing from a nonbank lender. A 10% increase in leverage is associated with 3-4% increase in the probability of borrowing from a nonbank lender. In contrast, in their multivariate analyses, Denis and Mihov (2003) do not find any difference in book leverage between bank and nonbank borrowers. We also find that the change in leverage from the quarter prior to loan origination to the end of the quarter of loan origination has a significant coefficient of similar magnitude. In other words, nonbank borrowers not only have higher existing leverage but also add on significant leverage. We also include the absolute value of asset growth from the quarter prior to loan origination to the end of the quarter of loan origination to account for acquisitions or divestments, and find a positive and significant coefficient. These findings suggest that nonbanks make information sensitive loans to risky borrowers that require screening, challenging the traditional view that banks are special in making such loans. Finally, we find that firms with a higher current ratio are significantly less likely to borrow from a nonbank lender.

Column 2 adds controls for the market-to-book ratio, sales growth, volatility, and past returns. Only volatility and past returns are statistically significant, with firms whose stocks experienced higher volatility in the months before loan origination being significantly more likely

[15] The OCC handbook does not exactly define the term "unprofitable." Plausibly, the zero EBITDA cutoff is banks' prevailing interpretation of "unprofitable." So long as many banks follow the same definition, we will see a jump in nonbank lending at this cutoff.

to borrow from a nonbank lender. Firms that experienced positive buy-and-hold returns prior to loan origination are less likely to borrow from a nonbank lender.

In column 3, we remove two forward-looking variables – change in leverage and absolute value of the asset growth – and show that including them does not affect the coefficients on the other variables. Finally, columns 4 and 5 add borrower fixed effects. Although some coefficients are slightly smaller, within-borrower variation in profitability, change in leverage, asset growth, and volatility has similar, significant, effects on the probability of borrowing from a nonbank lender.

4.1 Local banking conditions

In this section, we explore whether conditions in a firm's local banking market affect its decision to borrow from a bank versus nonbank lender. Table 4 reports the results of a linear probability model of the propensity to borrow from a nonbank lender on the characteristics of the county in which borrower's headquarters are located. We also include all borrower characteristics from the third column of Table 3: asset size, profitability, negative EBITDA, firm age, leverage, research expense, PP&E, current ratio, market-to-book, sales growth, stock return volatility, and past return. In column 1 we regress the probability of borrowing from a nonbank lender on the capitalization of banks operating in the firm's county and the deposit share of large, systemically-important banks. To make sure that the results are not driven by time series trends in bank capitalization and in the propensity to borrow from nonbanks, we include year fixed effects. Identification is therefore based on within-year variation across counties in the capitalization of local banks and in the propensity of local firms to borrow from nonbanks. We include industry fixed effects to make sure that the results are not driven by variation across industries in the propensity to borrow from banks (due to, for example, differences in the composition of assets that can be used as collateral) and spatial concentration of industries in certain geographies.[16]

The coefficient on the bank leverage ratio is negative and statistically significant indicating that when local banks are better capitalized, so that their ratio of Tier 1 capital to total assets is larger, firms are less likely to turn to nonbank lenders. This effect is economically meaningful. An

[16] Industry fixed effects are based on Fama-French 12 industries. Results are similar with Fama-French 17 and 48 industries.

increase of 1% in the Tier 1 leverage ratio of local banks is associated with a 4.1% decline in the propensity to borrow from a nonbank lender. Relative to the 32% unconditional probability of borrowing from a nonbank lender, this represents a 13% decline.

Since we do not have exogenous variation in the capitalization of local banks, to further address the concern that bank capitalization could be picking up the effect of shocks to local demand for credit, columns 2-6 control for additional measures of local economic conditions: banking deposits, per capita personal income, growth in per capita personal income, and unemployment rate. While we cannot rule out that counties with less well capitalized banks are different on unobservable characteristics, it is comforting that none of the observable measures of local economic performance are statistically significant and that controlling for them does not have much effect on the coefficients of interest. Overall, the results of Table 4 point to an important county-level driver of the propensity to borrow from nonbank lenders: capitalization of local banks, which is consistent with less well-capitalized banks being less willing to extend C&I loans to middle market firms.

4.2 Which firms borrow from different types of nonbank lenders?

So far we have treated all nonbank loans as being similar, but there are likely to be important differences in the characteristics of firms that borrow from different types of nonbank lenders. To investigate matching between firms and different types of nonbank lenders, Table 5 reports relative risk ratios from multinomial logit regressions predicting lender type. We present the results of three models, with bank loans being the base outcome. Where the models differ is in how they aggregate lender types into larger groups.

In model 1, the four outcomes are 1) borrowing from an independent finance company or a bank-affiliated financed company, 2) borrowing from an investment bank, 3) borrowing from an insurance company, and 4) borrowing from a business development company, private equity, venture capital, hedge fund, or other investment manager. We refer to this last outcome as borrowing from an asset manager. Compared with bank borrowers, firms borrowing from FCOs, investment banks, or asset managers are more likely to have negative EBITDA and higher leverage. Borrowers from investment banks and FCOs are on average larger than bank borrowers, and investment banks and asset managers are more likely to lend to firms that seek to increase

their leverage. All nonbanks are more likely than banks to lend to firms that experience a change in size around loan origination. FCOs and asset managers lend to firms with higher stock return volatility and firms that have had poor stock returns recently. Although a paucity of insurance company loan observations limits statistical power, firms that borrow from insurance companies stand out in having high values of PP&E and spending little on R&D. These results are consistent with insurance companies lending to firms with long duration assets in an effort to match the long duration of insurance policies.

Model 2 separates bank FCOs and unaffiliated FCOs, while Model 3 separates hedge funds and investment managers from other types of asset managers.[17] Firms that borrow from bank FCOs actually look broadly similar to firms that borrow from banks, with just a few exceptions. Bank FCO borrowers experience larger changes in their assets but smaller increases in leverage than bank borrowers. Bank FCO borrowers also have lower market-to-book ratios than bank borrowers. Unaffiliated FCO borrowers, on the other hand, are significantly more likely to have negative EBITDA, high leverage, high stock return volatility, and lower past returns. That bank FCOs borrowers look broadly similar to bank borrowers and, in particular, have similar profitability and leverage is consistent with bank FCOs being ultimately subject to similar regulations as their parent banks. Unaffiliated FCOs, on the other hand, lend to riskier borrowers.

In model 3, we split asset managers into two groups: 1) business development companies, private equity, and venture capital, and 2) hedge funds and investment managers. Model 3 uncovers some interesting differences among these lenders. Highly levered firms are significantly more likely to borrow from hedge funds and investment managers than from business development companies, private equity, or venture capital (Wald test *p*-value for difference in relative risk ratios: 0.056). The latter group is more likely to lend to firms that engage in a lot of R&D (*p*-value: 0.008) and have higher sales growth (*p*-value: 0.019). Firms that borrow from hedge funds and investment managers, on the other hand, do not appear to spend more on R&D than bank borrowers. The difference in R&D intensity between firms that borrow from BDC, PE, and VC

[17] In the Internet Appendix, we perform cluster analysis on our sample loans and find strong separation of bank-like loans from loans made by asset managers. FCOs and bank FCOs straddle both. We also examine which of the asset managers are most similar to each other in their lending behavior. This allows us to subsume investment managers and BDCs, both of whom have few observations, into larger groups. As the Internet Appendix shows, investment managers are most similar to hedge funds, and BDCs are most similar to PE/VCs.

firms versus hedge funds could be explained by the former having access to more stable funding and thus having longer investment horizons than hedge funds. BDC and VC firms could also be more skilled in evaluating R&D intensive firms.

5 Differences in non-price terms

Univariate comparisons in Table 2 suggest significant differences in both price and non-price terms of bank versus nonbank loans. Some of these differences in contract terms are likely due to differences in the characteristics of firms that borrow from bank versus nonbank lenders. The question we ask in this and next section is whether differences in contract terms persist once we control for firm characteristics. In other words, when firms that are similar on observable characteristics borrow from different types of lenders, do they obtain similar or different terms?

Table 6 reports the results of OLS regressions of various non-price terms on lender type dummies. We present the results with and without firm controls to show how much of the difference in lending terms is due to matching between firms and lender types. Although we control for the same set of firm characteristics in column 3 of Table 3, for brevity we only report the coefficients on log assets, profitability, negative EBITDA and leverage.[18]

Panel A explores basic non-price terms such as amount, maturity, and seniority. According to the results in column 1, loans by asset managers are significantly smaller than loans by banks or other nonbank lenders. Loans by finance companies, both bank affiliated and independent ones, are smaller than bank loans but larger than loans by asset managers. Naturally, firm size and leverage are important determinants of differences in loan size. Controlling for these and other firm characteristics, we find that the difference in coefficients between independent finance companies and asset managers gets smaller and converges to each other. In addition, controlling for borrower characteristics, insurance companies also make smaller loans than banks.

In columns 3 and 4, the dependent variable is maturity. Although banks finance themselves with demand deposits, such deposits tend to be stable with deposit rates not very sensitive to short-term interest rates (Drechsler et al. 2017, 2018). This allows banks to extend relatively long

[18] We exclude the change in leverage and asset growth as controls because of potential reverse causality concerns, especially when studying the loan amount.

maturity loans. Relative to banks, loans by asset managers have 0.7-1.1 year shorter maturity, but this is mostly due to asset managers lending to small, unprofitable firms. Thus, given their less stable funding, asset managers, hedge funds in particular, lend to firms for which short-term debt is likely to provide more discipline and thus more optimal than long-term debt. Consistent with insurance companies having very stable funding, loans by insurance companies have more than five years longer maturity than bank loans. This is true even when we control for firm characteristics. Investment banks also appear to syndicate longer maturity loans although this result is only marginally significant.[19] Columns 5 and 6 indicate that loans by asset managers are 30% less likely to be senior after controlling for firm characteristics. As shown in column 8, asset managers and insurance companies are less likely to require collateral than banks.

In Panel B we turn our attention to what we refer to as performance-related non-price terms: presence of financial covenants, performance pricing, warrants, and convertibility features. With the exception of insurance companies, nonbank loans are significantly less likely to include financial covenants than bank loans. This is especially the case for loans by asset managers, which are 29-45% less likely to include financial covenants. Given that these lenders lend to riskier borrowers, it is somewhat surprising that they do not include financial covenants. It may be the case that nonbank loans are less likely to include financial covenants because these loans are junior to bank loans that do include financial covenants (Park 2000, Rauh and Sufi 2010). However, in unreported analyses, we find very similar effects of lender type dummies on financial covenants when we restrict the sample of loans to senior secured loans and to firms that during our sample period borrow exclusively from banks or nonbanks. Thus, even when nonbanks act as senior lenders and do not rely on monitoring by banks, they are less likely to include financial covenants in their credit agreements. Our results are consistent with Rajan and Winton's (1995) prediction that lenders with short-term liabilities should make short-term loans without covenants and lenders with long-term liabilities should make long-term loans with covenants.

Part of the explanation behind negative coefficients for asset managers is that loans to firms with negative EBITDA are less likely to have financial covenants. This may be due to standard EBITDA and EBIT based covenants not being particularly meaningful for unprofitable firms.

[19] Our results on the relationship between funding stability and loan maturity are similar in spirit to Li, Loutskina, and Strahan (2019) who show that banks with more stable funding extend longer maturity loans.

Rather than rely on ex-post monitoring through financial covenants, asset managers may engage in more ex-ante screening to identify creditworthy borrowers. Announcement return evidence in Section 7 is consistent with this idea. Alternatively, higher interest rates could compensate for the lack of financial covenants. However, as we discuss below, the evidence in Table 8 on the determinants of the initial interest rate is not consistent with this idea.

Panel B also shows that nonbank lenders, with the exception of bank FCOs, are about 18-61% less likely than banks to use performance pricing in their loans. For insurance companies, the coefficient is -61%. It is worth noting that financial covenants are almost a necessary condition for performance pricing: only 3% of all loans with performance pricing do not have any financial covenants. Also note that fixed rate loans are excluded from this regression since performance pricing is a feature unique to floating rate loans and we address the choice between fixed and floating rates below.

Columns 5-6 on Panel B show that most nonbanks, except for investment banks and insurance companies, are significantly more likely than banks to use warrants. The use of warrants by finance companies and asset managers is strongly driven by the types of firms they lend to. Adding firm characteristics reduces the size of most coefficients although they remain statistically significant. Most nonbanks also use convertible debt more frequently, although we do not find any loans with a convertibility feature made by bank FCOs or insurance companies. Overall, by not including financial covenants in their loans, nonbank lenders provide borrowers with greater flexibility, but impose discipline through shorter maturity and align incentives through the inclusion of warrants.

Finally, Panel C of Table 6 examines other loans terms: whether the loan is fixed rate or floating, presence of upfront and annual fees, and whether or not the loan is secured by a second lien. It is interesting that the choice of fixed versus floating rates is driven exclusively by lender type and not by firm characteristics. The fact that nonbank loans are significantly more likely than bank loans to be fixed rate is consistent with banks relying on floating-rate funding and matching the interest rate exposure of their assets and liabilities (Kirti 2017).

