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WHY DO FIRMS BORROW DIRECTLY FROM NONBANKS?

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ABSTRACT

Analyzing hand-collected credit agreements data for a random sample of middle-market firms during 2010-2015, we find that a third of all loans is extended directly by nonbank financial intermediaries. Nonbanks lend to less profitable and more levered firms that undergo larger changes in size around loan origination. The probability of borrowing from a nonbank jumps by 34% as EBITDA falls below zero, an effect that is largely due to bank regulation. Controlling for firm and loan characteristics, nonbank loans carry 190 basis points higher interest rates, suggesting that access to funding, rather than prices, is why firms borrow from nonbanks.

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1. Introduction

Direct commercial and industrial (C&I) lending by nonbank financial intermediaries has grown dramatically over the last ten years, generating popular press headlines such as "*Who Needs a Bank? Why Direct Lending is Surging*"[1] and "*Bank Said No? Hedge Funds Fill a Void in Lending"*[2]. According to Preqin, over the 2009-2017 period, assets under management of direct lending funds quadrupled from $39 to $181 billion.[3] The growth in nonbank lending has generated significant interest among industry participants, regulators, and academics in understanding the causes of this growth as well as the costs and benefits of nonbank lending. Nevertheless, we still know little about why firms borrow directly from nonbank lenders. Do nonbanks provide funding to firms in market segments less served by banks? Are nonbanks able to offer more favorable terms? Answers to these questions are important in light of the literature arguing that bank loans have various advantages for borrowers due to banks' expertise in screening and monitoring informationally-opaque borrowers (e.g., Diamond 1984 and Fama 1985), as well as their efficiency in dealing with borrowers in distress (Berlin and Loyes 1988 and Chemmanur and Fulghieri 1994).

In this paper, we examine a novel hand-collected data set of loans to middle-market firms during the period of 2010-2015 to provide some of the first systematic evidence on firms' decision to borrow directly from nonbanks. Defined as firms with sales 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.[4] Being subject to significant information and moral hazard problems, these firms generally lack access to public debt markets (Faulkender and Petersen 2005) and rely on privately placed debt with lenders who engage in significant screening and monitoring (Diamond 1991a). At the same time, because they are listed on a stock exchange, these firms are required to disclose their financial statements and credit agreements, which we use in hand collecting the data.

[1] https://www.washingtonpost.com/business/why-direct-lending-is-a-booming-part-of-private-debt/2019/12/18/db88e0ae-21cc-11ea-b034-de7dc2b5199b_story.html
[2] https://dealbook.nytimes.com/2011/06/08/bank-said-no-hedge-funds-fill-a-void-in-lending/
[3] https://docs.preqin.com/newsletters/pd/Preqin-Private-Debt-Spotlight-August-2018.pdf
[4] http://www.middlemarketcenter.org/Media/Documents/NCMM_InfoSheet_2017_web_updated.pdf

We start by documenting the prevalence of direct nonbank lending, cases where a nonbank financial intermediary, referred to as a *nonbank* for brevity, 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 loans in our data were extended by nonbanks. These lenders represent a variety of financial intermediaries 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 the bank and almost none of the direct nonbank loans.

We then ask who borrows from nonbanks and why. Compared to bank borrowers, nonbank borrowers are less profitable, have higher leverage, higher stock return volatility, lower stock returns prior to loan origination and experience larger changes in their book assets (either positive or negative) around loan origination. Having negative EBITDA is a particularly important determinant of borrowing from a nonbank. Concentrating on firms with EBITDA between -$5 and +$5 million, firms with small negative EBITDA are 34% more likely to borrow from a nonbank than are firms with small positive EBITDA. We argue that this result is likely driven by bank regulation that makes it costly for banks to lend to negative EBITDA firms, as the Comptroller of the Currency (OCC) Handbook classifies loans to unprofitable firms as "substandard" and these substandard loans may result in larger loan loss allowances and lower CAMELS ratings.[5] One exception to the emphasis on profitability and cash flow coverage are asset-based loans, for which the primary source of repayment is liquidation of accounts receivables and inventory. Consistent with the distinction drawn by regulators, we also find that the effect of negative EBITDA on the decision to borrow from a nonbank lender is concentrated among cash-flow loans.

To provide more direct evidence on the effects of bank regulation, we take advantage of the variation in leniency across bank regulators documented by Agarwal et al (2014). They show that federal regulators (e.g., the OCC) are significantly stricter in their examinations and assign

[5] CAMELS are a rating system used by bank supervisors to evaluate banks on their capital adequacy, asset quality, management, earnings, liquidity, and sensitivity. The OCC Handbook can be accessed at https://www.occ.treas.gov/publications-and-resources/publications/comptrollers-handbook/index-comptrollers-handbook.html. The FDIC examination manual can be accessed at https://www.fdic.gov/regulations/safety/manual/manual_examinations_full.pdf

lower CAMELS ratings than state regulators. We first show that OCC-supervised banks are significantly less likely to lend to negative EBITDA firms than state-chartered ones and that this effect is driven by cash-flow loans. We then measure the share of OCC-supervised commercial banks in the borrowing firms' local banking markets and show that, controlling for local economic conditions and firm characteristics, negative EBITDA firms in markets dominated by OCC-supervised banks are significantly more likely to turn to nonbank lenders for funding. Furthermore, consistent with the regulation of cash-flow loans driving our results on negative EBITDA firms, we find that the OCC share has no effect on asset-based loans to unprofitable firms. Overall, our evidence suggests that bank regulation constrains the ability of commercial banks to lend to negative EBITDA firms, forcing such firms to turn to nonbanks for funding. Compustat data suggest that this side effect of bank regulation potentially applies to a large number of firms as the share of publicly traded firms with negative EBITDA has fluctuated between 31% and 43% during the 2000-2018 period.

The choice to borrow from a bank versus nonbank lender could also be affected by differences in loan terms. Different lenders may structure their loans differently due to differences in their funding, lending technology, or regulations that they are subject to. These differences in loan contracts may in turn appeal to different borrowers. We therefore study how the price and nonprice terms vary across loans extended by different types of lenders.

We start with loan pricing. Controlling for observable borrower and loan characteristics, nonbank loans carry about 190 basis points higher interest rate than bank loans. Why would nonbank borrowers pay higher interest rates on their loans than observationally similar bank borrowers? Consistent with bank regulation inducing market segmentation and limiting competition, we find a large positive coefficient on the interaction of the borrower's negative EBITDA with the nonbank lender dummy. Thus, nonbanks charge higher interest rates when they face less competition from banks. The fact that firms borrow from nonbanks despite the higher costs suggests that provision of these loans is valuable for borrowers. Consistent with this conjecture, origination of nonbank loans is associated with significantly higher positive abnormal announcement returns than origination of bank loans. Moreover, our finding on significantly higher interest rates suggests that higher cost of funding for borrowers with negative EBITDA is an important unintended consequence of bank regulation.

Next, we examine a large number of other loan terms including security, priority, maturity, presence of financial covenants, and warrants. Our results on security and priority are consistent with nonbanks having greater risk appetite than banks and providing incremental funding in the form of unsecured and/or subordinated loans. With the exception of insurance companies, nonbanks lend at shorter maturities, but these results mostly disappear once we control for firm characteristics. In other words, loan maturity is determined primarily by borrower's fundamentals, with lenders and borrowers matching based on borrower characteristics (Diamond 1991b).

