Private Equity and Debt Contract Enforcement: Evidence from Covenant Violations *

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Abstract

We study the role of private equity (PE) sponsors in debt contract enforcement when firms violate loan covenants. Using the Shared National Credit supervisory data, we find Private Equity (PE) sponsored firms violate covenants more often than comparable non-PE firms. However, upon covenant violation, PE-sponsored borrowers experience relatively smaller reductions in credit commitments, suggesting lenders are more lenient with these borrowers. Consistent with this limited-punishment effect, sponsor-backed borrowers experience a smaller increase in loan spread and a smaller reduction in loan maturity upon covenant violations. Limited punishment is driven by the lender's prior relationship with a sponsor through repeated deals, as well as the higher bargaining power of sponsors in loan renegotiation. Overall, our results suggest that the rise of PE sponsors has altered the traditional paradigm whereby creditors use covenant violations to exert control over distressed borrowers.

JEL Classification: G21, G23, G32

Keywords: Private Equity; Covenants; Loan Renegotiation; Covenant Violations; Syndicated Loans

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Introduction

A central result in financial economics is how loan covenants mitigate moral hazard and risk-shifting incentives (Smith Jr and Warner, 1979). Traditionally, the enforceability of covenant violations enabled creditors to exert significant influence and control over distressed firms by reducing or terminating loan commitments and renegotiating other loan terms (Chava and Roberts, 2008; Roberts and Sufi, 2009a). Over the last decade, however, many corporations in the US have come under the control of private equity (PE) sponsors through leveraged buyouts (LBOs).[1] Assets under management of PE buyout funds in the US have almost tripled from around $ 700 billion in 2012 to more than $ 2 trillion in 2022, and PE-backed firms account for more than half of all B3 and lower corporate ratings according to Moody's Investors.[2] Since PE-backed companies are highly leveraged, this development raises important questions. How do PE sponsors, with their high-powered incentives, shape the enforcement of debt contracts upon a covenant violation? Who has the "effective" control today when deciding how to resolve distress in financially troubled companies: creditors or sponsors?

This paper aims to answer these questions by studying the consequences of covenant violations in a large sample of PE-sponsored companies. Breach of covenants represents a natural setting for our study because covenants appear in nearly all loan contracts, and covenant violations convey the same contractual rights to creditors as do payment defaults (Nini, Smith, and Sufi, 2012). For our analysis, we construct a novel database of PE-sponsored loans that contains comprehensive information on covenant compliance. Specifically, we combine confidential supervisory data from the Shared National Credit (SNC) program, which covers syndicated loans, with Preqin data identifying PE-sponsored LBOs. The SNC database allows us to observe directly whether a loan covenant is in compliance or not, whether the loan is in compliance only after amendment, and whether the lender grants the borrower a covenant waiver at a given point in time. Compared to the DealScan database, the SNC provides a much larger sample and greater coverage of private firms (Chodorow-Reich and Falato, 2022).

Our key finding is that lenders limit punishment towards PE-sponsored firms relative to com-

[1] Throughout the text, we use the following terms interchangeably: PE sponsor or simply sponsor. We also use the terms 'PE-backed' or 'sponsor-backed' interchangeably. A loan is "sponsor-backed" or "sponsored" by a PE fund when it provides the equity capital that finances a leveraged buyout, while a bank and other lenders provide the debt.

[2] Souce: AUM data from Preqin. For details on the share of PE-backed firms by rating, **see this article by Forbes.**

parable non-PE borrowers upon a covenant violation. Consequently, PE-backed borrowers retain greater access to credit (at favorable terms) even when they are in the early phases of distress. We provide evidence for two related mechanisms potentially explaining limited punishment towards PE-backed borrowers: (i) repeated deals with PE sponsors, which incentivizes lenders to preserve relationship rent, and (ii) relatively high bargaining power of PE sponsors vis-a-vis lenders in renegotiating loan contracts following violations. Overall, our results suggest that the rise of PE-backed LBOs has altered the traditional view whereby creditors use covenant violations to exert control over distressed borrowers, and the *de facto* control now lies with sponsors.

We begin our analyses by first documenting that many PE-backed borrowers face traditional financial maintenance covenants, consistent with the recent rise in split control rights documented by Berlin, Nini, and G. Yu (2020).[3] Next, we find that PE-backed firms violate covenants more often than non-PE-backed firms. Their average annual rate of covenant violations is 18 percent, compared to 16.1 percent for non-PE-backed firms. We investigate these descriptive findings by estimating a loan-level linear probability model. According to our estimate, PE-backed borrowers have at least a 4 to 5 percent greater probability of violating a covenant than non-PE-backed firms. However, conditional on violation, they have at least a 2-3 percent greater probability of receiving a covenant waiver or reset.

Establishing a causal impact of PE presence on covenant enforcement is challenging since sponsors specialize in picking good portfolio companies that may not require covenant enforcement to the same extent as non-sponsored companies. The ideal empirical research design would allow for randomly matching PE sponsors, borrowers, and banks. While such a setting is impossible, our research design attempts to address these challenges. In particular, we compare a specific bank's covenant enforcement behavior at a specific point in time between loans of the same type (e.g., credit lines, term loans etc.) that have similar covenants (i.e., those linked to current performance and those that are not), were originated at the same point in time, were issued to borrowers in the same sector, and have observably similar credit risk. This allows us to narrow the only observable dimension to borrowers differing on whether or not a PE fund sponsors them. The identifying assumption is that absent PE involvement, both borrower types would have

[3] 'Split control rights' refer to loan deals that pair covenant-lite loans with a covenant-heavy loan, where the latter is held by a small group of banks, thus facilitating monitoring and renegotiation upon covenant violation. For further details, see Berlin et al. (2020).

experienced the same outcome following covenant violation.

Across all of our specifications, we find strong evidence of limited punishment towards PE-backed borrowers following covenant violations. Our baseline results show covenant violations lead to a reduction in credit commitment (i.e., credit amount) of around 11-12 percent for all firms. However, this credit reduction is only around 5 percent for PE-backed firms. At the extensive margin, the limited-punishment effect is even stronger. An event study confirms that this divergent outcome begins immediately upon covenant violation and persists for multiple quarters. While we focus primarily on credit commitment (Chodorow-Reich and Falato, 2022), we also document limited punishment in terms of loan maturity (i.e., the reduction in loan maturity is lower for PE-sponsored borrowers) and interest rate spreads (the increase in loan spreads is lower for PE-sponsored borrowers).

Unobservable factors correlated with PE and enforcement behavior could still exist. To mitigate these concerns, we follow Bernstein, Lerner, and Mezzanotti (2019) and Boucly, Sraer, and Thesmar (2011) and re-estimate our benchmark specification using a matching procedure based on firm-level data for the set of loans in our sample for which we can obtain such information from the Federal Reserve's FR-Y14Q data. We match PE-backed loans to non-PE loans based on leverage, firm size, EBITDA, probability of default, and industry in the *pre-buyout* year. Importantly, ex-ante estimates on the probability of default are provided by the reporting bank and incorporate both hard information, such as the borrower's financials, and soft information related to credit risk not captured in observable firm or loan characteristics as shown by Weitzner and Howes (2023). Using this matched sample, we continue to document lower reductions in credit commitment in sponsor-backed loans relative to non-sponsored ones.

We explore two (not mutually exclusive) channels that could potentially explain limited punishment toward PE. First, we connect our results to models of reputation stemming from repeated interactions between PE sponsors and creditors (Malenko and Malenko, 2015). Intuitively, a high reputation or strong lender-sponsor relationship should mitigate agency problems of LBO debt, thereby making strict enforcement less necessary. Following Demiroglu and James (2010), we construct a measure of a PE sponsor's overall credit market reputation and find that sponsors with high overall reputation–measured in terms of historical LBO deal volume–obtain greater leniency from creditors upon covenant violations.

Additionally, we devise for a given lender-sponsor pair a time-varying (binary) measure of the strength of their relationship. This measure captures whether a given lender has interacted with a given sponsor in the recent past through prior LBO loans. To alleviate concerns related to non-random selection of PE targets, we include stringent *Firm* $\times$ *Time* fixed effects (Khwaja and Mian, 2008) and compare at a specific point in time observably similar loans to the same PE-backed borrower made by distinct lenders, who differ in their relationship with the sponsor. Firm-time fixed effects account for all time-varying borrower characteristics, including PE-backing itself, allowing us to identify the effects of lender-sponsor relationships on covenant enforcement. Our findings strongly suggest that a prior sponsor-lender relationship is associated with greater leniency upon covenant violation. Further, we compare loan default rates across sponsor-backed and non-sponsored loans *following covenant violations*. We find no evidence that sponsor-backed loans fail more often than non-sponsored loans, consistent with sponsors actively engaging with their portfolio companies to resolve distress and thus preserving their reputational capital and relationship with creditors.

Next, we provide evidence for a bargaining power channel of PE sponsors in loan renegotiation upon violation. Survey evidence from Bernstein et al. (2019) shows PE sponsors help their portfolio companies renegotiate debt contracts with banks, while Liu (2021) demonstrates that PE sponsors have superior bargaining skills. We show that the limited punishment effect is present even when a syndicated loan's ownership structure is highly concentrated (i.e., the loan is held by a small group of banks as opposed to many different non-bank institutional lenders like CLOs or hedge funds). Since a concentrated ownership structure preserves lenders' bargaining power and gives them high incentives to renegotiate the contract upon covenant violation (Giannetti and Meisenzahl, 2022), limited punishment towards PE-backed borrowers indicates sponsors raise the portfolio company's bargaining power (relative to non-PE) during loan renegotiations. To investigate further, we also proxy for a given sponsor's bargaining power vis-a-vis a given lender by aggregating all outstanding loans from every LBO deal between a given sponsor and a given lead bank in the SNC data, and find banks with higher cumulative credit exposure to a given sponsor are more likely to display limited punishment upon covenant breach. As this measure captures a bank's historical reliance on a given sponsor for deal flow, we expect it to capture a sponsor's bargaining power.

Still, one cannot completely rule out endogeneity concerns related to covenant violations. To provide further evidence supporting our interpretations, we use an instrumental variable research design and exploit personality or examination style across federal bank examiners, where the endogenous variable is an indicator of covenant violation status. The excluded instrument is the strictness of the bank's supervisor *at the time* of the buyout loan origination. Supervisors frequently meet with bank management to assess bank risk and take corrective actions (Hirtle, Kovner, and Plosser, 2020), but their assignment to different lenders is quasi-exogenous (Agarwal, Lucca, Seru, and Trebbi, 2014; Ivanov and Wang, 2024). Our intuition is that loans made under stricter supervisors have tighter covenants and thus have higher probabilities of covenant violation. We exploit personality differences across supervisors, which affect supervisory strictness, hence covenant tightness, faced by lenders *within* each federal district. Armed with this instrument, we again find results similar to our benchmark tests.

Importantly, in our robustness tests, we also explicitly rule out differences in local investment opportunities as an alternative explanation for greater leniency towards sponsor-backed borrowers. Further, examining the reporting bank's *own* ex-ante estimates of a given borrower's probability of default, we do not see evidence that sponsor-backed companies are less risky than non-sponsored ones. Finally, we also find evidence that PE-backed borrowers inject equity more often than non-PE to cure covenant violations, but this effect is quantitatively smaller than the reputation and bargaining power channels. This suggests sponsors provide more operational support before resorting to equity injection, as documented in a recent survey by Gompers, Kaplan, and Mukharlyamov (2022), when portfolio firms were in distress during the COVID-19 pandemic.

Literature. Our paper contributes to several strands of the literature. First, we contribute to the large literature on how creditors traditionally used covenant violations to exert significant influence over borrowers by reducing funding, raising loan spreads, or tightening other contractual terms. Seminal papers include Smith Jr and Warner (1979), Chava and Roberts (2008), Roberts and Sufi (2009b), Nini, Smith, and Sufi (2009), Nini et al. (2012), Denis and Wang (2014), Falato and Liang (2016), Griffin, Nini, and Smith (2019), Badoer, Dudley, and James (2020), Carey and Gordy (2021), and Chodorow-Reich and Falato (2022). To the best of our knowledge, we are the first to show how the rise of private equity sponsors, which today account for a large share of corporate

debt activity through LBOs, has altered the traditional view that creditors use covenant violations to exert significant control over distressed borrowers. Our results indicate that sponsors, and not creditors, now have greater practical (de facto) control when deciding how financially troubled companies resolve distress.

Second, we take a step further in understanding the role of covenants in shaping the capital and debt structure of PE-sponsored firms. Our paper is closest to Demiroglu and James (2010), Ivashina and Kovner (2011), and Achleitner, Braun, Hinterramskogler, and Tappeiner (2012). These papers comprehensively examine the role of sponsor reputation in shaping covenant tightness observed at deal origination. More recently, Badoer, Emin, and James (2021) examine the relationship between PE sponsor reputation and the propensity to use covenant-lite loans. Different from these papers, we are the first to examine loan-level outcomes *after* origination throughout the life of a given loan, focusing on (i) the propensity of PE-backed firms to violate covenants and, importantly, (ii) the consequences of covenant violations and how distress is resolved. More broadly, we contribute to the financial contracting literature, highlighting the role of sponsors in shaping contracts *post-origination* and demonstrating how sponsors generate financial flexibility in funding cash flow shortfalls when borrowers are in distress.

Finally, we contribute to the large literature on the effects of private equity buyouts and offer new insights on loan performance. As suggested by Kaplan and Stromberg (2009) and recent theoretical work (Malenko and Malenko, 2015; Gryglewicz and Mayer, 2023), PE owners affect firm outcomes through various channels. Several papers study whether and how PE owners affect firm outcomes and value creation. See, for example, Boucly et al. (2011); Axelson, Jenkinson, Strömberg, and Weisbach (2013); Davis, Haltiwanger, Handley, Jarmin, Lerner, and Miranda (2014); Bernstein et al. (2019); Gornall, Gredil, Howell, Liu, and Sockin (2021); Johnston-Ross, Ma, and Puri (2021); Fracassi, Previtero, and Sheen (2022); Haque, Jang, and Mayer (2022). Unlike these papers, our data allows us to examine the effect of PE on loan defaults and loan amendments post-origination.

1 Conceptual Framework for Empirical Implementation

The presence of covenants in financial contracts is motivated and indeed rationalized (Bénabou and Tirole, 2006) by their ability to mitigate agency problems (Jensen and Meckling, 1976; Smith Jr and Warner, 1979) and aid in securing financing through the pledging of state-contingent control rights (Aghion and Bolton, 1992). Upon violation, the lender gains the right but not the obligation to terminate the loan, including forcing immediate repayment of any outstanding principal and interest. Since the lender's bargaining power increases following a violation, it is common for loan contracts to be renegotiated. As a result, covenant violations traditionally led to lower availability of credit to the borrower (Roberts and Sufi, 2009a) as lenders enforce contracts *post-origination* upon accrual of new information related to credit quality and distress (Roberts and Sufi, 2009b).