Turning to the upfront fees in columns 3-4, finance companies and investment banks charge 41 and 33 basis points higher upfront fees. Almost one third of the effect for finance

companies is explained by the characteristics of their borrowers; controlling for size in particular reduces the coefficient on the finance company dummy from 61 to 41 basis points. The coefficient on investment banks is only marginally affected by adding firm controls while the coefficient on asset managers loses its significance. There are no significant differences in terms of the propensity of different lender types to charge annual fees, except for loans by independent finance companies. It is worth noting though that only 7% of sample loan contracts contain an annual fee. Finally, almost all nonbank lenders except for insurance companies are marginally more likely than banks to make loans secured by a second lien.

6 Initial interest rate

In Table 7, we present the results of the analysis of the initial interest rate charged on bank versus nonbank loans. The initial interest rate is set to the fixed interest rate for fixed-rate loans and to the value at loan origination of the one-month London Interbank Offered Rate (LIBOR) plus the applicable spread for floating-rate loans. Because other loan terms are determined simultaneously with the interest rate, we present the results with and without loan level controls. We include the following firm level characteristics: log total assets, profitability (EBITDA divided by total assets), negative EBITDA dummy, leverage, change in leverage, absolute value of the asset growth, research expense, property, plant & equipment (PP&E), and log firm age as well as volatility, past return, growth, and market-to-book ratio. Since many of these borrower characteristics can be thought of as proxies for lenders' risk exposures, we can think of the coefficients as pricing risk (see Koijen and Yogo 2019).

Column 1 presents univariate comparison of the interest rates charged on nonbank versus bank loans. The difference of 450 basis points is large and highly statistically significant. Once we add firm level controls in column 2, the coefficient on the nonbank dummy is reduced to 299 basis points. The coefficients on firm characteristics are broadly consistent with theory. Smaller and unprofitable firms pay significantly higher interest rates. The coefficient on the negative EBITDA dummy is particularly large at 107 basis points. Firms with high pre-existing leverage or for which the new loan increases leverage (as opposed to refinancing an existing loan) pay significantly higher interest rates. A ten percentage points increase in leverage is associated with 24 basis points

higher interest rate. As expected, firms with poor past stock returns and high stock price volatility pay significantly higher interest rates.

In column 3 we add controls for the other loan terms: amount, performance pricing, seniority, security, etc. The coefficient on the nonbank dummy is reduced further from 299 basis points to 190 basis points, indicating that a large part of the difference in interest rates charged on bank versus nonbank loans to borrowers with similar characteristics is due to differences in the types of loans extended by different lenders. Nonbank loans are significantly more likely to be junior or second lien loans and to charge fixed rates. All of these features are associated with higher interest rates. At the same time nonbank loans are less likely to include performance-pricing provisions, which are associated with lower initial interest rates.[20]

In column 4, we decompose the effect of nonbank lending into different lender types. Controlling for firm and loan characteristics, loans from bank-affiliated finance companies carry 69 basis point lower interest rates. Independent finance companies and investment banks charge about 172 and 261 basis points higher interest rates, while various types of asset managers charge about 410 basis points higher interest rates.

In column 5 we include borrower fixed effects to control for time-invariant unobserved heterogeneity across borrowers. The results are similar to column 3 where we include industry fixed effects: the difference in interest rates between bank loans and nonbank loans is 228 basis points in column 5 versus 190 basis points in column 3. Furthermore, within borrower variation in firm and loan characteristics appears to have similar effects on the initial interest rate as variation across borrowers.

Results in columns 2-5 show that negative EBITDA borrowers pay 80-110 basis points higher interest rates. In column 6 we interact the negative EBITDA dummy with the nonbank lender dummy. The coefficient on this interaction is a statistically significant 157 basis points. The coefficients on the nonbank dummy drops from 190 to 151 basis points, while the coefficient on

[20] In an unreported regression, we add the upfront fee and annual fee as additional controls. The fees are missing for 15% of loan contracts since they are spelled out in separate fee letters that are not filed with the SEC. Adding these fees has little effect on most of the other coefficients. While the upfront fee does not correlate with the interest rate in this regression, a ten basis point higher annual fee is associated with a nine basis point higher interest rate, suggesting that lenders include annual fees in riskier loans. See Berg, Saunders, and Steffen (2015) for a discussion of the importance of fees in loan contracts.

the negative EBITDA dummy drops from 78 to 37 basis points and is no longer statistically significant. These results are consistent with nonbanks charging higher interest rates when they face less competition from banks. Figure 2 examines more closely the relation between interest rate and EBITDA. It shows the average interest rate charged on bank versus nonbank loans at different levels of borrower's EBITDA. Bank and nonbank loans are separately allocated into twenty quantiles (bins) based on trailing twelve months EBITDA at loan origination. The figure shows that nonbanks charge, on average, higher interest rates throughout the EBITDA spectrum; but, the difference increases for lower EBITDA and, especially, negative EBITDA. While for borrowers with EBITDA greater than $50 million the univariate interest rate spread is about 300 basis points, it increases to 500 basis points for borrowers with EBITDA of negative $30 million. In unreported regressions, we find suggestive evidence that nonbanks also charge about 80 basis points higher interest rate on loans to borrowers with debt-to-EBITDA ratio of more than six. This result is almost significant at 10% in the full sample, and is present only during the 2013-2015 subperiod when the leveraged loan guidance restricting banks' ability to lend to firms with debt-to-EBITDA ratio of more than six is in place. Hence, it appears that nonbanks charge higher interest rates when they face less competition from banks.

In column 7, we restrict the sample to loans for which banks are less likely to face regulatory restrictions and for which banks and nonbanks are likely to compete on a more level playing field: borrowers with positive EBITDA and debt-to-EBITDA ratio of less than six. For this sample of loans, the coefficient on the nonbank lender dummy is 121 basis points. One possible explanation for nonbanks charging higher interest rates even in this subsample could be that nonbanks price risk differently than banks. To account for differences in the pricing of risk, in unreported regressions, we estimated our interest rate regressions with the interactions between the nonbank dummy and all borrower and loan characteristics. Although some of the interactions are statistically significant, the coefficient on the nonbank lender dummy retains its magnitude and statistical significance.[21] Thus although banks and nonbanks may price some risks differently, this does not seem to explain the average difference in interest rates.

[21] To make sure that the nonbank dummy continues to pick up the average difference between bank and nonbank loans, we demean all other control variables.

Another potential explanation is that nonbanks make a different trade-off between loan terms than banks. Although we control for loan characteristics in our regressions, it may be that the pricing of different types of loans depends in different ways on the control variables or that adding loan characteristics as controls is insufficient due to the simultaneous nature of the choice of contract terms. For example, it may be the case that part of the remaining difference in interest rates is due to unmeasured differences in covenant strictness. Column 8 addresses this concern by limiting the sample to loans that do not have any financial covenants. Because there are fewer such loans, we include loans of different priority and control for loan characteristics. The coefficient on the nonbank dummy remains large at 221 basis points. Lastly, in column 9, we include only the first-lien, senior, secured, non-convertible, floating-rate loans with financial covenants and no warrants. The coefficient on the nonbank dummy is 163 basis points.

To further address the concern that the results on both price and non-price terms are driven by nonlinearities and systematic differences between bank and nonbank borrowers, we use nonparametric matching techniques to achieve better covariate balance between bank (control) and nonbank (treated) borrowers. To construct our *control* sample, we use Mahalanobis distance with exact matching on loan origination year and dummy for negative EBITDA and nearest-neighbor matching on profitability and leverage. The results, reported in the Internet Appendix Table IA10, show that differences in loan terms documented in Tables 6 and 7 are unlikely to be due to nonlinearities or lack of covariate balance between bank and nonbank borrowers.

In unreported analysis, we explore whether simultaneous equity ownership could explain differences in interest rates (Lim, Minton, and Weisbach 2014). Using Capital IQ, we gathered information on each borrower's top 25 holders as of the quarter prior to loan origination. Matching these equity holders with our nonbank lenders, we find that significant equity ownership in borrowing firms by our nonbank lenders is rare. In only 5.5% of nonbank loans is the lender a blockholder with at least a 5% stake. Thus simultaneous equity ownership is unlikely to explain our results.

6.1 Differences in unobservable risk

Our evidence so far indicates that nonbank borrowers pay significantly higher interest rates than bank borrowers and that this difference cannot be explained by observable firm characteristics, other loan terms, differences in how banks and nonbanks price risk, or by

nonlinearities in the relationship between the initial interest rate and borrower and loan characteristics. A plausible explanation is that nonbank borrowers are riskier on dimensions that are not observable to us as econometricians but are observable to lenders who price their loans accordingly. If nonbanks do charge higher interest rates as compensation for such unobservable risk, then we should expect nonbank borrowers to perform worse than observationally similar bank borrowers. In this section we study borrower performance after loan origination.

6.1.1 Bankruptcy

We start by asking whether nonbank borrowers are more likely to file for bankruptcy than bank borrowers. We collect bankruptcy dates, as of April 30 2019, from Capital IQ. In our sample, there are 65 deals by 38 borrowers that end in bankruptcy within three years after loan origination. Relative to the number of deals originated during the sample period, this corresponds to a 5.1% probability of bankruptcy. As a point of reference, over the 1970-2015 period, the three-year cumulative default rate for BB rated bonds was 4.5% (Moody's 2016).

Table 8 reports estimates from a linear probability model of bankruptcy over the three years following loan origination. In column 1, we include only the nonbank dummy, our main explanatory variable of interest. The marginal effect is a 6.9% increase in the probability of bankruptcy. As we add firm size and profitability in column 2, the effect of nonbank lender declines to 6%. As expected, profitability is negatively correlated with bankruptcy and is statistically significant at 10%. A one standard deviation increase in profitability is associated with a 2.7% decline in the probability of bankruptcy. Interestingly, the coefficient on negative EBITDA is small and not statistically significant. This suggests that partial segmentation of borrowers at zero EBITDA is not due to a discrete jump in risk.

As we control for additional firm characteristics in column 3, the effect of nonbank lender is reduced further to 4.1%. In this specification, leverage is strongly positively associated with bankruptcy, while the effect of profitability loses its significance. A ten percentage points increase in leverage is associated with 1% higher bankruptcy probability. The coefficient on the change in leverage is comparable in magnitude to the coefficient on lagged leverage and is marginally significant (p-value: 0.100). Column 4 controls for market-to-book, sales growth, volatility, and past stock returns. In this specification, the coefficient on nonbank lender becomes 1.5% and loses its statistical significance. More volatile firms and firms that experience lower stock returns prior

to loan origination are significantly more likely to file for bankruptcy. We also find that the absolute value of asset growth is positively correlated with bankruptcy. Overall, controlling for the full set of firm characteristics, the coefficient on the nonbank dummy is small and not statistically significant. To allow for differences in contract terms that may affect bankruptcy rates, column 5 limits the sample to non-convertible first lien senior secured floating rate loans with financial covenants and without warrants. Again, there is weak evidence of a higher bankruptcy rate for nonbank loans with a statistically insignificant marginal effect of 2.6%. In sum, the bankruptcy regressions in Table 8 suggest that while differences in subsequent bankruptcy rate may explain part of the price difference between bank and nonbank loans, they are unlikely to explain all of the difference.

6.1.2 Power Analyses

One might have two possible concerns with the bankruptcy results in Table 8. First, our sample size could be too small to have sufficient statistical power to detect meaningful differences in bankruptcy rates. Second, differences in bankruptcy rates could be negligible in the relatively benign period of 2010-2018, but could increase during a recession, although we note that our sample period does include a wave of bankruptcies in the energy sector during 2015-2016.

We address these concerns using power analyses and back-of-the-envelope calculations of how large the difference in bankruptcy rates would have to be to explain the price difference between bank and nonbank loans. From column 4 of Table 7, we know that the minimum price difference for the full sample, after controlling for observables, is 190 basis points per year. For higher bankruptcy rate of nonbank loans to explain this difference in interest rates, the difference in three-year default rates would have to be $\frac{0.019\times3}{LGD}$, where LGD is loss given default. Assuming a high LGD of 75%, the coefficient in column 4 of Table 8 would have to be 0.076. If LGD is 50%, the coefficient would have to be 0.114. Figure 3a) shows an analysis of how much power we have to detect an effect of a given size in the regression reported in column 4 of Table 8, assuming a two-sided test and that we require a *p*-value of 0.05 (dashed line) or of 0.10 (solid line) to declare the coefficient different from zero. Note that the concern that we might be understating the difference in default probabilities is really a one-sided concern. Hence, it is best represented by the solid line in Figure 3a), which is equivalent to a one-sided test requiring a *p*-value of 0.05. Figure 3a) shows that for any reasonable assumption on LGD, the probability that we would detect the

difference in bankruptcy rates given our sample size is more than 95% and quickly approaches 100%.

One limitation of a power analysis for the entire sample is that LGD almost certainly varies for loans of different priority. To enhance comparability, Figure 3b) shows a power analysis for column 5 of Table 8 predicting bankruptcy only for non-convertible first lien senior secured floating rate loans with financial covenants and without warrants. Such loans are most similar to the type of loans made by banks. According to Moody's, LGD over the past twenty years was 20% for bank loans.[22] Table 7 shows that the price difference between banks and nonbanks for this type of loan is 163 basis points. Hence, the implied difference in default rates is 24.5%. However, nonbanks might have weaker covenant packages and hence may suffer worse LGD. A pessimistic upper bound on the LGD of nonbank loans is the LGD of senior secured bonds, which have no financial maintenance covenants at all. This LGD is 38% according to Moody's. If we further assume that the three-year default rate of bank loans is 5%, in line with our sample average, then the loan pricing implied difference in default rates between bank and nonbank loans is 10.5%. Hence, a default rate difference that can fully explain the pricing differences shown in Table 8 needs to be between 10.5% and 24.5%. Figure 3b) shows that again our analysis has more than 95% power and approaches 100% power for most of this range. We conclude that we have ample power to detect the difference in bankruptcy rate needed to fully explain the observed price differences. We also conclude that explaining the observed price difference solely with a difference in the bankruptcy rate requires differences five to ten times greater than those measured in Table 8.

