Fragile Financing? How Corporate Reliance on Shadow Banking Affects Bank Provision of Liquidity*

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Abstract

We document that banks appear reluctant to provide contingent liquidity in the form of credit lines to corporations that are reliant on non-bank funding. A higher dependence on non-bank funding correlates with a greater likelihood of firms drawing on credit lines during widespread financial distress. Ex-ante, this results in non-bank dependent firms having reduced access to bank-provided credit lines, both in terms of their availability (extensive margin) and terms (intensive margin). Consequently, these firms rely more on cash than credit lines for managing liquidity. We exploit the oil price shock of 2014-16 and the subsequent drop in leveraged loan purchases by affected non-bank lenders as a plausibly exogenous supply-side shock to funding reliance of firms on non-banks. Firms facing immediate risks of refinancing their leveraged loans had to de-lever. However, consistent with an anticipation of decreased dependence on leveraged loans, access to bank credit lines improved, often with lower fees, for firms not facing immediate refinancing pressure, which enhanced their liquidity management and capital growth.

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1 Introduction

Over the past two decades, we have observed a substantial growth in assets under management at "shadow banks" or non-bank financial institutions (see, e.g., Acharya et al. (2024), among others). Coincidentally, there has been a noticeable increase in non-bank funding for large corporations. Figure 1, Panel A shows that nonbank term loan originations have exceeded bank term loan originations over most of the sample period from 2000 Q1 to 2022 Q1. Irani et al. (2020) also find that in 2017 approximately 75% of term loans provided to non-financial corporations were originated by non-bank lenders. Furthermore, non-bank-funded firms are large and economically important (see Figure 1, Panel B), interestingly surpassing in size borrowers that are entirely bank-dependent, again highlighting the growing importance of nonbank lending as a key source of corporate financing.

However, nonbank lending or "shadow banking" - which we use synonymously - is characterized by a lack of stable and insured deposit base, which could potentially introduce fragility. Non-banks also lack access to an explicit government or central bank backstop for liquidity. Thus, opting for non-bank financing introduces rollover risk into a firm's capital structure (Fleckenstein et al. (2021)). As a result, in periods of market stress, firms that rely on nonbanks may have to turn elsewhere for funding. Typically, pre-arranged bank credit lines are available to be drawn at attractive terms relative to rollover costs when market-wide risk increases and other credit options become scarce. This leads firms to draw down their bank credit lines during such periods.

The COVID-19 outbreak in March 2020 provides a prime and recent example of a large and unexpected market-wide shock wherein we witnessed a large decline in the issuance of nonbank loans as money flowed out of non-banks such as collateralized loan obligation (CLO) vehicles and mutual funds (twpo of the largest nonbank investors, Fleckenstein et al. (2021)). This period was also accompanied by a large drawdown in bank credit lines by non-financial corporations (Acharya and Steffen (2020)). We see, importantly though, that firms with an above-median level of dependence on non-banks before COVID utilized a larger portion of their credit lines (exceeding 10% by April 2020), relative to borrowers with lower exposure to nonbanks (Figure 2). Table 1 confirms this econometrically. Borrowers with greater non-bank dependence in term loan borrowing were more likely to draw down bank credit lines during the COVID-19 outbreak (March-June 2020), and conditional on drawdown had higher utilization rates as well.

Banks are considered and emprically observed to be special as providers of credit lines. Assuming there is an important correlation between depositor withdrawals and credit line drawdowns, banks in their efforts to preserve liquidity for one purpose can subsidize the provision of the other. This makes banks the optimal providers of liquidity insurance in the form of credit lines (Kashyap et al. (2002)). When market-wide risk increases and alternate sources of funding disappear, borrowers typically have to turn to banks for their liquidity needs.

Given this backdrop, we ask in this paper how the increase in nonbank funding dependence of firms has altered the risk to the banking system and in bank provision of liquidity insurance to firms. We specifically seek to determine whether banks, in their role as liquidity providers, take into account the financing sources of borrowers when making lending decisions. In times of market-wide stress, banks may experience a shift in credit allocation to firms from nonbanks to their own balance sheets via credit line drawdowns, potentially raising liquidity and capital encumbrance at banks. If, in anticipation of such adverse spillovers, banks decide against extending credit lines to borrowers dependent on nonbank financing, then financial stress to nonbank borrowers can get exacerbated due to the lack of *both* nonbank and bank funding sources.

To answer this question, we focus on loan originations to large non-financial corporations in the syndicated loan market. The syndicated loan market is an important source of financing for firms with $2.9 trillion outstanding as of 2022 ($5.9 trillion including committed credit lines).[1] We start by documenting a negative correlation between a firm's exposure

[1]See https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20230224a1.pdf

to nonbanks and its access to credit lines. We measure *nonbank dependence* as the share of term loans to the firm from nonbanks. We classify loans as "bank or nonbank" based on the ultimate end investor for which the loans are intended at the time of origination. While all loans are originated by banks in the primary market, some loans are exclusively originated for sale to nonbanks in the secondary market (soon after origination). Specifically, Term Loans B-K are referred to as "institutional tranches" (Standard and Poors (2020)) because they are meant for purchase by institutional investors.[2] Therefore, to account for the ultimate source of financing to the borrower, we focus on the end investor rather than the entity that originates the loan. Thus, Term Loan As are classified as bank term loans, and Term Loans B-K are classified as nonbank term loans. Furthermore, we measure credit line access for a firm as the share of credit lines available to the firm in its total liquidity (cash + credit lines) and in total lending to the firm (term loans from banks and nonbanks and committed credit lines).

The negative relationship between a firm's nonbank dependence and its credit line access holds both when looking at contemporaneous origination of credit lines and nonbank loans and also when looking at the stock of outstanding credit lines and term loans. In terms of economic magnitude, moving from a completely bank-dependent to a completely nonbank-dependent borrower leads to a reduction in credit lines issued as a share of total loans by 17.6 ppt and as a share of total liquidity by 3.5 ppt. Borrowers with greater nonbank exposure also find it more expensive to borrow through credit lines. A borrower with only nonbank term loans pays, on average, 46.9 bps higher drawn spreads and a 7.6 bps higher undrawn spread relative to a borrower with only bank term loans. This is an economically meaningful increase, equivalent to 25% of the mean drawn and undrawn spread respectively.

However, this negative correlation does not necessarily imply that nonbank dependence is *leading* to worse credit line access and terms for borrowers. While we control for differences across bank and nonbank borrowers in their firm and loan characteristics, one cannot ignore

[2] Prior work has shown that changes to nonbank supply directly affect the origination of institutional tranches in the primary market (Fleckenstein et al. (2021)).

the screening role of banks in the syndicated loan market. In particular, banks may select the borrowers to whom they originate nonbank loans, and these may be borrowers that the bank prefers not to hold loans of directly on its balance sheet, be it term loans or credit lines. Another, possibly related potential explanation for lower levels of credit line lending to certain borrowers may be the fact that the borrower does not have a strong relationship with banks. If banks engage in more relationship lending, while nonbanks more in transactional or arm's length finance (Rajan (1992)), then firms that borrow primarily from nonbanks may not have strong bank relationships that enable the provision of liquidity insurance. We, therefore, have to control for the reasonable possibility that borrowers who do receive credit lines do so because they have bank relationships and these borrowers also tend to have a lower share of loans from nonbanks. To address this issue, we directly control for the strength of the relationship for a given bank-borrower pair at every period based on their past loans in the relationship. This does not change the impact of our main variable of interest, the nonbank dependence of the borrower, on a firm's access to credit lines or in their terms.

Secondly, similar to bank-firm relationships, banks and nonbanks also have lending relationships(Bhardwaj and Mukherjee (2022), Fleckenstein et al. (2021)). For example, low deposit-to-asset banks originate more nonbank loans, and at the same time, may be less suited to originate credit lines (Kashyap et al. (2002)). Thus, bank selection to firms could explain differences in their credit line access. To address this, we look at variation across borrowers of the same bank and find that a similar negative relationship holds between a borrower's nonbank dependence and credit line access. Furthermore, to alleviate concerns about bank-firm matching, we look at how time-varying nonbank dependence within the same bank-borrower pair affects the availability of credit lines. For the same firm, borrowing from the same bank, when its nonbank reliance increases, credit line volume declines and there is an increase in credit line spreads.

Yet another alternative hypothesis could be that explicit bank regulation not to lend to certain borrowers prevents banks from doing so. For example, Chernenko et al. (2022)

show regulation has made it costly for banks to lend to negative EBITDA firms, as these loans are classified as "substandard" and may result in larger loan loss allowances and lower CAMELS ratings. If negative EBITDA firms are cut off from bank lending markets and are forced to turn to nonbanks, it could explain the negative correlation observed between bank liquidity provision and nonbank dependence of firms. Consistent with this, we document that negative EBITDA firms are less likely to get credit lines and there is a large jump in the likelihood of receiving credit lines at 0 EBITDA. However, the same pattern in firm EBITDA threshold does not hold when analyzing access to bank term loans. Nevertheless, to prevent contamination from such supervisory effects, we restrict our sample to positive EBITDA firms and see that the negative correlation between nonbank dependence and credit line access holds as strong even at levels far away from the average EBITDA threshold.

Notwithstanding this robustness to multiple alternate hypotheses, there could be other reasons that potentially explain the lack of credit line availability and nonbank dependence. The ideal experiment would be to exogenously vary the amount of credit provided by nonbanks to a firm and see how banks respond to this change in the provision of liquidity to the firm. In reality, most observed changes in credit outcomes are not random. Thus, we look for a plausbily exogenous shock wherein the availability of nonbank funds changes due to factors uncorrelated to the borrower's characteristics. For this, we rely on changes to nonbank credit supply during the adverse oil price shock of 2014-16.

Between June 2014 and January 2016, the global economy faced one of the largest oil price drops, with prices falling 70%. (Figure 3, Panel A). While there wasn't a large reaction in the stock market with the drop in oil prices (except in the energy sector), there was a significant drop in secondary market prices of leveraged loans (Figure 3, Panels B-D). As oil prices fell, CLO issuance fell by about 60% between June 2014 and January 2016 (Figure 4, Panel A). This decline was particularly concentrated among CLOs that were more exposed to the oil price shock through their portfolio firms. Similarly, there was a decline in the origination of nonbank loans in the primary market (see TLB issuance in Figure 4, Panel

B). We exploit this drop in new nonbank loan originations during the oil price shock as an exogenous variation in firms' (future) dependence on nonbanks and study its impact on bank credit line availability to borrowers. To ensure the shock is exogenous to the borrower, we focus on firms outside the oil and gas industry (SIC 13).

Specifically, we exploit the fact that some CLO managers had a much larger exposure to firms in the oil and gas sector before the oil price shock. These CLO managers witnessed a larger reduction in portfolio value, reducing new originations by more. At the borrower level, some firms had loans that were held by these CLO managers that were more exposed more to the oil-price shock while other firms had loans held by CLOs unaffected by the shock. This gives us plausibly exogenous variation in the level of a firm's indirect exposure to the oil price shock. Since we focus only on borrowers outside the oil and gas sector, the effect of the shock on the borrower is only through the CLOs that held their loans.

We track firms from January 2012 - December 2017 for 9 quarters before the drop in oil prices (2012Q1-2014Q1), for the 6 quarters when oil prices dropped (2014Q2-2015Q4), and for 8 quarters after the shock to study any persisting effects of the oil shock. We first verify that the oil price shock indeed affected the access to nonbank loans for borrowers. Firms reliant on CLOs that faced a larger shock saw a reduction in nonbank loan growth. Interestingly, as a borrower's reliance on nonbanks falls, we notice a contemporaneous increase in the amount of bank credit lines available to the borrower. After the shock too, affected nonbank borrowers see a large increase in the amount of bank credit lines available to them while also receiving the credit lines at a lower price (relative to unaffected borrowers). We also show that for the same bank in the same quarter, those borrowers that faced an exogenous reduction in exposure to nonbanks because of the oil price shock (to CLOs holding their loans) received larger credit lines at lower costs.

Finally, we look at how nonbank dependence affects the financial condition of borrowers in this setting. Borrowers that were exposed indirectly to the oil price shock via nonbanks did experience a decline in credit available from these nonbanks after the shock. However, since these borrowers received liquidity through bank credit lines, in anticipation of the reduced nonbank dependence and fragility in future, their financial outcomes, particularly, assets and capital growth improved. These firms also improved their liquidity management following the shock by using more credit lines in their liquidity pool relative to cash. Overall, we conclude that nonbank dependence of firms can render them fragile to market-wide shocks, which reduces their access to liquidity provision from banks. This fragility could be an important consideration while assessing the overall efficiency of the rapid recent growth of nonbank lending in corporate finance.

Our paper relates to three broad strands on the literature. First, it relates to the literature on the growth of nonbanks and its drivers documented by Buchak et al. (2018) in the mortgage market, by Irani et al. (2020) in the syndicated loan market, by Chernenko et al. (2022) in the direct lending market for middle-market firms, and by Gopal and Schnabl (2022) in the small business lending market. Specifically, in the syndicated loan market, existing literature has documented that banks sell loans after origination (Drucker and Puri 2008, Bord and Santos 2012, Irani and Meisenzahl 2017, Blickle et al. 2020) to nonbanks (Ivashina and Scharfstein 2010, Seung Jung Lee and Sicilian 2019, Mary Chen and Saidi 2023). Furthermore, the rise of covenant-lite loans together with covenants on credit lines – so-called "split control rights" – have contributed to the rise of non-bank lending (Berlin, Nini, and Yu 2020).

Our paper studies the implications of this growth in nonbank lending given its fragility to market-wide stress. Irani et al. (2020) and Fleckenstein et al. (2021) highlight the frictions of non-financial firms reliant on nonbanks. They show, respectively, that nonbanks induced rollover risk during the global financial crisis (GFC) and that the availability of nonbank credit is overall more cyclical than bank credit. Our paper studies the implications of this cyclical rollover risk in nonbank loans on bank lending decisions. We show that nonbank reliance by corporations leads to fragility, which banks factor in by reducing liquidity provision in the form of credit lines.