Why would this narrative change with the rise of sponsor-backed companies? First, sponsor-lender relationships are different from the traditional lender-borrower relationship because the formal loan contract is between the portfolio company (the borrower) and the bank, with no direct claim against the PE sponsor or PE fund. However, Ivashina and Kovner (2011) suggest that PE funds are effectively shadow borrowers, as they control the borrower's equity, management, capital structure, and strategic direction. Importantly, sponsors generally have high-powered incentives to preserve equity value since they can benefit from future dividends and performance fees (carried interest). This in turn, makes the sponsor an important player in covenant enforcement decisions and "effective" control of the company when it is in distress.

Lenders could be lenient upon a covenant violation because sponsors are experienced in distress resolution (Hotchkiss, Smith, and Strömberg, 2021) and operational engineering (Block, Jang, Kaplan, and Schulze, 2022). By extension, such *leniency* or limited punishment is likely to be stronger when a lender and sponsor have a strong relationship through repeated deals (Malenko and Malenko, 2015) and for highly experienced or high-reputation sponsors, by reducing the agency cost of LBO debt. Additionally, the expectation of repeated deals with highly experienced sponsors can also incentivize lenders to preserve relationship rent, consistent with the theoretical framework in Malenko and Malenko (2015). Our first hypothesis is as follows:

Hypothesis 1 (H1): *Lenders display leniency in reductions in credit commitment following a covenant violation if the borrower is PE-backed, relative to comparable loans to non-PE-backed firms, due to repeated*

deals and the reputational capital of PE sponsors.

Related, given their high-powered incentive to maximize equity return, sponsors may negotiate hard during loan renegotiations with the lender after a covenant violation to ensure the borrower's future actions are not heavily restricted. Prior studies support the idea that sponsors have high bargaining power and are well experienced in various aspects of business negotiations with bankers and lawyers when portfolio firms are in distress (Liu, 2021; Bernstein et al., 2019). Thus, our second hypothesis is as follows:

Hypothesis 2 (H2): *Relative to comparable loans issued to non-PE-backed firms, PE-backed borrowers experience a 'limited-punishment' effect upon covenant violation due to the high bargaining power of their sponsors during loan renegotiations.*

2 Data

2.1 Data Sources

We begin by describing our data sources and sample characteristics. We build a large loan-level sample that primarily relies on merging two key datasets containing information on (i) covenant violations and pertinent loan characteristics and (ii) identifying information on private equity-sponsored borrowers.

Data on Covenant Compliance: Our data on loan contracts and covenant compliance come from the Shared National Credit Program (SNC). Administered by the Federal Reserve System (FRS), Federal Deposit Insurance Corporation (FDIC), and the Office of the Comptroller of the Currency (OCC), the SNC Program covers all syndicated deals exceeding USD 20 million and held by three or more supervised institutions. This includes loan packages containing two or more facilities to the same company at the same origination date, with a total loan amount of over USD 20 million.[4] The lenders include domestic and foreign institutions, commercial banks, investment banks, insurance companies, investment companies such as CLOs, and mutual and hedge funds whenever the parent company is regulated. As of 2021, SNC commitments totaled USD 5.2 trillion.[5] The syndicated loan market includes both leveraged and non-leveraged loans,

[4] In 2018, the minimum commitment size was raised to USD 100 million.

[5] For further details, see the 2022 review of the SNC program.

and our analysis relies on the entire sample.

The SNC is a loan-level panel dataset. The reporting frequency is annual before 2015, quarterly in 2015, and semi-annual from 2016 onward. Examiners collect information on covenant compliance for around one-third to two-fifths of the SNC universe of loans. Our direct reading of the covenant compliance sample reveals that covenant violations and waivers are mostly related to standard financial maintenance covenants, which are tested periodically (e.g., quarterly). The SNC covenant sample overweights noninvestment grade and criticized loans but is otherwise representative of the full SNC universe, as discussed in Chodorow-Reich and Falato (2022). It is important to note that the SNC does not explicitly distinguish between PE-sponsored loans and non-sponsored loans and does not have any explicit flag for PE sponsorship at the loan level. Since the covenant sample is based on observable characteristics, such as loan rating, we do not have any reason to believe the SNC sample is systematically biased on PE sponsorship. We confirm subsequently that our sample is comparable to other PE studies that rely on different datasets.

SNC reports a flag for each loan in the covenant sample to indicate whether the loan was in compliance at a given time. Moreover, we observe whether a loan would have been non-compliant but for a covenant waiver or reset granted by the lender. We follow Chodorow-Reich and Falato (2022) and classify a covenant as *breached* in either circumstance. The SNC covenant sample offers several advantages for measuring covenant compliance over previous datasets constructed by starting from the DealScan database and hand-collecting information on subsequent loan outcomes from public filings. First, because we can directly see a covenant violation, contractual features such as 'carve-outs' and 'deductibles' (Ivashina and Vallee, 2022) are effectively already accounted for when the lender reports a covenant violation. Related, our study does not rely on indirect measurement of covenant violation through text-search algorithms. Second, the SNC sample is much larger and contains a large and representative share of nonpublic borrowers.

We observe other standard loan-level variables such as loan commitments, utilization rate, maturity, loan type, loan purpose, covenant types (e.g., maximum leverage ratio covenant), and regulatory classification of loan risk that we describe in detail below. The data also breaks out the loan syndicate membership, including non-bank lenders, on a quarterly basis (e.g., CLOs and hedge funds). The lead bank must report details on a given loan, even if they are no longer in the syndicate.

Crucially, SNC reports *Concordance Ratings*, which are (time-varying) credit risk ratings that Federal supervisors assign to a loan facility using information related to the borrower provided by the Agent Bank. These ratings are provided on a numerical scale, where lower numbers denote higher-quality loans. Specifically, a risk rating of 1 denotes an *Investment Grade Pass*, 2 denotes *Non-Investment Grade Pass*, 3 denotes *Lowest Rated Pass*, while ratings of 4, 5, 6 and 7 denote *Special Mention*, *Substandard*, *Doubtful*, and *Loss* respectively.[6]

The SNC does not require banks to report the covenant violation threshold, standardized firm financial information, or loan spreads. For a subset of the loans in the sample, bank examiners provide information on loan spreads through textual descriptions, which we are able to retrieve through textual analysis. Additionally, we retrieve firm financial information for a subset of our sample using another administrative dataset, discussed below.

PE Buyout List and Matched Sample Information: To identify PE-sponsored LBOs, we combine the SNC data with information from Preqin. Preqin is generally considered a representative data source of PE-sponsored leveraged buyouts and has been utilized extensively in the academic literature (see, for example, Barber and Yasuda, 2017; Davis, Haltiwanger, Handley, Lipsius, Lerner, and Miranda, 2021; Shive and Forster, 2022). Preqin's buyout data contains identifying information on sponsored portfolio companies, industry, the name of the sponsor, and, crucially, deal closing dates, allowing us to distinguish between pre-(post-) PE-ownership samples. Our sample only uses the earliest chronological buyout date if a company is acquired twice or more by a PE fund (secondary or tertiary buyout).

SNC and Preqin do not have common identifiers across borrowers. To match the SNC to our PE dataset, we apply a string matching algorithm following Cohen, Dice, Friedrichs, Gupta, Hayes, Kitschelt, Lee, Marsh, Mislang, Shaton, Sicilian, and Webster (2021) on the portfolio company name and industry. We went to great lengths to ensure the accuracy of our data merge, which involved significant time commitments from several research assistants in manually checking our match.[7]

Our merged baseline sample period ranges from 2012 to 2021. After filtering out observations for which we do not see covenant compliance and other pertinent loan-contracting informa-

[6] For an example of how loan quality is mapped from the agent bank's internal rating to supervisory rating, **see this reporting form by the SNC office**.

[7] An example of the R package for the company-level match can be found on Github.

tion, we begin with a baseline sample covering 43,670 loan-time observations belonging to 11,416 unique credit facilities. Aggregating across firms and over time, these facilities cover 5,660 unique borrowers, out of which 2,272 are PE-sponsored. Our sample contains 640 unique PE sponsors. On average, total outstanding sponsor-backed loans amounted to around USD 560 billion in a given year but exceeded USD 800 billion in particular years. The sample includes 6,967 covenant violations and a 15.9 percent violation rate in the cross-section, but with significant time-series variation, as we show subsequently.

Firm Financials from FR Y-14Q: Finally, for part of our analysis, we merge our loan-level sample with firms' balance sheet data from the Federal Reserve's FR Y-14Q Corporate Loan Schedule (H1). The FR Y-14 data consists of information on all loan facilities with over USD 1 million in the committed amount held by Bank Holding Companies (BHCs). These data are available from 2012 and represent supervisory data collected as part of the Federal Reserve's Stress Testing exercise. We choose to restrict the SNC sample from 2012 onward in order to overlap with FR-Y14Q, which starts in 2012. The FR Y-14Q data has been used extensively in previous studies (e.g., Brown, Gustafson, and Ivanov, 2021; Chodorow-Reich, Darmouni, Luck, and Plosser, 2022; Caglio, Darst, and Kalemli-Özcan, 2021).

2.2 Summary Statistics

Table 1 reports summary statistics for our loan-time sample by PE-sponsorship status. The sample is approximately evenly split between sponsored and non-sponsored loans, although the number of non-sponsored loan-time observations is somewhat higher. We observe that PE-sponsored loans are larger than non-PE loans. The mean concordance rating is higher for PE-sponsored loans relative to non-PE, indicating that these loans are riskier on average. Given the importance of concordance ratings in our formal analysis, we provide a further breakdown of our sample, split by rating and borrower type in the Online Appendix Table A2. Importantly, we observe differences between PE and non-PE loans: only 16 percent of PE-backed loans receive an "Investment-Grade Pass" rating, while 22.5 percent of non-PE loans have this rating, consistent with prior studies documenting that sponsored loans are mostly leveraged loans. We also observe a greater share of PE loans classified as "Special Mention," "Doubtful," "Substandard," or "Loss" (19.1 vs. 16.5

percent). These patterns confirm that PE-backed loans are generally more risky and are consistent with prior studies that document sponsors do not randomly target companies. Next, we construct a variable *Amendment Outside Distress*, which takes the value of 1 if a given loan's dollar commitment is changed in period t relative to period $t-1$ conditional on the loan remaining covenant-compliant (i.e., outside of distress). Table 1 shows loans are often renegotiated outside of distress, consistent with Roberts and Sufi (2009b). Turning to syndicate structure, the median number of institutional and non-bank lenders is 12 in PE-sponsored loans and 10 in the non-PE sample, while the difference in means is much higher. Finally, we also observe loan spreads for a subset of our loans. We see mean credit spreads are higher in PE relative to non-PE.

Sample Comparison with Prior Studies. We compare how loan size, maturity, and spread compare with prior studies. Appendix Table A3 shows that PE-sponsored loans in the SNC database are similar to the sample used in Ivashina and Kovner (2011) regarding both loan maturity and loan spreads. Compared to Axelson et al. (2013), loan maturity is lower. Notably, compared to both studies, loans in the SNC database are larger, particularly in terms of mean loan size, suggesting the sample is skewed towards some very large deals. This is a result of the minimum loan size requirement for inclusion into the SNC database. In section 3.3, we also show that sponsor-backed firms have debt ratios similar to prior studies.

Covenant Types. The SNC database includes a description of each covenant type, which we report in Table 2. The median number of covenants in the PE sample is 2, and in the non-PE sample, it is 3. The most frequent loan covenant in the sample is the maximum leverage ratio covenant, which is present in at least 29 percent of the sample, consistent with Ivashina and Kovner (2011) who also find the same covenant is present in 29 percent of their data using the DealScan database. The second most frequent covenant is the interest coverage ratio. As Panel A in the table shows, around 55.8 percent of the PE sample includes at least one of the following covenants: leverage/senior leverage ratio, interest coverage, debt service coverage ratio, or fixed charge coverage ratio. When we examine non-PE loans in Panel B, we find that 62 percent of the loans have the four performance-based covenants mentioned above.

Debt Structure. Finally, we examine our sample by loan type, which we classify as revolving credit facilities, term loans, and other loans, shown in Figure A1. While LBOs are primarily funded with term loans (in dollar value terms), they also frequently feature credit lines, as also seen in

Axelson et al. (2013). This pattern is consistent with 'split control rights,' discussed in Berlin et al. (2020) and Jiang, Kundu, and Xu (2023), in which institutional term loans are typically paired with a revolving credit facility to preserve monitoring and renegotiation power with the subset of lenders that hold the credit line.

3 Empirical Strategy

3.1 Motivating Evidence: Covenant Violations and Waivers

Figure 1 plots the share of covenant violations for firms backed by PE sponsors. We see both PE-backed firms exhibited sharp spikes during the calendar years 2015 and 2016, potentially due to the oil price shock of 2014 or the Federal Reserve ending its quantitative easing program. Since then, we have seen a declining trend until the COVID-19 pandemic, when the covenant violation rate rose for both types, but interestingly, more so for non-sponsored firms. These figures related to PE-backed borrowers are comparable with the survey evidence from Gompers et al. (2022), who found that 22.7 percent of PE-backed firms violated covenants during the pandemic. Computing a simple average over time shows that PE-sponsored loans exhibit an average (annual) violation rate of 18.0 percent for all covenants.

To examine these patterns more formally, we estimate a simple linear probability model where the dependent variable takes the value of 1 if a covenant is violated at a given point in time and 0 otherwise. We include several loan-level controls, including loan amount, utilization rate, maturity, indicators for loan type, loan purpose, and concordance risk ratings. In the next section, we outline our benchmark analysis and describe our loan-level controls and fixed effects in further detail (Section 3.2). Eq. (1) shows the equation we estimate in a general form. The dependant variable is (i) $\mathbb{1} \times (Violated)$, an indicator taking the value of 1 if any covenant in a loan j between bank-firm pair $[b, i]$ at time t is violated and 0 otherwise and (ii) $\mathbb{1} \times (Waiver)$, an indicator taking the value of 1 if a covenant is waived or reset, which means the borrower would have been in violation of a covenant had the lender not granted a waiver.[8] Our key variable of interest is an indicator of PE ownership.

[8] As already mentioned, in our formal analysis, we use both cases (i.e., flagged violations and waivers reported in the SNC database) as covenant violations to separate the event of breaching a covenant from the subsequent resolution.

$$\mathbf{1}(Y_{j,b,i,t}) = \alpha + \beta_1 PE_{i,t} + FEs + Controls + \epsilon_{j,b,i,t} \quad (1)$$

We report these results in Table 3. In columns (1)-(3), comparing PE and non-PE loans that are of the same type (i.e., credit lines or term loans) and risk profile, originated by the same bank to borrowers in the same industry-time, we find PE-backed loans have a higher probability of covenant violation. Our estimates suggest PE-backed firms have approximately 4 to 5 percent higher covenant violation rates. This could be attributable to the fact that the leverage ratio in PE-backed firms is relatively higher. Next, in columns (4)-(6), we examine if PE-backed loans are associated with greater covenant waivers or resets granted by the lender. We see that conditional on violating a covenant, PE-backed loans are associated with around a 2-3 percent higher probability of receiving a covenant violation waiver or covenant reset from the lender. These effects are meaningful, considering the unconditional probability of receiving a waiver in our full loan-time sample is 13.9 percent.