Could the price difference between bank and nonbank loans be justified by the difference in bankruptcy rates that would be observed during a recession? Table 8 suggests that, while statistically insignificant, the difference in bankruptcy rates during mostly good times is about 2%. The above back-of-the-envelope calculations suggest that bankruptcy rates can explain the price difference if the average difference in bankruptcy rates is between 10.5% and 24.5%. According to the business cycle data of the National Bureau of Economic Research (NBER), for the period of 1980-2018 the probability of entering a recession within three years, conditional on not being in a recession during loan origination, is roughly 33%. Using this recession probability, if the

[22] Ultimate recovery rates are taken from Moody's Investors Service Data Report (Ou et al., 2018).

difference in good times is 2%, then, depending on which LGD assumptions one adopts, the difference in bankruptcy rates during a recession would have to be between 28% and 70% to explain the observed price difference. In comparison, the default rate for speculative grade debt during the height of the Global Financial Crisis was 13% according to Moody's.

6.1.3 Operating Performance and Stock Returns

Instead of looking at bankruptcy as an extreme outcome, we can ask whether nonbank borrowers have worse operating performance after loan origination. Panel A of Table 9 presents year-to-year changes in profitability. The limitation of the analysis in Panel A of Table 9 is that we can measure changes in profitability only for firms that survive and remain public for long enough after loan origination. The first three columns include all firm-level control variables except for firm volatility, sales growth, and market-to-book ratio, which are added in the last three columns. Analyzing changes for any of the three years after loan origination, we find that the coefficient on the nonbank dummy is not statistically different from zero in any specification.

In Panel B of Table 9, we estimate a linear probability model predicting whether a firm's subsequent stock return is below the 10th percentile in a given year (roughly equal to a stock return of -60%).[23] This is a broader measure of downside risk than bankruptcy but is related in that 85% of bankrupt issuers have a return below the 10th percentile in at least one of the three subsequent years. Although positive, the coefficients for the nonbank indicator are not statistically significant, except in the second year. In an unreported regression, we also estimate the same linear probability model using the 10th percentile of three-year buy-and-hold returns. The probability of a 10th percentile outcome is three percentage points higher for nonbank borrowers with a *t*-statistic of 1.36.

Together with the bankruptcy analysis in Table 9, these results indicate that conditional on firm characteristics, which are priced into the interest rate, bank and nonbank borrowers perform similarly following loan origination. In the Internet Appendix, we assess future profitability for various nonbank lenders separately and also perform similar tests using average subsequent stock returns. PE/VC/BDC borrowers show temporary stock return underperformance during the first year after loan origination, but do not exhibit cash flow underperformance. FCO borrowers have

[23] The calculation of returns includes delisting returns.

lower cash flows in the first year in some specifications, but do not underperform in terms of stock returns.

To summarize, we do not find any evidence that nonbank borrowers are doing worse than bank borrowers in terms of future profitability or the probability of bankruptcy. This means that while unobserved differences in borrower quality may account for part of the observed price differences between bank and nonbank loans, the above analysis shows that such differences are too small to fully explain the price differences. Our finding that nonbank borrowers perform similarly to bank borrowers despite the fact that nonbanks are less likely to use covenants to monitor suggests that nonbanks may compensate effectively through either ex ante screening or monitoring in ways that do not rely on financial covenants. We find, for example, anecdotal evidence of cases where nonbank lenders receive board of directors observation rights. Such monitoring may be costly and the difference in interest rates may be in part compensation for monitoring costs.

6.2 Differences in lender funding costs

Could differences in lender funding costs explain the difference in interest rates between bank and nonbank loans? While we do not have systematic data on lender characteristics that would allow us to measure funding costs, we can use the framework in Hanson, Kashyap, and Stein (2011) for back-of-the-envelope estimates of differences in funding costs. Hanson, Kashyap, and Stein (2011) estimate the effect on loan rates of higher bank capital requirements and point to two main violations of Modigliani and Miller (1958) propositions on the irrelevance of capital structure. The first one is interest tax shields. Assuming 5% coupon rate and 35% corporate tax rate, a ten percentage points higher equity ratio raises the weighted average cost of capital by 0.10 * 0.05 * 0.35 = 17.5 basis points. The second violation is the money premium on short-term bank debt, which Hanson, Kashyap, and Stein (2011) estimate as being at most 100 basis points.[24] Putting the two effects together, a ten percentage points higher equity ratio raises the weighted average cost of capital by about 27.5 basis points.

[24] For discussion and estimates of the convenience/money premium see Gorton (2017), Greenwood, Hanson, and Stein (2015), and Krishnamurthy and Vissing-Jorgensen (2012).

If we think of banks as having an equity ratio of around 10% and hedge funds, private equity and venture capital funds as being themselves all equity financed, the difference in funding costs could be on the order of 247.5 basis points. This is about two thirds of the difference in interest rates estimated in column 4 of Table 7. One may wonder though whether it makes sense to account for interest tax shields in calculating the cost of capital for hedge funds. The answer depends on whether the fund's investors are foreign or domestic. To avoid double taxation, taxable domestic investors will generally invest through a partnership whose income is passed through to investors. Foreign investors will generally invest through a non-US corporation. Although Section 864 of the tax code provides for a Trading Safe Harbor that exempts foreign investors from U.S. taxes if they are engaged in securities trading, direct origination of loans is considered to be a "U.S. trade or business" that subjects offshore funds to US corporate taxes.[25] Thus the calculation above should be applicable to funds with foreign investors. For funds with only domestic investors, the difference in funding costs should be driven by the money premium component.

We can perform a similar calculation for insurance companies. Various affiliates of Prudential Financial account for most of the insurance company loans in our data. Ignoring separate account assets, Prudential's ratio of market equity to book assets was 7.3% as of June 30, 2019. Because its leverage ratio is broadly similar to banks, there is no difference in the cost of capital due to the interest rate tax shield effect. Assuming, however, that none of Prudential's liabilities earn a money premium, we can estimate the difference in funding costs to be on the order of 90 basis points. For comparison, the coefficient on the insurance dummy in column 4 of Table 7 is 76 basis points.

Because most finance companies in our data are either subsidiaries of other firms (for example GE Capital) or private firms, we do not have reliable data on their capital structure. But we would expect them to be somewhere in between the estimates for insurance companies and hedge funds. Finally, almost all of the loans originated by investment banks are syndicated, which means that what matters for their pricing is not the funding costs of the investment banks but of the ultimate investors in these loans.

[25] See Bloomberg Law's Portfolio 327: Hedge Funds Structure, Taxation, and Regulation.

Although differences in funding costs may help explain a significant fraction of the difference in interest rates charged by different types of lenders, there is still the question of why borrowers would turn to lenders with high funding costs. As indicated by our analysis of which firms turn to nonbank lenders, part of the answer almost certainly has to do with market segmentation due to regulations that restrict the ability of banks to lend to negative EBITDA firms or firms with high leverage. For borrowers with positive EBITDA and debt-to-EBITDA ratio of less than six, potential reasons to turn to nonbank lenders include speed of decision making, banks' reluctance to lend due to borrower's unusual business strategy, and nonbanks providing more innovative lending solutions.

7 Announcement returns

Our analysis of the non-price terms in Table 6 shows that nonbank loans are significantly less likely to include financial covenants, suggesting that after loans are originated nonbank lenders engage in less monitoring through financial covenants. Do nonbank lenders engage instead in more ex ante screening of the borrowers they lend to? Nonbank lenders such as hedge funds and other asset managers may have a comparative advantage in identifying good investment opportunities. And the type of unprofitable firms with high stock volatility and experiencing large changes in their assets that these lenders provide funding to may require more ex ante screening than older, more established firms that are already profitable. Lenders to the latter just need to make sure that performance does not deteriorate, and that if it does, that they can step in quickly. If nonbank lenders do engage in more ex ante screening than bank lenders, we may expect nonbank borrowers to experience larger announcement returns around loan origination.

In Table 10 we analyze announcement returns around origination of bank versus nonbank loans. In columns 1-3 we calculate cumulative abnormal returns from loan origination through the day on which an 8-K SEC filing discloses the terms of the new loan; in columns 4-6 we calculate abnormal returns on the announcement date itself.[26] We focus on the returns between loan origination and filing date (columns 1-3) because Ben-Rephael et al. (2018) show that most price discovery takes place around the event rather than filing date.

[26] Abnormal returns are calculated based on the market model estimated using daily returns over the year ending 20 calendar days prior to loan origination. We require at least 120 daily return observations to estimate market beta.

The sample is limited to loans for which the filing occurs within five calendar days of loan origination and for which the last stock price before origination is at least $1. Column 1 regresses CARs on the nonbank dummy. The constant term indicates that bank loan announcement returns do not differ from zero on average. The coefficient on the nonbank dummy is positive and statistically significant. It indicates that nonbank loans experience announcement returns that are 3% higher than the announcement returns for bank loans.

One concern with the univariate results in column 1 is that the coefficient on the nonbank dummy may be driven by returns experienced by unprofitable firms that are able to secure debt financing. In column 2, we control for negative EBITDA, firm size, and leverage. Neither coefficient is statistically significant, and their inclusion does not affect the coefficient on the nonbank dummy (3.1%). In column 3, we control for loan characteristics such as the presence of financial covenants, warrants, as well as the loan's maturity. The coefficient on the nonbank dummy is reduced from 3.1% to 2.6%, but it retains statistical significance, while none of the controls are statistically significant.

Columns 4-6 show abnormal returns only on the announcement date itself. Again, we do not find evidence of positive announcement returns for bank loans. In the univariate setting, nonbank loan announcement returns are 1.3% higher than those for bank loans. When controlling for firm and loan characteristics, the return difference remains similar at 1.2-1.3% though it loses statistical significance. These results are consistent with at least some market participants becoming aware of the successful closing of a loan before the 8-K is filed (Ben-Rephael et al (2018))

Our results that nonbank loans experience larger announcement returns than bank loans differ from James (1987) who finds that during the 1974-1983 period bank loans experience positive announcement returns while private placements are if anything associated with negative returns. Preece and Mullineaux (1994) on the other hand find a positive stock price reaction to loans by nonbank lenders. Billett, Flannery, and Garfinkel (1995) also find average returns for private placements that are larger than returns for bank loans but that are not statistically significant, perhaps due to the small number of private placements in the data. The composition of our nonbank loan sample is very different from these papers. In their samples, the majority of nonbank loans involve private placements with insurance companies. Our sample of nonbank loans

has relatively few insurance companies and is instead dominated by finance companies, hedge funds, private equity, and venture capital firms. In our data, insurance companies lend to firms with more PP&E and are as likely as banks to include financial covenants in their loans. Thus, it may be that because they rely on the value of the real estate collateral backing their loans and on financial covenants to catch deterioration in borrower's financial conditions, insurance companies do not engage in as much ex-ante screening as other nonbank lenders. In fact, in unreported regressions, we find that loans from insurance companies are associated with 2.9% lower announcement returns than loans from other nonbanks, and this result is statistically significant at the 5% level.

Overall, the fact that nonbank loans experience more positive announcement returns than bank loans is potentially consistent with nonbank lenders relying more on screening rather than ex post monitoring of borrower's performance through financial covenants. Despite the fact that we lack direct evidence, such an explanation is also supported by our findings on future performance of nonbank borrowers, as explained in the previous section.

8 Conclusion

We present novel systematic evidence on the terms of direct lending by nonbank financial intermediaries to publicly-traded middle market firms during the post crisis period. Such lending is widespread with about one third of all loans in our data being extended by nonbanks. Unprofitable, highly levered firms with high stock price volatility and low stock returns, and firms that are raising debt financing to either grow or shrink their balance sheet are significantly more likely to borrow from nonbanks than are other firms. Firms located in counties with less well-capitalized banks are also more likely to turn to nonbank lenders for debt financing.

Matching between borrowers and lenders appears to be driven by lenders trying to match the maturity of their loans with the effective maturity of their funding. In particular, insurance companies lend at very long maturities, while hedge funds lend at short maturities. Lenders match with borrowers for which long versus short maturity loans are likely to be optimal (Diamond (1991b)).

Different lender types appear to use different lending techniques. Nonbank lenders are significantly less likely than banks to include financial covenants or performance pricing provisions in their loans. Thus, rather than relying on financial covenants to monitor borrowers' ex-post performance, nonbank lenders engage in extensive ex-ante screening. Consistent with this idea, we find that nonbank loans are associated with large positive abnormal announcement returns and that, controlling for observable borrower characteristics, bank and nonbank borrowers perform similarly.

Nonbank loans carry significantly higher interest rates. Controlling for observable firm characteristics and other loan terms, the average difference in interest rates is 190 basis points. Higher interest rates on nonbank loans do not appear to be compensation for unobservable risk either. If they were compensation for differences in risk, we would expect to see large differences in ex post firm performance, in particular default rates. Yet, controlling for firm characteristics observable at the time of loan origination, bankruptcy rates can explain only a small part of the price difference between bank and nonbank loans. The difference in interest rates is likely to be explained instead by market segmentation, differences in funding costs, and nonbanks offering more innovative products (for example more flexible contract terms and speed of funding decisions). Disentangling these factors more fully is left for future research.