Nonbank loans are 37% 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 that are therefore likely to require more ex-ante screening.

Despite our best efforts to control for observable firm characteristics, it may be that borrowers interested in certain loan provisions, for example looser financial covenants, match with nonbank lenders. To help identify the causal effect of lender type on loan terms we implement a fuzzy regression discontinuity design (fuzzy RDD) using the jump at zero EBITDA in the probability of borrowing from a nonbank. We find that our results go through. Thus, while some firms may choose to borrow from nonbanks to eliminate financial covenants, our results suggest that even for otherwise identical borrowers, bank and nonbank lenders utilize different lending technologies. When forced to borrow from a nonbank, firms with small negative EBITDA get very different loans than firms with small positive EBITDA. Fuzzy RDD also allows us to compare the overall riskiness of nonbank and bank borrowers around the zero-EBITDA cutoff created by regulation. We find that nonbank borrowers are not more likely to go bankrupt and do not exhibit worse profitability or stock returns ex post, suggesting that the zero-EBITDA cutoff is somewhat arbitrary and that bank regulation has an unintended effect of restricting access to credit for negative EBITDA firms. In addition, these findings are inconsistent with an increased risk appetite as the *only* reason for nonbanks' willingness to provide capital to risky firms and instead point to specialization in the form of different lending technology that relies more on ex ante screening and less on traditional monitoring through covenants.

Overall, our findings show that nonbanks improve access to capital for firms that are observably risky. Bank regulation is a significant, though not the only, driver of nonbank lending. Our results also point to nonbanks' willingness to assume a riskier position in the borrower's debt structure as well as to different lending technologies as ways in which nonbanks enhance access to capital for their borrowers. Our analysis of loan terms shows that nonbank loans are expensive, and important non-price terms such as financial covenants and warrants appear to be driven by nonbanks' preferences. These results are not consistent with borrowers seeking out nonbanks to get better terms and instead suggest that firms borrow from nonbanks when (additional) bank debt is not available.

Our paper contributes to a growing empirical literature on the role of the shadow banking system in providing credit to firms. A number of papers have looked at the participation by nonbanks in loans arranged and syndicated by banks (Jiang et al. 2010, Ivashina and Sun 2011, Massoud et al. 2011, Nadauld and Weisbach 2012, Lim et al. 2014, Berlin et al. 2020, Biswas et al. 2018) or at sales of loans by banks to nonbanks (Irani et al. 2017). More recent work has started studying direct lending by nonbank financial intermediaries. A number of papers – Chen et al. (2017), Cortes et al. (2018), and Gopal and Schnabl (2020) – document that banks, especially the top four, have pulled back from lending to small firms and that finance companies and online lenders have been filling the void. Kim et al. (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 with bank loans. Davydiuk et al (2020) study lending by Business Development Companies (BDCs) and aim to identify the causal effects of BDC lending on real economic activity at the county level. Most of these papers have no or very limited borrower characteristics such as location and industry. Compared to these papers, our hand-collected dataset on publicly traded middle-market firms allows us to study the matching between borrowers and lenders and how the choice of lender may affect loan structure.

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.[6] Furthermore, Denis and Mihov (2003) do not know the identity of 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. Carey et al. (1998) use DealScan data to study loans arranged by banks versus finance companies and find that the latter lend to observably riskier borrowers. Our paper studies other types of nonbank lenders, including hedge funds and PE/VC firms, covers the more recent period, and includes many non-syndicated loans that are not included in the DealScan database.

2. Sample Construction and Summary Statistics

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

2.1 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.[7] 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 the 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

[6] The average nonbank private debt borrower in Denis and Mihov (2003) borrows $126 million for almost 8.5 years. The average nonbank borrower in our data borrows $74 million for a bit less than 4 years.
[7] Detailed discussion of sample construction and data extraction can be found in Appendix A.

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.

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.[8] 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 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. We exclude larger firms because most of them have credit ratings and thus access to public debt markets.[9] Compustat firms with revenues of less than $10 million are excluded because they are generally pre-revenue development-stage firms that, whenever they borrow, rely on sponsor support.[10] 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 IA4 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 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

[8] http://www.middlemarketcenter.org.
[9] About 70% of Compustat firms with revenue greater than $1 billion have a credit rating from S&P. This underestimates the fraction of large firms with access to public debt markets because some firms borrow through rated subsidiaries without the parent holding company having a credit rating.
[10] Almost half of Compustat firms with revenue less than $10 million are biotech and mining firms.

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, 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.[11] 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,

[11] 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.

business development company (BDC), and investment manager.[12] 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. 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.

Lastly, we define banking markets as Metropolitan Statistical Area (MSA) or non-MSA county and use Summary of Deposits (SOD) data for total deposits, regulatory capital ratios, share of OCC-supervised banks, and the share of largest commercial banks in these local banking markets. Moreover, we use various economic indicators from Bureau of Economic Analysis (BEA) and Bureau of Labor Statistics (BLS) as banking-market level controls. See Appendix B for a list of these variables and their definitions.

[12] 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.

2.2 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 report one observation per deal as we aggregate across multiple tranches within each deal, using the sum for tranche amounts and the average value for each other variable across tranches. Nonbank lenders extend almost one third of all loans in our data.[13] 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.[14] FCOs (23%), PE/VC firms (19%), and hedge funds (17%) account for the largest share of nonbank lending in our sample. 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.[15]

3. 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 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 $29 (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 $623 (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

[13] 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%.
[14] Others include collateralized loan obligations, mutual funds and real estate investment trusts.
[15] 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.

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. 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.

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. $186 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 in the quarter of loan origination (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.

Why do we see a jump in the propensity to borrow from a nonbank lender at zero EBITDA? As shown in Section 3.1, the answer is mostly bank regulation. The Comptroller of the Currency (OCC) Handbook on Rating Credit Risk (2001)[16] provides guidance on how banks should design their internal credit risk rating systems for the loans that they extend. The handbook spells out clear definitions of *nonpass* credits, which would attract special regulatory scrutiny. According to the OCC Handbook, "[t]he primary consideration in examiners' credit risk assessment is the strength of the primary repayment source." Because for most loans the primary repayment source is operating cash flow, the handbook places significant emphasis on cash flow coverage ratios and says that "[s]ubstandard assets are generally characterized by current or expected unprofitable operations…" Moreover, the OCC Handbook on Leveraged Lending (2008) specifies EBITDA as "a good metric to evaluate profitability." In other words, according to the regulatory guidance, loans to firms with negative EBITDA are to be adversely classified as "substandard."[17] Banks are reluctant to extend loans to these firms as the classification of loans as substandard results in larger loan loss allowances and lower CAMELS ratings. In sum, we expect the probability of nonbank lending to jump as EBITDA turns negative. This jump is apparent in Figure 1 and Table 3.

Relatedly, higher leverage is 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

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

[17] 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 and the 2013 guidance tightens this view.

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 and divestitures, and find a positive and significant coefficient. These findings suggest that nonbanks make information-sensitive loans to risky borrowers that require screening. 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 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.