3.2 Benchmark Analysis

We discuss our benchmark analysis in this section and establish the following key results: (i) PE-backed borrowers experience a smaller reduction in credit commitment upon covenant violation relative to comparable non-PE borrowers, and (ii) this *limited-punishment* effect is also present when we examine loans spreads and maturity.

Our goal is to examine if ex-post enforcement behavior following covenant violations varies systematically due to PE-ownership status. The key empirical challenge is that PE ownership and covenant violations are non-random and likely determined in response to borrower-specific credit risk and aggregate conditions. Our baseline analysis compares the effect of violations on outcomes between observably similar loans with similar credit risk issued by the *same* bank, such that the loans differ only by PE-sponsorship status. Unless otherwise stated, all regressions are estimated at the *loan-time* level, where time is at the year-quarter level. We begin with the following baseline specification:

$$Y_{j,b,i,t} = \beta_1 PE_{i,t} + \beta_2 Violate_{j,t} + \beta_3 PE_{i,t} \times Violate_{j,t} + Z_{j,b,i,t} + X_{j,b,i,t} + \eta_{b,t} + \theta_{z,t} + \epsilon_{j,b,i,t} \quad (2)$$

The dependant variable is alternatively (i) $Log\ (Commitments)$, the natural logarithm of credit commitment in loan j issued by bank b to firm i in time t, and (ii) an indicator variable $\mathbb{1}\ (Credit\ Reduced)$ that takes the value of 1 if total committed credits between a given bank-firm pair are reduced in a given time-period t relative to $t-1$. Overall, our focus on credit commitment as an enforcement measure is consistent with Chodorow-Reich and Falato (2022) and Roberts and Sufi (2009a). However, we also examine the effect of PE-backing on loan interest rate spreads and loan maturity upon covenant violation.

$Violate_{j,t}$ takes the value of 1 if any covenant is breached in a given loan in the current or any of the previous four quarters relative to the date that a given credit commitment is observed. This definition is consistent with prior studies, which show the effects of covenant violation on debt issuance can persist long after the actual violation (Roberts and Sufi, 2009a). Our key variable of interest is $PE_{i,t} \times Violate_{j,t}$, which captures the marginal effect of PE-ownership on loan outcomes conditional on a covenant violation. We estimate Equation (2) over the sample period 2012–2021. Following Gustafson, Ivanov, and Meisenzahl (2021), also based on SNC data, standard errors are clustered at the bank-time level.

We consider a carefully selected array of fixed effects to absorb confounding borrower and lender risk factors. First, we include bank-time $(\eta_{b,t})$ and sector-time $(\theta_{z,t})$ fixed effects. All time fixed effects are at the year-quarter level. The vector $Z_{j,b,i,t}$ includes indicators for loan purpose, loan type (credit line, term loans, and other), loan origination year-quarter, covenant type (i.e., performance-based vs. non-performance-based covenants, which is defined in Appendix A), and, perhaps most importantly, loan concordance rating which captures time-varying borrower risk. Concordance ratings capture credit risk by carefully appraising hard information (e.g., leverage ratio, EBITDA, etc.) and soft information related to a borrower's repayment capacity. $X_{j,b,i,t}$ includes a loan's time-to-maturity and utilization rate. Since PE status varies over time, we also use firm fixed effects in some of our specifications. Finally, in one specification, we also add bank$\times$borrower fixed effects to further control for unobserved time-invariant factors that are specific to a bank-firm relationship, such as banks' private information on borrowers' creditworthiness and banks' portfolio specialization in particular types of borrowers (Chodorow-Reich, 2014).

Table 4 reports our benchmark results where the dependent variable is (i) $Log\ (Commitments)$ at the *loan-level* in Panel A, and (ii) $\mathbb{1}\ (Credit\ Reduced)$ in Panel B. For simplicity, we suppress the

subscripts from display. We see that β_2 is negative, indicating that violation of a covenant reduces credit commitment. In terms of economic significance, covenant violations reduce commitments by 11.6 percent.[9] Importantly, β_3 is positive and significant. The estimate indicates the reduction in credit commitment upon violation is only 4.53 percent if a firm has a PE sponsor. Taken together, we can infer that the mitigating effect of PE ownership on lenders' enforcement actions is quite strong. We find similar results when we look at columns (2) to (6) with variations in fixed effects. Panel B reports the results where the outcome is $\mathbb{1}\left(Credit\ Reduced\right)$, an extensive margin measure. The sample size drops slightly since the variable was constructed based on *changes* to commitments. As we estimate the probability of credit reduction, our hypothesis is that $\beta_2 > 0$ and $\beta_3 < 0$. Consistent with our hypothesis, we find that covenant violations raise the probability of credit reductions. The quantitative effect is quite large — ranging from 6.7 percent to 8.7 percent, depending on the set of controls. But the significant and positive sign on β_3 again indicates a limited-punishment effect.

Event-Study. We next estimate Eq. (3) to examine pre-trends between sponsor-backed loans and non-PE loans. The dependent variable is $log\ \left(Commitments\right)$. We estimate quarter-specific coefficients on the effect of covenant violation on loan commitment, separately for sponsor-backed loans and non-sponsored loans. These regressions include firm, sector-time, and bank-time fixed effects and the same loan controls as before: concordance rating, maturity, and utilization rate. We choose 2-quarter time intervals since most of our sample's reporting frequency is semi-annual, as described in section 2. The equation takes the following form, where **L** is a vector containing loan-level controls:

$$Log\ \left(Commitment_{j,t}\right) = \sum_{s \neq 1} \beta_s \mathbb{1}(Violate\ in\ q - s\ quarters) + \mathbf{L\_j,t} + FEs + \epsilon\_j, t \tag{3}$$

The results, in Figure 2 shows there were no pre-trends prior to covenant violation, but the two borrower-types display sharply different outcomes immediately after violation. There are clear, persistent declines in credit commitment in non-PE loans (bottom chart) and little evidence of any significant decline in commitments for sponsor-backed loans after a violation (top chart).

[9] $(e^{(-0.124)} - 1) \times 100 = -11.66$.

3.3 Evidence from Matched-Sample Analysis using firm-level variables

An important concern is that our loan-level sample does not explicitly control for time-varying firm-level risk factors (e.g., leverage ratio, profitability, firm size, etc.), even though we include supervisory risk ratings. In this section, we now match our SNC sample to the Federal Reserve's FR Y14-Q data on commercial loans, which contains detailed firm-level balance sheet information and has been used extensively in prior studies (e.g., Brown et al. (2021); Chodorow-Reich et al. (2022)). The FR Y-14Q data consists of information on all loan facilities with over USD 1 million in the committed amount held by Bank Holding Companies (BHCs) in the U.S. and began in 2012 to support the Dodd-Frank Act Stress Tests (DFAST). The key advantage of the FR Y-14Q is the extensive coverage of private firms that borrow from U.S. banks, along with information on their balance sheets and accounting statements. For example, Caglio et al. (2021) find more than 90 percent of firms in the Y-14 data are private.

Given the differences in banks that are required to report information to the FR Y-14Q relative to SNC, as well as firm naming conventions, we can merge around 40 percent of our baseline sample of PE and non-PE firms. Using this merged sample, we now construct the control group (consisting of non-PE-backed firms) to match PE-backed firms on observable characteristics. Specifically, for all PE-backed firms in our data, we select at most five non-PE-backed firms in the FR Y-14Q sample in the *pre-buyout year* that (i) belong to the same two-digit NAICS code and have (ii) EBITDA, (iii) book assets, (iv) leverage ratio (debt/assets), and (v) 1-year ahead probability of default within a 20 percent bracket around corresponding value for the PE-backed firm. The matching variables and general methodology broadly follow Bernstein et al. (2019), Boucly et al. (2011) and Haque et al. (2022). The only difference is that we also match the 1-year ahead probability of default as estimated by the reporting bank. These default probability estimates capture the bank's own internal assessment of the borrower's default likelihood, and contains information relevant for predicting default not captured by other observables, including the loan's interest rate (Weitzner and Howes, 2023).[10]

[10]The primary purposes of these estimates are stress testing and capital risk weight calculations. According to the Basel Committee on Banking Supervision, internal estimates of PD "must incorporate all relevant, material and available data, information and methods. A bank may utilize internal data and data from external sources (including pooled data)." It follows that these estimates should incorporate both "hard" information, such as firm financials, as well as "soft" information, which is not reflected in firm and loan characteristics.

Table A7 reports summary statistics for the full merged SNC-Y14Q sample in Panel A. As the table shows, PE-backed firms have higher debt on their books and a higher probability of default. Importantly, the debt ratio of 52 percent in PE is consistent with prior studies such as Brown (2021) or Gornall et al. (2021). Both firm types are similar in terms of size and EBITDA. They also have a higher year-on-year asset growth rate, which we also control for in our regressions. Panel B restricts the summary stats (means) to the sample of observations where PE and non-PE are matched, as described above.

Table 5 Panel A re-estimates our benchmark regression (2) at the loan level, where the non-PE loans are matched according to the methodology described above. Further, instead of supervisory risk-rating, all regressions now include the following firm-level controls: *Debt/Asset* ratio, *EBITDA/Assets* ratio, *Log (Total Assets)*, *year-on-year Asset Growth Rate* and an indicator variable, $\mathbb{1} * (Public)$, which controls for whether a firm is publicly-traded in a given year. We also include firm fixed effects, allowing us to absorb all time-invariant borrower-level factors that could be related to sponsor-backed companies.

We observe that our key result on limited punishment is robust to the matched control group, as can be seen in columns (1) to (3) in Panel A. Given the relevance of the matching variables, these results strongly suggest that limited punishment towards sponsor-backed companies goes beyond deal selection. One caveat is that our sample size decreases significantly due to the merge with FR-Y14 and the matching exercise. To alleviate concerns related to a smaller sample size, we re-estimate our benchmark regressions with the same firm-level controls as above, but *without any matching* in Panel B. We obtain a much larger sample without matching. We again see our benchmark result on limited punishment is unchanged in columns (1) and (2) where the outcome is *Log(Commitments)*. For $\mathbb{1} \times (Credit\ Reduced)$, the result is significant in our most stringent specification in column (4) but is insignificant in column (3) in Panel B. Overall, these results highlight the robustness of our findings to a matching methodology that is based on prior studies. For the rest of the analysis, we use our full benchmark SNC sample described in Section 2.

3.4 Effect on Loan Spread and Maturity

Do PE-backed firms pay higher spreads or face shorter loan maturities as a trade-off for retaining higher access to credit? We now estimate our benchmark regression Eq. (2) on loan spreads and maturity. Table 6 reports these results. Data on loan spreads is available for a smaller set of loans in the SNC, leading to a much smaller estimation sample in columns (1) to (4).[11] Spreads are defined in basis points over LIBOR. We generally find that covenant violations lead to higher loan spreads: the effect is quite large, ranging from 34 to as much as 50 basis points depending on our controls. For example, in column (2), when we include sector-time, origination-time, and various loan controls, the estimate on *Violate* is significant at the 1 percent level and stands at 38.32. However, consistent with limited punishment towards PE, we see $PE \times Violate$ is -28.94, implying that the spread increase is much less for PE-sponsored loans. While columns (1) and (2) show evidence of limited punishment, we do not find the same results when we include further fixed effects such as bank time or firm fixed effects. Overall, we do not see any specification where $PE \times Violate$ is positive and significant.

We now also run regressions similar to our benchmark regression on loan maturity. We report these in columns (5) to (8) of Table 6. Across all specifications, *Violate* is negatively related to loan maturity, suggesting lenders generally reduce loan maturity upon covenant violation. In columns (5) and (7), we see that the effect is mitigated by PE-backing since the interaction terms are positive. However, we find that this result is not robust to the inclusion of firm fixed effects or origination year-quarter fixed effects. While we cannot conclusively draw the conclusion that PE leads to limited punishment in terms of loan maturity from this result, we again fail to detect evidence that lenders are substantially shortening maturities for PE-backed loans upon covenant violation (which would have required $PE \times Violate$ to be significant and negative).

Overall, even when we look at spreads and maturity, there is suggestive evidence that creditors display limited punishment toward PE. We acknowledge that creditors may tighten other contractual provisions that we cannot observe.

[11] Since data on spreads is not reported systematically, it may possibly face sample selection issues. For example, examiners can potentially report spreads for relatively riskier loans since they require greater scrutiny. However, mean and median spreads in our sample are quite similar to those in prior studies such as Ivashina and Kovner (2011).

3.5 Endogeneity Concerns

Sponsors and firms do not match at random, and borrowers do not violate covenants randomly. This leaves open the possibility that sponsors bring their best deals to banks that are inherently of lower risk (or higher quality) and do not require severe punishment upon a contractual breach. Our research designs attempt to mitigate this possibility but cannot fully rule it out. Consequently, the omitted variables due to deal selection may push the results towards what is reported. In this section, we further explore this possibility.

As shown earlier, since sponsor-backed companies violate covenants more often, they may be ex-ante riskier relative to non-sponsored firms. We observe the same pattern from examining concordance ratings in Table A2, which are risk ratings assigned by bank examiners. One reason for sponsor-backed firms for being riskier is that they are more leveraged. In section 3.3, we confirmed that PE-backed firms have more leverage by retrieving firm-level information for a reasonable subset of our benchmark SNC sample.

Next, Figure 3 plots the distribution of default probabilities reported by banks. As discussed before, these estimates contain 'soft' information and incorporate relevant borrower-level information not captured through firm financial or loan interest rate spreads. More specifically, they capture important downside risks to creditors, which is also relevant for covenant enforcement. The distribution clearly shows PE-backed loans (grey bars) have greater mass in higher default probability bins. Overall, observing examiner-assigned credit ratings and reported probability of default or firm-level financials, we do not see any compelling evidence that sponsor-backed firms are of lower risk compared to non-sponsored firms.

Importantly, we find nearly similar results to our baseline when we conduct a matched-sample analysis based on firm-level factors, discussed in section 3.3. This is encouraging since sponsors generally select companies based on factors such as leverage, profitability, firm size, industry, or ex-ante firm risk, all of which we match. Since the bank-reported probability of default captures its best estimate of default probability, incorporating information beyond simple firm financials, it follows that banks utilize a similar information set when making decisions related to covenant enforcement. However, it is still possible that these firms could differ along other unobserved dimensions that affect the resolution of covenant violations.