Finally, our findings suggest that further theoretical work modeling credit market equilibrium with different types of borrowers and lenders would be a fruitful avenue for future research. In this vein, Donaldson et al. (2017) show that nonbanks' higher funding costs can act as a commitment device for information production.

Appendix A. Details on sample construction

We start sample construction by randomly sampling a set of 750 firms from the domestic population of publicly-traded Compustat firms during the period of 2010-2015 with revenues between $10 million and $1 billion. We require that the firms have book leverage of at least 5% and exclude financial firms and utilities. We also exclude ADRs and firms that are incorporated or have their headquarters outside the US. A small number of firms move from abroad to the US or vice versa during the sample period. We include such firms only for the period during which both the location of their headquarters as well as their incorporation are in the US.

Next, we use Capital IQ to obtain a list of each firm's debt agreements during the period from 2010-2015 along with a link to the SEC filing in EDGAR. We include credit agreements, debt & loan agreements, notes agreements and securities purchase agreements. We exclude bonds and supplemental filings such as guarantee agreements, loan modifications, covenant waivers, etc.

To avoid having to manually exclude a large number of bonds, we limit our download of credit documents to instruments for debt amounts of less than $250 million. We obtain syndicated loans in excess of $250 million from DealScan, as described further below.

Loan amendments are not necessarily filed as exhibits, but might simply be described in a short paragraph in a company's 10-Q or 10-K filing and are thus much more difficult to track consistently than contracts that are stated in full. Since this paper focuses on sources of funds and initial contract terms rather than renegotiations, we drop all simple amendments and retain only original debt contracts as well as amended and restated debt contracts, which presumably represent more substantial changes. We also exclude promissory notes that are issued pursuant to an existing credit agreement, such as notes evidencing a drawdown of a line of credit. Finally, we drop 14 debtor-in-possession credit agreements.

We obtain the identity of the borrower, the lead lender, as well as the origination date for the remaining contracts and match them to DealScan based on these three data items. Because firms sometimes borrow through their subsidiaries, we obtain a list of subsidiaries for our sample firms from Exhibit 21 of their 10-K filings and cross-reference these entities with DealScan as well. Where possible, we obtain data on loan characteristics for the matched loans from DealScan. Importantly, we do not include in our sample contracts from DealScan that do not have a match in our data extract from Capital IQ/EDGAR. Manually searching for 25 of these observations in Capital IQ and EDGAR, we verify that the majority of these DealScan observations are in fact

amendments rather than originations. The remaining observations involve either relatively small loans issued by subsidiaries of our sample firms that were not filed with the SEC by the sample firm presumably due to lack of materiality, or loans issued after a company has ceased to file with the SEC. We conclude that coverage of debt contracts in Capital IQ appears reliable during the sample period.

Since we exclude instruments larger than $250 million from the Capital IQ search, we obtain a list of all deals in excess of $250 million from DealScan. Because DealScan contains a large number of amendments, we search Capital IQ for any debt contracts originated at the same time as the DealScan contract and exclude DealScan observations that correspond to amendments in Capital IQ or that cannot be found in Capital IQ (e.g. because they are amendments that are not filed in an exhibit or because the firm is no longer public). Among the DealScan observations that can be matched to Capital IQ, 43% are amendments.

We manually code debt contracts that could not be matched to DealScan. Each loan is assigned a lender type based on the identity of the lender or, in the case of multi-lender loans, the lead lender. The lead lender is assumed to be first lender mentioned in the header of the contract. If lender roles are assigned, we take the first lender that is either named as administrative agent, lead arranger, or agent. For observations taken from DealScan, we identify as the lead arranger the institution that is given lead arranger credit in DealScan or has one of the lender roles designated above. There are a few cases in which an administrative agent has a purely administrative role without actually lending to the borrower. For example, some hedge funds rely on an investment bank to administer a deal. In cases in which the first mentioned lender is an administrative agent, we verify that this institution also acts as a lender. If it does not, then we record the identity of the first institution that is listed as a lender on the signature page or commitment schedule.

Lenders are classified into the following types: bank, bank-affiliated finance company, finance company, investment bank, private equity/venture capital, hedge fund, insurance company, investment manager, business development company, other collective investments (such as collateralized loan obligations or mutual funds), government, individual, and nonfinancial corporations. We first cross-reference lenders against lists of business development companies (from Capital IQ), hedge funds (from SEC form ADV), and private equity funds (from Preqin). If a lender is not on one of these lists, we use the business description in Capital IQ. Contracts obtained from government entities (such as the Export-Import Bank), individuals, and "other"

lenders are excluded from the analysis. Contracts entered into with nonfinancial corporations are typically related to a business transaction, primarily seller financing, or are loans between affiliated firms.

Appendix B. Variable definitions

Variable	Definition	Source
Loan characteristics		
Annual fee	Fee the borrower has to pay to lender annually, expressed in basis points of the entire commitment.	Manual collection, DealScan
Convertible	Indicator equals one if the debt is convertible, zero otherwise	Manual collection
Financial covenants	Indicator equals one if the debt contract contains any financial covenants, zero otherwise	Manual collection, DealScan
Fixed rate loan	Indicator equals one if debt is fixed rate, zero if debt is floating rate	Manual collection, DealScan
Initial interest rate	Equals fixed rate for fixed rate debt, level of 1-month LIBOR (adjusted for interest rate floors) at origination plus spread for floating rate debt	LIBOR levels obtained from Federal Reserve Bank of St. Louis FRED database
Loan size	Total size of the commitment	Manual collection, DealScan
Ln(amount)	Natural log of loan size	Manual collection, DealScan
Maturity	Maturity of the debt expressed in years	Manual collection, DealScan
Nonbank	Indicator equals one if the lender is a nonbank, zero otherwise	Capital IQ, Preqin, Form ADV
Performance pricing	Indicator equals one if debt has a performance pricing provision, zero otherwise	Manual collection, DealScan
Second lien	Indicator equals one if the loan is second lien, zero if it is first lien or unsecured	Manual collection, DealScan
Security	Indicator equals one if the debt is secured by collateral, zero otherwise	Manual collection, DealScan
Seniority	Indicator equals one if debt is senior, zero otherwise	Manual collection, DealScan
Upfront fee	Fee the borrower has to pay to lender at origination, expressed in basis points of the entire commitment	Manual collection, DealScan
Warrants	Indicator equals one if the lender receives warrants in conjunction with the debt issue, zero otherwise	Manual collection, DealScan
Firm characteristics		
Current ratio	Current assets divided by current liabilities.	Capital IQ
EBITDA	Earnings before interest, taxes, depreciation and amortization (EBITDA).	Capital IQ
EBITDA < 0	Indicator equals one if EBITDA is negative, zero otherwise.	Capital IQ

Firm age	Number of years since the firm was founded.	Capital IQ, 10-K
Leverage	Long-term debt plus debt in current liabilities divided by total assets.	Capital IQ
Δ Leverage	The change in leverage from the quarter prior to loan origination to the end of the quarter of loan origination.	Capital IQ
Market-to-book	Common shares outstanding times stock price plus preferred stock plus long-term debt plus debt in current liabilities, divided by total assets	Capital IQ
Profitability	Ratio of EBITDA to total assets.	Capital IQ
Δ Profitability	Annual change in the ratio of EBITDA to total assets.	Capital IQ
Research expense	Research expense divided by sales.	Capital IQ
Sales growth	Sales in year *t* divided by sales in year *t*-1 minus one	Capital IQ
PP&E	Net property, plant and equipment scaled by total assets.	Capital IQ
Total Assets	Total book assets. We also added the absolute of asset growth from the quarter prior to loan origination to the end of the quarter of loan origination to account for acquisitions/divestments.	Capital IQ
Abs (Asset Growth)	Absolute value of asset growth from the quarter prior to loan origination to the end of the quarter of loan origination.	Capital IQ
Volatility	Standard deviation of daily stock returns measured over 180 calendar days ending 20 days prior to loan origination, multiplied by the square root of 252. We supplement CRSP with daily stock returns from OTC Markets and Capital IQ.	CRSP, OTC Markets, Capital IQ
Past return	Buy-and-hold stock return measured over 180 calendar days ending 20 days prior to loan origination. We supplement CRSP with daily stock returns from OTC Markets and Capital IQ.	CRSP, OTC Markets, Capital IQ

County characteristics

Tier 1 leverage ratio	Deposit-weighted average of the Tier 1 leverage ratio of bank holding companies with branches in the county of the firm's headquarters.	Summary of Deposits, Y9-C
Large BHCs deposit share	Share of county deposits in branches of banks owned by bank holding companies with at least $50 billion in consolidated assets.	Summary of Deposits, Y9-C

Ln(Total deposits)	Natural logarithm of the aggregate value of deposits in the county of the firm's headquarters.	Summary of Deposits
Ln(Personal income)	Natural logarithm of the per capita personal income in the county of the firm's headquarters.	BEA Regional Economic Accounts
Unemployment rate	Unemployment rate in the county of the firm's headquarters.	BLS Local Area Unemployment Statistics

The following variables are winsorized at the 1st and 99th percentile: leverage, current ratio, PP&E, market-to-book, research expense, sales growth, and past return. Volatility is winsorized at the 5th and 95th percentile due to a large number of outliers in the right tail. In addition, the leverage, sales growth, research expense, profitability, and Δ profitability measures are capped at a maximum value of one and the minimum value for profitability and Δ profitability is set to minus one to eliminate outliers that persist after winsorization.

References

Agarwal, Vikas, and Costanza Meneghetti, 2011, The role of hedge funds as primary lenders, *Review of Derivatives Research* 14, 241–261.

Bharath Sreedhar and Tyler Shumway, 2008, Forecasting Default with the Merton Distance to Default Model, *Review of Financial Studies* 21, 1339–1369.

Ben-Rephael, Azi, Zhi Da, Peter Easton, and Ryan D. Israelsen, 2018, Who pays attention to SEC Form 8-K? *Working Paper.*

Berg, Tobias, Anthony Saunders, and Sascha Steffen, 2015, The total cost of corporate borrowing in the loan market: Don't ignore the fees, *Journal of Finance* 71, 1357-1392.

Berlin, Mitchell, Greg Nini, and Edison Yu, 2018. Concentration of Control Rights in Leveraged Loan Syndicates, *Federal Reserve Bank of Philadelphia Working Paper.*

Billett, Matthew, Mark Flannery, and Jon Garfinkel, 1995, The effect of lender identity on a borrowing firm's equity return, *Journal of Finance* 50, 699-718.

Biswas, Swarnava, Neslihan Ozkan, and Junyang Yin, 2018, Real Effects of Non-bank Lending, *University of Bristol Working Paper*.

Buchak, Greg, Gregor Matvos, Tomasz Piskorski, and Amit Seru, 2018, Fintech, regulatory arbitrage, and the rise of shadow banks, *Journal of Financial Economics* 130, 453-483.

Carey, Mark, Mitch Post, and Steven A. Sharpe, 1998, Does corporate lending by banks and finance companies differ? Evidence on specialization in private debt contracting, *Journal of Finance* 53(3), 845-878.

Chemmanur, Thomas J., and Paolo Fulghieri, 1994, Reputation, renegotiation, and the choice between bank loans and publicly traded debt, *Review of Financial Studies* 7, 475-506.

Chen, Brian, Samuel Hanson, and Jeremy Stein, 2017, The decline of big-bank lending to small business: Dynamic impacts on local credit and labor markets*, Harvard University* Working Paper.

Cortes, Kristle, Yuliya Demyanyk, Lei Li, Elena Loutskina, and Philip E. Strahan, 2018, Stress tests and small business lending, *Federal Reserve Bank of Cleveland Working Paper.*

Denis David and Vassil Mihov, 2003, The choice between bank debt, non-bank private debt and public debt: Evidence from new corporate borrowings, *Journal of Financial Economics* 70, 3-28.

Diamond, Douglas W., 1984, Financial intermediation and delegated monitoring, *Review of Accounting Studies* 51, 393–414.

Diamond, Douglas W., 1991a, Monitoring and reputation: The choice between bank loans and directly placed debt, *Journal of Political Economy* 99, 689-721.

Diamond, Douglas W., 1991b, Debt maturity structure and liquidity risk, *Quarterly Journal of Economics* 106(3), 709-737.

Diamond, Douglas W., and Philip H. Dybvig, 1983, Bank runs, deposit insurance, and liquidity, *Journal of Political Economy* 91, 401-419.

Di Maggio, Marco, and Vincent Yao, 2018, FinTech borrowers: Lax-Screening or cream-skimming? *HBS Working Paper.*

Donaldson, Jason, Giorgia Piacentino, and Anjan Thakor, 2017, Intermediation variety, *Washington University Working Paper*.

Drechsler, Itamar, Alexi Savov, and Philipp Schnabl, 2018, Banking on deposits: Maturity transformation without interest rate risk, *Working paper.*

Drechsler, Itamar, Alexi Savov, and Philipp Schnabl, 2017, The deposit channel of monetary policy, *Quarterly Journal of Economics* 132(4), 1819-1876.

Fama, Eugene F, 1985, What's different about banks? *Journal of Monetary Economics* 15, 29–39.