Second, our paper relates to the role of banks as liquidity providers. Kashyap et al. (2002) argue that bank credit lines and deposits are both forms of financial intermediation by which banks provide liquidity on demand. They argue that synergies and uncorrelated drawdowns between the two makes banks the optimal providers of liquidity. Gatev and Strahan (2006) show empirically that banks seem to have had a unique ability to hedge against market-wide liquidity shocks prior to the GFC. However, credit line drawdowns (Ivashina and Scharfstein (2010)) and their combination with deposit outflows (Acharya and Mora (2015)) during the GFC affected bank ability to continue liquidity provision to the economy. Consistent with these findings, our paper shows that banks may not always be willing to provide liquidity and as lending moves away from banks, some of these synergies may be destroyed.

Lastly, our paper also relates to the extensive literature on the importance of bank credit lines for corporations. Sufi (2007) and Disatnik et al. (2013) show that bank lines of credit are an important source of firm financing; they show that firms trade off using cash and bank lines of credit as a function of their idiosyncratic risk. Acharya et al. (2013) show that firms with high exposure to systematic risk have a higher ratio of cash to credit lines and face higher costs on their credit lines. Acharya et al. (2014) show that the cost of credit lines is also greater for firms with high liquidity risk, which in turn are likely to use cash instead of credit lines. Our paper shows that a firm's funding sources may also affect their access to bank credit lines and in turn the trade off between cash and credit lines. In this regard, our work is also related to the recent strand of literature documenting the dash for cash by firms during COVID-19. This literature has shown that heightened aggregate risk and precautionary motives of firms led to an increased drawdown of credit lines by firms (Acharya and Steffen 2020, Kashyap 2020, Li, Strahan, and Zhang 2020). We show that these drawdowns are correlated to the firm's funding sources, and, in particular,to their dependence on nonbanks.

2 Data and Summary Statistics

2.1 Institutional Background

Our analysis focuses on the primary market of US syndicated loans – a market through which banks and nonbanks lend to medium- and large-sized corporations. Syndicated loans are originated as part of "deals" or "packages" that contain multiple "facilities" for a single borrower. Facilities can include revolving and Term Loan A (TLA) facilities designed to be held by banks and Term Loan B (TLB) facilities designed to be held by nonbanks. Importantly, different facilities within the same deal have the same seniority and term loans are also backed by the same collateral.

Origination process Syndicated deals are arranged by a group of syndicating banks, which include at least one "lead arranger" and potentially other "underwriting" banks. Lead banks are responsible for "structuring" the deal (i.e., splitting the required funding amount into facilities, setting the maturity for each facility, and defining other non-price characteristics), setting the target rate on each facility and leading the book-building process prior to origination, in exchange for fees. Arrangers internalize the expected nonbank supply at initial discussions. Thus, the existence and structure of a deal depends crucially on the expected credit supply from each group of lenders. For instance, if lead arrangers expect limited demand from nonbanks, then arrangers will reduce the size and increase the spread of TLB facilities; or may be reluctant to commit to originating a deal altogether. Thus, even if arranging banks hold TLB facilities at origination, their ultimate intent is to offload them to nonbanks (Bord and Santos (2012)). This is especially common because many nonbanks never participate in the "primary market" for tax reasons.[3] Instead, they buy loan commitments shortly after origination (Blickle, Fleckenstein, Hillenbrand, and Saunders 2020).

[3]For example, most CLOs investing in USD loans are domiciled in the Cayman islands (Liu and Schmidt-Eisenlohr (2019)) to avoid US taxes by not engaging in"US trade or business". Since originating loans would be considered "US trade or business", they instead purchase loans on the secondary market – often immediately after origination ((Blickle, Fleckenstein, Hillenbrand, and Saunders 2020))

2.2 Data

DealScan We obtain data on new originations of syndicated loans from Thomson Reuters DealScan.[4] We focus on syndicated loans originated and refinanced in the United States to non-financial companies between 2000Q1 and 2022Q4. We proxy for a loan refinancing if an already originated loan is amended with a change in loan spread and maturity. Each origination and refinancing is considered a new facility. As discussed above, we classify Term Loan B-K as "nonbank" loans, and Term Loan and Term Loan A as "bank" loans. To classify the main lender type behind each loan, we exploit the classification of loan tranches following industry practice (Standard and Poors 2020) and the prior academic literature (Ivashina and Sun 2011, Nini 2008).

Compustat. To obtain borrower financial information, including credit ratings, we merge the borrowers in Dealscan to Compustat via the legacy Dealscan version using the link provided by WRDS, the Dealscan-Compustat link file provided by Chava and Roberts (2008) from April 2018, and augmentations to the DealScan-Compustat Link obtained from Jan Keil's website ((Keil 2018)). Roughly 30% of the facilities in DealScan are public firms we can match to the Compustat data.

Creditflux. We obtain data on CLO tranches, and holdings from Creditflux, which in turn extracts these data from monthly trustee reports that CLOs provide to their investors. Creditflux captures the near universe of CLO tranches and the majority of holdings since approximately 2005.

Other data. We use CapitalIQ to track credit line drawdowns of borrowers on a quarterly basis (daily basis during COVID-19). We obtain secondary market loan prices from the Loan Syndication and Trading Association (LSTA). Stock returns are from CRSP.

[4] We use "Refinitiv LoanConnector Dealscan", instead of the legacy version "LPC Dealscan"

2.3 *Summary Statistics*

Table 2 presents the summary statistics. In Panel A, we present the descriptive statistics for all borrowers. In Panel B, we split borrowers by those that have dependence on nonbanks (TLB borrowers) and those without any nonbank dependence in a given year-quarter.

Conditional on having loans from nonbanks, the average firm receives 77% of its term loans from nonbanks.The average firm has about $8.9 billion in assets, with smaller borrowers being bank reliant relative to nonbank borrowers ($7.71 bil. vs. $12.71 bil.). Firms also hold about 10% of their assets in the form of liquid cash. A majority of the firms in our sample are unrated. This fraction, however, is significantly larger for bank-dependent borrowers with 61% of these borrowers having no credit rating while only 40% of nonbank borrowers have no credit rating.

Credit lines are a common source of liquidity for borrowers. 95% of borrower-quarter pairs have access to credit lines, with the occurrence slightly higher for bank borrowers relative to nonbank borrowers (96% vs. 92%). However, when we compare the size of credit lines as a share of either total loans to the borrower or total liquidity (cash + credit lines), bank borrowers have a significantly higher share. Bank borrowers have about 87% of their total credit in the form of credit lines relative to 38% for nonbank borrowers. Bank borrowers also get 68% of their liquidity in the form of credit lines compares to 63% for nonbank borrowers. Bank borrowers are able to borrow credit lines at much cheaper rates (drawn spread 168 vs 245 bps; undrawn spread 28 vs 44 bps). Overall, nonbank borrowers have slightly larger dollar amounts of credit lines drawndown ($92 bil vs. $100 bil). However, the total credit line commitment, on average, is higher for bank borrowers ($672 mil. vs. $541 mil.), so that on average bank borrower credit line utilization at 22% is slightly greater than that for nonbank borrowers.

These descriptive statistics suggest that nonbank borrowers receive fewer credit lines, and pay more for these credit lines. In the rest of the paper, we test these differences more rigorously and establish a causal impact of nonbank dependence on driving them.

3 Empirical Results

Our analysis comprises two main parts. Firstly, we explore how dependence on nonbanks affects the ex-ante provisioning of liquidity by banks. Subsequently, we examine how both firms and banks respond to a plausibly exogenous shock to nonbank credit supply that changes a borrower's dependence on nonbanks.

3.1 Ex-ante Correlations

We start by looking at the availability and terms for bank loans, and particularly credit lines, for borrowers depending on their level of exposure to nonbanks. We conduct the following test:

$$y_{i,t} = \alpha + \beta \times \text{Nonbank Dependence}_{i,t} + \sum \gamma \mathbf{X}_{i,t} + \lambda_t + \delta_i + \epsilon_{i,t} \tag{1}$$

where $y_{i,t}$ is the amount or spread on the credit line to a borrower i in quarter t. Our variable of interest is the β on the exposure of the borrower to nonbank loans. We measure *Nonbank Dependence* as the volume of term loans to the borrower from nonbanks as a share of total term loans to the borrower. In our specification, we also include firm, industry, and year-quarter fixed effects as well as control for time-varying firm characteristics such as borrower size, debt-to-asset ratio, borrower rating, and loan terms including maturity and deal purpose.[5] Standard errors are clustered at the borrower level.

Access to Credit Lines for Nonbank Dependent Borrowers. Our main variable of interest is the availability of bank credit lines to borrowers with nonbank exposure. In Figure 5, we plot the share of credit lines outstanding in a given period against a borrower's dependence on nonbank loans. In Panel A, we measure credit line availability as the volume of credit lines relative to total lending to the borrowers (Panel A - total loan as a sum of credit lines, bank term loans, and nonbank term loans) to capture the extension of credit

[5]For example, deals by the firm to be used as working capital, for acquisitions or takeovers, for leveraged buyouts, or general purposes, among other reasons.

lines relative to overall borrowing by the firm. Alternatively, in Panel B, we measure credit lines as a share of available liquidity, measured as the sum of cash and credit lines, where cash is measured as cash and all securities ready transferable to cash.[6] The idea is that firm has access to liquidity either through stored cash or can draw down on credit lines to increase liquidity. Firms trade off between these two cash management tools depending on the relative costs of holding cash and credit lines, which is in turn a function of the premia/fees they earn/incur and their risk (Sufi (2007), Acharya et al. (2013), and Disatnik et al. (2013)).

Both panels confirm that after controlling for borrower and time fixed effects, borrowers with a greater exposure to nonbanks through term loans have a lower availability of liquidity through bank credit lines. Panel A shows that borrowers with high nonbank dependence have a lower share of credit lines relative to their total borrowing while Panel B shows that they rely more on cash for liquidity relative to borrowers with lower nonbank dependence.

To look at how the availability of credit lines vary with nonbank dependence formally, we follow the specification in Equation 1. In Panel A of Table 3, we regress the share of credit lines committed as share of total loans (Columns 1-4), and also as share of liquid assets (Columns 5-8) against the outstanding dependence of the borrower to nonbanks. Column (1) suggests that a one standard deviation increase in nonbank exposure (0.32) reduces the share of credit lines to total loans for the borrower by 8.1 ppt, or moving from a completely bank-dependent borrower to a borrower completely reliant on nonbanks for financing (nonbank dependence from 0 to 1) reduces credit line share of the total deal by 25.1 ppt.

However, nonbank borrowers and bank borrowers differ along many dimensions as shown in Table 2. For example, nonbank borrowers are larger, have higher leverage and are riskier. In Columns (2) - (4), we therefore progressively add more controls, including rating × year-quarter fixed effects, borrower fixed effects, and 2-digit SIC industry × year-quarter fixed effects. All specifications include controls for time-varying firm size, debt-to-asset ratio,

[6] Items "che" or "cheq" in Compustat

loan purpose and maturity. In the strictest specification (Column 4), moving from bank to nonbank-dependent borrowers leads to a reduction in credit lines as a share of total loans by 17.6 ppt.

In Columns (5) - (8), we repeat the exercise but measure access to liquidity based on credit lines as a share of liquid assets (measured by cash + credit lines). Column (5) shows that moving from a borrower completely reliant on banks to a borrower completely reliant on nonbanks for financing reduces credit line share in their liquidity pool by 5.7 ppt. Including controls for loan and borrower characteristics, the strictest specification in Column (8) shows that a similar shift from bank-dependent to nonbank-dependent borrower reduces reliance on credit lines by 3.5 ppt. Alternatively, this suggests that borrowers with a greater dependence on nonbanks rely relatively more on cash for their liquidity needs while borrowers with a low reliance on nonbanks receive a greater share of their liquidity through bank credit lines.

Cost of Credit Lines. Having shown the negative correlation between the volume of credit lines available to borrowers and their dependence on nonbanks, we now turn to the cost of borrowing for borrowers based on their nonbank dependence.

Figure 6 plots the cost of both new (Panel A) and existing credit lines (Panel B) for borrowers against their outstanding exposure to nonbanks. We see that both the drawn and undrawn credit spread is higher for borrowers with a greater term loan dependence on nonbanks. We report the regression results relating these spreads to nonbank dependence in Panel B of Table 3, the spread on the drawn portion of the credit line in Columns (1) - (4), and the spread on the undrawn portion of the credit line in Columns (5) - (8). In the strictest specification,s (Columns 4 and 8) moving from no reliance on nonbanks to a full reliance on nonbanks leads to an increase in the drawn spread by 46.9 bps and undrawn spread by 7.6 bps even after controlling from borrower, rating category $\times$ year quarter, and 2-digit industry $\times$ year-quarter fixed effects, and loan controls. This is an economically meaningful increase, equivalent to 25% of the mean drawn-spread and un-drawn spread respectively.

Overall, borrowers that have a greater dependence on nonbanks are seen to have a lower availability of credit lines and an increased cost of financing credit lines. These results are in line with Sufi (2007) where idiosyncratic firm risk and Acharya et al. (2013) where aggregate firm risk affects availability of credit lines. In our case, the risk of the firm stems from the fragility of their nonbank source of financing.