One important exception to the regulators' emphasis on profitability and cash flow coverage is asset-based loans, for which the primary source of repayment is liquidation of accounts receivables and inventory. The Comptroller's Handbook on Accounts Receivable and Inventory Financing (ARIF), for example, says that "it is not appropriate to assign an adverse risk rating simply because an ARIF borrower has low or deficit net worth or occasional losses."[18] For asset-based loans, bank examiners emphasize evaluation of collateral quality, collateral controls in the loan agreement, and lender's systems for monitoring collateral. Therefore, we would expect the relationship between negative EBITDA and borrowing from a nonbank to be driven by cash-flow loans. In column 3, we add the interaction between negative EBITDA and asset-based loan dummy (ABL). The interaction is negative, statistically significant and of similar magnitude to the coefficient on negative EBITDA. The sum of the coefficients on negative EBITDA and its interaction with ABL measures the effect of negative EBITDA on nonbank lender for asset-based loans. This sum is only 0.05 and is not statistically different from zero. These results are consistent with bank regulators classifying cash-flow loans, but not necessarily asset-based loans, to negative EBITDA firms as substandard.

[18] https://www.occ.gov/publications-and-resources/publications/comptrollers-handbook/files/accts-rec-inventory-financing/pub-ch-accts-rec-inventory-financing.pdf

In column 4, 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 5 and 6 add borrower fixed effects. Although some coefficients are slightly smaller, within-borrower variation in profitability, change in leverage, asset growth, and volatility have similar, significant, effects on the probability of borrowing from a nonbank lender.

3.1. Leniency of Bank Regulators and Nonbank Lending

Bank regulation seems to be a key driver of the matching between unprofitable borrowers and nonbank lenders. However, the importance of positive EBITDA for bank lending is also 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). Therefore, in this section, we provide direct evidence on the role of bank regulation in nonbank lending to unprofitable firms by exploring variation in the leniency of regulation for banks under their supervision.

We know that some banks are chartered at the federal level and, therefore, the OCC ends up being their main regulator while other banks are chartered at the state level. Prior literature shows clear evidence on federal regulators (e.g., the OCC) being less lenient than state regulators (Agarwal, Lucca, Seru, and Trebbi (2014)).[19]

Building on the prior findings on the leniency of regulators, we first test whether OCC-supervised banks are significantly less likely to lend to negative EBITDA firms than state-chartered ones. Results from a linear probability model of whether or not a bank borrower has negative EBITDA are presented in Table 4. All specifications include year and industry fixed effects.[20] Column 1 includes only our explanatory variable of interest: a dummy variable that takes on a value of one if the bank is regulated by the OCC and zero otherwise. We get a negative and highly significant coefficient both statistically and economically: OCC-supervised banks are 20%

[19] In fact, nationally chartered banks are always examined by the OCC while examination of state-chartered banks rotates between state and federal regulators. Because we do not have data on the rotation of examiners, we focus on the difference between nationally-chartered banks supervised by the OCC and state-chartered banks.

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

less likely to lend to negative-EBITDA firms. In columns 2 and 3, when we add borrowing firm-level controls, the coefficient remains significant at an economic value of 10%-12%.

In columns 4 and 5, we include the asset-based loan dummy (ABL) and its interaction with the OCC dummy since regulators do not necessarily treat asset-based loans to negative EBITDA firms as substandard. The interaction is positive and has similar magnitude as the coefficient on the OCC dummy. The sum of the coefficients on the OCC dummy and its interaction with ABL is close to zero and not statistically significant, indicating that being supervised by the OCC has no effect on bank's propensity to extend asset-based loans to negative EBITDA firms. The coefficient on the OCC dummy itself retains its magnitude and statistical significance indicating that the results are driven by cash-flow loans, as expected.

Next, we study the banking markets (i.e., MSA or non-MSA county) where nonbank borrowers operate. Specifically, we explore whether the share of OCC-supervised banks in these local banking markets affects the borrower's propensity to borrow from nonbanks when they have negative EBITDA. This OCC share is identified using the deposit share of each bank, whose primary asset specialization is "commercial lending" according to the Summary of Deposits database.

Table 5 reports the results of a linear probability model of a firm's propensity to borrow from a nonbank lender on the share of the OCC-chartered banks in the borrower's local banking market- i.e., where borrower's headquarters are located. Each regression includes the share of the OCC banks and its interaction with the negative-EBITDA dummy. To help alleviate concerns that the results could be driven by differences in other characteristics of local markets, we control for a wide range of local economic conditions: unemployment, the level and change in per capita income, population, total deposits, capitalization of local banks (as measured by the Tier 1 leverage ratio), and the share of largest four commercial banks (Bank of America, Citigroup, JPMorgan Chase and Wells Fargo) in these markets. In columns 3 and 6, we also control for the interaction of negative EBITDA with local market-level controls.[21] Firm-level controls include 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. To make sure that the results are not

[21] For brevity, the full table displaying all these coefficients is relegated to the Internet Appendix Table IA5.

driven by time series trends in the propensity to borrow from nonbanks, we include year fixed effects. We also 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.

We present results in two panels: results for cash flow loans vs. asset-based loans. Remember that one important regulatory exception to the emphasis on positive profitability is asset-based loans. For asset-based loans, bank examiners emphasize evaluation of collateral quality rather than firm profitability. Therefore, we expect the role of EBITDA to manifest itself in cash-flow loans only. Indeed, we find that, for cash flow loans, the positive and significant effect of negative EBITDA on the propensity to borrow from a nonbank lender is significant when OCC-supervised banks have a larger share in the borrower's local banking markets. Remember from Table 3 that, borrowers with negative EBITDA are about 30% more likely to borrow from a nonbank lender than borrowers with positive EBITDA. The effect of negative EBITDA on the probability of borrowing from a nonbank becomes insignificant in markets with low OCC share, controlling for local economic conditions and firm characteristics. A one-standard-deviation increase in the OCC share of 20% increases the effect of negative EBITDA by about 10%. Furthermore, consistent with regulation of cash-flow loans driving our results on negative EBITDA, we find that the OCC share has no effect on asset-based loans to negative EBITDA firms.

Overall, the results of Table 5 point to an important driver of the propensity to borrow from nonbank lenders: strictness of bank regulation in the borrower's banking markets. The regulation constrains the ability of banks to lend to negative EBITDA firms, forcing them to turn to nonbanks for funding. Moreover, consistent with the distinction drawn by regulators, we find that the effect of negative EBITDA on the decision to borrow from a nonbank lender is concentrated among cash-flow loans.

3.2. 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 6 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.

Model 2 separates bank FCOs and unaffiliated FCOs. The differences in lending by these two types of FCOs are likely to be very informative in further understanding the role of bank regulation in lending to riskier, unprofitable firms as unaffiliated FCOs are much more lightly regulated than bank FCOs. 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 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.[22] 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. These differences are in line with hedge funds specializing in leveraged lending and PE/VC/BDCs specializing (relatively more) in lending to growth firms.

4. Loan Terms

The propensity to borrow from a nonbank lender, rather than from a bank, could also be affected by differences in price and non-price terms of bank versus nonbank loans. Different lenders may structure their loans differently due to differences in their funding, lending technology, or regulations that they are subject to. These differences in loan contracts may in turn appeal to different borrowers. In this section we study how the price and nonprice terms vary across loans extended by different types of lenders and also explore 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?

4.1. 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

[22] 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.

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 a 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 a 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.[23]

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

[23] 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.

about 172 and 261 basis points higher interest rates, while various types of asset managers charge about 410 basis points higher interest rates. The significant difference between bank-affiliated and independent finance companies in terms of rates charged is again worth emphasizing.

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 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.