Faulkender Michael and Mitchell Petersen, 2005, Does the Source of Capital Affect Capital Structure? *Review of Financial Studies* 19, 45–79.

Gatev Evan and Phil Strahan, 2006, Banks' Advantage in Hedging Liquidity Risk: Theory and Evidence from the Commercial Paper Market, *Journal of Finance* 61, 867-892.

Gorton, Gary, 2017, The history and economics of safe assets. *Annual Review of Economics*, *9*(1), 547–586.

Gorton, Gary and Andrew Metrick, 2010, Regulating the Shadow Banking System, *Brookings Papers on Economic Activity*.

Greenwood, R., Samuel G. Hanson, and Jeremy C. Stein, 2015, A comparative-advantage approach to government debt maturity. *Journal of Finance*, *70*(4), 1683–1722.

Habib, Michel A., and D. Bruce Johnsen, 1999, The financing and redeployment of specific assets, *The Journal of Finance* 54, 693-720.

Hanson, Samuel G, Anil K Kashyap, and Jeremy C Stein, 2011, A macroprudential approach to financial regulation, *Journal of Economic Perspectives* 25(1): 3–28.

Hanson, Samuel G, Andrei Shleifer, Jeremy C Stein, and Robert W Vishny, 2015, Banks as patient fixed-income investors, *Journal of Financial Economics* 117, 449-469.

Irani, Rustom, Rajkamal Iyer, Ralf Meisenzahl, José-Luis Peydró, 2017, The rise of shadow banking: Evidence from capital regulation, *University of Illinois Working Paper*.

Ivashina, Victoria, and Zheng Sun, 2011, Institutional demand pressure and the cost of corporate loans, *Journal of Financial Economics* 99, 500–522.

James, Christopher, 1987, Some evidence on the uniqueness of bank loans, *Journal of Financial Economics* 19, 217-235.

Jiang, Wei, Kai Li, and Pei Shao, 2010, When shareholders are creditors: Effects of the simultaneous holding of equity and debt by non-commercial banking institutions, *Review of Financial Studies* 23, 3595–3637.

Kim, Sooji, Matthew C. Plosser, and João A. C. Santos, 2017, Macroprudential policy and the revolving door of risk: Lessons from leveraged lending guidance, *Journal of Financial Intermediation, forthcoming.*

Kirti, Divya, 2017, Why do bank-dependent firms bear interest-rate risk?, IMF Working Paper WP/17/3.

Koijen, Ralph and Motohiro Yogo., 2019, A demand system approach to asset pricing, *Journal of Political Economy*, 127, 1475–1515.

Krishnamurthy, Arvind and Annette Vissing-Jorgensen, 2012, The aggregate demand for treasury debt. *Journal of Political Economy*, *120*(2), 233–267.

Leland Heland and David Pyle, 1977, Informational Asymmetries, Financial Structure, and Financial Intermediation, *Journal of Finance* 32, 371-387.

Li, Lei, Elena Loutskina, and Philip E. Strahan, 2019, Deposit market power, funding stability and long-term credit, *Working paper.*

Lim, Jongha, Bernadette A Minton, and Michael S Weisbach, 2014, Syndicated loan spreads and the composition of the syndicate, *Journal of Financial Economics* 111, 45–69.

Lummer, Scott and John McConnell, 1989, Further evidence on the bank lending process and the capital market response to bank loan agreements, *Journal of Financial Economics* 25, 99-122.

Massoud, Nadia, Debarshi Nandy, Anthony Saunders, and Keke Song, 2011, Do hedge funds trade on private information? Evidence from syndicated lending and short-selling, *Journal of Financial Economics* 99, 477–499.

Nadauld, Taylor D., and Michael S. Weisbach, 2012, Did securitization affect the cost of corporate debt? *Journal of Financial Economics* 105, 332–352.

Ou, Sharon, Sumair Irfan, Yang Liu, Joyce Jiang, and Kumar Kanthan, 2018, Annual Default Study: Corporate Default and Recovery Rates, 1920-2017, *Moody's Investors Service Data Report.*

Paravisini, Daniel, Veronica Rappoport, and Philipp Schnabl, 2017, Specialization in bank lending: Evidence from exporting firms, *Working paper.*

Park, Cheol, 2000, Monitoring and Structure of Debt Contracts, *Journal of Finance* 55, 2157-2195.

Preece, Dianna C. and Donald J. Mullineau, 1994, Monitoring by financial intermediaries: Banks vs. Nonbanks, *Journal of Financial Services Research* 8, 193-202.

Rajan, Raghuram, and Andrew Winton, 1995, Covenants and Collateral as Incentives to Monitor, *Journal of Finance* 50, 1113-1146.

Rauh Joshua and Amir Sufi, 2010, Capital structure and debt structure, *Review of Financial Studies* 23, 4242–4280.

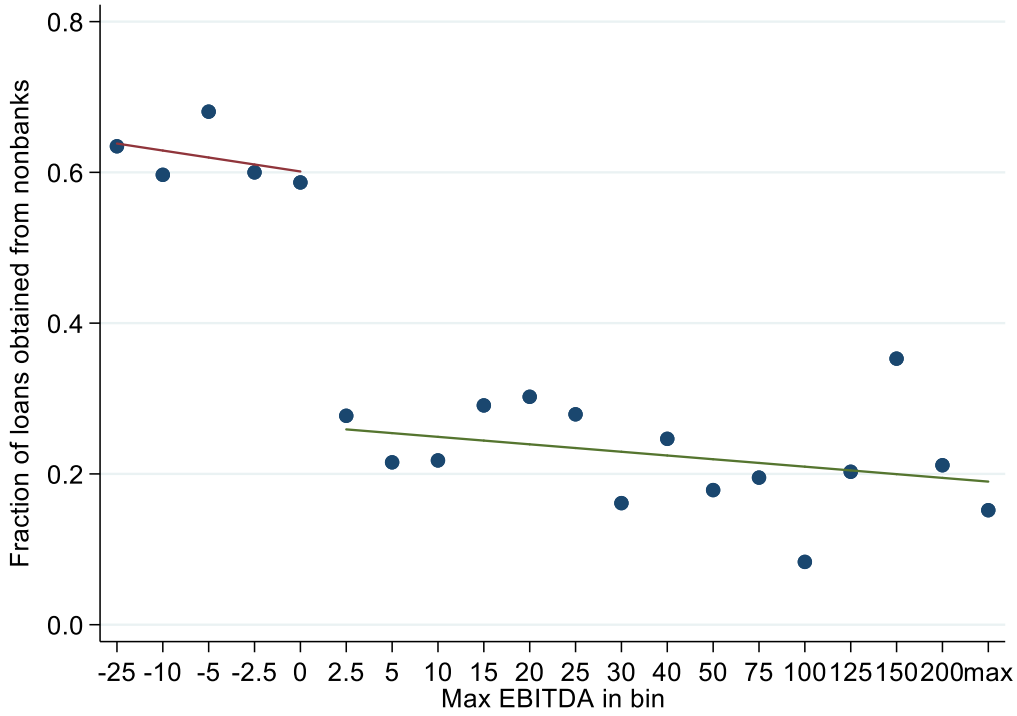


Figure 1: Fraction of loans obtained from nonbanks by EBITDA bin
This figure shows the fraction of loans obtained from nonbanks at different levels of EBITDA. Loans are allocated into twenty bins based on borrower's trailing twelve months EBITDA at loan origination. The x-axis shows the upper limit of EBITDA for each bin. The choice of bin limits roughly follows the distribution obtained by splitting EBITDA into twenty quantiles, rounded to multiples of five.

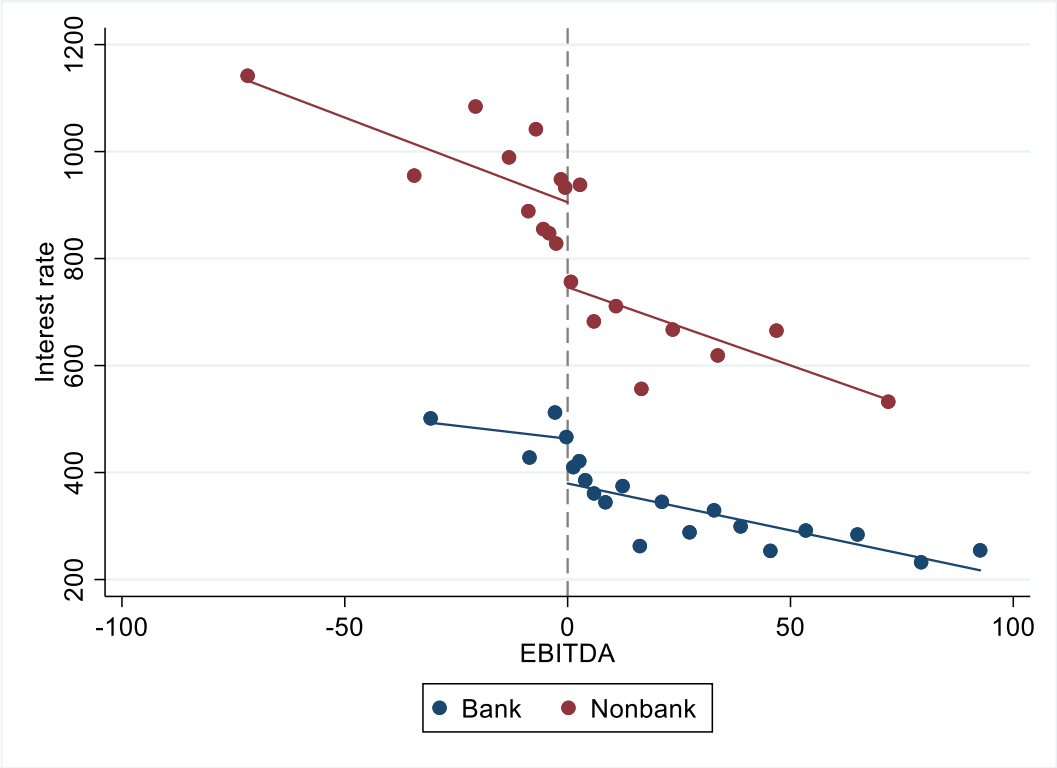
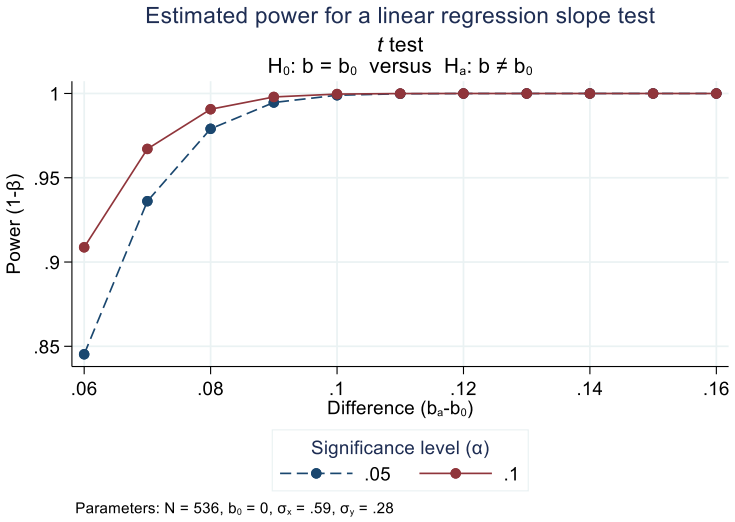
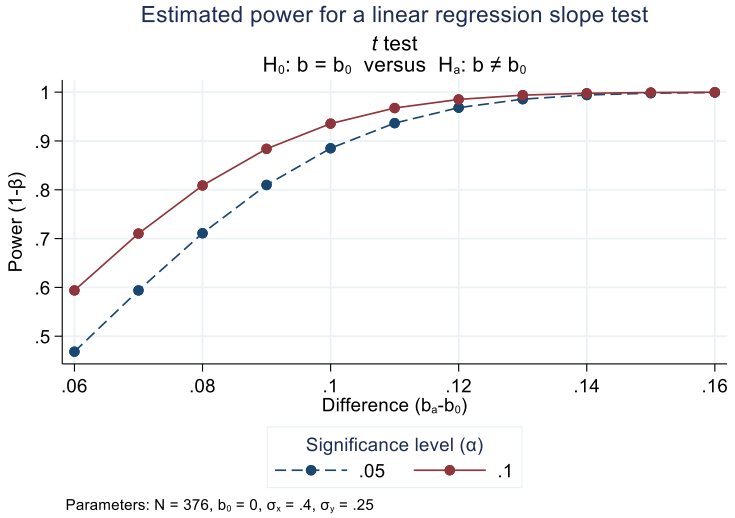


Figure 2: Relation between interest rate and EBITDA
This figure shows the average interest rate charged on bank versus nonbank loans at different levels of borrower's EBITDA. Loans are allocated into twenty quantiles based on trailing twelve months EBITDA at loan origination. EBITDA bins are computed separately for bank versus nonbank loans. The figure includes loans of borrowers with EBITDA between -$100 million and $100 million.



a) All deals



b) First lien senior secured loans with financial covenants

Figure 3: Power analysis for bankruptcy regressions
This figure shows power analyses for the bankruptcy regressions in Table 8. Figure 3a) shows a power analysis for the regression in column (4) of Table 8, using all sample deals. The analysis shows how much power the test has to detect a coefficient of a given size for the difference in nonbank vs. bank borrowers' probability of bankruptcy. Standard deviations allow for firm-level clustering after partialling out all covariates. The number of observations is chosen to equal the number of firms that enter the regression. Figure 3b) performs the same analysis for the regression in column (5) of Table 8, using only non-convertible first lien senior secured floating rate loans with financial covenants and without warrants.