3.2 Channels

So far, we have shown that borrowers that have a greater dependence on nonbanks have lower access to, and receive worse terms on, their bank credit lines. However, this correlation does not necessarily imply that nonbank dependence is *leading* to worse terms for borrowers. While we control for difference across bank and nonbank borrowers in their firm characteristics, one cannot ignore the screening role of banks in the syndicated loan market. Particularly, it is important to note that nonbank loans are also originated by banks, originated with the intention of selling to nonbanks in the secondary market soon after origination. Therefore, changes in nonbank supply in the secondary market affect the availability of "nonbank" loans in the primary market (see Fleckenstein et al. (2021) for a detailed discussion). However, banks may control the type of borrowers that they want to originate nonbank loans for, and these may be borrowers that the bank prefers not to hold loans of directly on balance sheet, be it credit lines or term loans (even if just during the warehousing period before distribution to nonbanks). In Table 4, therefore, we explicitly consider differences across banks and across borrowers of the same bank to test whether bank and borrower selection explain the patterns observed in Table 3.

Bank-firm relationships. One potential explanation for lower levels of credit line lending to certain borrowers may be the fact that the borrower does not have a strong relationship with banks. If banks do more relationship lending, while nonbanks are more transactional or arm's length (Rajan, 1992) than borrowers that borrow primarily from nonbanks may not have strong bank relationships that enables access to bank provision of liquidity.

We, therefore, need to contend with the possibility that borrowers who do receive credit lines do so because they have bank relationships and these borrowers also tend to have a lower share of loans from nonbanks. To address this issue, we directly control for the strength of relationship for a given bank-borrower pair at every period based on their past relationship loans.*Bank-Borrower Relationship* is based on the share of loans to the borrower in the last three years from a given bank.

We include this proxy for bank relationship strength as a control in specification (1) and report the results in Column (2) (Column 1 is the baseline specification) of Table 4 . Panel A presents results on credit line shares, and Panel B presents results on credit line spreads. We see that including the relationship control does not alter significantly the coefficient on our main variable of interest (Nonbank Dependence), which remains large and significant even with the inclusion of the relationship controls.

Bank-Nonbank Matching. Second, similar to bank-firm relationships, banks and nonbanks also match on other characteristics. For example, low deposit to assets banks match more with nonbanks (see Fleckenstein et al. (2021)). At the same time, low deposit banks are more likely to have lower credit line exposure (based on theory model by Kashyap et al. (2002)), and bank selection could potentially explain the difference in credit line availability to borrowers.

To address this issue, we look at variation across borrowers of the same bank. We follow the specification in Equation (1) but include bank-time fixed effects to compare different borrowers of the same bank. Results are reported in Column (3) of Table 4. In Panel A, we show that the share of credit lines in total loans is lower (from the same bank in the same quarter) to borrowers that have a greater dependence on nonbanks, and Panel B confirms that the credit line fees (all in drawn spread) are also higher. The effects are almost the same as the baseline magnitude in Column (1). This suggests that differences across banks do not seem to explain the variation observed in credit lines.

Borrower Selection. To further show that the results are driven by dependence on nonbanks and not by bank selection into certain borrower types, we focus on time-varying nonbank dependence within the same bank-borrower pair. In Column (4) of Table 4, we include a bank-borrower fixed effect. That is we keep the bank-borrower pair the same, and look at the effect of changing nonbank dependence of a borrower on its credit line access and fees. When the same borrower, borrowing from the same bank, increases its nonbank dependence from 0 to 1, the bank reduces the level of credit line by 10.7 ppt relative to total borrowing of the firm, and charges an additional 29.1 bps for the credit line.

Lastly, in Column (5) of Table 4, we focus on the set of borrowers who have an outstanding banking relationship (Term Loan A) and look at the provision of bank credit lines to these borrowers. These are borrowers for whom banks have extended term loans, and hence, are less subject to the concern of lack of bank funding availability pushing them to nonbanks. Specifically, we restrict our sample to banks that have a positive exposure to borrowers through their term loans in a given quarter. Conversely, these borrowers have at least one term loan outstanding from the bank in the given quarter. Once again, we see that this sub-setting too does not alter our main qualitative results. While coefficients in Columns (4) - (5) are about 25%-35% smaller in magnitude than the baseline effect in Column (1), they are statistically significant whereas the bank-borrower relationship effect is in fact rendered economically and statistically insignificant.

3.3 Bank Regulation and Supervisory Guidelines

One alternate hypothesis that could explain the observed correlations could be the fact that banks are unable to make loans to certain borrowers due to regulatory or supervisory restrictions. For example, if banks are explicitly prohibited to lend or extend credit lines to certain borrowers, these borrowers may turn to nonbanks for their loans while at the same time we would see a low occurrence of credit lines.

Chernenko et al. (2022) show that (especially the 2013 revisions to) leveraged loan guidance to banks by bank regulatory agencies has made it costly for banks to lend to negative EBITDA firms, as these loans are classified as "substandard" and may result in larger loan loss allowances and lower CAMELS ratings. If negative EBITDA firms are cut off from bank lending and are forced to turn to nonbanks, it could explain the negative correlation observed between bank liquidity provision and nonbank reliance of firms.

In line with these predictions, Panel A of Figure 7 shows a discontinuity at 0 EBITDA for receiving a credit line from banks. Firms with negative EBITDA have significantly lower share of their liquidity satisfied through credit lines. There is a big jump at 0 EBITDA and firms with positive earnings are more likely to have credit lines from banks.

However, to the extent that bank lending is restricted by the guidance, it seems that banks reduce access to credit lines for negative EBITDA borrowers but the same is not necessarily true (relative to nonbanks) for the extension of term loans. In Panel B of Figure 7 we see that both firms with negative and high positive EBITDAs have nonbank term loans and there is no discontinuity in bank vs. nonbank term loan access at 0 EBITDA. In fact, positive EBITDA firms are more likely to have nonbank term loans.

Nevertheless, if banks restrict credit line access to certain firms, we want to ensure that our results are not driven by this set of borrowers. Thus, in Table 5, we repeat our baseline test based on specification (1) but restrict the sample to borrowers with positive EBITDA. Panel A presents results for credit line shares and Panel B for credit line spreads. Our sample is restricted to firms that match to Compustat (public firms for whom we can obtain information on earnings). In Columns (1) and (4), we repeat our baseline specification. In Columns (2) and (5), we restrict the sample to firms with a positive EBITDA. We see that the results are qualitatively similar for the effect of nonbank dependence on credit line access and fees, the quantitative magnitude being 40% of the baseline for access and 25% (40%)

for fees based on Column (2) ((5)). In Columns (3) and (6), we restrict our sample to firms further away from the 0 EBITDA threshold by focusing on firms with EBITDA above $10 mil. The results are stronger than in the positive EBITDA sample. For firms far away from the 0 EBITDA threshold, moving from a borrower completely dependent on banks to one with complete dependence on nonbanks reduces credit lines as a share of total loans by 6.6 ppt, as a share of total liquidity by 3 ppt, and increases drawn and undrawn spreads by 11.8 bps and 2.6 bps respectively.

Thus, our results do not seem to be driven by the set of firms that cannot access bank credit lines and term loans. But rather, even highly profitable firms access the nonbank term loan market and in doing so see lower levels of credit line availability.

4 Oil Price Shock

So far, we have documented the negative correlation between a firm's term loan dependence on nonbanks and its access to bank credit lines which serve as a source of emergency liquidity in times of market-wide stress. We also verified robustness of the finding to a range of bank, borrower, and bank-borrower, as well as regulatory/supervisory mechanisms that could drive the correlation. However, an ideal experiment would be to exogenously vary the amount of credit provided by nonbanks to borrowers and see how banks respond to this change in their provision of liquidity to the borrower, In reality, most observed changes in credit are not random. Thus, we need to look for a shock where the availability of nonbank funds change due to factors uncorrelated to the borrower's characteristics. For this, we rely on changes to nonbank credit supply during the oil price shock of 2014-2016.

4.1 Background

Between mid-2014 and early 2016, the global economy faced one of the largest oil price drops, with prices falling 70%. Booming shale oil production played a significant role in the price drop by lowering break-even prices. The initial drop in oil prices from mid-2014 to early 2015 was driven by supply factors such as booming U.S. oil production and shifting OPEC policies. However, low demand from mid-2015 to early 2016 further exacerbated the price drops, which failed to provide a substantial boost to global economy as is typically expected from an oil price drop of such magnitude.

To elaborate, the West Texas Intermediary (WTI) price for crude oil (a grade of Texas light sweet crude petroleum used as a benchmark for domestic pricing in the United States) started 2012 at $102.96 a barrel and ended 2013 at nearly the same level, at $98.17. Prices remained between $90 and $100 a barrel over most of the 2-year period. Starting in mid-June 2014, petroleum prices began to fall worldwide, and that drop continued at a significantly accelerated rate through the end of January 2015. After peaking at $107.95 a barrel on June 20, 2014, petroleum prices plunged to $44.08 a barrel by January 28, 2015, a drop of 59.2 percent in a little over 7 months. The WTI declined 55.4 percent from June 2014 to January 2015.(see Figure 3 Panel A)

One of the main reasons for the price drop was the fact that domestic production in the U.S. increased by 1.0 million barrels a day in 2013 from 2012 and exceeded U.S. imports for the first time in 20 years. Strong U.S. production continued in 2014, and so did production from the OPEC. Reduced demand in the second half of 2014 was also a major factor in oil price falls. An overall weakening of the global demand for petroleum began in May, particularly from China and Europe. The drop in demand was not just because of an economic slowdown, but also resulted from structural changes to promote energy efficiencies. Another factor related to demand was the value of the U.S. dollar.[7] From June 2014 to January 2015, the dollar's value rose 14.3 percent compared to an average of currencies from major trading partners of the United States, weakening global demand and exacerbating the oil price drop.

[7]Petroleum on the world market is priced mostly in dollars, so the price for petroleum will also depend on the movements of other currencies relative to the dollar. As the relative value of the dollar increases, producers tend to lower the price of petroleum rather than passing the entire price increase on to foreign buyers.

Impact of Oil Price Drop. There does not, however, seem to have been an impact of the oil price drop on overall stock prices in 2014 and 2015.[8] In Panel B of Figure 3, we plot the S&P500 level from 2010 onwards. As one can see, between 2014 June and 2016 January there was no concurrent drop in stock prices as oil prices fell precipitously. One exception was the energy sector stocks that fell by about 9% in 2014. When oil prices declined, it hurt not only the exploration and production (E&P) companies that find and sell oil and gas but also the services and transportation companies that rely on those E&P companies' success to drive their business.

In contrast, there was a significant drop of over 10% in secondary market prices of leveraged loans that are tracked by the Loan Syndications and Trading Association (LSTA) (see Panel C of Figure 3). This drop in price in the index was driven by the large drop of over 20% in the price of loans of firms in the oil and gas industry (Panel D of Figure 3).

Impact on CLO flows. As oil prices fell, new CLO issuance seemed to have taken a hit falling almost 60% between June 2014 and Jan 2016 (See Panel A Figure 4). As the value of oil and gas firms fell in the secondary market, investors stayed away from CLOs with energy holdings.[9] The large drop in oil prices, thus, affected secondary market pricing of Term B leveraged loans that CLOs trade as well as new issuances of CLOs. Similarly, there seems to be an effect on primary market nonbank term loan originations but not on bank term loan (which even rises slightly) or credit lines (See Panel B Figure 4).

4.2 Credit Outcomes for Nonbank Dependent Borrowers

We are predominantly interested in studying how an exogenous variation in the amount of nonbank loans available, and hence, in the level of dependence of a borrower on nonbanks,

[8] There is a drop in stock prices in early 2016 in tandem with oil prices but driven by recession expectations. See https://www.wsj.com/articles/oil-stocks-dance-the-bear-market-tango-1453722783 and https://www.reuters.com/article/us-global-markets/oil-rally-propels-wall-street-to-record-idUSKBN13G01L

[9] Source: LPC - https://www.reuters.com/article/energy-clo/trlpc-energy-heavy-us-clos-trade-down-in-secondary-amid-volatility-idINL1N1381BS20151113

affects their access to bank credit lines.

We exploit the drop in new CLO issuance during the oil price shock as a plausbily exogenous variation in firms' dependence on nonbanks. Specifically, we exploit the fact that some CLOs had a much larger exposure to firms in the oil and gas sector before the oil price shock. These CLOs witnessed a larger reduction in portfolio value, reducing new originations more. At the borrower level, some firms had loans that were held by CLOs that were more exposed to the oil-price shock while others were held by CLOs unaffected by the shock. This gives us exogenous variation in the level of a firm's indirect exposure to the oil price shock. We focus only on borrowers outside the oil and gas sector to ensure that the effect on a borrower is only through the indirect exposure to the oil price shock through CLOs that held its loans.

First, we verify that the level of nonbank loans a borrower has access to drops after the shock. We then look at the borrower's use of their existing credit lines and their access to new credit lines. To study this, we estimate the following specification:

$$y_{i,t} = \alpha + \beta \text{Active TLB} \times \text{High Oil-Gas Exposure}_i \times \mathbf{1}_t + \lambda_t + \delta_i + \epsilon_{i,t} \tag{2}$$

where $y_{i,t}$ is either volume of nonbank term loans outstanding, the volume of credit lines outstanding, or spreads on bank credit lines for each borrower i in quarter t. *High Oil-Gas Exposure* takes a value of one for firms with above median *Oil-Gas Exposure*, where the *Oil-Gas Exposure* is the weighted average of CLO's portfolio share in oil and gas firms with the weights corresponding to the share of the borrower's loans held by the CLO in 2014 Q1. We include borrower fixed effects, rating- year quarter fixed effects, and 2 digit SIC code - year quarter fixed effects to. Standard errors are clustered at the borrower level.

We do two main selections to our sample. First, we omit borrowers in the oil and gas industry who may be directly affected by oil price movements. Second, we split borrowers with *non-maturing* (active) TLB loans from *maturing* TLB borrowers since firms with maturing TLBs will see a mechanical reduction in TLB loans outstanding and lack of credit availability (or increase in rollover funding costs) may directly impair the credit-worthiness of the firm. Prior literature has indeed shown a direct negative impact of maturing loans on firms. For example, Almeida et al. (2011) show that firms with large portions of long-term debt maturing during the global financial crisis observe worse outcomes than otherwise similar firms that need not refinance their debt during the crisis. In contrast, firms with non-maturing loans are not immediately affected by the reduced CLO issuance except through a reduction in further accumulation of dependence on nonbanks.