4 Mechanism

4.1 Mechanism 1: Repeated-Deals and Sponsor Reputation

Malenko and Malenko (2015) argue a sponsor evaluating how it wants its portfolio companies to deal with financial distress is not facing a one-shot game, but is a repeat player. Banks are able to accumulate and reuse valuable information about private equity sponsors through repeated interactions. Therefore, a strong lender-sponsor relationship should mitigate agency problems of LBO debt, thereby making strict covenant enforcement less necessary. More generally, a lender might display limited punishment if a high-reputation sponsor backs a firm since the sponsor has enhanced incentives to preserve favorable loan terms in future buyout deals and is experienced in resolving distress (Bernstein et al., 2019) or provide operational support (Gompers et al., 2022).

We test our hypothesis in two ways. First, we construct a time-varying binary measure of the strength of sponsor-lender relationships. Specifically, we construct a measure we call $Relationship\_sbt$, defined at the Sponsor-Bank-Time level, which takes the value of 1 if a given sponsor-bank pair has a pre-existing credit relationship through at least one prior LBO loan anytime in the three years preceding time t. To address endogeneity related to deal selection, we follow Khwaja and Mian (2008) and include stringent $Firm \times Time$ fixed effects. Thus, we compare, at a specific point in time, observably similar loans to the *same* PE-backed borrower made by distinct lenders who differ in their relationship with the sponsor. To exploit this variation, we focus on PE-backed borrowers with multiple lenders. As firm-time fixed effects account for all time-varying borrower characteristics, including PE-backing itself, we absorb all demand-side factors related to the non-random selection of PE targets and identify the effects of lender-sponsor relationships on loan commitment upon covenant violation. To ensure sufficient variation, we construct $Firm \times Time$ fixed effects at the firm-year level (as opposed to the Firm-Year-Quarter level). We then estimate Eq. (4) below, where $Rel_{s,b,t}$ captures relationship strength:

$$Y_{j,b,i,t} = \beta_1 Rel_{s,b,t} + \beta_2 Violate_{j,t} + \beta_3 Rel_{s,b,t} \times Violate_{j,t} + \eta_{b,t} + \zeta_{i,t} + Controls + \epsilon_{j,b,i,t} \quad (4)$$

Second, we construct a measure of sponsor reputation based on the volume of deals completed by a given PE sponsor, following Demiroglu and James (2010). We rank our sponsors in terms of

the total number of deals executed in the SNC sample. We then classify the top 50 sponsors (out of over 600 PE sponsors) as *High Reputation* sponsors. Cumulatively, these 50 sponsors hold around 63 percent of the market share in terms of deal volume in our sample. As a simple validation exercise, we confirm that more than 70 percent of the top 50 sponsors that appear in our sample have also appeared in the top 50 PE sponsor list in the Private Equity International (PEI) global 300 Private Equity Firm Ranking in 2019 and 2020. Therefore, our measure captures both a fund's activity in the syndicated loan market and the amount of equity capital sponsors raised as an indicator of future activity. We re-estimate our benchmark specification (2) where we replace $PE \times Violate$ with $Reputation \times Violate$.

Table 7 Panel A reports results of estimating Eq. (4) using firm-time fixed effects where the interaction term $Rel_{s,b,t} \times Violate_{jt}$ is our main variable of interest. Columns (1) and (2) show a strong positive effect on the interaction term of interest. While violations lead to significant reductions in committed credit, we observe lenders are lenient when a borrower is backed by a sponsor with whom the lender has a strong relationship due to prior interactions. We observe qualitatively similar patterns when we look at $\mathbb{1}(Credit\ Reduced)$ in columns (3) and (4). This result confirms that limited punishment is not entirely driven by deal selection.

Next, Table 7 Panel B reports our results where the interaction is between *High Reputation* indicator and *Violate*. This measure captures a more general measure of a sponsor's overall reputation in credit markets with respect to all lenders. Again, we observe similar results: Borrowers backed by highly reputed sponsors experience limited punishment upon covenant violation. Finally, for completeness and robustness purposes, we also estimate a triple interaction specification with $PE \times High\ Reputation \times Violate$ as the key variable of interest, outlined in Eq. (5). These regressions include all lower-order interactions not absorbed by fixed effects, which we do not display for brevity. We report these results in Table A6 of the Online Appendix. We find qualitatively similar results.

$$\begin{aligned} Y_{j,b,i,t} =& \beta_1 PE_{i,t} + \beta_2 Violate_{j,b,i,t} + \beta_3 PE_{i,t} \times Reputation_{j,t} \times Violate_{j,b,i,t} + \\ & Z_{j,t} + Other\ interactions + X_{j,b,i} + \eta_{b,t} + \theta_{z,t} + \epsilon_{j,b,i,t} \end{aligned} \tag{5}$$

4.1.1 Additional Evidence: Default Post-Violation

An important question related to the sponsor's reputation and repeated-deals mechanism is whether PE-backed loans fail more often than non-PE loans after violating covenants. According to Malenko and Malenko (2015), sponsors have strong incentives to preserve a relationship with their lender, which would also require minimizing losses for the lender. In this section, we examine loan performance conditional on covenant violation. We estimate Eq. (2) with loan performance as the dependent variable. We measure loan performance using realized defaults. We want to emphasize that we do not argue that PE-sponsored loans are safer than non-PE loans unconditionally, but that realized defaults are not meaningfully higher in PE than non-PE, *conditional on covenant violations*.

Following Giannetti and Meisenzahl (2022), we use the information on the number of days that any payment (interest or principle) for a given loan is past due. Specifically, we define an indicator variable $Default$ that takes the value of 1 if a loan is past due for 60 days or more and 0 otherwise. We then estimate our benchmark specification to examine if the default rate differs after covenant breach for PE-sponsored loans.

We report results on the default rate in Table 8. Columns (1) and (2) show that covenant violations are positively related to the realized default rate. However, $PE \times Violate$ is negatively associated with the default rate, indicating that PE actions may reduce the likelihood of defaults upon covenant violation. For example, sponsors may engage more with management and restructure companies in order to resolve distress. These findings are consistent with PE sponsors either resolving distress more efficiently as argued in Bernstein et al. (2019) and Hotchkiss et al. (2021), or through operational expertise in distress (Gompers et al., 2022).

4.2 Mechanism 2: Loan Renegotiation and Bargaining Power

In this section, we propose a related mechanism behind our results: we examine if limited punishment could also be explained by the higher bargaining power of PE sponsors during loan renegotiation. Billett, Elkamhi, Popov, and Pungaliya (2016) argue PE sponsors have superior negotiating skills. Supporting this claim, Liu (2021) finds evidence of superior bargaining power of PE-owned hospitals vis-a-vis insurers, while Bernstein et al. (2019) provide survey evidence that sponsors di-

rectly help with loan renegotiation with bankers and lawyers when portfolio firms are in distress.

We show evidence of superior bargaining power in two ways. First, we exploit the fact that a covenant violation immediately gives the lender more bargaining power by design. Moreover, this bargaining power is likely to be preserved when a given syndicate is highly concentrated (i.e., it has relatively few lenders, especially non-bank lenders such as CLOs and hedge funds). Giannetti and Meisenzahl (2022) define concentrated syndicates in a similar way. If our benchmark results go through when the syndicate is concentrated, it implies PE sponsors dampened creditor enforcement even when lenders have high bargaining power. Since we can control for loan characteristics, our interpretation is that sponsors raise the portfolio company's bargaining power (relative to distressed non-PE borrowers) when renegotiating with concentrated syndicates.

For the purposes of this particular analysis, recall from Table 1 that our sample contains an adequate number of loans with a relatively small number of institutional lenders (likely due to split control rights). Berlin et al. (2020) show the number of lenders in loans with split control rights is much less than those without it. We define a new time-varying variable *Concentrated*, which takes the value of 1 if the total number of institutional lenders in a given syndicate at a given point in time is less than or equal to the median number of institutional lenders in the full sample (i.e., 11). We also verify that our results are nearly identical when we use the 25th percentile of the total number of institutional lenders (which is 6 in our sample). We estimate the following triple-differences specification.

$$\begin{aligned} Y_{j,b,i,t} =& \beta_1 PE_{i,t} + \beta_2 Violate_{j,b,i,t} + \beta_3 Concentrated_{j,t} \times Violate_{j,b,i,t} + \\ & \beta_4 PE_{i,t} \times Concentrated_{j,t} \times Violate_{j,b,i,t} + \beta_5 Concentrated + \\ & Z_{j,t} + Other\ interactions + X_{j,b,i} + \eta_{b,t} + \theta_{z,t} + \epsilon_{j,b,i,t} \end{aligned} \tag{6}$$

We report these results in Panel A of Table 9. First, focusing on columns (1) and (2), we see that $Violate \times Concentrated$ is negative, implying that, upon covenant violation, concentrated syndicates reduce commitments more than dispersed syndicates. However, the positive sign on $PE \times Concentrated \times Violate$ in columns (1) and (2) implies that PE-sponsorship status dampens the credit commitment reduction. We interpret these findings as successful renegotiation of loan contracts by sponsors (relative to non-PE borrowers), indicating higher bargaining power of PE-

sponsored firms relative to non-PE borrowers. We note, however, that the extensive margin effect, as captured by $\mathbb{1}$ (*Credit Reduced*), is insignificant, implying the bargaining power effect of PE on credit reduction is more pronounced at the intensive margin.

Second, a given lender could be heavily reliant on a given sponsor for deal flow, which would raise the sponsor's bargaining power during loan renegotiation. We proxy a sponsor's bargaining power vis-a-vis lenders by aggregating the dollar value of all outstanding LBO loans between a given lender (lead bank) and a given sponsor's portfolio companies at time t. Our expectation is that the higher a given bank's exposure to a given sponsor's LBO activity (capturing the lender's historical reliance on a given sponsor for deal flow), the higher the sponsor's bargaining power vis-a-vis the bank. Specifically, we construct a variable *Total PE sponsor-bank exposure*, which captures a bank's total utilized loan commitments by all portfolio companies backed by a given PE sponsor. Based on this measure, we then define an indicator variable *High Exposure* that takes the value of one if the sponsor-lead bank exposure at time t is equal to or greater than the sample median and 0 otherwise. The median total sponsor-bank exposure amount is USD 2.25B (not reported). Thus, *High Exposure* takes a value of 1 if the lender's total LBO exposure for all companies backed by a specific PE sponsor (e.g., KKR) is greater than or equal to USD 2.25B. Since the main variable of interest is only available for PE-backed loans by definition, our test is restricted to the PE sample only. We estimate a variant of our benchmark regression for only the PE sample, where the key variables of interest are *Violate* and the interaction *High Exposure* $\times$ *Violate*.

Panel B of Table 9 reports these results. For both of our outcome variables, we see covenant violations lead to reductions in credit commitment as before. However, this effect is significantly dampened if a given lender is heavily reliant on a given sponsor for continued deal flow. This result is again consistent with a sponsor's bargaining power, dampening creditor enforcement.

4.2.1 Additional Evidence: Renegotiation Outside Distress

We provide further evidence for a bargaining power channel. It is well-known that credit agreements are frequently renegotiated outside of distress or default (Roberts and Sufi, 2009b; Roberts, 2015). For example, Roberts and Sufi (2009b) finds credit limits are significantly changed upon accrual of new information, investment opportunities, or changes in aggregate conditions, and these

are often outside of distress. If a sponsor raises a company's bargaining power with lenders, we should expect to see credit limits being raised more for PE-backed borrowers relative to non-PE when both borrower types are outside distress and performing well.

To test this hypothesis, we add the following two variables to our benchmark specification (2): (i) $Amendment\ Outside\ Distress_{j,t}$ and (ii) $PE_{i,t} \times Amendment\ Outside\ Distress_{j,t}$. As discussed earlier, the variable $Amendment\ Outside\ Distress_{j,t}$ captures changes to credit commitments when the borrower is outside of covenant violation or default. These results are presented in Appendix Table A5.

We observe the coefficient on the interaction term, $PE_{i,t} \times Amendment\ Outside\ Distress_{j,t}$, is consistently positive, large, and significant, implying renegotiation involving a PE sponsor leads to more favorable outcomes than renegotiation without a sponsor. Since we are comparing loans of similar risk, one cannot simply interpret the positive coefficient to be driven by the better performance of PE-sponsored firms. This evidence suggests a potential bargaining power channel. Consequently, PE-backed borrowers have more financial flexibility outside distress and can raise additional debt post-buyout, as documented in Shive and Forster (2022).

5 Alternate Mechanisms and Robustness Tests

5.1 Instrumental Variable Research Design

Despite our rich set of controls, we cannot completely rule out non-random matching of borrower characteristics and covenant violations. We address this concern by employing an instrumental variable research design, largely following Ivanov and Wang (2024) and Chodorow-Reich and Falato (2022). The excluded instrument is the strictness of the lender's supervisor at the time of loan origination. Due to tighter bank supervision post-GFC, bank supervisors frequently meet with bank management to discuss both specific issues related to bank activities and more general perspectives such as industry outlook and analyze internal reports with the goal of reducing failure risk relative to what banks themselves might choose (Hirtle et al., 2020). Our relevance condition is that loans made under stricter supervisors have tighter covenants and, therefore, have a greater propensity for covenant violation.

Our exclusion restriction is based on two sources of quasi-exogenous variation in supervisory

strictness at loan origination, which we argue only affects credit commitments through covenant tightness. First, federal supervisors have been shown to be stricter than state supervisors, and there exists a pre-determined periodic rotation between them (Agarwal et al., 2014; Chodorow-Reich and Falato, 2022). Second, within each regulatory-district $\times$ supervisor-type combination, supervisors with varying levels of leniency are quasi-exogenously assigned to banks (Ivanov and Wang, 2024).

Further, we explicitly control for other loan-level factors, such as a borrower's credit risk, which could be affected by endogenous matching between banks and sponsors due to supervisory strictness. Because we can compare observably identical PE and non-PE loans within each federal district, we circumvent the issue of banks sorting into different regulatory settings (through *District* or *District* $\times$ *Time* fixed effects, discussed below). Taken together, the variation in supervisory strictness at origination stemming from a pre-determined rotation policy and supervisors' personality traits is unlikely to be correlated with unobserved characteristics of covenant violators.

Using the SNC data, we identify a strict supervisor at loan origination if the examiner-in-charge during the loan origination year-quarter is classified as *Strict*. We use examiners' history of assigning "Fail" or "Pass" ratings to different loan facilities to define a given examiner as *Strict*. Specifically, an examiner is classified as *Strict* if their total number of assigned *Fail* ratings to different loans is greater than the sample median. Figure A2 plots the distribution of an examiner's propensity to *fail* a loan at a given point in time. We note that most examiners tend to fail around 10-15 percent of the loan facilities to which they are assigned. We then re-estimate our benchmark regression using examiner strictness at loan origination as an instrument for a covenant violation. The variation we now focus on is differences in examiner strictness *within* each federal district in a given year. Thus, we introduce *District* $\times$ *Year* fixed effects and relax some of our other fixed effects.[12]

Table 10 reports the main results from our IV estimation. We find that the first-stage relationship of strictness at loan origination on covenant violation is quite strong. Having a strict supervisor at origination increases the likelihood of a violation by 5.0 percentage points, which

[12]For example, *Bank* $\times$ *Time* fixed effect would not be valid in this setting as we aim to compare enforcement between banks that differ in their supervisory strictness. However, we are able to include *Bank* fixed effects to absorb time-invariant bank-level factors.

is meaningful given Figure 1.[13] The partial F-statistic of this relationship is 34.8, which is greater than the rule of thumb of ($F \geq 10$) as proposed by Staiger and Stock (1994). Turning to the second stage, we again find patterns consistent with limited punishment using both $log\ (commitments)$ and $1 \times (Credit\ Reduced)$.