Table 1: Number of loans originated, lender types and DealScan match rates

Panel A reports for each year the total number of loans originated and the share extended by nonbanks. Panel B reports for each nonbank lender type, the number loans originated and the percentage included in the DealScan database. The sample includes all borrowings of a random sample of 750 middle-market firms originated and filed with the SEC during the 2010-2015 period. Multiple tranches within a given package are treated as a single observation.

Panel A: Loans originated per year

	Obs.	% nonbank
2010	233	32.19
2011	268	30.22
2012	244	33.61
2013	200	35.00
2014	202	29.70
2015	122	34.43
Total observations	1,269	32.31

Panel B: Lender types and DealScan match rates

	Obs.	% of nonbank deals	% tracked in DealScan
Bank	859		52.97
Nonbanks:			
Bank FCO	52	12.68	26.92
FCO	93	22.68	25.81
Investment bank	42	10.24	73.81
Insurance	22	5.37	4.55
BDC	17	4.15	11.76
PE/VC	78	19.02	0.00
Hedge fund	68	16.59	5.88
Investment manager	34	8.29	5.88
Other	4	0.98	25.00
Total observations	410	100.00	19.27

Table 2: Summary statistics for bank vs. nonbank loans

This table reports firm and loan characteristics for bank and nonbank loans. The sample includes all non-bond borrowings of a random sample of 750 middle-market firms originated during the 2010-2015 period. Observations are aggregated to the deal level using the average value of each variable across tranches in a deal. Variable definitions are in Appendix B. *, **, and *** indicate statistical significance for differences between bank loans and nonbank loans at 10%, 5%, and 1%. Statistical significance for differences in means is assessed using *t*-tests that allow for unequal variances across groups. Statistical significance for differences in medians is assessed using the Wilcoxon rank-sum test.

	Nonbank loans				Bank loans			
	Obs.	Mean	Median	St.dev.	Obs.	Mean	Median	St.dev.
Total assets	389	366.87	125.92	718.46	834	622.48***	313.58***	1082.95
EBITDA	394	28.49	0.80	98.91	832	73.75***	30.22***	158.78
EBITDA < 0	394	0.48	0.00	0.50	832	0.14***	0.00***	0.35
Profitability	388	-0.11	0.01	0.33	830	0.08***	0.11***	0.17
Leverage	389	0.36	0.29	0.29	834	0.25***	0.21***	0.22
ΔLeverage	384	0.03	0.03	0.21	822	0.02	0.01***	0.13
|Asset growth|	384	0.33	0.10	0.62	822	0.15***	0.06***	0.27
Market-to-book	362	1.75	1.19	1.59	792	1.61	1.20	1.27
Research expense	389	0.09	0.00	0.19	834	0.04***	0.00***	0.10
PP&E	387	0.24	0.15	0.24	827	0.27**	0.19**	0.26
Current ratio	389	1.87	1.39	1.71	834	2.46***	1.89***	1.92
Firm age	410	27.07	20.00	25.81	859	36.86***	27.00***	32.44
Sales growth	362	0.15	0.07	0.40	800	0.14	0.08	0.31
Volatility	366	0.77	0.66	0.41	803	0.53***	0.46***	0.28
Past return	366	-0.10	-0.07	0.46	803	0.05***	0.06***	0.35
Deal size	410	74.01	20.41	181.42	858	185.49***	75.00***	333.18
Maturity	407	3.93	3.55	2.54	844	3.96	4.30**	1.91
Fixed rate loan	402	0.56	1.00	0.49	836	0.04***	0.00***	0.19
Initial interest rate (bps)	394	790.49	800.00	387.00	787	327.85***	290.52***	165.14
Senior	410	0.86	1.00	0.35	859	1.00***	1.00***	0.01
Second lien	410	0.06	0.00	0.23	859	0.00***	0.00***	0.06
Secured	410	0.80	1.00	0.40	859	0.87***	1.00***	0.34
Performance pricing	410	0.06	0.00	0.22	859	0.37***	0.00***	0.47
Upfront fee (bps)	335	51.44	0.00	122.31	749	17.57***	0.00***	40.24
Annual fee (bps)	334	5.36	0.00	31.07	751	2.68	0.00	11.97
Financial covenants	409	0.51	1.00	0.50	858	0.87***	1.00***	0.33
Warrants	410	0.25	0.00	0.43	856	0.02***	0.00***	0.15
Convertible	410	0.16	0.00	0.36	856	0.00***	0.00***	0.06

Table 3: Probability of borrowing from a nonbank lender

This table reports the results from linear probability models of whether a loan is extended by a nonbank lender. The sample includes all non-bond borrowings of a random sample of 750 middle-market firms originated during the 2010-2015 period. Observations are aggregated to the deal level using the average value of each variable across the tranches in a deal. Industry fixed effects are based on Fama-French 12 industries. *t*-statistics adjusted for firm-level clustering are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1%.

	(1)	(2)	(3)	(4)	(5)
Ln(Assets)	0.01	0.03	0.02	-0.01	-0.01
	(0.55)	(1.59)	(1.15)	(-0.10)	(-0.13)
EBITDA	-0.00*	-0.00	-0.00	-0.00	0.00
	(-1.75)	(-1.36)	(-1.24)	(-0.24)	(0.03)
EBITDA < 0	0.33***	0.26***	0.26***	0.23**	0.19*
	(7.85)	(5.68)	(5.53)	(2.40)	(1.90)
Leverage	0.39***	0.30***	0.26***	0.39**	0.25
	(4.78)	(3.41)	(3.23)	(2.24)	(1.50)
ΔLeverage	0.37***	0.26**		0.34**	0.29*
	(4.32)	(2.56)		(2.01)	(1.68)
|Asset growth|	0.15***	0.15***		0.09*	0.12**
	(4.98)	(4.62)		(1.69)	(2.03)
Research expense	0.00	0.13	0.14	0.03	0.37
	(0.02)	(0.89)	(1.02)	(0.07)	(0.61)
PP&E	-0.06	-0.04	-0.03	-0.17	-0.25
	(-0.63)	(-0.47)	(-0.38)	(-0.60)	(-0.81)
Current ratio	-0.03***	-0.02**	-0.02*	-0.03*	-0.03
	(-3.15)	(-2.25)	(-1.72)	(-1.74)	(-1.25)
Ln(Firm age)	-0.02	-0.01	-0.01	-0.26	-0.27
	(-0.82)	(-0.44)	(-0.39)	(-1.35)	(-1.13)
Market-to-book		-0.01	-0.01		-0.01
		(-1.12)	(-0.49)		(-0.47)
Sales growth		0.05	0.06		-0.02
		(1.14)	(1.44)		(-0.19)
Volatility		0.22***	0.23***		0.25**
		(3.74)	(3.98)		(2.22)
Past return		-0.12***	-0.12***		-0.10
		(-3.44)	(-3.21)		(-1.59)
Constant	0.16	-0.07	-0.04	1.35	1.36
	(1.64)	(-0.47)	(-0.27)	(1.54)	(1.21)
Year effects	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	No	No
Borrower effects	No	No	No	Yes	Yes
N	1193	1121	1128	1193	1121
R^2	0.23	0.25	0.23	0.70	0.71

Table 4: Local banking markets and propensity to borrow from nonbanks

This table reports the results of linear probability models of the propensity to borrow from a nonbank lender on the characteristics of the county in which the firm's headquarters are located. All specifications control for the borrower characteristics included in column 3 of Table 3. Borrower characteristics are as of the quarter prior to loan origination. County-level controls are as of the year prior to loan origination. Tier 1 leverage ratio is the deposit-weighted average of the Tier 1 leverage ratio of the bank holding companies of the banks operating in a given county. Large BHCs are bank holding companies with at least $50 billion in total assets. Personal income growth is the one-year growth rate in county-level per capita personal income. Industry fixed effects are based on Fama-French 12 industries. *t*-statistics adjusted for clustering by county are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1%.

	(1)	(2)	(3)	(4)	(5)	(6)
Tier 1 leverage ratio (%)	-0.041**	-0.044**	-0.045**	-0.040**	-0.040**	-0.045**
	(2.19)	(2.12)	(2.24)	(2.16)	(2.12)	(2.03)
Large BHCs deposit share (%)	0.000	0.000	0.000	0.000	0.000	0.000
	(0.25)	(0.40)	(0.32)	(0.25)	(0.14)	(0.31)
Ln(Total deposits)		-0.006				-0.004
		(0.47)				(0.30)
Ln(Per capita personal income)			-0.043			-0.026
			(0.69)			(0.35)
Personal income growth (%)				-0.002		-0.002
				(0.69)		(0.60)
Unemployment rate (%)					0.005	0.004
					(0.65)	(0.43)
Constant	0.307	0.354	0.803	0.294	0.265	0.596
	(1.31)	(1.42)	(1.03)	(1.25)	(1.07)	(0.64)
Borrower controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	1,119	1,119	1,119	1,119	1,119	1,119
R^2	0.253	0.253	0.254	0.253	0.253	0.254

Table 5: Multinomial logit regression for borrowing from a specific type of nonbank lender

This table reports relative risk ratios from multinomial logit regressions predicting lender type. Bank loans are the base outcome in all models. Model 1 aggregates nonbank lenders into 1) finance companies (FCOs) and bank-affiliated FCOs; 2) investment banks; 3) asset managers; and 4) insurance companies. Model 2 splits FCOs into bank-affiliated versus unaffiliated ones. Model 3 splits asset managers into BDC/PE/VC versus hedge fund/investment manager. For models 2 and 3, the full model is estimated, but only results for the labeled categories are tabulated. Year and Fama-French 12 industry fixed effects are included in all specifications. z-statistics adjusted for clustering by firm are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1%. Total number of observations is 1,117.

	Model 1				Model 2		Model 3	
	FCO / Bank FCO	Investment bank	Asset managers	Insurance	Bank FCO	Unaffiliated FCO	BDC / PE / VC	Hedge fund / IM
Ln(Assets)	1.40**	2.20***	0.97	1.43	1.32	1.42**	1.02	0.95
	(2.49)	(2.84)	(-0.25)	(1.09)	(1.45)	(2.15)	(0.13)	(-0.31)
EBITDA	0.99*	1.00	0.99***	1.00	1.00	0.99***	0.99*	0.99**
	(-1.87)	(-0.48)	(-2.71)	(-0.09)	(-0.91)	(-2.80)	(-1.80)	(-2.38)
EBITDA < 0	1.83*	5.63***	4.62***	4.68	0.66	2.61**	3.75***	5.79***
	(1.87)	(2.84)	(4.97)	(1.40)	(-0.71)	(2.39)	(3.13)	(4.40)
Leverage	3.84*	8.31**	12.48***	0.67	1.12	7.25***	5.80**	18.60***
	(1.72)	(2.14)	(3.45)	(-0.25)	(0.10)	(2.82)	(2.05)	(4.01)
ΔLeverage	1.43	129.50***	9.58**	0.17	0.04**	5.57	13.44***	7.12*
	(0.33)	(2.66)	(2.50)	(-0.70)	(-2.26)	(1.30)	(2.62)	(1.84)
Abs (asset growth)	1.99*	4.93***	2.47***	3.83*	3.63***	1.57	2.07**	2.43***
	(1.89)	(3.85)	(3.46)	(1.73)	(2.74)	(0.94)	(2.51)	(2.80)
Research expense	2.22	0.00	2.66	0.00	0.03	2.82	13.40**	0.30
	(0.58)	(-1.50)	(0.96)	(-1.31)	(-0.81)	(0.66)	(2.23)	(-0.85)
PP&E	0.49	0.60	0.69	16.55	0.62	0.40	0.46	1.03
	(-1.25)	(-0.43)	(-0.51)	(1.63)	(-0.56)	(-1.23)	(-0.89)	(0.03)
Current ratio	0.82**	0.88	0.84**	0.95	0.80	0.85*	0.75**	0.89
	(-2.02)	(-1.31)	(-2.16)	(-0.38)	(-1.47)	(-1.72)	(-2.21)	(-1.22)
Ln(Firm age)	0.86	0.75	0.89	1.31	0.58*	1.21	1.09	0.79
	(-0.58)	(-1.11)	(-0.60)	(1.00)	(-1.78)	(0.96)	(0.30)	(-1.07)
Market-to-book	0.90	0.76	0.92	0.88	0.41***	1.03	1.06	0.79*
	(-0.83)	(-0.99)	(-0.92)	(-0.33)	(-2.89)	(0.28)	(0.61)	(-1.94)
Sales growth	0.94	1.77	2.03*	0.54	1.13	0.93	3.75***	1.29
	(-0.17)	(0.84)	(1.93)	(-0.58)	(0.23)	(-0.15)	(3.25)	(0.56)
Volatility	3.58***	2.24	3.82***	0.19	1.02	5.69***	3.79**	3.78***
	(2.98)	(1.02)	(3.43)	(-0.53)	(0.02)	(3.21)	(1.98)	(3.27)
Past return	0.43***	1.34	0.38***	2.01	0.69	0.33***	0.37**	0.42***
	(-2.81)	(0.63)	(-3.56)	(0.62)	(-0.75)	(-3.45)	(-2.34)	(-2.82)
Non-zero obs. in category	125	36	162	21	49	76	68	94

Table 6: Non-price terms of bank versus nonbank loans

This table reports the results of OLS regressions of non-price terms on lender type indicators, loan and firm characteristics. The sample includes all borrowings of a random sample of 750 middle-market firms originated during the 2010-2015 period. Fixed rate loans are dropped from the performance pricing regressions. Even-numbered columns include research expense, PP&E, current ratio, log firm age, market-to-book, sales growth, volatility and past returns as additional controls. The coefficients on these variables are not reported to save space. Variable definitions are in Appendix B. Industry fixed effects are based on Fama-French 12 industries. *t*-statistics adjusted for firm-level clustering are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1%.