First, in Appendix Figure A2, we verify that the oil price shock affected the access to nonbank loans for borrowers that relied on CLOs that were affected by the oil price drop. We see a slightly upward trend in level of nonbank loans outstanding prior to the shock. Relative to this pre-trend, however, the level of TLB loans outstanding for a borrower drops significantly after 2014Q2. Particularly, the level of nonbanks loans outstanding for borrowers more exposed to the shock flattens out and is at a level much below the pre-shock level even after the end of the oil price shock. This suggests that even after CLO and nonbank issuance recovers, borrowers that were dependent on nonbanks prior to the shock permanently reduce their holdings of nonbank loans.

In Panel A of Figure 8, we allow the coefficient of interest (β) in specification (2) to be time-varying (β_t for each quarter t). We notice an increase in the amount of credit lines available to the borrower around the time of the oil price shock. While the changes to credit lines were not significantly different from 0 before the drop in oil prices, banks permanently increased their provision of credit lines to borrowers that had more of their loans held by CLOs that were exposed to the oil-price shock. This is consistent with banks anticipating a lower nonbank dependence of these borrowers after the shock.

We next test for the changes in pricing for outstanding and new credit lines in Panel B of Figure 8. Panel B shows that in the pre-period, credit line spreads for borrowers in oil-gas CLOs were not statistically different from borrowers that were less exposed to oil-gas CLOs prior to 2014Q1. However, as the TLB exposure falls, we see that the average spread of outstanding credit lines fall.

We present the magnitude of the effect on volume and pricing of credit lines in Table 6. The table presents results using the specification (2) with *Post* taking a value of 1 for all quarters after 2014Q1. Column (1) and (2) look at credit line volume, Columns (3) and 4 focus on credit lines as a share of firm liquidity, and Columns (5) and (6) focus on credit line spreads. We include borrower, industry-year quarter, as well as rating year-quarter fixed effects. Based on the more stringent estimations in Columns (2), (4) and (6), respectively, borrowers with active nonbank loans that were held by CLOs that were more exposed to the oil-gas shock experience an increase credit lines outstanding by 50.3 ppt, an increase in liquidity coming through credit lines by 7.8 ppt, and a reduction in credit line spreads by 30.9 bps.

4.3 Financial and Real Effects on Nonbank Dependent Borrowers

Finally, we look at how the dependence on nonbanks affects the financial and real conditions of borrowers. Borrowers that were a priori dependent on nonbanks were affected by the decline in credit available from nonbanks after the shock. However,if these borrowers did not have immediate rollover needs, then anticipation of their reduced nonbank dependence in future enabled them to receive more liquidity from banks.

We repeat the exercise in equation (2) with financial and real outcomes of the borrower. Table 7 shows that firms with *Active TLBs* and *High Oil Gas Exposure* that received more credit lines as their nonbank exposure decreased (Columns (1) and (2), respectively) fared better during the oil price shock, with their assets and capital growing. Importantly, their liquidity management shifts driven by an improvement in access to bank in credit lines. Their cash level does not change (Column (4)) but as their credit lines increase, they have more liquidity available and a greater portion of their liquidity is coming from banks through credit lines (Column (5)). We do not, however, see any perceptible impact on their income (Column (3)).

5 Discussion: Covenants in Loan Facilities

Thus far, we have documented how reliance on nonbank lenders can adversely affect availability of liquidity insurance from banks. We have shown that firms with a higher reliance on nonbanks receiver smaller credit lines at more expensive rates. As a firm's nonbank reliance falls (exogenously), banks increase their provisioning of liquidity. However, volume and pricing may not give us the complete picture. Specifically, one way through which banks control the drawdown of outstanding credit lines is by imposing covenant restrictions on borrowers. If borrower risk increases, triggering covenants, banks may be able to limit withdrawals.

Academic literature has argued that nonbank borrowers typically have much weaker covenants (Ivashina and Vallee (2020)). This may suggest that even if nonbank borrowers have lower credit limits or pay higher costs, having continued access to and being able to draw down on credit lines may actually be easier for nonbank borrowers. However, more recent work suggests that while the nonbank portion of nonbank deals have weaker covenants, banks have not given up their control rights and continue to include covenants in the bank portion of deals (Berlin et al. (2020)).

Therefore, to gather the complete picture on borrowing terms on credit lines, we turn to non-pricing terms in the form of covenants. Lower credit supply would indicate, besides a reduced volume and higher costs, stricter non-pricing terms for the borrower. We formally test this in Table 8. Specifically, we look at credit line deals of borrowers and the likelihood of occurrence of different types of covenants. We focus on the number of financial covenants, whether material restrictions exist (such as restrictions of dividend payments), and the most common type of financial covenants - including restrictions of a borrower's interest coverage ratio (ICR, min. EBITDA to interest expense), debt-to-cash flow restrictions which limits the maximum total debt a borrower can hold relative to their cash flows (EBITDA), and the fixed charge covenant (min. EBITDA firm has to maintain relative to their interest expenses and long-term lease payments).

Table 8 shows that while the number of covenants in contracts seem to be similar across borrowers, nonbank borrowers are more likely to have material restrictions in their contracts, as well as limits on the interest coverage ratio, and debt-to-cash-flow. Likelihood of material restrictions increases by 5 ppt, relative to an average of 23% when moving to a bank-dependent to nonbank-dependent borrower. Similarly, likelihood of ICR covenant nearly doubles increasing by about 10 ppt relative to an average occurrence in the sample of 12.6%. Debt-to-cash-flow restrictions are 42% more likely for nonbanks, with nonbank-dependent borrowers having a 8.7 ppt higher likelihood of the covenant, relative to a sample average of 18.8%. We do not see a statistically significant difference in occurrence of the fixed charge covenant, however the coefficient points to a similar pattern. These results suggest that nonbank borrowers have a significantly higher likelihood of facing restrictions on their bank credit lines relative to bank-dependent borrowers, suggesting tighter credit supply for these borrowers.

Lastly, we look at how covenant restrictions change when a borrower's nonbank dependence falls. Using the oil-price shock for a quasi exogenous reduction in nonbank reliance, we observed an increase in credit line issuance at lower prices to borrowers. In Panel B of Table 6, we further look at how the occurrence of covenants on credit line contracts changes as a borrower's reliance on nonbanks fall. While the sample of deals with covenant information in much smaller than the sample of firms with observed volume and spread data, the results are consistent - the likelihood of occurrence of covenants falls as the borrower's reliance on nonbanks falls, further suggesting that credit supply is increasing.

Taking these results together, we see that nonbank-reliant borrowers have worse liquidity insurance from banks, demonstrated by the volume, pricing, as well as non-pricing terms on their credit lines.

6 Conclusion

In this paper, we explored how the growth of shadow banking and borrower dependence on nonbanks affects bank's liquidity provision to borrowers in the form of credit line extension. Nonbanks with fragile financing subject the borrower to rollover risk. As nonbanks withdraw, borrowers turn to banks, typically through credit line drawdowns for their funding needs. Thus, in periods of market-wide stress, credit supply flows from nonbanks to banks. Therefore, given expected additional pressure on their balance sheets, banks are less likely to provide credit lines to borrowers with nonbank dependence.

Consistent with this channel, we document a negative correlation between a firm's nonbank dependence for term loans and access to liquidity from banks. This correlation is robust to borrower risk, bank-firm and bank-nonbank matching as well as alternate measures of nonbank dependence. Using an exogeous shock linked to CLOs exposed to oil and gas firms at time of the oil-price shock of 2014-2016, we show that as nonbank funding falls and a firm's reliance on nonbanks declines, banks are more willing to extend credit lines to these borrowers at lower cost. This, in turn, improves the borrower's financial and real outcomes.

Overall, we conclude that nonbank dependence of firms can render them fragile to market-wide shocks, which reduces their access to liquidity provision from banks. This fragility could be an important consideration while assessing the overall efficiency of the rapid recent growth of nonbank lending in corporate finance.

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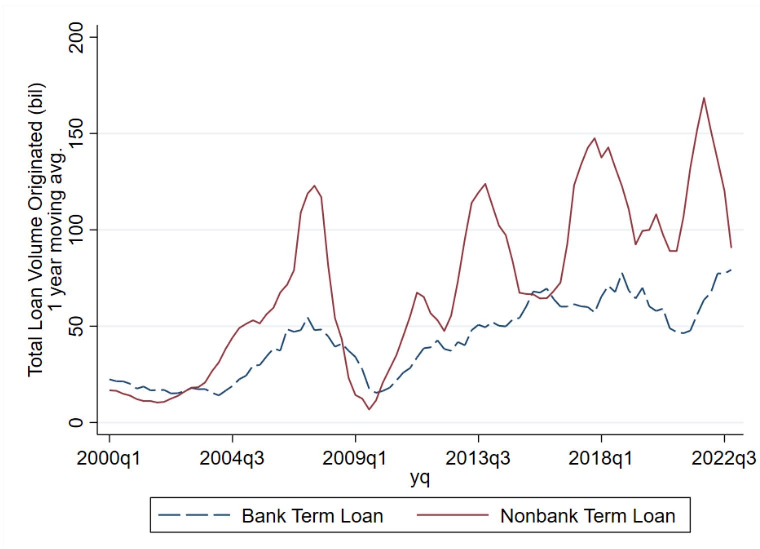
Figures

Figure 1: Growth of Nonbank Lending

Panel A plots the quaterly originationvolume of f bank and nonbank term loans in billions of dollars. Panel B plots the quarterly total book value of assets of bank and nonbank borrowers in trillions of dollars. The sample spans the 2000 to 2022. period Loan origination data is from Dealscan, borrower asset size is from Compustat. Term Loan As are classified as *Bank Term Loan*. Term Loan B-Ks are classified as *Nonbank Term Loans*. *Nonbank Term Loan borrowers* are borrowers that have at least one nonbank term loan outstanding in a given quarter. All other borrowers are classified as *Bank Term Loan Borrowers*.

Panel A - Loan Volume by Loan Type



Panel B - Total Assets of Bank and Nonbank Term Loan Borrowers

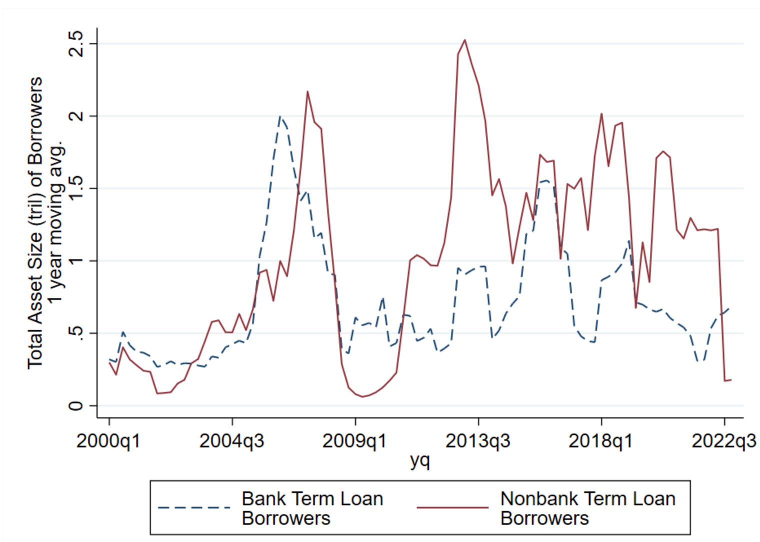


Figure 2: Credit Line Drawdowns - COVID-19

This figure plots the weighted average cumulative daily credit line utilization rate of bank and nonbank borrowers during COVID-19. The sample period is from March 1, 2020 to June 20,2020. Borrowers are classified as bank borrowers if they have no nonbank loan outstanding as of February 2020. For each day, we calculate the cumulative borrowing as the total credit line drawdown from March 1, 2020 upto the date. Credit line utilization is the cumulative borrowing scaled by the size of the total credit lines commitment to the borrower. We then calculate the average for each group as the weighted average utilization of borrowers in that group (weighted by each borrower's total credit line commitment). Credit line drawdowns and commitments are from S&P's Leverage Commentary & Data (LCD).