Another potential explanation of the interest-rate difference 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 (e.g., the covenant strictness). We run (but do not report to save space on the table) various specifications using subsets of the sample created based on non-price terms (e.g., including only loans with no covenants or only senior secured loans with covenants) and find that the coefficient on the nonbank dummy remains similar.

Lastly, for robustness, we also explore (but do not report) 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.

Overall, we do not find evidence that firms borrow from nonbanks due to favorable loan rates. Consistent with bank regulation inducing market segmentation and limiting competition, we find a large positive coefficient on the interaction of the borrower's negative EBITDA with the nonbank lender dummy. Thus, nonbanks charge higher interest rates when they face less competition from banks. This finding also suggests higher cost of funding for borrowers with negative EBITDA is an important unintended consequence of bank regulation.

The fact that firms borrow from nonbanks despite the higher costs suggests that provision of these loans is valuable for borrowers. Announcement returns presented in Internet Appendix Table IA6 support this conjecture. To analyze announcement returns around origination of bank versus nonbank, 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. We find that nonbank loans experience announcement returns that are 3% higher than the announcement returns for bank loans.

4.2. Other Loan Terms

Nonbank borrowers do not get favorable pricing in terms of lower interest rates in their loans. What about other loan terms? Table 8 reports the results of OLS regressions of various non-rate terms on lender type dummies.[24] 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 as in column 2 of Table 3, for brevity we only report the coefficients on log assets, profitability, negative EBITDA and leverage.[25]

Panel A explores basic non-price terms such as amount, maturity, and seniority. With the exception of investment banks, nonbank lenders make significantly smaller loans than banks.

[24] To address the concern that our results may be driven by nonlinearities and systematic differences between bank and nonbank borrowers, in the Internet Appendix, we use nonparametric matching techniques to achieve better covariate balance between bank (control) and nonbank (treated) borrowers. The results, reported in the Internet Appendix Table IA12, show that differences in loan terms are unlikely to be due to nonlinearities or lack of covariate balance between bank and nonbank borrowers.

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

Naturally, firm size and leverage are important determinants of differences in loan size. Column 2 shows that these and other firm characteristics explain a large part of the difference in loan amounts between banks and independent finance companies as well as asset managers.

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 (Hanson, Shleifer, Stein, and Vishny (2015) and Drechsler et al. (2017). This allows banks to extend relatively long 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.[26] 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. Our results are consistent with Rajan and

[26] 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.

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. Rather than relying on ex-post monitoring through financial covenants, asset managers may engage in more ex-ante screening to identify creditworthy borrowers. 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. 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. Therefore, these findings are inconsistent with an increased risk appetite as the *only* reason for nonbanks' willingness to provide capital to risky firms and instead point to specialization in the form of different lending technology that relies more on ex ante screening and less on traditional monitoring through covenants.

Finally, Panel C of Table 8 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. Turning to the upfront fees in columns 3-4, finance companies and investment banks charge 41 and 33 basis points higher upfront fees after controlling for firm characteristics. The higher upfront fees charged by asset managers can be explained by the

characteristics of their borrowers. 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.

Overall, the results in Table 8 suggest that nonbanks are willing to take up a riskier position in borrowers' capital structure, but use different lending technology when holding priority constant.

5. Fuzzy Regression Discontinuity Design (RDD) around zero EBITDA

While the analyses on loan terms presented so far control for observable firm characteristics, there could be unobservable differences between firms that borrow from banks versus nonbanks and it could be these differences in unobservable characteristics that are driving differences in price and non-price terms across loans extended by different lenders. To estimate the causal effect of borrowing from a nonbank lender, we use fuzzy regression discontinuity design taking advantage of regulatory constraints on banks' ability to lend to negative cash flow borrowers.

As we discussed in Section 3, the OCC adversely classifies cash-flow loans to unprofitable firms as "substandard". Such loans trigger additional regulatory reporting and loan loss reserve requirements and, therefore, we see a significant jump -discontinuity- in the probability of borrowing from a nonbank as firms' EBITDA turns negative. This jump is apparent in Figure 1 and Table 3 presented above. The analyses in Section 3 show that the jump can be explained by the presence of OCC regulated banks in the borrower's location. Internet Appendix Figure IA3 shows that the discontinuity continues to be there as we zoom in closer to the neighborhood around zero EBITDA for these cash-flow loans. To formally test for the existence of a discontinuity in the probability of borrowing from a nonbank lender, we follow Gelman and Imbens (2014) in using local linear polynomials of EBITDA. Appendix Table IA7 reports the results for neighborhoods of $100, $50, $25, $10, $5, and $2.5 million around zero EBITDA. We consistently find that firms with negative EBITDA are 36-59% more likely to borrow from a nonbank than firms with positive EBITDA.

We check whether there are any other firm characteristics, such as firm size, age, or research expenses that change around zero EBITDA (Internet Appendix Table IA8). We do not find any consistently significant jumps in any of the covariates. Importantly, among bank borrowers we do not find a discontinuity in the propensity to borrow from a relationship bank.

A common concern with regression discontinuity designs is the possibility that firms could manipulate the running variable, in our case EBITDA, which determines assignment to treatment. Note however that what is important for identification is not whether agents have some control over the running variable but whether they can *precisely* manipulate it (Lee and Lemieux 2010). As long as firms cannot precisely manipulate their EBITDA, assignment to treatment is locally randomized around zero EBITDA (Lee and Lemieux 2010). To alleviate the concern that firms may be able to precisely manipulate their EBITDA, Figure 2 shows the histogram of EBITDA with a bin width of half a million dollars. The mode of EBITDA bins is just below zero, contrary to what one would expect if firms were manipulating their EBITDA.[27] Visually, the distribution appears smooth around zero. In the Internet Appendix, we use local polynomial density estimation following McCrary (2008) and Cattaneo, Jansson, and Ma (2017) to formally test for a discontinuity in the EBITDA distribution. The tests fail to reject the null hypothesis that the distribution is smooth.

A unique challenge with our regression discontinuity design is that our sample observations are contingent on a firm choosing to obtain a loan. If a firm's choice to borrow at all is discontinuous at zero EBITDA, the validity of the RDD would be in question. While fundamentally different from manipulation, empirically this concern is similar. In a histogram, EBITDA manipulation would shift probability mass from the left of zero to the right, creating a discontinuity. If a certain fraction of negative EBITDA firms chooses not to borrow and if that choice is discontinuous at zero EBITDA, we would overestimate the causal effect of nonbanks on the cost of debt if the firms that opt out are of unobservably higher quality than the firms that do borrow. However, this choice will cause probability mass to disappear to the left of zero in the histogram, which would be detected in the same way as manipulation. We observe no such evidence. It is also important to note that the most plausible reason for high quality negative EBITDA firms not to borrow is that they prefer other sources of financing to expensive nonbank

[27] The second mode in the figure is $3.5-4 million.

debt, an argument that presupposes the existence of the causal effect we intend to show and thus only pertains to the magnitude of the effect.

A more complicated concern is that for some reason some firms with small positive EBITDA choose not to borrow and that those firms are of unobservably low quality. We do not find it easy to think of plausible reasons why this might happen. But if one accepts the possibility, that choice would cause probability mass to disappear to the right of zero in the EBITDA distribution. This effect could be offset by other firms manipulating their EBITDA so that some probability mass moves from the left of zero to the right. With some luck, the EBITDA distribution could look smooth even though there is both a discontinuity in the choice of borrowing as well as manipulation. We can address this issue by examining more broadly whether firms manipulate their EBITDA around zero in an annual panel of our sample firms that does not condition on whether or not the firm borrows in a given year. In Internet Appendix Figure IA5, we show that the distribution of EBITDA is smooth around zero in that panel. One may also wonder whether it is a lucky coincidence that manipulation cannot be detected in our random sample. Internet Appendix Figure IA5 shows that the distribution of EBITDA is smooth around zero when considering the annual panel of all Compustat firms that meet our sample selection criteria.