5.2 Could the Results be Driven by Equity Injections?

A mechanism related to both sponsor reputation and higher bargaining power is the ability to inject equity in distress. For example, higher reputed sponsors likely have higher *ability* to inject equity, given that they obtain more capital from limited partners. Prior research has shown sponsors are likely to inject equity to help their portfolio companies overcome liquidity problems (Bernstein et al., 2019; Hotchkiss et al., 2021). To identify evidence of equity injection, we again read through the SNC loan covenant schedule. Bank examiners provide detailed descriptions of a borrower's actions to ensure covenant compliance and, crucially, what corrective actions were taken to cure a covenant violation. In these descriptions, examiners explicitly mention if the borrower received an equity injection to cure the violation (or undertook other corrective actions, such as cost-cutting). An example of a typical description is outlined below, with identifying information removed for confidentiality purposes.

> *A covenant default occurred on [Date]. The default occurred because the leverage ratio of X exceeded the covenant limit. [Lender] issued a default letter [Date]. Company X injected [Dollar value] in equity to cure the default and took [Other Actions]. The combination of these actions produced an adjusted EBITDA of [Dollar value], effectively curing the default.*

We then use a simple text-search algorithm to identify instances of equity injection using words such as "Injected" or "Infused" and their variants. After manually verifying the accuracy of our algorithm, we create an indicator variable $\mathbb{1}(Capital\ Injection)$ that takes the value of 1 if a loan is identified to have received an equity injection at a given point in time and 0 otherwise. In our full baseline sample, we identify around 1,700 loan-time observations with an equity injection at

[13] For brevity, we only report the first stage of the regression for one specification with each dependant variable. The difference between specification (2) and (3), and again between specification (5) and (6) is that we alternate between *District* × *Year* and *District* fixed effects. We confirmed that the first stage of the regressions reported in columns (3) and (6) are nearly identical to the ones reported in (2) and (5), respectively.

a given time, which is around 4 percent of the sample. The relatively lower frequency of equity infusions implies that it is unlikely to be the only mechanism that explains enforcement behavior.

We investigate these descriptive findings through a formal test to assess whether PE-sponsored firms are associated with more instances of equity injections upon violation. We re-estimate Eq. (2) with $\mathbb{1}(Capital\ Injection)$ as an outcome variable to do so. Our key variables of interest are again *Violate* and $PE \times Violate$. These results are reported in Panel A of Table 11. First, across most of our specifications, we see that *Violate* is positively related to equity injections. However, the quantitative effect is relatively low. Specification (2) also shows that PE-backed firms are more likely to inject equity. However, this estimate is also quantitatively small and is not robust across other specifications. Our interpretation is that while equity injection is indeed a mechanism firm, especially a PE-backed one, undertakes to cure covenant violations, it is not the dominant mechanism at play. Consistent with this view, Gompers et al. (2022) showed PE managers provided more operational support (e.g., providing strategic guidance, reducing costs, or connecting companies with potential customers, suppliers, or strategic partners) compared to equity injection when firms were in distress during the COVID-19 pandemic. We acknowledge, however, that one limitation of our measure of equity injection, $\mathbb{1}(Capital\ Injection)$, is that it cannot capture the intensive margin effect, which could also be systematically different for PE.

5.3 Could the Results be Driven by Local Investment Opportunities?

Local investment opportunities could be different between PE and non-PE. We now include location $\times$ Time fixed effects in our benchmark specifications, where location is proxied by the borrower's head-quarter city. The sample size drops marginally because this information is not available for all borrowers. We find that our main results are unchanged, as shown in Table A4.

5.4 Are the Results Sensitive to the Definition of a Covenant Breach?

Our benchmark definition of covenant violations includes both violations reported by the lender and waivers. In this section, we depart from this definition and exclude covenant waivers or resets as a type of covenant violation and re-estimate our benchmark results in Table 4. This leads to a much lower number of violations. However, we find that our results remain unchanged using

both of our main outcome variables (i.e., *Log(Commitments)* and $\mathbb{1} \times (Credit\ Reduced)$). We report these results in Table A8.

6 Conclusion

This paper examines how PE sponsors shape the enforcement of debt contracts in the syndicated loan market, using covenant violations as an empirical setting. By combining supervisory data from the Shared National Credit Program with LBO information from Preqin, we build a novel loan-level dataset of PE-sponsored borrowers, their covenants, covenant compliance, and post-violation outcomes. We find that PE-backed borrowers violate covenants more often than non-PE-backed borrowers. Yet, lenders do not reduce the stock of available credit to PE-backed borrowers as much as they do when non-PE firms violate covenants. We also find similar patterns when we look at other loan terms, such as maturity and interest rate spread, although our results are strongest for loan commitments. We show that our result is driven by two related mechanisms: (i) a repeated-deals mechanism as lenders and sponsors frequently interact in credit markets, which reduces agency costs of LBO debt, and (ii) the high bargaining power of PE sponsors in renegotiating loan contracts.

Our baseline research design compares credit outcomes following covenant violations for comparable loans with similar credit risk issued by the same bank to borrowers in the same sector who differ only by PE-sponsorship status. To further mitigate endogeneity concerns, we also deploy a matching methodology following prior studies and show that our results hold when we match PE to non-PE loans based on debt, assets, EBITDA, and default probability. We identify the key mechanism by using a Khwaja and Mian (2008)-style *Firm* $\times$ *Time* fixed effects approach and exploiting sponsor-bank-time variation, allowing us to address the standard concern related to the endogeneity of PE-backing. Overall, our results suggest that the rise of sponsor-backed LBOs has altered the traditional mechanism whereby creditors use covenant violations to exert control over distressed borrowers.

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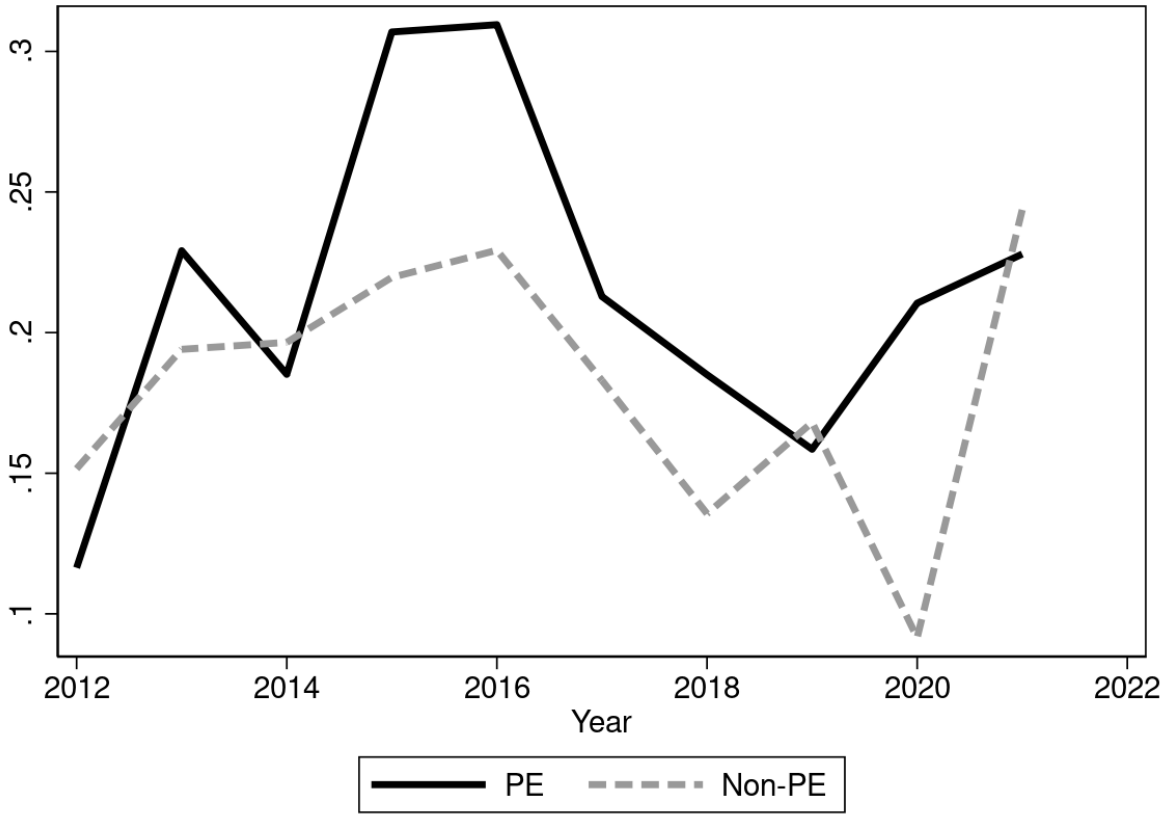
A Variable definitions

Variable	Definition	Source
Dependent Variables		
Capital Injection	The indicator variable that takes the value of 1 if a loan receives an equity infusion and 0 otherwise.	SNC
Credit Reduced	The indicator variable that takes the value of one if total committed credits between a given bank-firm pair are reduced in a given time period relative to the prior period.	SNC
(Days Past Due >=60)	An indicator variable which takes the value of 1 if a loan payment is past due for 60 days or more.	SNC
Loan Spread	Spread over LIBOR expressed in basis points. Obtained using textual analysis from SNC Credit View from variables related to payment schedule and repayment terms description.	SNC and authors' calculations
Log(Commitments)	The natural logarithm of the commitment amount of a given credit facility.	SNC
Log(Loan Maturity)	The natural logarithm of the loan maturity which is measured as the difference between the origination date and maturity date.	SNC
Log(1+Non-Pass Amount)	The natural logarithm of the total dollar amount of a credit's committed exposure where the final exam rating is a Special Mention, Substandard, Doubtful, or Loss.	SNC
Substandard/Doubtful	Indicator variable that takes the value of 1 if a loan is classified as substandard or is under special mention and 0 otherwise.	SNC
Control Variables		
Amendment Outside Distress	Is an indicator variable that takes the value of 1 if a loan commitment amount is changed in period t relative to period $t-1$ outside of our definition of covenant violation.	SNC and authors' calculations
Concordance Rating	A numerical risk rating that federal supervisors assign to each credit facility at a given point in time. Lower ratings denote lower risk in a particular credit facility. We use the variable *Adjusted Concordance Rating*, which is based on the *Reported Concordance Rating* but is updated to reflect missing or invalid rating information reported by the Agent Bank. A rating of 1 is *Investment Grade Pass*, 2 is *Non-Investment-Grade pass*, 3 is *Lowest Rated Pass*, 4 is *Special Mention*, 5 is *Substandard*, 6 is *Doubtful* and 7 is *Loss*. We interchangeably use the terms "Supervisory Risk Ratings" and "Concordance Rating". For an example of how loan quality is mapped from the agent bank's internal rating to supervisory rating, see this reporting form by the SNC office.	SNC
Default	An indicator variable that takes the value of 1 if any payment related to a given loan is 60 days or longer past due and 0 otherwise.	SNC and authors' calculations
High Reputation	An indicator that takes the value of 1 if a PE sponsor is ranked within the top 50 of all sponsors in terms of market share of deal volume in the full SNC sample.	SNC and authors' calculations
Performance-based Covenants	Following Christensen and Nikolaev (2012), performance-based covenants are defined as any one of the following covenants: debt-to-EBITDA ratio, senior debt-to-EBITDA ratio, interest coverage ratio, fixed charge coverage ratio, debt service coverage ratios, level of EBITDA, minimum profitability requirements, debt-to-equity ratio, loan-to-value ratio, and net worth requirements.	SNC
Loan Purpose	An indicator variable that takes the value of one for Acquisition and/or Merger Financing, General Corporate Purpose, Refinancing/Consolidation, etc.	SNC
Loan Time-to-Maturity	The difference between the loan maturity date and the review date (in years) of a given credit facility.	SNC
Loan Type	An indicator variable that takes the value of one for different loan facilities such as revolving credit lines, term loans, or other loans. Loan types are identified by the largest piece of the loan within the loan type, in dollar value terms.	SNC
Negative Covenants	An indicator variable that takes the value of 1 if a covenant explicitly mentions negative covenants in the description. These include, liens, acquisitions/joint ventures, indebtedness, asset sales, fundamental business change, transactions with affiliates, change in management, capital expenditure etc.	SNC
Asset Growth Rate	Year-on-Year percentage change in a firm's total book assets.	FR Y-14Q

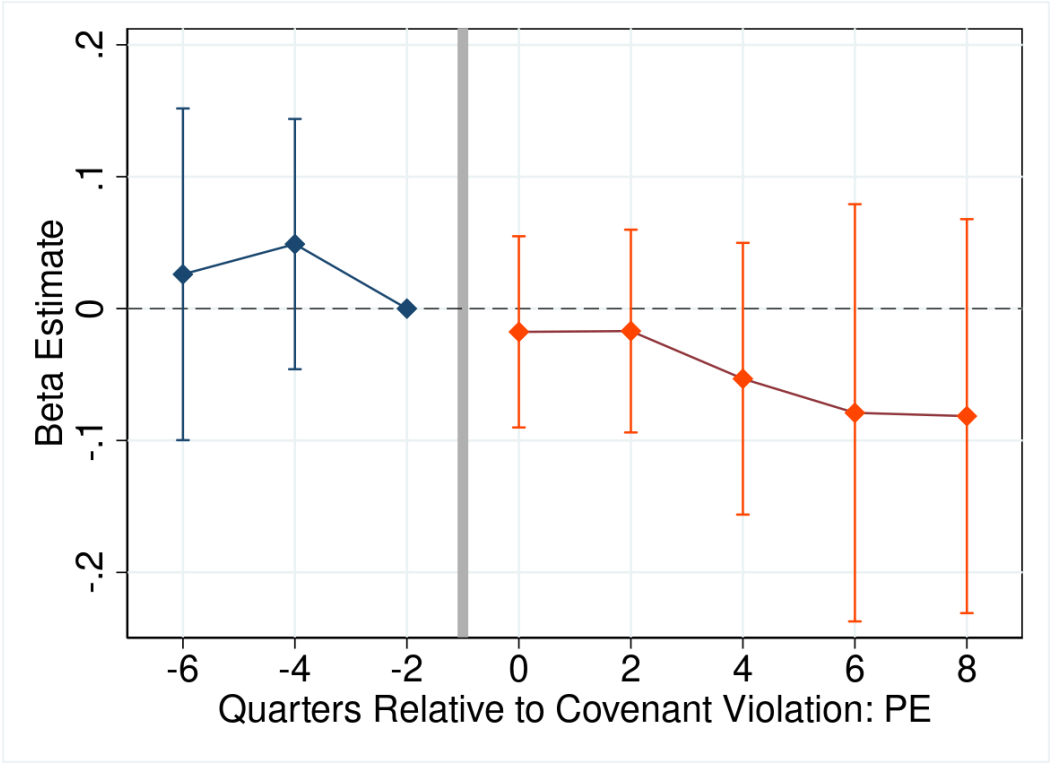
PE	Indicator variable that takes the value of 1 if a loan is sponsored by a PE firm and 0 otherwise.	SNC
Probability of Default	Bank estimated probability of default for a given borrower. Reported default probabilities are typically forward-looking one-year ahead projections.	FR Y-14Q
Public	An indicator variable which takes the value of 1 if a firm is publicly traded on a stock exchange in a given year.	FR Y-14Q
Total Number of Institutional Lenders	The number of institutional lenders (e.g., CLOs, hedge funds, or direct lenders) that invest in a given loan syndicate at a given point in time. This variable is computed only for loans with at least one institutional investor at any time.	SNC and authors' calculations
Total Number of Lenders	The number of lenders in a given loan syndicate at a given point in time.	SNC
Total PE Sponsor-Bank Exposure	The sum of all outstanding *utilized commitment* by all portfolio companies that are funded by a given PE fund-bank pair at observation date t.	SNC and authors' calculations
Total Risk-Based Capital Ratio	A ratio of the total risk-based capital over Risk-Weighted Assets, constructed at the Bank Holding Company $\times$ Time level.	FR Y-9C and authors' calculations
Violate	An indicator variable that takes the value of 1 if a loan breaches a covenant or requires a waiver or amendment in order to stay compliant and 0 otherwise. In robustness tests, we exclude waivers and resets.	SNC
Utilized Exposure	The outstanding drawn amount under a given line of credit in millions of US dollars.	SNC
Utilization Rate	The outstanding drawn amount divided by the total commitment amount.	SNC