Panel A: Basic non-price terms

	(1) Ln(Amount)	(2) Ln(Amount)	(3) Maturity	(4) Maturity	(5) Seniority	(6) Seniority	(7) Security	(8) Security
Bank FCO	-1.02***	-1.10**	0.53	0.56	0.00	-0.00	0.09***	0.07**
	(-2.93)	(-2.56)	(1.09)	(1.42)	(0.10)	(-0.16)	(2.79)	(2.04)
FCO	-0.98***	-0.29**	-0.42*	0.17	-0.01	-0.01	0.04	0.01
	(-4.45)	(-2.06)	(-1.78)	(0.78)	(-1.00)	(-0.57)	(1.03)	(0.13)
Investment bank	0.54	0.07	0.63*	0.50*	-0.06	-0.05	-0.03	-0.02
	(1.14)	(0.26)	(1.79)	(1.90)	(-1.46)	(-1.28)	(-0.44)	(-0.26)
PE/VC/BDC	-1.92***	-0.30*	-0.74***	0.56**	-0.26***	-0.27***	-0.07	-0.13**
	(-8.64)	(-1.93)	(-3.06)	(2.03)	(-4.13)	(-4.30)	(-1.32)	(-2.34)
Hedge fund/IM	-1.73***	-0.18	-1.10***	0.24	-0.30***	-0.30***	-0.22***	-0.29***
	(-7.05)	(-1.03)	(-4.14)	(1.04)	(-3.39)	(-4.14)	(-3.10)	(-4.22)
Insurance	0.16	-0.64**	5.73***	5.34***	-0.00	-0.01	-0.25**	-0.22*
	(0.50)	(-2.44)	(7.56)	(8.62)	(-0.41)	(-0.57)	(-2.14)	(-1.95)
Ln(Assets)		0.88***		0.32***		0.02*		-0.03**
		(23.91)		(5.42)		(1.82)		(-2.01)
Profitability		0.06		0.43		-0.11*		-0.03
		(0.19)		(1.07)		(-1.77)		(-0.26)
EBITDA < 0		-0.29*		-0.74***		-0.02		-0.02
		(-1.89)		(-3.61)		(-0.76)		(-0.56)
Leverage		0.51**		-0.20		-0.10		0.08
		(2.48)		(-0.65)		(-1.59)		(1.06)
Constant	3.58***	-1.57***	3.51***	1.66***	0.99***	0.91***	0.84***	1.11***
	(24.62)	(-4.56)	(23.34)	(3.29)	(84.04)	(15.06)	(29.45)	(9.55)
Additional controls	No	Yes	No	Yes	No	Yes	No	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	No	Yes	No	Yes	No	Yes	No	Yes
N	1123	1123	1108	1108	1124	1124	1124	1124
R^2	0.15	0.69	0.18	0.33	0.24	0.28	0.04	0.10

Panel B: Performance-related non-price terms

	(1) Financial covenants	(2) Financial covenants	(3) Performance pricing	(4) Performance pricing	(5) Warrants	(6) Warrants	(7) Convertible	(8) Convertible
Bank FCO	-0.19**	-0.18*	-0.10	-0.05	0.02	0.04	-0.00	-0.01
	(-2.08)	(-1.96)	(-1.24)	(-0.61)	(0.67)	(1.18)	(-1.08)	(-1.16)
FCO	-0.21***	-0.11*	-0.38***	-0.26***	0.12***	0.09**	0.04*	0.03
	(-3.39)	(-1.82)	(-12.25)	(-6.37)	(2.67)	(2.29)	(1.65)	(1.12)
Investment bank	-0.15*	-0.17**	-0.16*	-0.18**	0.04	0.05	0.11**	0.11*
	(-1.87)	(-2.30)	(-1.89)	(-2.14)	(0.95)	(1.19)	(1.99)	(1.93)
PE/VC/BDC	-0.44***	-0.29***	-0.43***	-0.31***	0.39***	0.26***	0.21***	0.19***
	(-6.61)	(-4.14)	(-16.13)	(-6.22)	(6.30)	(4.00)	(4.03)	(3.33)
Hedge fund/IM	-0.60***	-0.45***	-0.28***	-0.23**	0.25***	0.16**	0.31***	0.26***
	(-10.65)	(-6.79)	(-2.93)	(-2.06)	(4.21)	(2.48)	(6.62)	(5.63)
Insurance	-0.06	-0.11	-0.47***	-0.61***	0.02	0.04	-0.00	0.01
	(-0.85)	(-1.52)	(-9.76)	(-8.90)	(0.51)	(1.22)	(-0.36)	(0.88)
Ln(Assets)		0.03**		0.07***		-0.00		-0.01
		(2.49)		(4.98)		(-0.63)		(-0.72)
Profitability		0.08		0.05		-0.26***		-0.03
		(0.74)		(0.39)		(-3.02)		(-0.39)
EBITDA < 0		-0.11**		-0.02		-0.00		0.01
		(-2.00)		(-0.37)		(-0.03)		(0.33)
Leverage		0.01		-0.21**		-0.01		-0.00
		(0.08)		(-2.51)		(-0.22)		(-0.08)
Constant	0.84***	0.78***	0.36***	0.04	0.02	0.08	0.00	0.09
	(28.67)	(6.81)	(9.10)	(0.29)	(1.63)	(1.18)	(0.09)	(1.38)
Additional controls	No	Yes	No	Yes	No	Yes	No	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	No	Yes	No	Yes	No	Yes	No	Yes
N	1123	1123	866	866	1121	1121	1121	1121
R^2	0.21	0.28	0.07	0.15	0.19	0.27	0.21	0.25

Panel C: Other loan terms

	(1) Fixed rate loan	(2) Fixed rate loan	(3) Upfront fee (bp)	(4) Upfront fee (bp)	(5) Annual fee (bp)	(6) Annual fee (bp)	(7) Second lien	(8) Second lien
Bank FCO	0.33**	0.33**	-2.40	-0.40	-1.80**	-1.16	0.04	0.04
	(2.00)	(2.11)	(-0.34)	(-0.07)	(-2.12)	(-0.94)	(1.24)	(1.31)
FCO	0.23***	0.20***	61.11**	41.33**	20.42**	18.31*	0.04*	0.05*
	(3.91)	(3.37)	(2.38)	(2.14)	(2.01)	(1.90)	(1.83)	(1.96)
Investment bank	0.22***	0.22***	40.90**	33.47*	-1.81**	-1.53	0.08*	0.08*
	(2.61)	(2.86)	(2.24)	(1.80)	(-1.99)	(-0.89)	(1.67)	(1.75)
PE/VC/BDC	0.66***	0.59***	18.54*	-18.92	1.18	-2.77	0.08**	0.12**
	(10.78)	(8.93)	(1.76)	(-1.26)	(0.41)	(-0.69)	(2.14)	(2.52)
Hedge fund/IM	0.80***	0.73***	49.05**	16.28	1.58	-2.04	0.03*	0.05**
	(19.31)	(14.48)	(2.39)	(0.72)	(0.70)	(-0.63)	(1.66)	(2.12)
Insurance	0.86***	0.90***	-0.56	3.39	-2.86***	-1.66	0.04	0.03
	(18.27)	(19.31)	(-0.04)	(0.32)	(-3.22)	(-0.93)	(0.92)	(0.58)
Ln(Assets)		-0.02**		-4.53**		-0.16		0.00
		(-1.98)		(-2.18)		(-0.22)		(0.38)
Profitability		-0.06		-37.11		7.93		0.06*
		(-0.68)		(-0.98)		(1.20)		(1.65)
EBITDA < 0		-0.01		10.52		7.98*		-0.01
		(-0.34)		(0.76)		(1.96)		(-0.69)
Leverage		-0.01		16.39		-2.46		0.03
		(-0.19)		(0.91)		(-1.16)		(1.07)
Constant	0.07***	0.27***	19.22***	31.23	5.73**	-0.13	0.00	-0.07
	(3.33)	(2.89)	(3.75)	(1.28)	(2.46)	(-0.02)	(0.17)	(-1.24)
Additional controls	No	Yes	No	Yes	No	Yes	No	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	No	Yes	No	Yes	No	Yes	No	Yes
N	1095	1095	952	952	955	955	1124	1124
R^2	0.49	0.52	0.07	0.13	0.06	0.10	0.04	0.08

Table 7: Initial interest rate charged on bank versus nonbank loans

This table reports the results of regressions of the initial interest rate on lender type indicators, firm and loan characteristics. Initial interest rate is equal to the fixed rate for fixed rate loans and to 3-month LIBOR plus spread for floating rate loans. Industry fixed effects are based on Fama-French 12 industries. Columns 1-6 use all sample loans. Column 7 only uses loans originated by borrowers with positive EBITDA and a Debt/EBITDA ratio of less than six. Column 8 limits the sample to loans without financial covenants. Column 9 uses only first lien senior secured floating rate loans with financial covenants that do not have warrants and are not convertible to equity. *t*-statistics adjusted for firm-level clustering are in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1%.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Nonbank	449.54***	298.60***	190.26***		227.53***	150.81***	120.77***	221.32***	162.62***
	(14.51)	(11.52)	(7.56)		(4.23)	(5.63)	(4.23)	(3.29)	(5.88)
Nonbank x EBITDA < 0						157.21***			
						(3.76)			
Bank FCO				-69.18**					
				(-2.42)					
FCO				260.99***					
				(6.58)					
Investment Bank				171.79***					
				(4.60)					
PE/VC/BDC				411.14***					
				(10.41)					
Hedge fund/IM				407.00***					
				(8.38)					
Insurance				75.77*					
				(1.69)					
Ln(Amount)			10.72	-6.85	7.40	7.07	8.96	11.06	0.66
			(1.16)	(-1.01)	(0.37)	(0.81)	(1.16)	(0.66)	(0.10)
Performance pricing			-45.81***	-39.87***	-32.45	-51.04***	-29.68***	-312.30**	-43.22***
			(-3.94)	(-3.83)	(-1.03)	(-4.59)	(-2.87)	(-2.60)	(-3.63)
Warrants			94.83**	48.11	20.05	81.08**	146.18**	7.13	
			(2.36)	(1.41)	(0.17)	(2.04)	(2.31)	(0.11)	
Convertible debt			-226.48***	-281.45***	-234.47	-236.15***	-235.39**	-193.11**	
			(-3.79)	(-4.58)	(-1.60)	(-3.91)	(-2.06)	(-2.53)	
Financial covenants			11.49	32.22*	48.90	19.43	-12.91		
			(0.51)	(1.67)	(0.96)	(0.89)	(-0.58)		
Security			40.30*	49.57***	3.45	47.00**	48.37***	29.10	
			(1.81)	(2.63)	(0.06)	(2.14)	(3.34)	(0.50)	
Second lien			382.92***	322.00***	343.56***	394.80***	454.63***	281.55***	
			(8.00)	(6.74)	(4.27)	(8.28)	(8.58)	(2.67)	
Maturity			-6.44*	-1.99	2.05	-5.17	1.20	-0.92	-2.62