It is also worth considering that the regulation from which we derive our RDD cutoff specifically pertains to cash flow loans, but not to the same extent asset-based loans. Perhaps firms with positive EBITDA obtain cash flow loans, firms with negative EBITDA that have suitable collateral (i.e. higher credit quality than other negative EBITDA firms) obtain asset-based loans, and firms with negative EBITDA that do not have such collateral obtain loans from nonbanks. If such an effect were to occur, it would be noticeable in the data in two ways. First, asset-based loans typically use inventory and/or accounts receivable as their borrowing base. With the aforementioned concern, we should find a discontinuity in these two covariates around zero EBITDA. Internet Appendix Table IA8 shows no evidence of such a discontinuity. Second, we should see a discontinuity in the EBITDA distribution around zero for asset-based loans. Internet Appendix Figure IA6 shows that the distribution is smooth. We conclude that there is no evidence of either manipulation or self-selection around zero EBITDA. For self-selection to be present, but undetectable, there would have to be two distinct effects that cause observations to disappear from the left of zero and the right of zero in such a way that the effects on the EBITDA distribution

cancel out yet produce a large discontinuity in nonbank borrowing without producing a discontinuity in any other covariate.

Having shown that zero EBITDA allows us to utilize a fuzzy regression discontinuity design, we now present the results for the causal effect of borrowing from a nonbank lender on various loan terms using zero EBITDA as an instrument for nonbank lending. Table 9 uses the nonparametric estimation methodology of Calonico, Cattaneo, and Titiunik (2014) to estimate treatment effects. The optimal neighborhood bandwidth is chosen using the coverage error-rate (CER)-optimal bandwidth selector (Calonico, Cattaneo, and Farrell, 2017), which is more conservative than traditional mean squared error bandwidth selectors. Because the bandwidth selector uses the structure of all the data, it needs to be re-estimated for each outcome variable. Internet Appendix Table IA9 shows that the results are robust to using ad-hoc neighborhoods around zero EBITDA. The optimal bandwidth around zero EBITDA for the initial interest rate as the outcome variable is [-32.5, 32.5]. In the second stage, we find an interest rate differential of 584 basis points with a *z*-statistic of 2.98. While this difference is larger than the coefficient on the nonbank lender dummy in Table 7, it is important to recognize that RDD focuses on the interest rate differential right below and above the zero-EBITDA boundary. Causal effects for firms further away from the boundary cannot be estimated using RDD and are likely to be smaller for firms whose EBITDA is well above zero.

Nonbank loans are 68 percentage points less likely to include financial covenants and 51 percentage points less likely to be secured by some type of collateral. These differences are again somewhat larger than the ones in the OLS regressions of Table 8. There is also some evidence that nonbank loans have shorter maturity (3.2 years) and carry higher fees. There is no evidence that nonbank borrowers differ from bank borrowers in their propensity to go bankrupt, or in their profitability or stock returns subsequent to loan origination.

6. Future Borrower Performance

Fuzzy RDD provides causal evidence on the effect of nonbank lending on loan terms. One drawback of this design is to focus on loans to borrowers with a small positive or negative EBITDA. What about the larger universe of bank and nonbank borrowers? We also test whether an average nonbank borrower is 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. Therefore, we also study borrower performance after loan origination. Given space constraints, we provide results of these tests in the Internet Appendix. We report findings on whether nonbank borrowers are more likely to file for bankruptcy than bank borrowers over the three years following loan origination in Appendix Table IA10 and we report results on post-origination borrower performance- year-over-year changes in profitability (Panel A), whether a firm's subsequent stock return in a given year is below the 10^{th} percentile (Panel B), changes in profitability by lender type (Panel C) and subsequent stock returns (Panels D and E) in Appendix Table IA11.

For these tests, we first collect bankruptcy dates, as of April 30, 2019, from Capital IQ and estimate a linear probability model of bankruptcy over the three years following loan origination. Overall, controlling for the full set of firm characteristics, the relation between bankruptcy and the nonbank dummy is small and not statistically significant. To support these results, we also conduct power analysis (presented in Internet Appendix Figure IA7) and conclude that we have ample power to detect the difference in bankruptcy rate needed to fully explain the observed price differences. Next, we ask whether nonbank borrowers have worse operating performance, as measured by year-to-year changes in profitability or stock returns, after loan origination. Controlling for firm characteristics at loan origination, we do not find any significant differences in performance between bank and nonbank loans.

These results indicate that conditional on firm characteristics, bank and nonbank borrowers perform similarly following loan origination. 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. 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.

7. Conclusion

Using novel, hand-collected data, we present systematic evidence on the terms of direct lending by nonbank financial intermediaries to publicly-traded middle market firms post 2008 financial crisis. Such lending is widespread with about one third of all loans in our data being extended by nonbanks. The extent of nonbank lending leads to an important question we answer in this paper: Why do firms borrow directly from nonbanks?

We find that bank regulation is a key driver. Unprofitable, highly levered firms are more likely to borrow from nonbanks than are other firms. In fact, we see a regulation-driven discontinuity in borrowing from nonbanks at zero EBITDA for firms. Borrowing firms with a small negative EBITDA are 34% more likely to rely on nonbank lending than firms with a small positive EBITDA. We also explore leniency of bank regulators as federal regulators (i.e., the OCC) have been shown to be less lenient than state regulators for banks. We find that firms located in banking markets with a larger share of OCC-supervised banks are more likely to borrow from nonbanks when they have a negative EBITDA.

Another natural question to ask is whether nonbanks are able to offer more favorable loan terms. The answer is no in terms of loan pricing. We find that 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. Moreover, we provide causal evidence, using a fuzzy regression discontinuity design (RDD), on the unintended consequence of bank regulation leading to negative EBITDA firms borrowing from nonbanks and paying larger prices for these loans. Despite higher prices, these nonbank loans must be valuable for borrowing firms. Larger abnormal announcement returns for nonbank loans, compared with bank loans, are also consistent with this interpretation.

Nonbank lenders also appear to use different lending techniques. They are significantly less likely than banks to include financial covenants but more likely to include warrants in their loans. Thus, rather than relying on financial covenants to monitor borrowers' ex-post performance, nonbank lenders engage in alignment of incentives and ex-ante screening. Consistent with this idea, we find that, controlling for observable borrower characteristics, bank and nonbank

borrowers perform similarly ex post despite nonbanks not using financial covenants for early intervention.

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 theoretical research.[28] Moreover, with the COVID-19 pandemic reducing revenues of small and medium enterprises in an unprecedented way, how these mostly unprofitable firms will be able to find liquidity over the short term and how much nonbank financial institutions will help these firms survive is an open question for future empirical research.

[28] One example is Donaldson et al. (2017) who show that nonbanks' higher funding costs can act as a commitment device for information production.