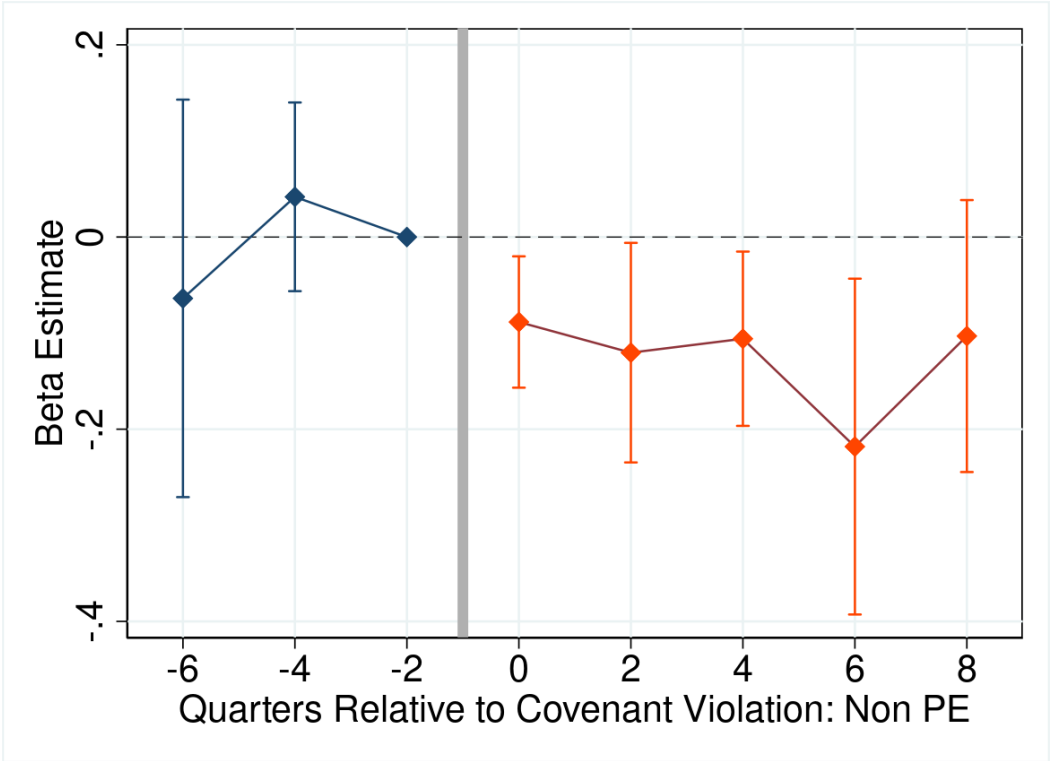
Figure 1: Probability of Violating a Covenant: PE Firms



(a) *Notes: This chart plots the share of loans that are violated in a given year for firms backed by PE sponsors and non-PE-backed firms. We define a loan as having violated a covenant if any covenant in a given loan is violated. Appendix A.*

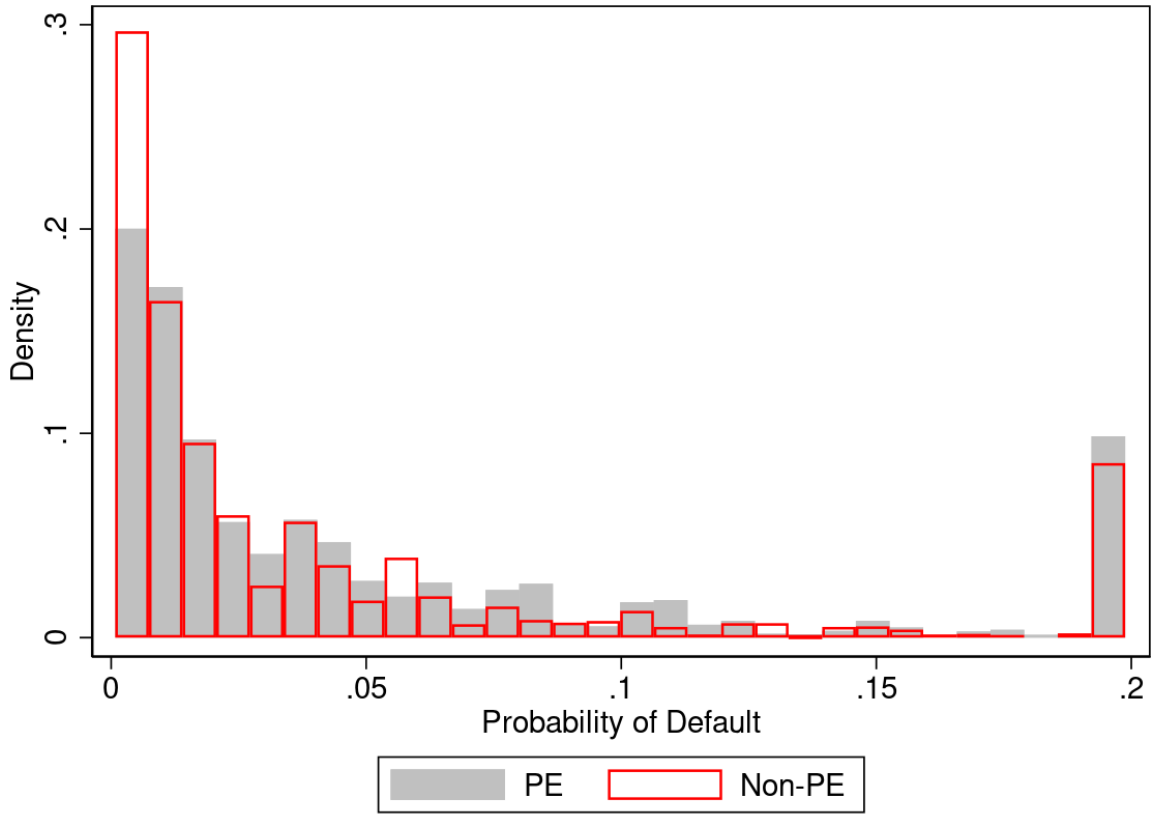
Figure 2: Event Study of Effects of PE on Loan Commitment Upon Covenant Violations





(a) *Notes: Dependant variable is Log (Loan Commitment). This figure presents differences-in-differences event studies of the effect of covenant violation on loan commitment, using Equation (3), estimated separately for PE-sponsored and non-PE loans at each event-time. These regressions estimate the effect of the variable Violate on Log (Commitment) for PE-backed loans and non-PE loans. All regressions control for loan maturity, utilization, and loan concordance (risk) rating, firm fixed effects, sector-time fixed effects, and bank-time fixed effects. Standard errors are clustered at the bank-time level.*

Figure 3: Distribution of Bank-Reported Probability of Default



(a) *Notes: This chart plots the distribution of the bank-reported probability of default for PE and non-PE-backed loans using the merged FR Y14-SNC data. The data is reported in bins such that each bin consists of at least 100 unique observations.*

Table 1: Summary Statistics

Panel A: PE-backed	N	Mean	Stdev	p50	p25	p75
Commitments (USD Mn)	19,189	492	743	250	95	600
Maturity (Years)	19,189	6.1	7.7	5	5	7
Utilization Rate	19,189	0.62	0.42	0.85	0.13	1
Concordance Rating	19,189	2.5	1.2	2	2	3
Amendment Outside Distress	19,188	0.33	0.47	0	0	1
Total Number of Lenders in Syndicate	19,189	86.2	195	10	6	27
Total Number of Institutional/Non-Bank Lenders	16,947	96.9	206	12	7	46
Loan Spread (bps)	3,832	322	169	300	200	425
Covenant Violations Waived or Reset (%)	3,420	13.9	-	-	-	-
Panel B: Non-PE-backed						
Commitments (USD Mn)	24,481	403	664	198	75	465
Maturity (Years)	24,481	6.1	3.36	5	5	7
Utilization Rate	24,481	0.61	0.41	0.73	0.16	1
Concordance Rating	24,481	2.3	1.2	2	2	3
Total Number of Lenders in Syndicate	24,481	44.3	115	8	5	17
Total Number of Institutional/Non-Bank Lenders	20,781	51.4	123	10	6	20
Amendment Outside Distress	24,481	0.32	0.46	0	0	1
Loan Spread (bps)	4,532	307	154	300	200	400
Covenant Violations Waived or Reset (%)	2,686	13.9	-	-	-	-

(a) *Notes: This table reports summary statistics of loan-time observations included in the benchmark sample from the Shared National Credit. The summary statistics presented here pertain to loans that have been sampled and that have available information for all loan and borrower characteristics. Time is defined at the year-quarter level. All variables are defined in Appendix A.*

Table 2: Covenant Type and Dollar Volume

		Commitment (Mn USD)	
Panel A: PE-backed loans	Freq (%)	Mean	Median
Leverage/Senior Leverage Ratio	29.3	405	200
Interest Coverage Ratio	13.3	428	234
Fixed Charge Coverage	9.9	237	117
Current Ratio	4.6	617	393
Springing Covenant	4.5	450	200
Debt Service Coverage Ratio	3.3	254	147
Net Worth Covenant	2.1	339	210
Panel B: Non-PE-backed loans			
Leverage/Senior Leverage Ratio	29.5	433	200
Interest Coverage Ratio	15.8	404	200
Fixed Charge Coverage	12.8	223	110
Current Ratio	4.7	464	185
Springing Covenant	2.7	383	250
Debt Service Coverage Ratio	4.0	195	102
Net Worth Covenant	4.0	314	160

(a) *Notes: This table reports the frequency of select loan covenants that appear most frequently in the SNC covenant sample. The presentation is split between the PE-backed loan sample (Panel A) and the non-PE-backed loan sample (Panel B). Also reported are the distributions of loan amounts associated with loans with a given covenant. The mean (median) number of covenants in the PE sample is 2.68 (2), and in the non-PE sample is 2.9 (3). All variables and covenants are defined in Appendix A.*

Table 3: Probability of Violating a Covenant and Subsequent Resolution

$Y_{j,i,b,t}$	$\mathbb{1}$ (*Violated*)			$\mathbb{1}$ (*Violation Waived*)		
	(1)	(2)	(3)	(4)	(5)	(6)
PE	0.0391***	0.0384***	0.0445***	0.0236**	0.0252**	0.0346***
	(0.006)	(0.006)	(0.006)	(0.010)	(0.010)	(0.010)
R-squared	0.102	0.117	0.129	0.221	0.268	0.296
Bank x Time FE	Y	Y	Y	Y	Y	Y
Sector x Time	N	Y	Y	N	Y	Y
Loan Controls	Y	Y	Y	Y	Y	Y
Origination Yr-Qtr FE	N	N	Y	N	N	Y
Covenant Violated Sample	-	-	-	Y	Y	Y
N	43,491	43,481	43,478	6,805	6,775	6,771

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports estimates of a linear probability model. In columns (1)-(3), the dependant variable is an indicator taking the value of 1 if a covenant is violated at a given point in time and 0 otherwise. In columns (4)-(6), the dependant variable is an indicator taking the value of 1 if a loan covenant would have been non-compliant but for a covenant waiver or reset granted by the lender. The estimation sample in columns (4)-(6) is restricted to observations with covenant violations. PE is an indicator variable taking the value of 1 if a loan involves a PE-owned borrower and 0 otherwise. Sector-time fixed effects are defined at the 2-digit NAICS level. Time FEs are at the year-quarter level of the SNC review date. Loan controls include utilization rate, total loan commitment in logs, time-to-maturity, indicators for supervisory risk rating, loan type (credit lines, term loans, etc.), and loan purpose. All variables are defined in Appendix A. Standard errors are clustered at the Bank × Time level.*

Table 4: Benchmark Results: Covenant Breach and Creditor Enforcement

Panel A : Log (Commitments)	(1)	(2)	(3)	(4)	(5)	(6)
Violate	-0.124***	-0.116***	-0.113***	-0.111***	-0.0958***	-0.280***
	(0.027)	(0.027)	(0.027)	(0.027)	(0.026)	(0.038)
PE × Violate	0.0776**	0.0686**	0.0682**	0.0678**	0.0680**	0.124***
	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)	(0.045)
R-squared	0.752	0.754	0.756	0.756	0.767	0.398
Bank x Time FE	Y	Y	Y	Y	Y	Y
Sector x Time FE	N	Y	Y	Y	Y	Y
Loan Controls	Y	Y	Y	Y	Y	Y
Origination Yr-Qtr FE	N	N	Y	Y	Y	Y
Covenant-type FE	N	N	N	Y	Y	Y
Firm FE	N	Y	Y	Y	N	N
Bank-Firm FE	N	N	N	N	Y	N
N	42,874	42,864	42,861	42,861	42,801	43,478
Panel B : 𝟙 (Credit Reduced)	(1)	(2)	(3)	(4)	(5)	(6)
Violate	0.0842***	0.0874***	0.0818***	0.0812***	0.0766***	0.0671***
	(0.018)	(0.019)	(0.018)	(0.018)	(0.018)	(0.014)
PE × Violate	-0.0854***	-0.0844***	-0.0792***	-0.0793***	-0.0808***	-0.0538***
	(0.026)	(0.027)	(0.026)	(0.026)	(0.026)	(0.020)
R-squared	0.165	0.176	0.181	0.181	0.187	0.0642
Bank x Time FE	Y	Y	Y	Y	Y	Y
Sector x Time FE	N	Y	Y	Y	Y	Y
Loan Controls	Y	Y	Y	Y	Y	Y
Origination Yr-Qtr FE	N	N	Y	Y	Y	Y
Covenant-type FE	N	N	N	Y	Y	Y
Firm FE	N	Y	Y	Y	N	N
Bank-Firm FE	N	N	N	N	Y	N
N	36,560	36,548	36,545	36,545	36,496	37,274