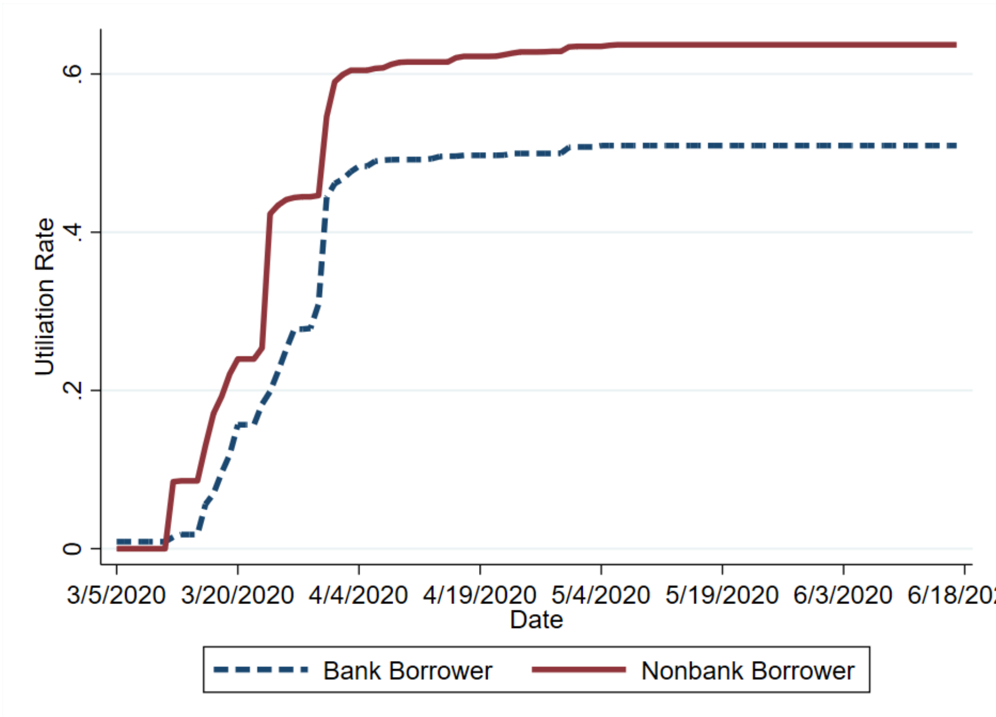
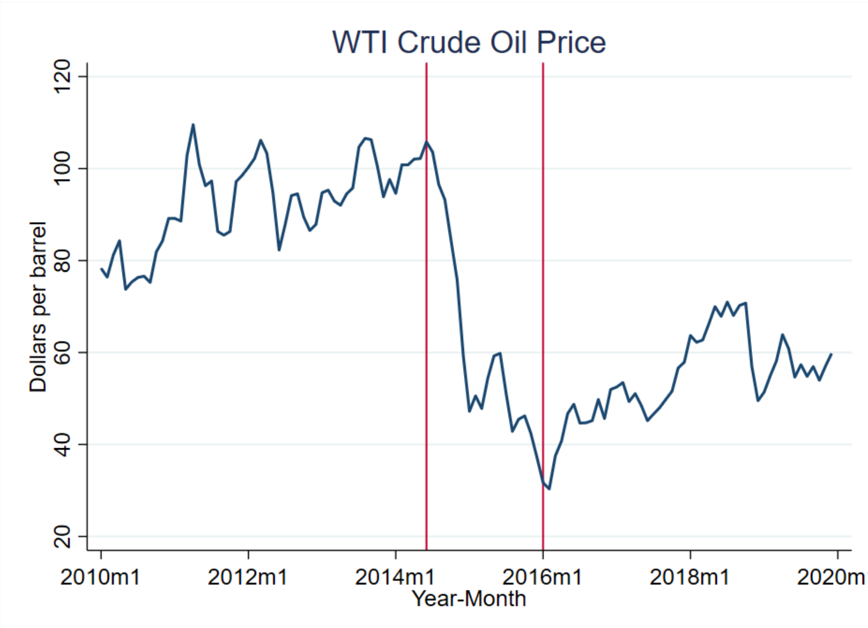


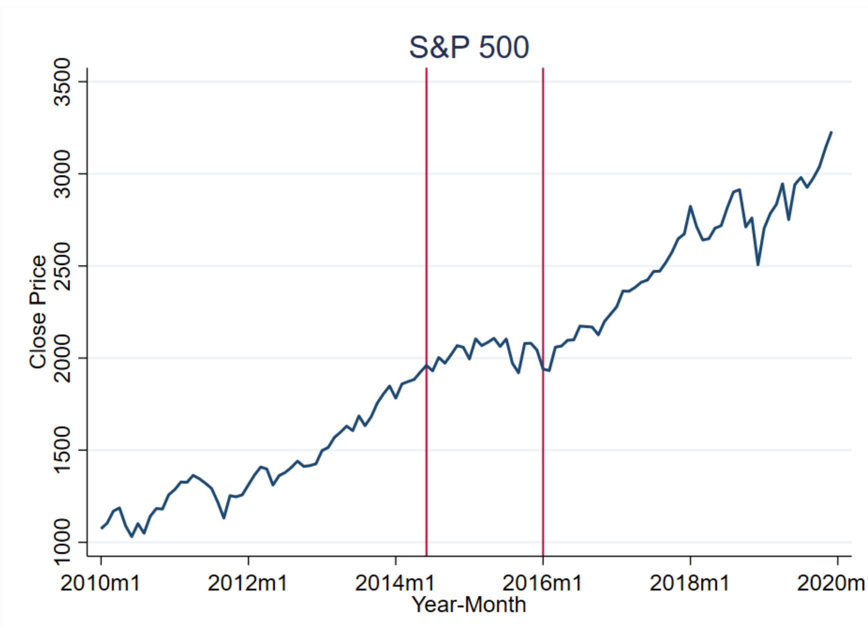
Figure 3: Price Movements during the 2014-16 Oil Price Shock

Panel A presents the level of oil prices of the West Texas Intermediate (WTI) and Panel B plots the S&P500 values from 2010 to 2020 .Panel C and Panel D shows the average quote on the leveraged loan market as reported by the Loan Syndications and Trading Association (LSTA) from 2010 to 2017. Panel D plots the secondary market loan prices from LSTA for oil and gas sector firms and all other firms separately. The two vertical bars mark June 2014 and January 2016 - the start and end of the drop in oil prices during the 2014-16 oil price shock.

Panel A - Oil Price

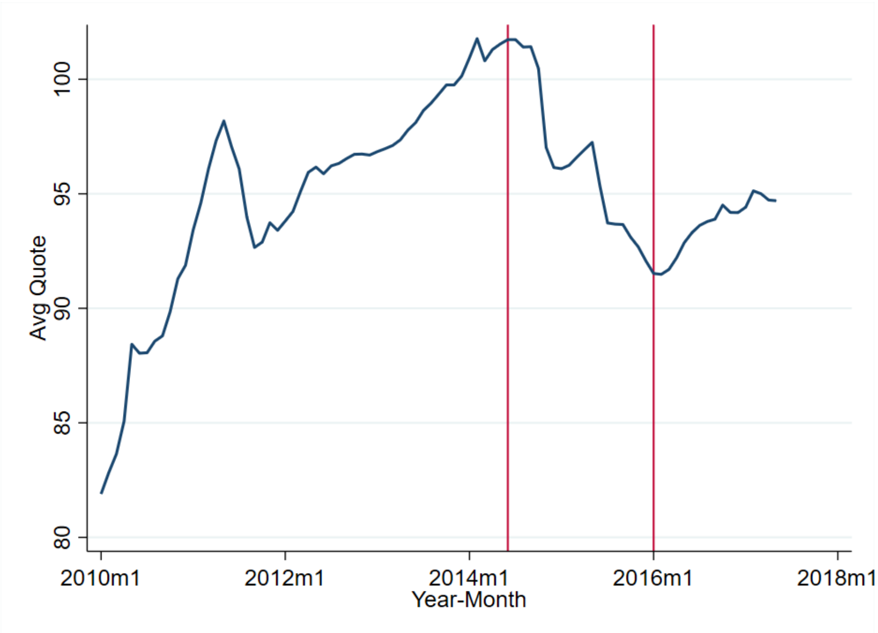


Panel B - Stock Price



Price Movements - Continued

Panel C - Loan Prices - All Loans



Panel D - Loan Prices - Oil and Gas vs. Other Industries

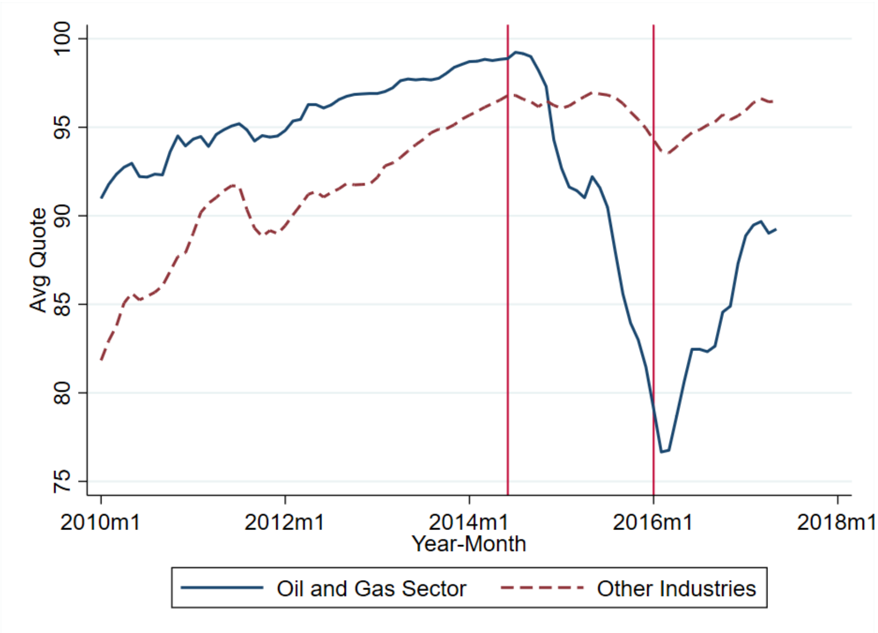
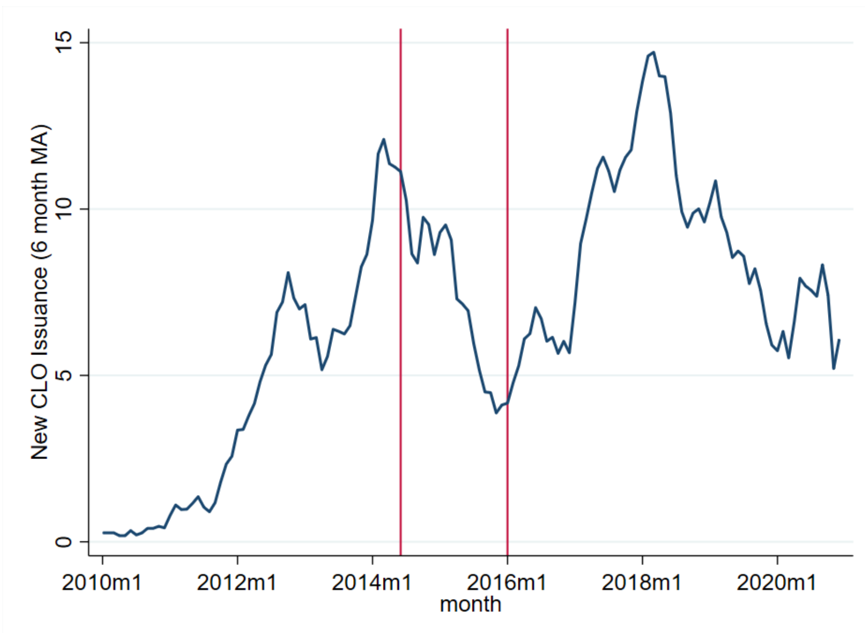


Figure 4: New CLO Issuance and Loan Originations

This figure plots new CLO issuance from Creditflux (Panel A) and new syndicated loan originations in DealScan (Panel B) between 2010 and 2020. The two vertical bars mark June 2014 and January 2016 the start and end of the drop in oil prices during the 2014-16 oil price shock.

Panel A - CLO Issuance Data - Creditflux; 6 month moving average



Panel B - DealScan originations

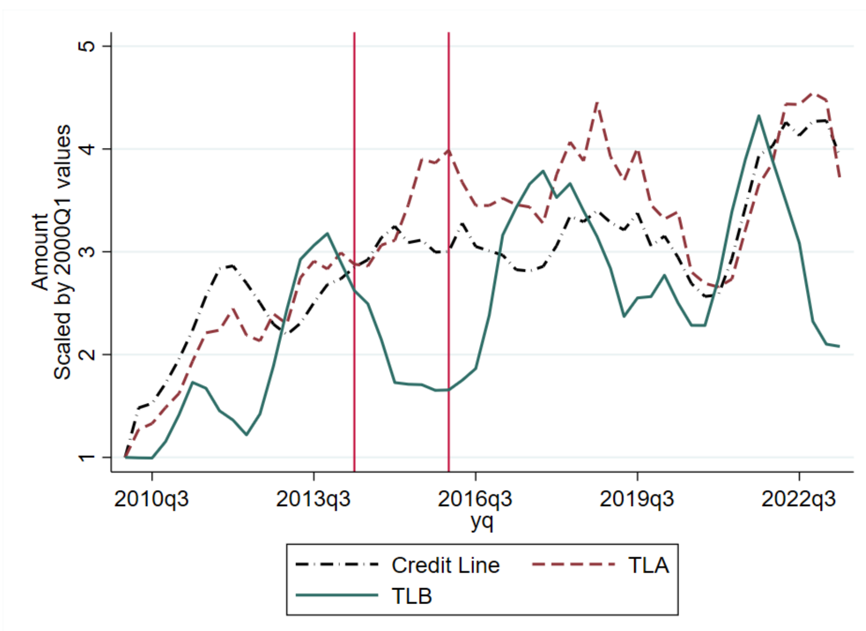
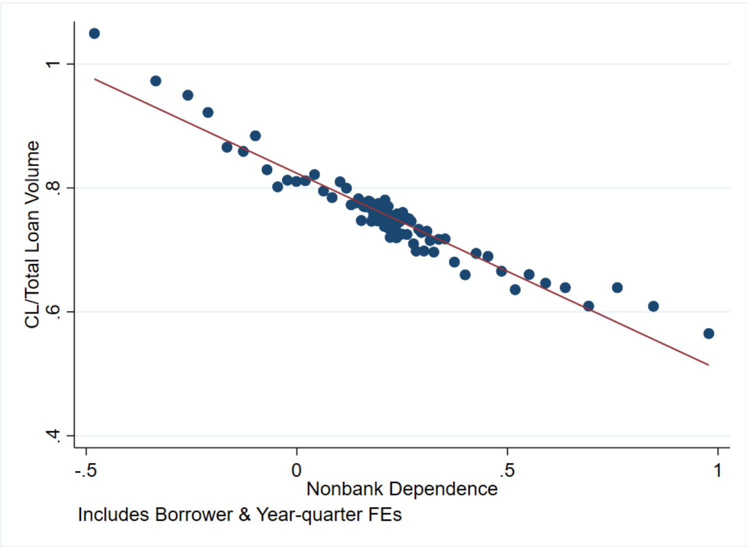


Figure 5: Volume of Credit Lines vs. Nonbank Dependence

This figure presents the binscatter plot of credit line access against nonbank dependence of the borrower. Data is at the borrower-year-quarter level and the sample period is 2000Q1-2022Q4. In Panel A, we measure credit line outstanding as a share of total loans outstanding to the borrower. In Panel B, we measure credit lines outstanding as a share of total liquidity (measured by cash plus credit lines). *Nonbank Dependence* is a measure of nonbank exposure of the borrower based on the volume of nonbank term loans (Term Loan B-K) outstanding as a share of total term loans outstanding in the current quarter for the borrower. We plot the residuals of the dependent and explanatory variables after controlling for borrower and year-quarter fixed effects.