Appendix A. Details on Sample Construction

We randomly sample 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 firms to 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. 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, and the origination date and match loans to DealScan. 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 amendments rather than originations. The remaining observations

involve either relatively small loans issued by sample firm subsidiaries that were not filed with the SEC, presumably due to lack of materiality, or loans issued after a company had ceased to file. 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 named as administrative agent, lead arranger, or agent. For observations from DealScan, we identify lender as 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, 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. Loans 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

MSA/non-MSA county characteristics

OCC share	Share of deposits in branches of OCC_supervised banks. The sample of banks is limited to banks whose primary asset specialization according to the Summary of Deposits data is commercial lending.	Summary of Deposits
Tier 1 leverage ratio	Deposit-weighted average of the Tier 1 leverage ratio of bank holding companies with branches in the MSA/non-MSA county..	Summary of Deposits, Y9-C

Top 4 share	Share of deposits in branches of the four largest banks: Bank of America, Citigroup, JPMorgan Chase and Wells Fargo.	Summary of Deposits
Ln(Total deposits)	Natural logarithm of the aggregate value of deposits in the MSA/non-MSA county.	Summary of Deposits
Ln(Per capita income)	Natural logarithm of the per capita personal income in the MSA/non-MSA county.	BEA Regional Economic Accounts
Per capita income growth	Annual growth rate in per capita personal income in the MSA/non-MSA county.	BEA Regional Economic Accounts
Unemployment rate	Unemployment rate in the MSA/non-MSA county.	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.

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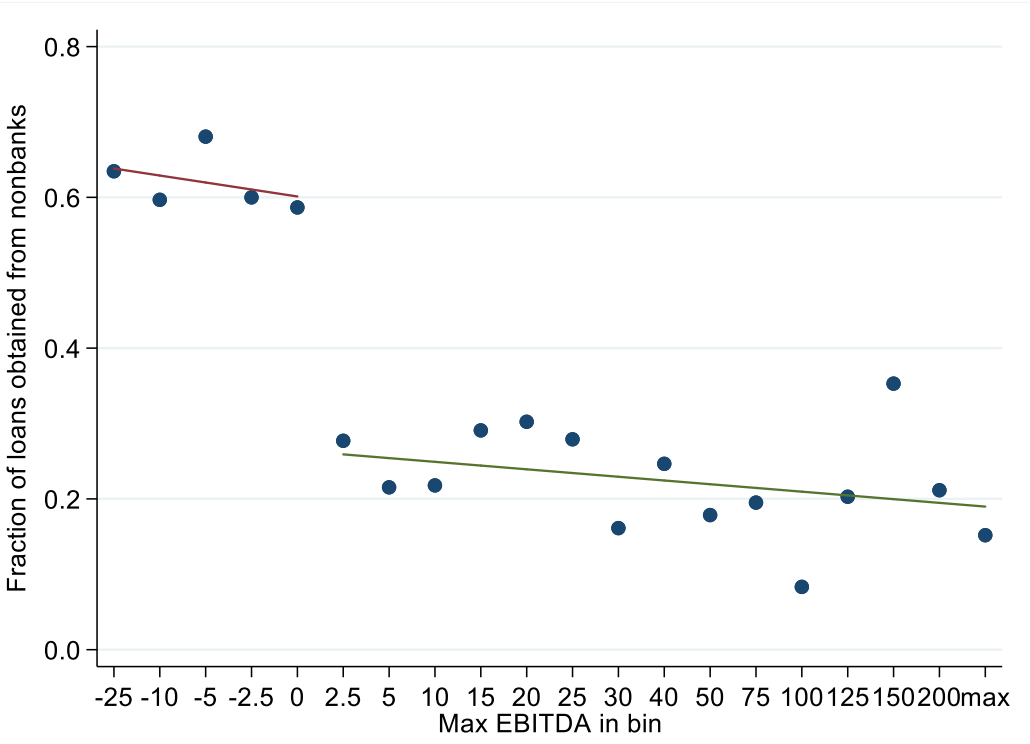

Figure 1: Fraction of loans obtained from nonbanks by EBITDA bin

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.

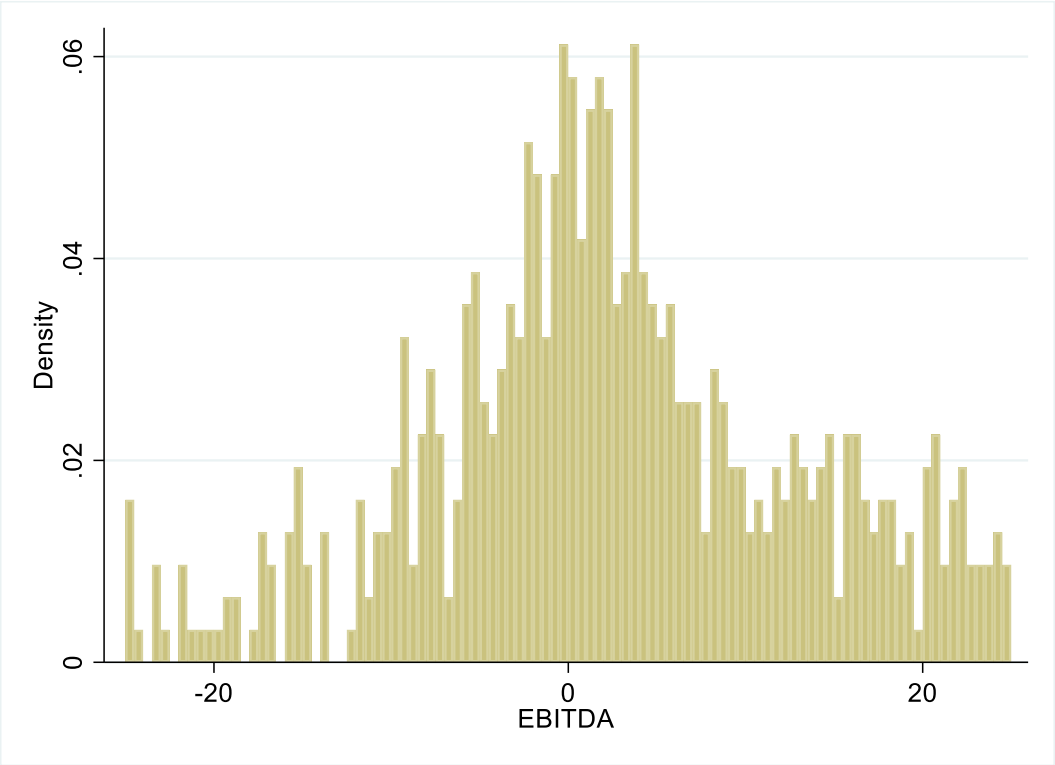

Figure 2: Histogram of trailing twelve months EBITDA

This figure shows the histogram of trailing twelve months EBITDA for borrowers with EBITDA in the -$25 million to $25 million range. Bin width is half a million dollars. 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.