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports the benchmark results where the dependent variable is (i) the natural logarithm of loan commitment at time t in Panel A, and (ii) 𝟙 (Credit Reduced) in Panel B.* PE *is an indicator variable taking the value of 1 if a loan involves a PE-owned borrower and 0 otherwise. Sector-time fixed effects are defined at the 2-digit NAICS level. Time FEs are at the year-quarter level of the SNC report date. Loan controls include utilization rate, time-to-maturity, and indicators for supervisory risk rating, loan type (credit lines, term loans, etc.), and loan purpose. Covenant types are split into performance-based and non-performance-based. All variables are defined in Appendix A. Standard errors are clustered at the Bank × Time level.*

Table 5: Matched Sample Analysis using Firm-level Factors

Panel A: Matched Control Sample and firm controls	$Log(Commitments)$		$\mathbb{1}$ $(Credit\ Reduced)$	
	(1)	(2)	(3)	(4)
Violate	-0.224***	-0.211***	0.116***	0.109***
	(0.060)	(0.062)	(0.038)	(0.039)
$PE \times Violate$	0.210**	0.199**	-0.0968*	-0.0896
	(0.082)	(0.084)	(0.055)	(0.056)
R-squared	0.785	0.789	0.245	0.278
Firm FE	Y	Y	Y	Y
Bank x Time FE	Y	Y	Y	Y
Sector x Time	N	Y	N	Y
Loan Controls	Y	Y	Y	Y
Firm-level Controls	Y	Y	Y	Y
N	9,335	9,307	8,093	8,066
Panel B: Only firm-controls without matching				
Violate	-0.189***	-0.181***	0.0898***	0.0913***
	(0.047)	(0.048)	(0.031)	(0.032)
$PE \times Violate$	0.180***	0.183***	-0.0739	-0.0800*
	(0.064)	(0.065)	(0.046)	(0.047)
R-squared	0.780	0.783	0.229	0.251
Firm FE	Y	Y	Y	Y
Bank x Time FE	Y	Y	Y	Y
Sector x Time	N	Y	N	Y
Loan Controls	Y	Y	Y	Y
Firm-level Controls	Y	Y	Y	Y
N	16,207	16,190	13,934	13,913

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports OLS estimates of the benchmark regression, augmented with a matching procedure and firm-level controls from the FR Y-14Q in Panel A. PE loans are matched to non-PE loans based on firm size (Log (Total Assets), Debt/Assets, EBITDA/Assets, and 1-year ahead probability of default in the* pre-buyout *year within the same 2-digit NAICS industry. In Panel B, the control group is not matched but includes firm-level controls. Firm controls in both panels include Debt/Assets, EBITDA/Assets, Log (Total Assets), year-on-year asset growth rate, and $\mathbb{1} * (Public)$. Sector-time fixed effects are defined at the 2-digit NAICS level. Time FEs are at the year-quarter level of the SNC report date. Loan controls are the same as in the baseline, except for the omission of the supervisory risk rating. All explanatory variables are defined in Appendix A. Standard errors are clustered at the Bank $\times$ Time level.*

Table 6: Other Outcomes: Loan Spreads and Maturity

	Loan Spreads				*Loan Maturity*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Violate	50.36***	38.32***	34.43***	-2.345	-1.952***	-1.953***	-1.675***	-0.774***
	(8.122)	(7.674)	(6.801)	(8.071)	(0.269)	(0.199)	(0.266)	(0.275)
PE × *Violate*	-35.66***	-28.94**	-17.65	0.549	1.105**	-0.331	1.032**	-1.845
	(12.693)	(12.014)	(11.077)	(14.026)	(0.447)	(0.349)	(0.431)	(1.603)
R-squared	0.189	0.247	0.397	0.756	0.0366	0.200	0.0936	0.303
Firm FE	N	N	N	Y	N	N	N	Y
Bank x Time FE	N	N	Y	N	N	N	Y	N
Sector x Time	Y	Y	Y	Y	Y	Y	Y	Y
Origination Yr-Qtr FE	N	Y	Y	N	N	Y	N	N
Loan Controls	Y	Y	Y	Y	Y	Y	Y	Y
N	8,334	8,324	8,262	6,962	43,660	43,657	43,481	42,864

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports regression estimates using the baseline equation with additional dependant variables: loan spreads (over LIBOR, expressed in basis points) and loan maturity (expressed in a number of quarters). Sector-time fixed effects are defined at the 2-digit NAICS level. Time FEs are at the year-quarter level of the SNC report date. In columns (1) to (4), loan controls include loan utilization rate and time-to-maturity. In columns (5) to (8), loan controls include loan utilization rate and Log (Commitments). Loan controls also include indicators for loan type. All variables are defined in Appendix A. Standard errors are clustered at the Bank × Time level.*

Table 7: Repeated-Deals and Creditor Enforcement

Panel A: Sponsor-Bank Relationship	*Log (Commitments)*		$\mathbb{1}$(*Credit Reduced*)	
	(1)	(2)	(3)	(4)
Violate	-0.0813***	-0.0844***	0.0646***	0.0663***
	(0.027)	(0.028)	(0.019)	(0.018)
Relationship_sbt × *Violate*	0.0769**	0.0810**	-0.0846***	-0.0875***
	(0.039)	(0.040)	(0.027)	(0.028)
R-squared	0.766	0.779	0.208	0.221
Firm x Time FE	Y	Y	Y	Y
Bank x Time FE	N	Y	N	Y
Loan Controls	Y	Y	Y	Y
N	41,347	40,550	35,071	34,383
Panel B: Sponsor Reputation	*Log (Commitments)*		$\mathbb{1}$(*Credit Reduced*)	
	(1)	(2)	(3)	(4)
Violate	-0.275***	-0.267***	0.0559***	0.267***
	(0.034)	(0.034)	(0.012)	(0.034)
Violate × *High Reputation*	0.152***	0.152***	-0.0545**	-0.0593***
	(0.049)	(0.049)	(0.022)	(0.022)
R-squared	0.389	0.394	0.0515	0.0610
Bank x Time FE	Y	Y	Y	Y
Sector x Time FE	Y	Y	Y	Y
Origination Yr-Qtr FE	N	Y	N	Y
Loan Controls	Y	Y	Y	Y
N	43,490	43,480	37,285	37,275

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports OLS estimates where the dependant variables are the same as in the baseline. In Panel A, the regressions include Firm × Year fixed effects in all specifications, akin to Khwaja and Mian (2008), and exploit sponsor-bank-time variation. Relationship_sbt is an indicator taking the value of 1 if a given sponsor-bank pair has an existing credit relationship from a prior LBO loan and 0 otherwise. In Panel B,* High Reputation *is a proxy for a sponsor's reputation and takes the value of 1 if the sponsor is ranked within the top 50 funds in the baseline sample in terms of market share of deal volume in the US syndicated loan market. In addition to the controls listed above, all regressions also include an indicator for PE-backed firms. Loan controls include utilization rate, time-to-maturity, indicators for supervisory risk rating, and loan purpose. All variables are defined in Appendix A. Standard errors are clustered at the Bank × Time level.*

Table 8: Loan Defaults

$Y : \mathbb{1} \times (Days\ Past\ Due >= 60)$	(1)	(2)	(3)	(4)
Violate	0.0143***	0.00926**	0.0143***	0.00964**
	(0.004)	(0.004)	(0.004)	(0.004)
$PE \times Violate$	-0.0107*	-0.0135**	-0.0105*	-0.0140***
	(0.006)	(0.005)	(0.006)	(0.005)
R-squared	0.168	0.477	0.159	0.479
Firm FE	N	Y	N	Y
Bank x Time FE	Y	Y	Y	Y
Sector x Time	Y	Y	Y	Y
Loan Controls	Y	Y	Y	Y
Origination Yr-Qtr FEs	N	N	Y	Y
N	43,478	42,861	43,478	42,861

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports regression estimates where the dependent variable is an indicator that takes the value of 1 if a loan payment is past due for 60 days or more. Sector-time fixed effects are defined at the 2-digit NAICS level. Time FEs are at the year-quarter level of the SNC report date. Loan controls are the same as in the baseline. All variables are defined in Appendix A. Standard errors are clustered at the Bank × Time level.*

Table 9: Loan Renegotiation and PE Bargaining Power

Panel A : Concentrated Syndicates	*Log (Commitments)*		*𝟙(Credit Reduced)*	
	(1)	(2)	(3)	(4)
PE × Violate × Concentrated	0.240***	0.252***	-0.00844	-0.0138
	(0.079)	(0.079)	(0.044)	(0.044)
Violate × Concentrated	-0.374***	-0.374***	0.0551*	0.0544*
	(0.056)	(0.056)	(0.030)	(0.030)
Concentrated	-1.023***	-1.017***	0.0496***	0.0502***
	(0.020)	(0.020)	(0.009)	(0.009)
R-squared	0.567	0.572	0.0715	0.0752
Bank x Time FE	Y	Y	Y	Y
Sector x Time FE	Y	Y	Y	Y
Origination Yr-Qtr FE	N	Y	N	Y
Loan Controls	Y	Y	Y	Y
N	37,555	37,551	32,277	32,275
Panel B : Reliance on Deal Flow	*Log (Commitments)*		*𝟙(Credit Reduced)*	
	(1)	(2)	(3)	(4)
Violate	-0.193***	-0.184***	0.0456**	0.0453**
	(0.044)	(0.045)	(0.023)	(0.023)
Violate × High Exposure	0.151**	0.148**	-0.0719**	-0.0723**
	(0.063)	(0.063)	(0.031)	(0.031)
High Exposure	0.355***	0.352***	0.0172*	0.0134
	(0.027)	(0.027)	(0.010)	(0.010)
R-squared	0.461	0.471	0.0787	0.0787
Bank x Time FE	Y	Y	Y	Y
Sector x Time FE	Y	Y	Y	Y
Origination Yr-Qtr FE	N	Y	N	Y
Loan Controls	Y	Y	Y	Y
N	19,097	19,100	16,551	16,557

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports two tests related to the high bargaining power of PE sponsors vis-a-vis lenders. Panel A reports triple-difference estimates where the dependent variable is the same as the baseline.* Concentrated *is a proxy for a syndicate's ownership concentration and takes the value of 1 if the total number of institutional lenders in a given loan time is less than the sample median, 0 otherwise. All regressions include lower-order interactions and controls for loan time-to-maturity, utilization rate, and the actual number of institutional lenders. In Panel B, High Exposure captures a lender's total loan exposure to a specific PE sponsor through every outstanding LBO deal. Loan controls also include indicators for supervisory risk rating, loan type (credit lines, term loans, etc.), and loan purpose. All variables are defined in Appendix A. Standard errors are clustered at the Bank × Time level.*

Table 10: Instrumental Variable: Examiner Strictness at Loan Origination

	Violate	*Log (Commitment)*	*Log (Commitment)*	*Violate*	$\mathbb{1}$ (*CreditReduced*)	$\mathbb{1}$ (*CreditReduced*)
Examiner Strictness	0.051***			0.049***		
	(0.006)			(0.006)		
Violate		-3.344***	-3.228***		0.578***	0.581***
		(0.486)	(0.558)		(0.189)	(0.197)
PE × *Violate*		4.004***	4.455***		-1.161***	-1.204***
		(0.808)	(0.944)		(0.323)	(0.343)
District x Year FE	Y	Y	N	Y	Y	N
District FE	N	N	Y	N	N	Y
Bank FE	Y	Y	Y	Y	Y	Y
Sector FE	Y	Y	Y	Y	Y	Y
Year FE	N	N	Y	N	N	Y
Loan Controls	Y	Y	Y	Y	Y	Y
Regression Type	First Stage	Second Stage	Second Stage	First Stage	Second Stage	Second Stage
N	41,095	41,095	41,099	35,196	35,196	35,201

* $p < .10$, ** $p < .05$, *** $p < .01$

(a) *Notes: This table reports instrumental variable regression estimates where the outcomes are* $\mathbb{1}$ *(Credit Reduced), Log(Commitments), and the natural logarithm of loan maturity expressed in number of quarters (Log(Maturity)). The excluded instrument is the strictness of the lender's supervisor at the time of loan origination. Sector fixed effects are defined at the 2-digit NAICS level. In column (1), the F-stat of the excluded instrument is 34.83, and in column (4) F-stat is 30.84. Loan controls include utilization rate, time-to-maturity, and indicators for supervisory risk rating in all specifications. All variables are defined in Appendix A. Standard errors are clustered at the Bank* × *Time level.*