Panel A - Credit Line Share of Total Lending



Panel B - Credit Line Share of Total Liquidity

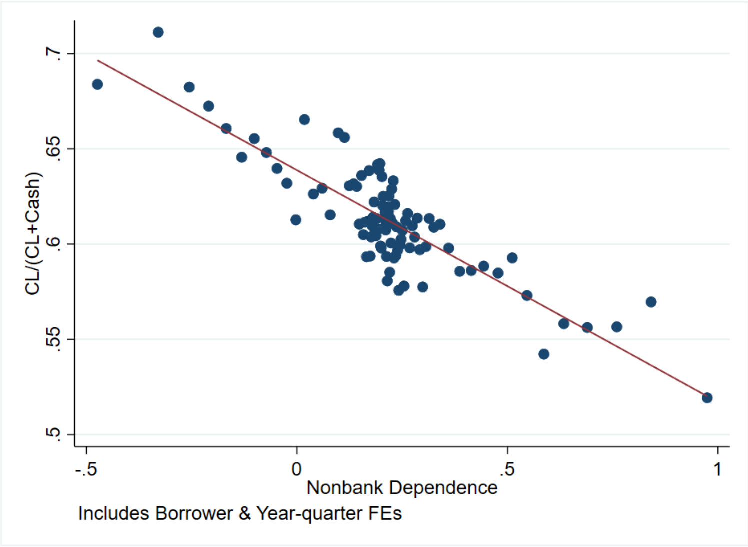
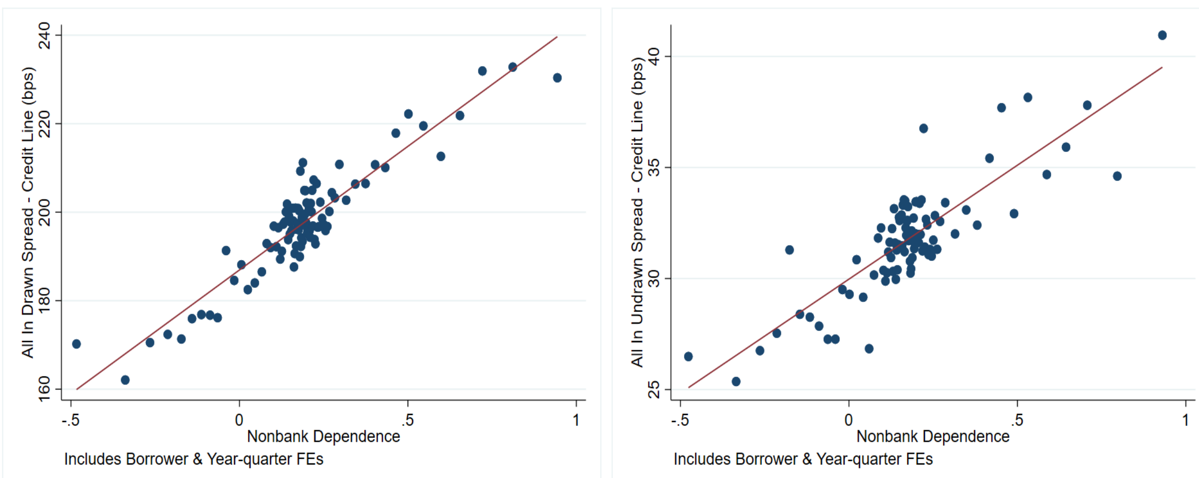


Figure 6: Cost of Credit Lines vs. Nonbank Dependence

This figure presents the binscatter plot of the cost of credit lines against nonbank dependence of the borrower. Data is at the borrower-year-quarter level and the sample period is 2000Q1-2022Q4. In Panel A, we measure the all-in-drawn and all-in-undrawn spreads of newly issued credit lines in the given quarter. In Panel B, we measure the all-in-drawn and all-in-undrawn spreads based on the weighted average of credit lines outstanding in the given quarter (weighted by loan amount). *Nonbank Dependence* is a measure of nonbank exposure of the borrower based on the volume of nonbank term loans (Term Loan B-K) outstanding as a share of total term loans outstanding in the current quarter for the borrower. We plot the residuals of the dependent and explanatory variables after controlling for borrower and year-quarter fixed effects.

Panel A - Cost of New Credit Lines



Panel B - Average Cost of Outstanding Credit Lines

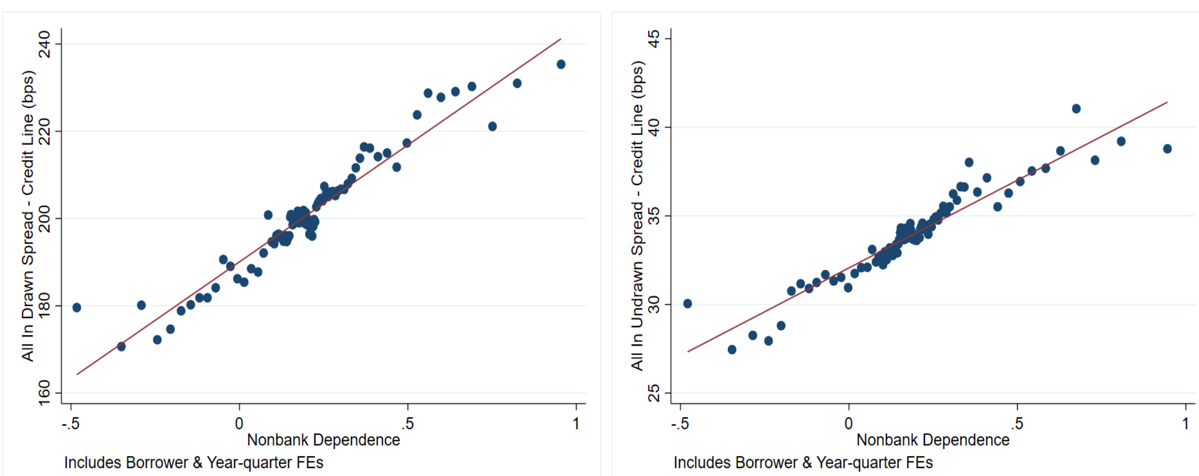
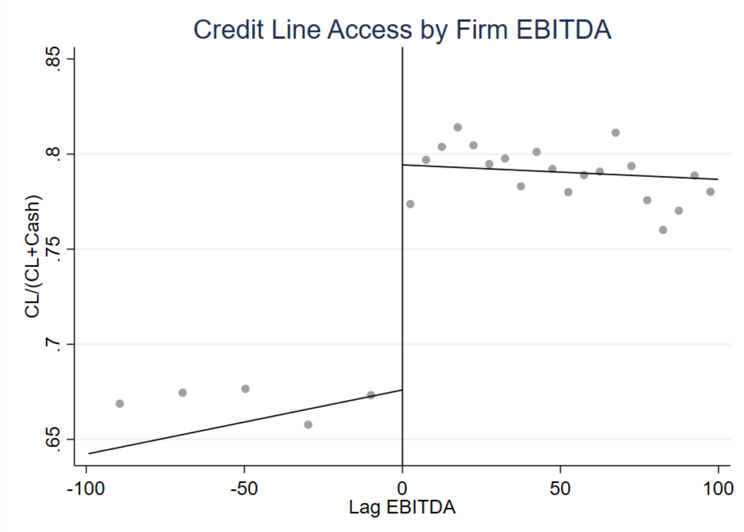


Figure 7: Access to Bank Loans Based on Firm EBITDA

This figure presents regression discontinutity plots of bank credit access based on firm EBITDA. The zero EBITDA cut-off is the conventional limit below which banks are prohibited from making loans to firms. Panel A presents results on extension of credit lines measured as new credit lines issued as a share of total liquidity (cash plus credit lines). Panel B presents results on extension of bank term loans as a share of total term loans of the borrower. *Lag EBITDA* is the firm's EBITDA one quarter before the loan is originated.

Panel A - Bank Liquidity Provision



Panel B - Bank Term Loan Share

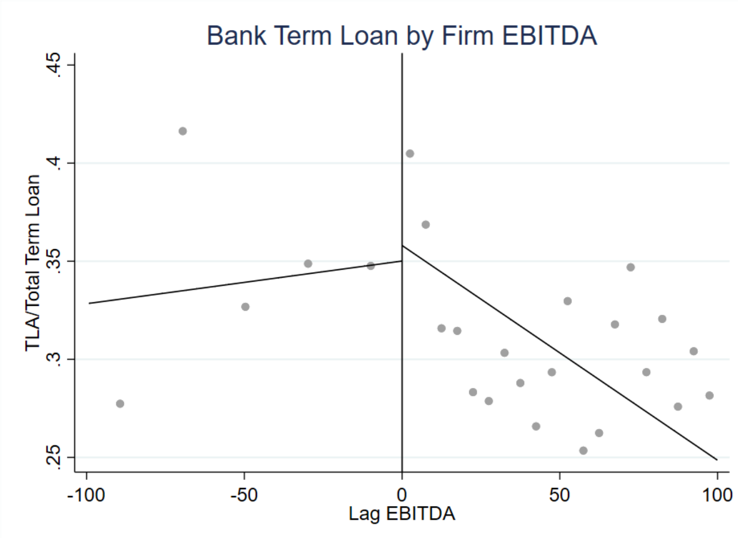


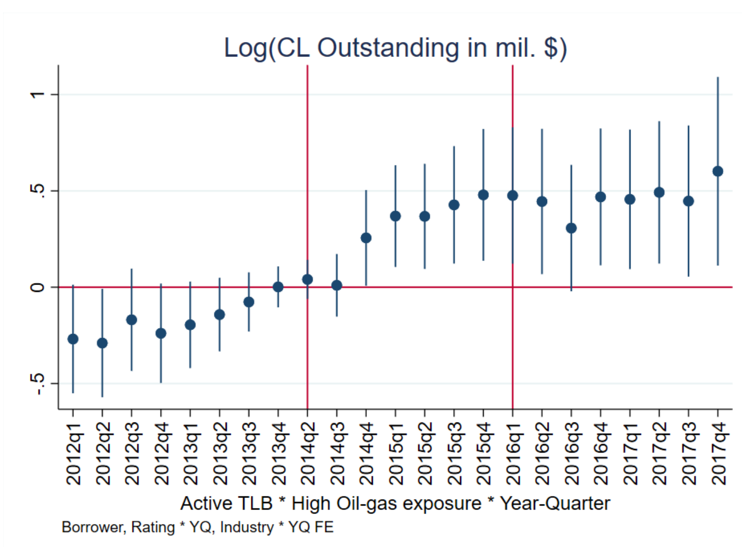
Figure 8: Borrower Credit Line Access

This figure plots the coefficients from the following regression around the oil price shock

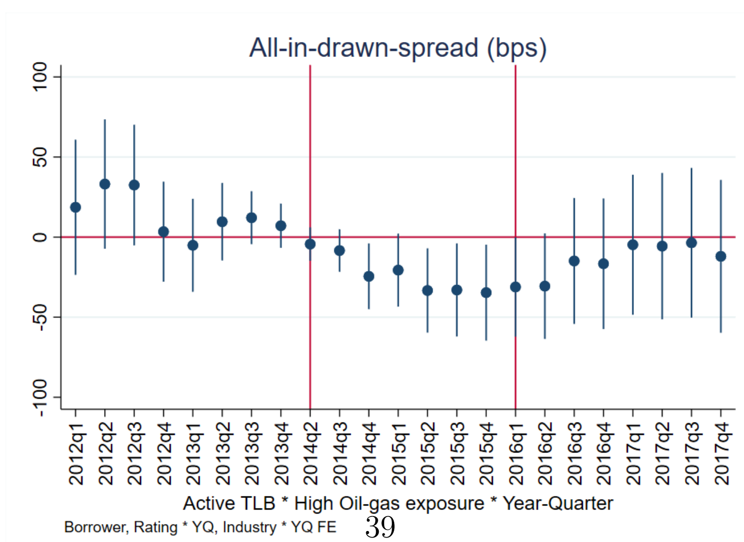
$$y_{i,t} = \alpha + \beta_t \text{Active TLB} \times \text{High Oil-Gas Exposure}_i \times \mathbf{1}_t + \lambda_t + \delta_i + \epsilon_{i,t}$$

where $y_{i,t}$ is the volume of credit lines outstanding (Panel A) and spreads on credit lines (Panel B) for each borrower i in quarter t. *High Oil-Gas Exposure* takes a value of one for firms with above median oil gas exposure. The *Oil-Gas Exposure* is the weighted average of a CLO's portfolio share in oil and gas firms with the weights corresponding to the share of the borrower's loans held by each CLO prior to 2014 Q1. Firms are classified as being *Active TLB* if they have an outstanding Term Loan B-K (TLB) as of 2014Q1 and their TLBs are not maturing during the oil price shock of 2014Q2-2016Q1. Coefficients plotted are relative to 2014Q1 (the quarter before the oil price shock). We include borrower fixed effects, rating $\times$ year-quarter fixed effects, and 2 digit SIC code $\times$ year-quarter fixed effects. Standard errors are clustered at the borrower level and bars denote 90% confidence intervals.