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)	(6)
Ln(Assets)	0.01	0.03	0.03*	0.02	-0.01	-0.02
	(0.55)	(1.59)	(1.76)	(1.39)	(-0.12)	(-0.34)
EBITDA	-0.00*	-0.00	-0.00	-0.00	-0.00	-0.00
	(-1.75)	(-1.36)	(-1.49)	(-1.39)	(-0.52)	(-0.18)
EBITDA < 0	0.33***	0.26***	0.39***	0.40***	0.30**	0.23*
	(7.85)	(5.68)	(6.74)	(6.86)	(2.53)	(1.96)
EBITDA < 0 * ABL			-0.34***	-0.37***	-0.19	-0.13
			(-4.95)	(-5.42)	(-1.64)	(-1.11)
ABL			-0.05	-0.05	-0.20**	-0.20**
			(-1.30)	(-1.31)	(-2.58)	(-2.39)
Leverage	0.39***	0.30***	0.25***	0.22***	0.37**	0.23
	(4.78)	(3.41)	(2.97)	(2.76)	(2.12)	(1.44)
ΔLeverage	0.37***	0.26**	0.22**		0.30*	0.29*
	(4.32)	(2.56)	(2.28)		(1.95)	(1.79)
|Asset growth|	0.15***	0.15***	0.12***		0.08	0.09
	(4.98)	(4.62)	(3.56)		(1.43)	(1.45)
Research expense	0.00	0.13	0.18	0.20*	-0.10	0.39
	(0.02)	(0.89)	(1.48)	(1.66)	(-0.24)	(0.65)
Tangibility	-0.06	-0.04	-0.05	-0.04	-0.05	-0.14
	(-0.63)	(-0.47)	(-0.57)	(-0.49)	(-0.19)	(-0.43)
Current ratio	-0.03***	-0.02**	-0.03**	-0.02**	-0.02	-0.02
	(-3.15)	(-2.25)	(-2.56)	(-2.10)	(-1.32)	(-0.90)
Ln(Firm age)	-0.02	-0.01	-0.01	-0.01	-0.23	-0.20
	(-0.82)	(-0.44)	(-0.52)	(-0.47)	(-1.06)	(-0.75)
Market-to-book		-0.01	-0.02	-0.01		-0.02
		(-1.12)	(-1.24)	(-0.79)		(-0.63)
Sales growth		0.05	0.05	0.06		-0.01
		(1.14)	(1.14)	(1.42)		(-0.08)
Volatility		0.22***	0.21***	0.22***		0.24**
		(3.74)	(3.77)	(3.92)		(2.08)
Past return		-0.12***	-0.12***	-0.11***		-0.08
		(-3.44)	(-3.46)	(-3.25)		(-1.31)
Constant	0.16	-0.07	-0.03	-0.01	1.13	1.01
	(1.64)	(-0.47)	(-0.22)	(-0.04)	(1.20)	(0.84)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	No	No
Borrower effects	No	No	No	No	Yes	Yes
N	1193	1121	1105	1112	1176	1105
R^2	0.23	0.25	0.29	0.27	0.73	0.73

Table 4: Probability that a bank borrower has negative EBITDA

This table reports the results from linear probability models where the dependent variable equals one if the borrower has negative EBITDA and zero otherwise. The sample consists of loans extended by domestic banks. *OCC* is an indicator variable that equals one if the bank is regulated by the OCC and zero otherwise. *ABL* is an indicator variable that equals one for asset-based loans and zero for cash flow loans. Year and Fama-French 12 industry fixed effects are included in all specifications. *t*-statistics adjusted for clustering by firm are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1%.

	(1)	(2)	(3)	(4)	(5)
OCC	-0.20***	-0.10***	-0.12***	-0.13***	-0.15***
	(-5.19)	(-2.74)	(-3.05)	(-3.36)	(-3.83)
ABL x OCC				0.11*	0.11
				(1.67)	(1.62)
ABL				0.01	-0.01
				(0.18)	(-0.09)
Ln(Assets)		-0.06***	-0.03*	-0.05***	-0.03*
		(-4.12)	(-1.74)	(-3.65)	(-1.66)
Leverage		0.03	-0.06	-0.01	-0.08
		(0.41)	(-0.71)	(-0.09)	(-0.98)
ΔLeverage		-0.03	-0.22	-0.03	-0.19
		(-0.24)	(-1.56)	(-0.23)	(-1.32)
|Asset growth|		-0.05	0.01	-0.04	0.01
		(-0.98)	(0.32)	(-0.87)	(0.21)
Research expense		1.02***	0.90***	0.99***	0.88***
		(5.08)	(3.48)	(5.11)	(3.48)
Tangibility		-0.15**	-0.21***	-0.12	-0.19**
		(-2.00)	(-2.92)	(-1.60)	(-2.56)
Current ratio		0.01	0.01	0.01	0.01
		(0.90)	(1.19)	(0.90)	(1.16)
Ln(Firm age)		-0.04***	-0.04**	-0.04***	-0.03**
		(-2.73)	(-2.27)	(-2.64)	(-2.11)
Market-to-book			0.01		0.02
			(0.61)		(0.88)
Sales growth			-0.11**		-0.10**
			(-2.09)		(-2.04)
Volatility			0.23***		0.22***
			(3.18)		(2.89)
Past return			-0.11***		-0.12***
			(-2.83)		(-2.90)
Constant	0.46***	0.66***	0.38***	0.64***	0.38***
	(7.57)	(6.33)	(2.73)	(5.73)	(2.73)
Year effects	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes
N	769	755	719	744	709
R^2	0.15	0.30	0.33	0.31	0.34

Table 5: Nonbank lending and leniency of regulators supervising local banks

This table reports the results from linear probability models of whether a loan is extended by a nonbank lender on the share of OCC-supervised banks in the firm's local banking market and other measures of local economic conditions. Local banking market is either MSA or non-MSA county. The sample of banks consists of banks whose primary asset specialization according to the Summary of Deposits is commercial lending. Top 4 share is the share of local deposits held by the four largest banks: Bank of America, Citigroup, JPMorgan Chase, and Wells Fargo. Interactions of negative EBITDA with all local market controls are included in columns (3) and (6) but are not reported for brevity. All firm-level controls used in column (3) in Table 3 are included in all specifications but are not reported for brevity. Full regression output is reported in Table IA5 in the Internet Appendix. *t*-statistics adjusted for firm-level clustering are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5%, and 1%.

	Cash-flow loans			Asset-based loans		
	(1)	(2)	(3)	(4)	(5)	(6)
EBITDA < 0	0.11	0.08	2.53	0.04	0.01	-7.08
	(1.12)	(0.85)	(0.52)	(0.39)	(0.14)	(-1.58)
EBITDA < 0 * OCC share	0.56***	0.60***	0.52**	0.19	0.25	-0.14
	(2.84)	(3.05)	(2.44)	(0.98)	(1.25)	(-0.45)
OCC share	-0.03	-0.00	-0.01	-0.18	-0.18	-0.10
	(-0.35)	(-0.04)	(-0.06)	(-1.28)	(-1.16)	(-0.63)
Unemployment		-0.01	-0.01		0.01	0.01
		(-0.35)	(-0.53)		(0.39)	(0.41)
Per capita income growth		-0.17	0.23		0.13	0.06
		(-0.24)	(0.33)		(0.13)	(0.06)
Ln(Per capita income)		0.03	-0.00		0.04	0.04
		(0.22)	(-0.01)		(0.24)	(0.21)
Ln(Population)		0.11**	0.00		-0.06	0.03
		(2.18)	(0.04)		(-0.83)	(0.27)
Tier 1 leverage ratio		-0.03	-0.02		-0.03	-0.08*
		(-0.87)	(-0.56)		(-0.67)	(-1.79)
Ln(Deposits)		-0.11**	-0.03		0.06	-0.05
		(-2.57)	(-0.65)		(0.84)	(-0.53)
Top 4 share			0.35**			-0.22
			(2.21)			(-1.20)
Constant	0.11	-0.36	0.52	0.09	0.09	0.50
	(0.56)	(-0.21)	(0.25)	(0.44)	(0.04)	(0.21)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Interaction of EBITDA < 0 with local market controls	No	No	Yes	No	No	Yes
N	761	761	761	342	342	342
R^2	0.35	0.36	0.37	0.23	0.23	0.26