			(-1.69)	(-0.54)	(0.26)	(-1.43)	(0.45)	(-0.16)	(-0.64)
Fixed rate loan			169.40***	142.13***	163.64**	163.06***	80.87*	51.82	
			(4.10)	(4.26)	(2.29)	(4.05)	(1.82)	(0.86)	
Seniority			-212.69***	-99.70*	-178.69	-206.58***	-455.58***	-147.66*	
			(-3.99)	(-1.90)	(-1.34)	(-3.68)	(-4.53)	(-1.82)	
Ln(Assets)		-34.78***	-29.08**	-14.88*	22.38	-25.93**	-34.21***	-16.96	-21.03**
		(-4.59)	(-2.35)	(-1.69)	(0.46)	(-2.19)	(-3.07)	(-0.79)	(-2.20)
Profitability		-76.71	-84.47	-59.40	-158.35	-68.36	-179.75	-54.65	-33.91
		(-1.03)	(-1.27)	(-0.92)	(-1.25)	(-1.03)	(-1.62)	(-0.39)	(-0.41)
EBITDA < 0		107.22***	104.60***	78.23***	112.07*	36.71	0.00	178.64***	70.59**
		(3.26)	(3.75)	(3.03)	(1.79)	(1.43)	(.)	(2.79)	(2.40)
Leverage		240.11***	178.99***	177.01***	116.40	182.32***	192.64***	269.24***	181.24***
		(5.82)	(4.78)	(5.40)	(0.96)	(4.85)	(5.09)	(3.16)	(4.77)
ΔLeverage		235.54***	152.13**	126.30**	113.39	154.68**	173.18**	451.59***	13.43
		(3.60)	(2.06)	(2.10)	(0.62)	(2.11)	(2.28)	(3.77)	(0.12)
Abs (asset growth)		56.55***	47.67**	63.53***	76.01	45.91**	46.23**	13.09	81.90**
		(2.68)	(2.42)	(3.65)	(1.30)	(2.35)	(2.06)	(0.39)	(2.26)
Research expense		50.61	-48.24	-89.97	279.67	-37.74	-17.48	-51.95	-61.91
		(0.59)	(-0.64)	(-1.37)	(0.78)	(-0.52)	(-0.14)	(-0.35)	(-0.68)
PP&E		-16.24	-5.98	-19.40	-26.20	-9.48	-21.03	-87.44	-13.19
		(-0.41)	(-0.16)	(-0.65)	(-0.14)	(-0.26)	(-0.67)	(-0.93)	(-0.37)
Current ratio		0.52	-0.94	-1.65	-22.06*	-0.47	-0.88	13.41	-1.36
		(0.11)	(-0.21)	(-0.47)	(-1.88)	(-0.11)	(-0.20)	(0.93)	(-0.30)
Ln(Firm age)		-11.64	-10.32	-15.72**	-24.08	-10.30	4.47	-55.12	-13.68*
		(-1.04)	(-0.92)	(-2.08)	(-0.18)	(-0.98)	(0.48)	(-1.55)	(-1.79)
Market-to-book		-15.07***	-14.63***	-16.45***	-6.31	-15.40***	-14.46**	-5.18	-14.93**
		(-2.66)	(-2.98)	(-3.49)	(-0.38)	(-3.12)	(-2.37)	(-0.37)	(-2.23)
Sales growth		19.02	37.06	18.71	-44.47	39.61	35.63	59.06	-9.22
		(0.61)	(1.37)	(0.76)	(-0.83)	(1.49)	(1.14)	(1.10)	(-0.34)
Volatility		98.12**	98.89**	65.55*	57.13	99.06**	118.14***	16.99	113.55***
		(2.24)	(2.40)	(1.78)	(0.77)	(2.42)	(2.77)	(0.22)	(2.86)
Past return		-61.06***	-73.44***	-55.08***	-46.66	-72.30***	-49.06***	-81.94	-65.13***
		(-2.76)	(-4.00)	(-3.11)	(-1.40)	(-3.93)	(-2.61)	(-1.64)	(-3.48)
Constant	433.39***	497.25***	649.14***	530.11***	472.77	632.42***	863.28***	851.24***	450.63***
	(15.91)	(7.11)	(7.52)	(6.46)	(0.72)	(7.10)	(6.71)	(4.10)	(7.14)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Firm effects	No	No	No	No	Yes	No	No	No	No
N	1181	1040	1027	1023	1027	1027	670	229	588
R^2	0.45	0.60	0.68	0.73	0.86	0.68	0.68	0.58	0.47

Table 8: Probability of bankruptcy for bank versus nonbank loans

This table reports the results from linear probability models of borrower's bankruptcy over the three years after loan origination. The sample includes all borrowings of a random sample of 750 middle-market firms originated during the 2010-2015 period. Bankruptcy dates as of April 30, 2019 are from Capital IQ. There are 65 deals by 38 borrowers that result in bankruptcy within three years. Variable definitions are in Appendix B. Industry fixed effects are based on Fama-French 12 industries. *z*-statistics adjusted for firm-level clustering are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1%.

	(1)	(2)	(3)	(4)	(5)
Nonbank	0.069***	0.060***	0.041*	0.015	0.026
	(3.28)	(2.70)	(1.95)	(0.86)	(0.74)
Ln(Assets)		0.004	0.007	0.016**	0.010
		(0.70)	(1.21)	(2.41)	(1.04)
Profitability		-0.109*	-0.094	-0.071	-0.144
		(-1.91)	(-1.32)	(-0.97)	(-1.22)
EBITDA < 0		0.000	0.016	-0.010	-0.030
		(0.01)	(0.48)	(-0.34)	(-0.73)
Leverage			0.101**	0.045	0.135**
			(2.13)	(1.14)	(2.38)
ΔLeverage			0.128	0.067	0.215**
			(1.65)	(0.77)	(2.29)
|Asset growth|			0.035	0.065**	0.002
			(1.21)	(2.21)	(0.09)
PP&E			0.012	0.010	0.010
			(0.22)	(0.19)	(0.16)
Current ratio			-0.005	-0.002	-0.003
			(-1.25)	(-0.58)	(-0.65)
Research expense			-0.041	-0.020	0.076
			(-0.57)	(-0.29)	(0.54)
Ln(Firm age)			-0.002	-0.007	-0.009
			(-0.14)	(-0.62)	(-0.67)
Market-to-book				-0.005	-0.006
				(-0.98)	(-0.90)
Sales growth				-0.017	-0.009
				(-0.57)	(-0.24)
Volatility				0.119***	0.043
				(3.16)	(0.94)
Past return				-0.111***	-0.124***
				(-4.40)	(-3.51)
Constant	-0.008	-0.036	-0.063	-0.146**	-0.058
	(-0.43)	(-1.21)	(-1.24)	(-2.19)	(-0.70)
Year effects	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes
N	1269	1218	1193	1121	626
R^2	0.05	0.07	0.09	0.15	0.15

Table 9: Future performance by lender type

Panel A reports the results of regressions of year-to-year changes in borrower's profitability on the nonbank lender dummy and borrower characteristics. Panel B reports results from a linear probability model of whether a firm's subsequent stock return in a given year is below the 10th percentile. The sample includes all borrowings of a random sample of 750 middle-market firms originated during the 2010-2015 period. Variable definitions are in Appendix B. Industry fixed effects are based on Fama-French 12 industries. *t*-statistics adjusted for firm-level clustering are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1%.

Panel A: Profitability

	(1) [*t*,*t*+1]	(2) [*t*+*1*,*t*+2]	(3) [*t*+*2*,*t*+3]	(4) [*t*,*t*+1]	(5) [*t*+*1*,*t*+2]	(6) [*t*+*2*,*t*+3]
Nonbank	-0.01	-0.01	-0.01	-0.00	-0.01	-0.01
	(-1.53)	(-1.34)	(-0.54)	(-0.48)	(-1.27)	(-0.69)
Ln(Assets)	0.01**	0.00	-0.01	0.01	0.00	-0.01*
	(2.42)	(1.01)	(-1.22)	(1.39)	(0.44)	(-1.79)
Profitability	-0.59***	-0.09	0.03	-0.57***	-0.08	-0.03
	(-9.83)	(-1.60)	(0.43)	(-8.40)	(-1.19)	(-0.40)
EBITDA < 0	-0.08***	-0.01	0.04*	-0.06**	-0.01	0.03
	(-3.73)	(-0.66)	(1.66)	(-2.49)	(-0.66)	(0.98)
Leverage	0.04	0.03	0.02	0.06**	0.02	0.02
	(1.50)	(0.91)	(0.76)	(2.04)	(0.73)	(0.74)
Δ Leverage	-0.01	-0.09*	0.09*	0.02	-0.13**	0.16**
	(-0.21)	(-1.93)	(1.66)	(0.27)	(-2.07)	(2.34)
Abs (asset growth)	0.05***	0.01	-0.00	0.03*	0.03*	-0.01
	(2.97)	(1.08)	(-0.23)	(1.67)	(1.89)	(-0.69)
Research expense	-0.11	-0.07	-0.12	-0.17*	-0.13	-0.07
	(-1.22)	(-0.88)	(-1.30)	(-1.81)	(-1.33)	(-0.69)
PP&E	0.02	-0.00	0.02	0.02	-0.01	0.03
	(0.96)	(-0.22)	(0.83)	(1.11)	(-0.40)	(1.12)
Current ratio	-0.01**	-0.00	0.00	-0.00	-0.00	-0.00
	(-2.09)	(-0.30)	(0.53)	(-1.59)	(-0.60)	(-0.30)
Ln(Firm age)	-0.00	0.00	-0.00	0.00	-0.00	0.00
	(-0.74)	(0.24)	(-0.24)	(0.46)	(-0.26)	(0.24)
Market-to-book				0.00	0.00	-0.01
				(0.18)	(0.87)	(-1.56)
Sales growth				0.02	-0.02	0.05**
				(1.30)	(-0.84)	(2.36)
Volatility				-0.05**	-0.01	-0.02
				(-2.36)	(-0.49)	(-0.65)
Past return				0.01	-0.03**	0.02
				(0.55)	(-2.06)	(1.21)
Constant	0.03	-0.04	0.03	0.05	-0.01	0.07
	(0.93)	(-1.18)	(0.62)	(1.47)	(-0.17)	(1.37)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
N	1154	1069	906	1084	1003	846
R^2	0.46	0.07	0.06	0.40	0.08	0.08

Panel B: Stock return below 10th percentile

	(1) [*t*,*t*+1]	(2) [*t*+*1*,*t*+2]	(3) [*t*+*2*,*t*+3]	(4) [*t*,*t*+1]	(5) [*t*+*1*,*t*+2]	(6) [*t*+*2*,*t*+3]
Nonbank	0.04	0.05**	0.01	0.02	0.05*	-0.00
	(1.45)	(2.05)	(0.54)	(0.80)	(1.90)	(-0.01)
Ln(Assets)	-0.01	-0.01*	-0.01	0.00	-0.00	0.01
	(-1.20)	(-1.66)	(-1.63)	(0.28)	(-0.06)	(0.72)
Profitability	-0.20**	-0.08	-0.05	-0.20**	-0.05	0.03
	(-2.24)	(-0.87)	(-0.53)	(-2.05)	(-0.49)	(0.26)
EBITDA < 0	0.01	0.08*	0.07	-0.01	0.07	0.08*
	(0.24)	(1.66)	(1.60)	(-0.20)	(1.57)	(1.77)
Leverage	0.10*	0.10	0.09	0.04	0.05	0.07
	(1.73)	(1.46)	(1.59)	(0.82)	(0.78)	(1.37)
Δ Leverage	0.13	0.14	0.10	0.07	0.15	0.09
	(1.27)	(1.43)	(1.20)	(0.69)	(1.49)	(1.04)
Abs (asset growth)	0.04	0.00	0.04	0.06*	0.01	0.04
	(1.22)	(0.13)	(1.22)	(1.70)	(0.26)	(1.10)
Research expense	-0.14	-0.14	-0.11	-0.13	-0.09	-0.02
	(-1.26)	(-1.35)	(-0.81)	(-1.03)	(-0.84)	(-0.15)
PP&E	0.01	-0.02	0.02	0.02	-0.04	0.01
	(0.12)	(-0.41)	(0.29)	(0.36)	(-0.67)	(0.18)
Current ratio	-0.01***	-0.01	-0.00	-0.01**	-0.01	0.00
	(-3.23)	(-1.58)	(-0.30)	(-2.56)	(-1.49)	(0.31)
Ln(Firm age)	-0.01	-0.01	-0.04**	-0.00	-0.01	-0.02
	(-0.47)	(-0.49)	(-2.46)	(-0.12)	(-0.56)	(-1.38)
Market-to-book				0.00	0.01	0.01
				(0.64)	(0.72)	(0.61)
Sales growth				0.05	-0.01	0.06
				(1.31)	(-0.28)	(1.43)
Volatility				0.12**	0.10*	0.14**
				(2.54)	(1.91)	(2.42)
Past return				-0.10***	-0.07**	-0.08**
				(-3.09)	(-2.00)	(-2.42)
Constant	0.11*	0.12*	0.17**	-0.04	-0.00	-0.10
	(1.76)	(1.65)	(2.25)	(-0.45)	(-0.04)	(-0.95)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
N	1150	1094	1017	1118	1062	987
R^2	0.10	0.14	0.15	0.14	0.15	0.16

Table 10: Announcement returns around loan origination

This table reports the results of regressions of cumulative announcement returns around loan origination. The sample is limited to loans whose origination is disclosed through an 8-K filed within five calendar days of loan origination and for which the last stock price before loan origination is at least $1. Columns 1-3 report market-model adjusted cumulative returns from loan origination through announcement date. Columns 4-6 report market-model adjusted cumulative returns on the announcement date. Announcement date is determined based on the time the 8-K was uploaded to EDGAR; if submission time is after the market close, announcement date is set to the next trading date. Market beta is estimated over the [-385, -20] period relative to loan origination, requiring at least 120 daily observations. Heteroscedasticity robust *t*-statistics are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1%.

	[Origination, Announcement]			[Announcement, Announcement]		
	(1)	(2)	(3)	(4)	(5)	(6)
Nonbank	0.030***	0.031***	0.026**	0.013*	0.012	0.013
	(2.95)	(3.00)	(2.13)	(1.85)	(1.64)	(1.34)
Ln(Assets)		0.001	0.002		0.001	0.002
		(0.43)	(0.63)		(0.53)	(0.97)
EBITDA < 0		-0.008	-0.016		0.004	0.001
		(0.43)	(0.79)		(0.32)	(0.08)
Leverage		0.021	0.021		0.005	0.004
		(1.20)	(1.16)		(0.45)	(0.36)
Financial covenants			-0.008			0.007
			(0.56)			(0.84)
Warrants			0.024			0.018
			(1.10)			(1.31)
Maturity			-0.001			-0.001
			(0.27)			(0.73)
Constant	0.002	-0.011	-0.003	0.002	-0.007	-0.015
	(0.59)	(0.54)	(0.13)	(0.76)	(0.46)	(0.81)
N	321	316	311	321	316	311
R^2	0.039	0.051	0.058	0.016	0.018	0.027