Panel A - Credit Line Outstanding



Panel B - Credit Line Spreads



Tables

Table 1: Credit Line Drawdowns

This table presents results on credit line drawdowns during COVID-19. Data is at the borrower-level. Sample is based on drawdowns between March 1, 2020 and June 20, 2020. *Drawdown >0* takes a value of one if the firm drawsdown on its credit line during the sample period. *Utilization* is the increase total credit lines drawndown to total credit line commitment during the sample period. *Nonbank Dependence* is the share of term loans outstanding to a borrower from nonbanks as of 2019 Q4. Borrower conrtrols include the contemporaneous log of asset size, cash-to-asset ratio, and book leverage. Heteroskedastic robust standard errors are reported in parentheses below the coefficients. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01).

	Drawdown>0	Utilization		
	(1)	(2)	(3)	(4)
Nonbank Dependence	0.079***	0.044***	0.056***	0.102*
	(0.009)	(0.006)	(0.012)	(0.055)
Conditional on drawdown	N	N	N	Y
Borrower Controls	N	N	Y	Y
Obs.	4,705	4,705	1,550	206
R^2	0.021	0.019	0.020	0.047

Table 2: Summary Statistics

This table presents the summary statistics for borrowers with syndicated loans that can be matched to Compustat financial information. The panel is at the borrower-year-quarter level. Panel A presents results for all borrowers. Panel B presents results separately for bank and nonbank borrowers. A borrowers is classified as a nonbank borrower if it has any nonbank term loans (Term Loans B-K) outstanding in the given quarter. A borrowers with only bank loans (Term Loan A or credit line) is classified as a bank borrower. *Nonbank Dependence* is the share of term loans to the borrower from nonbanks. *Assets* are the average firm asset size from Compustat. *Credit Line >0* takes a value of one if the firm has a credit line outstanding in the given quarter else it takes a value of zero. *Cash/Assets* is the amount of cash and cash equivalents at the firm scaled by firm assets. *Total Debt/Equity* is total firm debt to shareholders equity. *Total Debt/Assets* is total firm debt to assets. *Credit Line/Total Loans* is the amount of credit line outstanding as a share of total loans to the borrower. *Credit Line/(Credit Line+Cash)* is the amount of credit line outstanding as a share of total cash and credit lines outstanding to the borrower. *Drawn Spread - CL* and *Undrawn Spread - CL* are the average all-in-drawn-spread and all-in-undrawn-spread on credit lines outstanding to the borrower. *Drawn Credit Line* is the average volume of credit line drawndown by the firm in millions of dollars. *Credit Line Commitment* is the total volume of credit line available to the firm in millions of dollars. *Credit Line Utilization* is the average volume of credit line drawdown as a share of total credit line balance.

Panel A - All Borrowers

	Mean	Std. Dev
Nonbank Dependence	0.19	0.36
Assets ($ bil.)	8.93	62.90
Total Debt/Assets	0.62	0.29
Cash/Assets	0.10	0.13
Share unrated firms	0.56	0.50
Credit Line >0	0.95	0.21
Credit Line/Total Loans	0.75	0.33
Credit Line/(Credit Line + Cash)	0.67	0.33
Drawn Spread - CL (bps)	186.69	109.08
Undrawn Spread - CL (bps)	31.77	22.06
Drawn credit line ($ mil.)	94.20	225.34
Credit line commitment ($ mil.)	639.08	1,060.94
Credit line utilization	0.21	0.28
Observations	192041	

Summary Statistics - continued

Panel B - Comparing Bank and Nonbank Borrowers

	Bank Borrower		Nonbank Borrower		Difference
	Mean	Std. Dev.	Mean	Std. Dev.	Mean
Nonbank Dependence	0.00	0.00	0.77	0.27	-0.77***
Assets ($ bil.)	7.71	37.35	12.71	109.23	-5.00***
Total Debt/Assets	0.58	0.27	0.75	0.32	-0.18***
Cash/Assets	0.10	0.14	0.08	0.10	0.02***
Share unrated firms	0.61	0.49	0.40	0.49	0.20***
Credit Line >0	0.96	0.19	0.92	0.26	0.04***
Credit Line/Total Loans	0.87	0.26	0.38	0.26	0.48***
Credit Line/(Credit Line + Cash)	0.68	0.32	0.63	0.37	0.05***
Drawn Spread - CL (bps)	167.64	102.68	245.15	107.35	-77.51***
Undrawn Spread - CL (bps)	27.84	20.74	43.61	21.70	-15.77***
Drawn credit line ($ mil.)	92.31	214.77	99.62	253.08	-7.31***
Credit line commitment ($ mil.)	672.34	1083.97	541.39	983.73	130.95***
Credit line utilization	0.22	0.28	0.19	0.27	0.03***
Observations	144453		47588		192041

Table 3: Effect of Nonbank Dependence on Credit Line Access

This table presents the results on how credit line access varies with nonbank dependence of the borrower. Data is at the borrower-year-quarter level and the sample period is 2000Q1-2022Q4. In Panel A, we measure credit line shares at issuance. Columns 1 to 4 measure credit line as a share of total loans to the borrower. Columns 5-8 measure credit lines as a share of total liquidity (measured by cash plus credit lines). In Panel B, we measure credit line spreads in basis points. Columns 1 to 4 present results for all-in-drawn-spread while Columns 5-8 present results for the all-in-undrawn-spread. *Nonbank Dependence* is a measure of nonbank exposure of the borrower based on the volume of nonbank term loans (Term Loan B-K) outstanding as a share of total term loans outstanding in the given quarter for the borrower. We include borrower, borrower rating × year-quarter fixed effects, 2-digit SIC code × year-quarter fixed effects, and controls for firm size, debt-to-asset ratio, loan maturity and deal purpose. Standard errors are clustered at the borrower level and reported in parentheses below the coefficients. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01).

Panel A - Credit Line Shares

	CL/Total Loans at Issuance				CL/(CL+Cash) at Issuance			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Nonbank Dependence	−0.251***	−0.248***	−0.178***	−0.176***	−0.057***	−0.054***	−0.028***	−0.035***
	(0.014)	(0.012)	(0.014)	(0.016)	(0.010)	(0.010)	(0.009)	(0.010)
Rating x Year-Quarter FE	N	Y	Y	Y	N	Y	Y	Y
Borrower FE	N	N	Y	Y	N	N	Y	Y
Industry x Year-Quarter FE	N	N	N	Y	N	N	N	Y
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Unconditional mean	0.72	0.72	0.71	0.71	0.65	0.65	0.65	0.65
Obs.	26,021	25,951	24,706	23,517	26,017	25,947	24,704	23,514
R^2	0.052	0.077	0.473	0.537	0.103	0.152	0.663	0.729

Panel B - Credit Line Spreads (bps)

	All In Drawn Spread				All In Undrawn Spread			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Nonbank Dependence	99.856***	73.418***	44.723***	46.920***	19.838***	12.130***	7.025***	7.751***
	(3.889)	(3.635)	(4.238)	(4.458)	(1.075)	(0.935)	(1.196)	(1.251)
Rating x Year-Quarter FE	N	Y	Y	Y	N	Y	Y	Y
Borrower FE	N	N	Y	Y	N	N	Y	Y
Industry x Year-Quarter FE	N	N	N	Y	N	N	N	Y
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Unconditional mean	193.05	193.00	189.06	187.79	30.94	30.92	30.26	30.06
Obs.	23,998	23,923	22,714	21,470	19,164	19,079	17,914	16,601
R^2	0.259	0.434	0.699	0.761	0.190	0.342	0.644	0.725

Table 4: Robustness to Bank-Borrower Relationships and Borrower Selection

This table presents the results on how credit line access varies with nonbank dependence of the borrower and bank-borrower relationships. Data is at the bank-borrower-year-quarter level and the sample period is 2000Q1-2022Q4. In Panel A, we measure credit line shares at issuance as a share of total loans to the borrower from each bank in a given quarter. In Panel B, we measure credit line spreads in basis points. *Nonbank Dependence* is a measure of nonbank exposure of the borrower based on the volume of nonbank term loans (Term Loan B-K) outstanding as a share of total term loans outstanding in the given quarter for the borrower. *Bank-Borrower Relationship* measures the share of total loans to a borrower over the last three years from the bank. We include borrower, borrower rating × year-quarter fixed effects, 2-digit SIC code × year-quarter fixed effects, bank × year-quarter fixed effects, and bank-borrower fixed effects. In Column 5, we restrict the sample to firms that have bank term loans outstanding. Controls for firm size, debt-to-asset ratio, loan maturity and deal purpose are included in all specifications. Standard errors are clustered at the borrower level and reported in parentheses below the coefficients. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01).

Panel A - Credit Line Share of Total Lending

	CL/Total Loans at Issuance				
	(1)	(2)	(3)	(4)	(5)
Nonbank Dependence	−0.135***	−0.136***	−0.134***	−0.107***	−0.093***
	(0.010)	(0.010)	(0.010)	(0.009)	(0.022)
Bank-Borrower Relationship		−0.013***	−0.012***	−0.005	−0.010
		(0.004)	(0.004)	(0.004)	(0.009)
Rating x Year-Quarter FE	Y	Y	Y	Y	Y
Borrower FE	Y	Y	Y	Y	Y
Industry x Year-Quarter FE	Y	Y	Y	Y	Y
Bank x Year-Quarter FE	N	N	Y	Y	Y
Bank x Borrower FE	N	N	N	Y	Y
Sample					Has TLA
Obs.	128,111	128,111	128,028	113,553	38,700
R^2	0.720	0.720	0.729	0.780	0.859

Panel B - Credit Line Spreads (bps)

	All in drawn spread				
	(1)	(2)	(3)	(4)	(5)
Nonbank Dependence	34.359***	34.369***	34.150***	29.088***	45.566***
	(3.374)	(3.373)	(3.332)	(3.405)	(7.207)
Bank-Borrower Relationship		1.202	1.480	1.305	3.105
		(1.268)	(1.274)	(1.338)	(2.497)
Rating x Year-Quarter FE	Y	Y	Y	Y	Y
Borrower FE	Y	Y	Y	Y	Y
Industry x Year-Quarter FE	Y	Y	Y	Y	Y
Bank x Year-Quarter FE	N	N	Y	Y	Y
Bank x Borrower FE	N	N	N	Y	Y
Sample					Has TLA
Obs.	122,694	122,694	122,605	108,156	37,268
R^2	0.842	0.842	0.848	0.879	0.925

Table 5: Firm EBITDA and Credit Line Access

This table presents the covariance between credit line issuance and nonbank exposure of the borrower. Data is at the borrower-year-quarter level and the sample period is 2000Q1-2022Q4. In Panel A, we look at credit lines as a share of total lending (Columns 1-3) and as a share of total liquidity (cash plus credit lines) (Columns 4-6). In Panel B, we look at the all-in-drawn (Columns 1-3) and all-in-undrawn (Columns 4-6) spreads on credit lines. *Nonbank Dependence* is a measure of nonbank exposure of the borrower based on the volume of nonbank term loans (Term Loan B-K) outstanding as a share of total term loans outstanding in the given quarter for the borrower. We include borrower, year-quarter, or bank fixed effects. Controls for firm size, debt-to-asset ratio, loan maturity and deal purpose are included in all specifications. Standard errors are clustered at the borrower level and reported in parentheses below the coefficients. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01).

Panel A - Credit Line Shares

	CL/Total Volume			CL/(CL+Cash)		
	(1) All firms	(2) Positive EBITDA	(3) EBITDA>10 mil	(4) All firms	(5) Positive EBITDA	(6) EBITDA>10 mil
Nonbank Dependence	−0.176***	−0.071***	−0.066***	−0.035***	−0.023**	−0.030**
	(0.016)	(0.015)	(0.017)	(0.010)	(0.011)	(0.012)
Rating x Year-Quarter FE	Y	Y	Y	Y	Y	Y
Borrower FE	Y	Y	Y	Y	Y	Y
Industry x Year-Quarter FE	Y	Y	Y	Y	Y	Y
Obs.	23,517	18,912	16,346	23,514	18,907	16,345
R^2	0.537	0.578	0.576	0.729	0.731	0.726

Panel B - Credit Line Spreads

	All-in-drawn-spread			All-in-undrawn-spread		
	(1) All firms	(2) Positive EBITDA	(3) EBITDA>10 mil	(4) All firms	(5) Positive EBITDA	(6) EBITDA>10 mil
Nonbank Dependence	46.920***	10.262**	11.773**	7.751***	3.023**	2.582**
	(4.458)	(4.549)	(4.783)	(1.251)	(1.279)	(1.299)
Rating x Year-Quarter FE	Y	Y	Y	Y	Y	Y
Borrower FE	Y	Y	Y	Y	Y	Y
Industry x Year-Quarter FE	Y	Y	Y	Y	Y	Y
Obs.	21,470	17,317	14,975	16,601	13,533	11,814
R^2	0.761	0.768	0.763	0.725	0.740	0.738

Table 6: Borrower Credit Line Access - Oil Price Shock

The table presents the results from the following regression:

$$y_{i,t} = \alpha + \beta \text{Active TLB} \times \text{High Oil-Gas Exposure}_i \times \text{Post}_t + \lambda_t + \delta_i + \epsilon_{i,t}$$

where $y_{i,t}$ is the volume of credit lines outstanding or spreads on credit lines for each borrower i in quarter t. *High Oil-Gas Exposure* takes a value of one for firms with above median oil gas exposure. The *Oil-Gas Exposure* is the weighted average of CLO's portfolio share in oil and gas firms with the weights corresponding to the share of the borrower's loans held by the CLO prior to 2014 Q1. Firms are classified as being *Active TLB* if they have an outstanding Term Loan B-K (TLB) as of 2014Q1 and their TLBs are not maturing during the oil price shock of 2014Q2-2016Q1. The omitted group in the regression is 2014Q1 (the quarter before the oil price shock). We include borrower fixed effects, rating- year quarter fixed effects, and 2 digit SIC code - year quarter fixed effects to. Standard errors are clustered at the borrower level and bars denote 90% confidence intervals.