Table 6: 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 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)
Nonbank	449.54***	298.60***	190.26***		227.53***	150.81***
	(14.51)	(11.52)	(7.56)		(4.23)	(5.63)
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
			(1.16)	(-1.01)	(0.37)	(0.81)
Performance pricing			-45.81***	-39.87***	-32.45	-51.04***
			(-3.94)	(-3.83)	(-1.03)	(-4.59)
Warrants			94.83**	48.11	20.05	81.08**
			(2.36)	(1.41)	(0.17)	(2.04)
Convertible debt			-226.48***	-281.45***	-234.47	-236.15***
			(-3.79)	(-4.58)	(-1.60)	(-3.91)
Financial covenants			11.49	32.22*	48.90	19.43
			(0.51)	(1.67)	(0.96)	(0.89)
Security			40.30*	49.57***	3.45	47.00**
			(1.81)	(2.63)	(0.06)	(2.14)
Second lien			382.92***	322.00***	343.56***	394.80***
			(8.00)	(6.74)	(4.27)	(8.28)
Maturity			-6.44*	-1.99	2.05	-5.17
			(-1.69)	(-0.54)	(0.26)	(-1.43)
Fixed rate loan			169.40***	142.13***	163.64**	163.06***
			(4.10)	(4.26)	(2.29)	(4.05)
Seniority			-212.69***	-99.70*	-178.69	-206.58***
			(-3.99)	(-1.90)	(-1.34)	(-3.68)
Ln(Assets)		-34.78***	-29.08**	-14.88*	22.38	-25.93**
		(-4.59)	(-2.35)	(-1.69)	(0.46)	(-2.19)
Profitability		-76.71	-84.47	-59.40	-158.35	-68.36
		(-1.03)	(-1.27)	(-0.92)	(-1.25)	(-1.03)
EBITDA < 0		107.22***	104.60***	78.23***	112.07*	36.71
		(3.26)	(3.75)	(3.03)	(1.79)	(1.43)

Leverage		240.11***	178.99***	177.01***	116.40	182.32***
		(5.82)	(4.78)	(5.40)	(0.96)	(4.85)
ΔLeverage		235.54***	152.13**	126.30**	113.39	154.68**
		(3.60)	(2.06)	(2.10)	(0.62)	(2.11)
Abs (asset growth)		56.55***	47.67**	63.53***	76.01	45.91**
		(2.68)	(2.42)	(3.65)	(1.30)	(2.35)
Research expense		50.61	-48.24	-89.97	279.67	-37.74
		(0.59)	(-0.64)	(-1.37)	(0.78)	(-0.52)
PP&E		-16.24	-5.98	-19.40	-26.20	-9.48
		(-0.41)	(-0.16)	(-0.65)	(-0.14)	(-0.26)
Current ratio		0.52	-0.94	-1.65	-22.06*	-0.47
		(0.11)	(-0.21)	(-0.47)	(-1.88)	(-0.11)
Ln(Firm age)		-11.64	-10.32	-15.72**	-24.08	-10.30
		(-1.04)	(-0.92)	(-2.08)	(-0.18)	(-0.98)
Market-to-book		-15.07***	-14.63***	-16.45***	-6.31	-15.40***
		(-2.66)	(-2.98)	(-3.49)	(-0.38)	(-3.12)
Sales growth		19.02	37.06	18.71	-44.47	39.61
		(0.61)	(1.37)	(0.76)	(-0.83)	(1.49)
Volatility		98.12**	98.89**	65.55*	57.13	99.06**
		(2.24)	(2.40)	(1.78)	(0.77)	(2.42)
Past return		-61.06***	-73.44***	-55.08***	-46.66	-72.30***
		(-2.76)	(-4.00)	(-3.11)	(-1.40)	(-3.93)
Constant	433.39***	497.25***	649.14***	530.11***	472.77	632.42***
	(15.91)	(7.11)	(7.52)	(6.46)	(0.72)	(7.10)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	No
Firm effects	No	No	No	No	Yes	No
N	1181	1040	1027	1023	1027	1027
R^2	0.45	0.60	0.68	0.73	0.86	0.68

Table 8: 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 9: Fuzzy RDD using the coverage error-rate-optimal bandwidth selector

The table reports the results of fuzzy RDD estimation using local linear polynomials for various outcome variables, using cash-flow loans only. The treatment is borrowing from a nonbank. The running variable is trailing twelve-month EBITDA, with a discontinuity at zero. The slope of the effect of the running variable on the probability of treatment is allowed to differ to the left and right of the discontinuity. The estimators are constructed using a triangular kernel. Symmetric bandwidths around zero are determined using the coverage error-rate-optimal (CER) bandwidth selector of Calonico et al. (2016). The CER bandwidth selector depends on the structure of all the data and must be re-estimated for each outcome variable. The table reports bandwidth, the number of observations included to the left and right of the discontinuity, the first-stage effect of an indicator for negative EBITDA on the treatment probability, and the second-stage estimate of the treatment effect on the outcome variables. *z*-statistics using bias-adjusted standard errors from Calonico et al. (2016) that adjust for clustering at the firm level are reported in parentheses. The following covariates are included, with coefficients omitted for brevity: log of total assets, leverage, market-to-book, sales growth, R&D, PP&E, cash, receivables, inventory, log of firm age, volatility, past stock returns, the year of loan origination, and industry effects. The estimation for performance pricing omits fixed rate loans. *, **, and *** indicate statistical significance at 10%, 5%, and 1%.

	Bandwidth	Left obs.	Right obs.	1st stage	2nd stage
Initial interest rate	26.97	139	177	-0.33***	584.41***
				(-3.47)	(2.98)
Ln(Amount)	25.97	147	196	-0.31***	-0.71
				(-3.20)	(-0.88)
Maturity	30.73	144	214	-0.34***	-3.18*
				(-3.89)	(-1.79)
Seniority	31.28	149	222	-0.31***	-0.11
				(-3.49)	(-0.26)
Security	28.58	148	208	-0.31***	-0.51*
				(-3.35)	(-1.70)
Second lien	31.12	149	221	-0.31***	-0.05
				(-3.30)	(-0.83)
Financial covenants	26.22	147	196	-0.31***	-0.68*
				(-3.21)	(-1.89)
Performance pricing	25.14	50	132	-0.09	0.15
				(-0.57)	(0.39)
Warrants	25.44	145	194	-0.32***	0.17
				(-3.35)	(0.63)
Convertible	24.43	143	193	-0.32***	-0.06
				(-3.30)	(-0.58)
Fixed rate loan	41.57	149	253	-0.32***	0.49*
				(-3.90)	(1.77)
Upfront fee	36.92	138	208	-0.34***	155.67**
				(-4.12)	(2.48)
Annual fee	34.90	138	206	-0.30***	22.63
				(-3.47)	(1.07)
$Bankrupt_{t+3}$	25.18	146	194	-0.31***	-0.14
				(-3.16)	(-0.87)
Δ $Profitability_{t+1}$	25.34	136	183	-0.29***	0.09
				(-2.78)	(0.04)
Stock return [t,t+3]	24.15	140	182	-0.32***	0.09
				(-3.12)	(0.82)