Panel A - Credit Line Terms

	Log(CL)		CL/(CL+Cash)		All-in-drawn-spread	
	(1)	(2)	(3)	(4)	(5)	(6)
Active TLB x High Exposure x Post	0.538***	0.503***	0.076**	0.078*	−44.472***	−30.915*
	(0.170)	(0.190)	(0.038)	(0.040)	(16.993)	(17.955)
Borrower FE	Y	Y	Y	Y	Y	Y
Ind x Year-Quarter FE	N	Y	N	Y	N	Y
Rating x Year-Quarter FE	N	Y	N	Y	N	Y
Obs.	19,753	18,400	19,187	18,995	18,918	17,641
R^2	0.887	0.898	0.812	0.830	0.835	0.849

Panel B - Credit Line Covenants

Financial covenants takes a value of one if the credit line contract has any financial covenants. *ICR Covenant* takes a value of one if the contract has an interest coverage ratio restriction (which is the minimum EBITDA to interest expenses that the firm has to maintain). *Debt-to-Cash Flow Covenant* takes a value of one if there is maximum total debt-to-EBITDA ratio the firm is allowed to maintain. *Material Restriction* takes a value of one if there are any material restrictions in the contract.

	Financial Covenant	ICR Covenant	Debt-to-Cash Flow Covenant	Material Restriction
	(1)	(2)	(3)	(4)
Active TLB x High Exposure x Post	−0.348*	−0.254*	−0.210	−0.390**
	(0.202)	(0.150)	(0.185)	(0.187)
Borrower FE	Y	Y	Y	Y
Ind x Year-Quarter FE	Y	Y	Y	Y
Rating x Year-Quarter FE	Y	Y	Y	Y
Obs.	1,369	1,369	1,369	1,369
R^2	0.823	0.865	0.857	0.858

Table 7: Borrower Financial and Real Outcomes - Oil Price Shock

The table presents the results from the following regression -

$$y_{i,t} = \alpha + \beta \text{Active TLB} \times \text{High Oil-Gas Exposure}_i \times \text{Post}_t + \lambda_t + \delta_i + \epsilon_{i,t}$$

where $y_{i,t}$ are the various financial outcomes of borrower i in quarter t. *High Oil-Gas Exposure* takes a value of one for firms with above median oil gas exposure. The *Oil-Gas Exposure* is the weighted average of CLO's portfolio share in oil and gas firms with the weights corresponding to the share of the borrower's loans held by the CLO prior to 2014 Q1. Firms are classified as being *Active TLB* if they have an outstanding Term Loan B-K (TLB) as of 2014Q1 and their TLBs are not maturing during the oil price shock of 2014Q2-2016Q1. Financial variables are from Compustat. *Log (Assets)* is the log of firm assets. *Log Cash* is the log of the cash level of the firm in a given quarter. *Capital/Assets* is the the invested capital in a given quarter scaled by assets of the firm as of 2014Q2. *Log(Income)* is the log of net income earned by the firm in the given quarter. *Log(Cash)* is the log of cash and cash equivalents held firm in the given quarter. *Cash/ (Cash + CL)* is cash as a share of total liquidity available at the firm, measured by cash plus credit lines. Sample period is January 2012 to December 2017. Firms in the oil and gas industry (SIC code 13) are dropped. We include borrower, industry-year-quarter, and rating-year-quarter fixed effects. Standard errors are clustered at the borrower level and reported in parentheses below the coefficients. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01).

	Log(Assets)	Capital/Assets	Log(Income)	Log(Cash)	Cash/(Cash + CL)
	(1)	(2)	(3)	(4)	(5)
Active TLB * High Exposure * Post	0.148**	0.164***	0.001	0.110	−0.078*
	(0.075)	(0.062)	(0.187)	(0.149)	(0.040)
Borrower FE	Y	Y	Y	Y	Y
Ind x Year-Quarter FE	Y	Y	Y	Y	Y
Rating x Year-Quarter FE	Y	Y	Y	Y	Y
Obs.	19,006	17,984	14,420	18,952	18,995
R^2	0.980	0.633	0.837	0.912	0.830

Table 8: Occurrence of Covenants and Nonbank Dependence

This table presents the correlation between occurrence of covenants in credit lines and nonbank dependence of the borrower. *Nonbank Dependence* is a measure of nonbank exposure of the borrower based on the volume of nonbank term loans (Term Loan B-K) outstanding as a share of total term loans outstanding in the given quarter for the borrower. *Number financial covenants* is the number of financial covenants in the credit line contracts of the borrower. *Has Material Restriction* takes a value of one if there are any material restrictions in the contract. *Has ICR Restriction* takes a value of one if the contract has an interest coverage ratio restriction (which is the minimum EBITDA to interest expenses that the firm has to maintain). *Has Debt-to-Cash Flow Restriction* takes a value of one if there is maximum total debt-to-EBITDA ratio the firm is allowed to maintain. *Has Fixed Charge Covenant* takes a value of one if there is a minimum fixed charge coverage (measured as EBITDA divided by Interest Charges paid plus long-term lease payments the firm has to maintain) covenant. We include loan size, all-in-drawn-spread, all-in-undrawn-spread, and loan maturity and firm asset size as controls. Robust standard errors are reported in parentheses below the coefficients. Significance levels: *(p<0.10), **(p<0.05), ***(p<0.01).

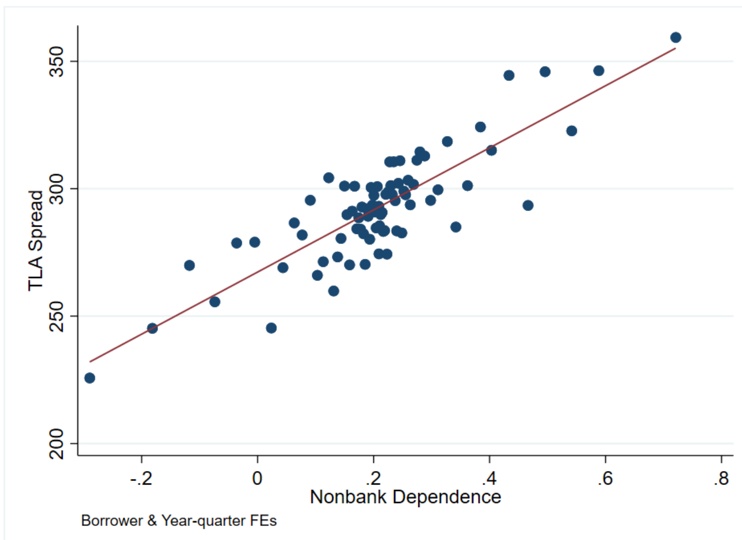
	Number Financial Cov	Has Mat. Rest.	Has ICR Restriction	Has Debt-to-Cash Flow Restriction	Has Fixed Charge Covenant
	(1)	(2)	(3)	(4)	(5)
Nonbank Dependence	0.033	0.051**	0.095***	0.087***	−0.009
	(0.048)	(0.020)	(0.022)	(0.024)	(0.021)
Rating x Year-Quarter FE	Y	Y	Y	Y	Y
Obs.	9,408	9,408	9,408	9,408	9,408
R^2	0.274	0.366	0.143	0.208	0.210

Appendix A1 Additional Figures and Tables

Figure A1: Cost of Term Loans vs. Outstanding Nonbank Dependence

This figure presents the binscatter plot of term loan spreads against nonbank dependence of the borrower. Data is at the borrower-year-quarter level and the sample period is 2000Q1-2020Q4. In Panel A, we measure loan spreads of newly issued loans in the given quarter. In Panel B, we measure loan spreads based on the weighted average of credit lines outstanding in the given quarter. *Nonbank Dependence* based on the volume of nonbank term loans (Term Loan B-K) outstanding as a share of total term loans outstanding in the given quarter for the borrower. *TLA Spread* is the spread on bank loans and *TLB Spread* is the spread on nonbank loans We include borrower and year-quarter fixed effects.

Panel A - Spread on Bank Loans (bps)



Panel B - Spread on Nonbank Loans (bps)

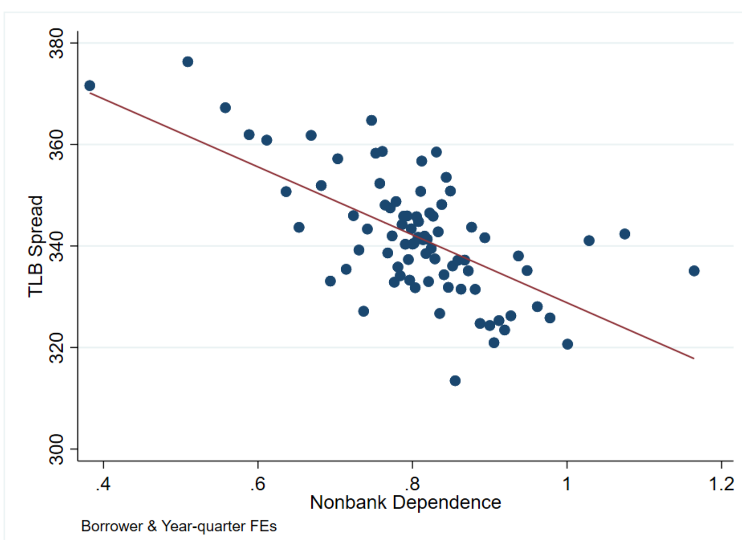


Figure A2: Borrower Nonbank Dependence - Oil Price Shock

This figure plots the coefficients from the following regression around the oil price shock

$$y_{i,t} = \alpha + \beta_t \text{Active TLB} \times \text{High Oil-Gas Exposure}_i \times \mathbf{1}_t + \lambda_t + \delta_i + \epsilon_{i,t}$$

where $y_{i,t}$ is the volume of nonbank loans outstanding for each borrower i in quarter t. *High Oil-Gas Exposure* takes a value of one for firms with above median oil gas exposure. The *Oil-Gas Exposure* is the weighted average of a CLO's portfolio share in oil and gas firms with the weights corresponding to the share of the borrower's loans held by each CLO prior to 2014 Q1. Firms are classified as being *Active TLB* if they have an outstanding Term Loan B-K (TLB) as of 2014Q1 and their TLBs are not maturing during the oil price shock of 2014Q2-2016Q1. Coefficients plotted are relative to 2014Q1 (the quarter before the oil price shock). We include borrower fixed effects, rating × year-quarter fixed effects, and 2 digit SIC code × year-quarter fixed effects. Standard errors are clustered at the borrower level and bars denote 90% confidence intervals.

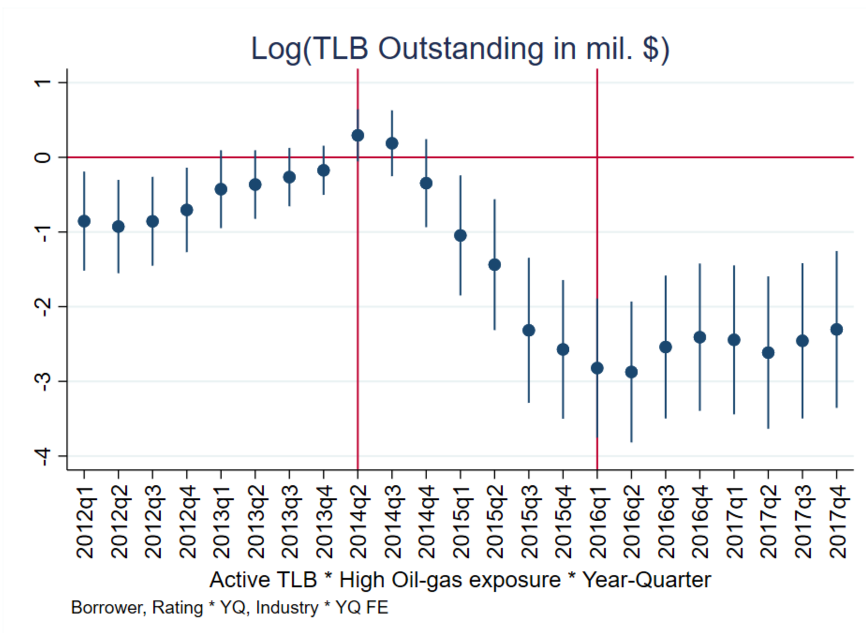


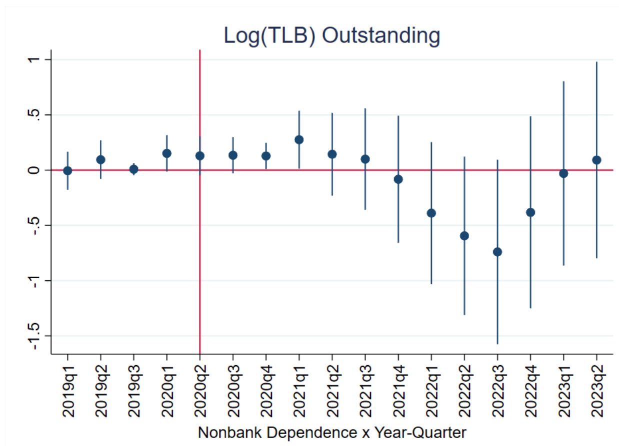
Figure A3: Borrower Credit Outcomes - COVID-19

This figure plots the coefficients from the following regression around the oil price shock

$$y_{i,t} = \alpha + \beta \text{Nonbank Dependence}_i \times \mathbf{1}_t + \lambda_t + \delta_i + \epsilon_{i,t} \tag{3}$$

where $y_{i,t}$ is the nonbank loans outstanding (Panel A) and credit line outstanding and credit line spreads (Panel B) for each borrower i in quarter t. Nonbank Dependence is the share of total term loans to the borrower from nonbanks. The sample is restricted to borrowers with an active nonbank loan as of 2019 Q4. The omitted group in the regression is 2019 Q42014Q1 (the quarter before the COVID-19 shock). Standard errors are clustered at the borrower level and bars denote 90% confidence intervals.

Panel A - Nonbank Loans



Panel B - Credit Lines