Table 11: Capital Injection

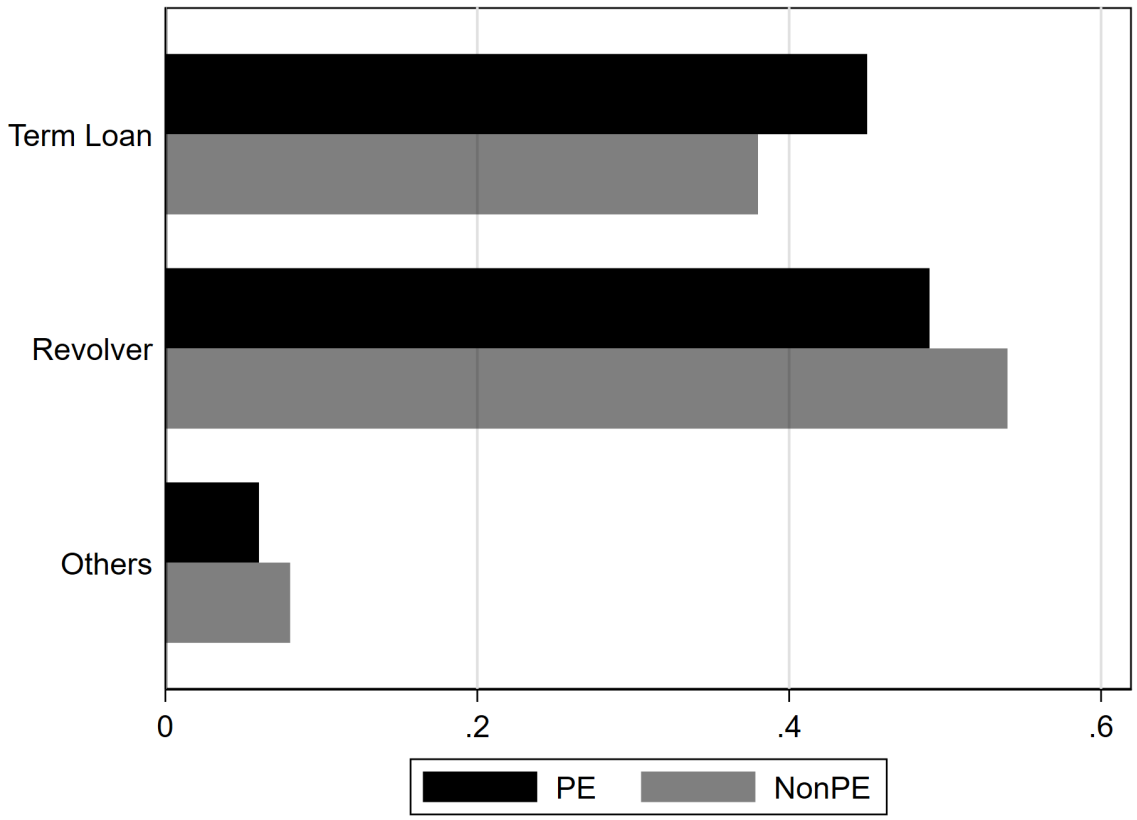
$\mathbb{1} \times (Capital\ Injection)$	(1)	(2)	(3)	(4)
Violate	0.0178**	0.0165**	0.0165**	0.00597
	(0.007)	(0.007)	(0.007)	(0.005)
PE × *Violate*	0.0148	0.0174*	0.0153	0.00707
	(0.011)	(0.010)	(0.010)	(0.007)
R-squared	0.0298	0.0450	0.102	0.865
Firm FE	N	N	N	Y
Bank x Time FE	N	N	Y	N
Sector x Time	Y	Y	Y	Y
Origination Yr-Qtr FE	N	Y	Y	N
Loan Controls	Y	Y	Y	Y
N	43,660	43,657	43,478	43,046

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports regression estimates using the baseline equation for equity injection. The dependent variable is an indicator that takes the value of 1 if a loan received equity infusion and 0 otherwise. Equity Infusion is identified from the SNC data as described in section 5. Sector-time fixed effects are defined at the 2-digit NAICS level. Time FEs are at the year-quarter level of the SNC report date. Loan controls are the same as in the baseline. All variables are defined in Appendix A. Standard errors are clustered at the Bank × Time level.*

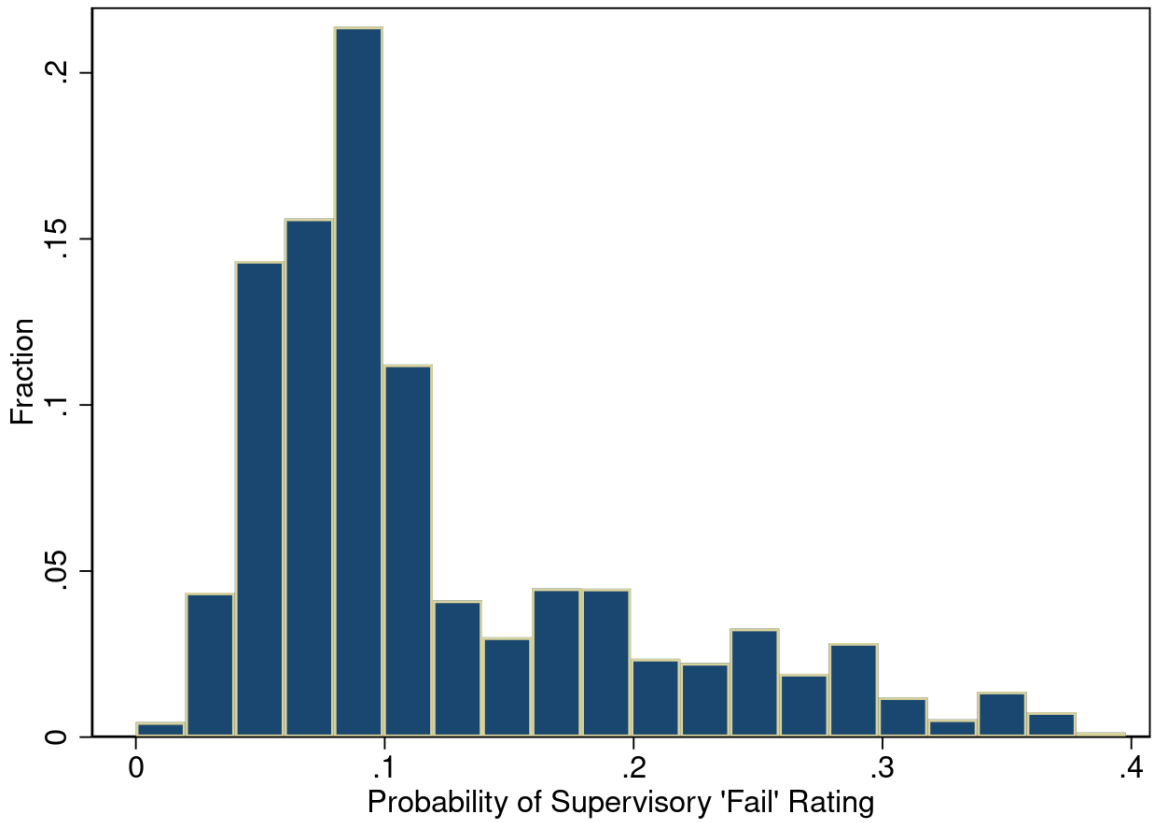
Online Appendix

Figure A1: Share of Commitments by Loan and Borrower-Type



(a) *Notes: This chart plots the share of different types of loans within the PE and non-PE sample in the SNC database. Loan types are grouped into term loans, credit lines, and other types of facilities. All variables are defined in Appendix A.*

Figure A2: Examiner Strictness



(a) *Notes: This chart plots the distribution of examiner strictness. Examiner strictness is measured as the share of fail ratings assigned by a given examiner-in-charge. Thus, for a given examiner-in-charge, it is measured as the number of fail ratings over her total number of exams. The benchmark sample has 540 unique examiners.*

Table A1: Loans by Industry (%)

NAICS Code	Desc.	PE	Non-PE
2	Mining, Utilities and Construction	13.1	16
3	Manufacturing	21.8	21.1
4	Trade, Transportation and Warehousing	14.9	16.5
5	IT, Finance, Professional and Management Services	37.7	33.8
6	Education and Health Care	5.6	4.7
7	Arts, Entertainment and Accommodation	5.3	5.8
	Others	1.6	2.1

(a) *Notes: This table reports loan-time observations by 1-digit NAICS code, split by PE and Non-PE loans.*

Table A2: Share of Loans by Concordance Ratings and Borrower Types

Concordance Rating	Description	Pass/Fail	PE	Non-PE
1	Investment Grade Pass	Pass	16.2%	22.5%
2	Non-Investment Grade Pass	Pass	47.8%	43.5%
3	Lowest Rated Pass	Pass	16.9%	17.5%
4	Special Mention	Fail	8.5%	7.5%
5	Substandard	Fail	9.3%	7.7%
6	Doubtful	Fail	0.9%	0.7%
7	Loss	Fail	0.4%	0.6%

(a) *Notes: This table reports the share of observations by Supervisory Risk Rating, also called Concordance ratings, split by borrower type. This rating is used to control for borrower risk in the empirical analysis in this paper. We also add the column Pass/Fail to clarify ratings that correspond to a pass rating. Concordance rating is a 7-scale numerical rating fully defined in Appendix A.*

Table A3: Sample comparison with Prior Studies

	Ivashina and Kovner (2011)		Axelson et al. (2013)		This Paper	
	Mean	Median	Mean	Median	Mean	Median
Loan Size (USD Mn)	321	136	122	123	492	250
Spread (Basis pts)	314	300	318	250	322	300
Maturity (Years)	6.1	5.6	8.2	8.0	6.1	5

(a) *Notes: This table compares key loan characteristics in the SNC sample (loan amount, maturity, and spreads) with prior studies. The sample in Ivashina and Kovner (2011) is based on the DealScan dataset, and the sample in Axelson et al. (2013) is based on CapitalIQ and DealScan. For Axelson et al. (2013), the relevant information is retrieved from Table 1 of their paper, which is a representative observation from their sample. Means (medians) are calculated based on all of their reported loan types in Table 1 and converted to US dollars using the December 2023 exchange rate.*

Table A4: Robustness Test with Location-Time Fixed Effects

	$Log\ (Commitments)$		$\mathbb{1}(Credit\ Reduced)$	
	(1)	(2)	(3)	(4)
Violate	-0.228***	-0.217***	0.0693***	0.0649***
	(0.044)	(0.042)	(0.022)	(0.022)
Violate × *PE*	0.0916*	0.0896*	-0.0654**	-0.0604**
	(0.055)	(0.054)	(0.030)	(0.030)
Borrower-Location × Time FE	Y	Y	Y	Y
Bank × Time FE	N	Y	N	Y
Sector × Time FE	Y	N	Y	N
Loan Controls	Y	N	Y	N
N	39,658	39,644	33,532	33,515

* $p < .10$, ** $p < .05$, *** $p < .01$

(a) *Notes: This table reports robustness test to the baseline regressions using Location × Time fixed effects, where location is proxied by the borrower's head-quarter city. This additional fixed effect is intended to capture local investment opportunities. Sector fixed effects are defined at the 2-digit NAICS level. Time FEs are at the year-quarter level of the SNC report date. Loan controls include utilization rate, time-to-maturity, indicators for supervisory risk rating, loan type, and loan purpose in all specifications. All variables are defined in Appendix A. Standard errors are clustered at the Bank × Time level.*

Table A5: Loan Renegotiation Outside of Distress

$Y_{j,i,b,t}$: *Log (Commitments)*	(1)	(2)	(3)	(4)	(5)	(6)
Violate	-0.269***	-0.109***	-0.106***	-0.0988***	-0.0899***	-0.238***
	(0.040)	(0.027)	(0.027)	(0.027)	(0.027)	(0.039)
PE × Violate	0.168***	0.134***	0.134***	0.134***	0.135***	0.201***
	(0.048)	(0.035)	(0.035)	(0.035)	(0.036)	(0.047)
Amendment Outside Distress	0.0571**	0.00898	0.0105	0.0117	-0.00463	0.0500**
	(0.025)	(0.018)	(0.018)	(0.018)	(0.017)	(0.025)
PE × Amendment Outside Distress	0.188***	0.187***	0.187***	0.185***	0.188***	0.189***
	(0.042)	(0.035)	(0.035)	(0.035)	(0.035)	(0.041)
R-squared	0.373	0.755	0.757	0.757	0.768	0.404
Bank x Time FE	Y	Y	Y	Y	Y	Y
Sector x Time FE	N	Y	Y	Y	Y	Y
Loan Controls	Y	Y	Y	Y	Y	Y
Origination Yr-Qtr FEs	N	N	Y	Y	Y	Y
Covenant-type FE	N	N	N	Y	Y	Y
Firm FE	N	Y	Y	Y	N	N
Bank-Firm FE	N	N	N	N	Y	N
N	43,491	42,864	42,861	42,861	42,801	43,478

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports the robustness test of Table 4, by testing if the propensity of amendments outside of distress affects renegotiation and debt enforcement upon covenant violation. Amendment_outside_distress takes the value of 1 if a loan commitment amount is changed in period t relative to period $t-1$ outside of our definition of covenant violation. All other controls are the same as the baseline. Sector-time fixed effects are defined at the 2-digit NAICS level. Time FEs are at the year-quarter level of the SNC report date. Loan controls include utilization rate, total loan commitment in logs, time-to-maturity, indicators for supervisory risk rating, loan type (credit lines, term loans, etc.), and loan purpose. Covenant types are split into performance-based and non-performance-based. All explanatory variables are defined in Appendix A. Standard errors are clustered at the Bank × Time level.*

Table A6: Sponsor Reputation and Creditor Enforcement: Triple Interaction Specification

	$Log\ (Commitments)$		$\mathbb{1}\ (Credit\ Reduced)$	
	(1)	(2)	(3)	(4)
$Violate \times PE \times High\ Reputation$	0.293***	0.296***	-0.0559***	-0.0548***
	(0.067)	(0.065)	(0.021)	(0.021)
$Violate$	-0.293***	-0.289***	0.0543***	0.0566***
	(0.039)	(0.038)	(0.012)	(0.012)
R-squared	0.386	0.391	0.0515	0.0610
Bank x Time FE	Y	Y	Y	Y
Sector FE	Y	N	Y	N
Sector x Time FE	N	Y	N	Y
Loan Controls	Y	Y	Y	Y
N	43,490	43,480	37,285	37,275

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports OLS estimates where the dependant variable is the natural logarithm of loan commitment between a given firm-bank pair at time t in columns (1) and (2), and an indicator* $\mathbb{1}(Credit\ Reduced)$ *in columns (3) and (4).* High Reputation *is a proxy for a sponsor's reputation and takes the value of 1 if the sponsor is ranked within the top 50 funds in the baseline sample in terms of market share of deal volume in the US syndicated loan market. In addition to the controls listed above, all regressions also include an indicator for PE-backed firms as well as lower-order interactions but are omitted from display for brevity. All variables are defined in Appendix A. Standard errors are clustered at the Bank* $\times$ *Time level.*

Table A7: Firm-level Comparison

	N	PE	N	Non-PE
Panel A: SNC-FR Y14Q Merged Sample				
Log (Size)	7,137	20.9	9665	20.8
Debt/Assets	7,137	0.52	9665	0.47
EBITDA/Assets	7,137	0.12	9665	0.12
Probability of Default	7,137	0.05	9665	0.037
Asset Growth Rate (%)	7,137	14.3	9665	12.5
Panel B: SNC-FR Y14Q Merged Sample with Matching				
Log (Size)	4,012	20.7	5643	20.7
Debt/Assets	4,012	0.51	5643	0.46
EBITDA/Assets	4,012	0.12	5643	0.12
Probability of Default	4,012	0.05	5643	0.04
Asset Growth Rate (%)	4,012	12.9	5643	11.0

(a) *Notes: This table reports firm-year level summary statistics (means) of standard financial variables for PE and non-PE firms. The sample is constructed by merging the SNC database with the FR Y-14Q schedule H1 using the string matching algorithm outlined in Cohen et al. (2021) based on borrower name and industry. Panel A reports the full merged sample of SNC and FR Y-14Q, and Panel B restricts the merged sample to loans that were matched following the methodology described in section 5.*

Table A8: Benchmark Test with Alternate Violation Definition: Robustness Test

	Log (Commitments)		*𝟙 (Credit Reduced)*	
	(1)	(2)	(3)	(4)
Violate	-0.369***	-0.354***	0.113***	0.111***
	(0.082)	(0.081)	(0.029)	(0.029)
PE	-0.0256	-0.0227	-0.00310	-0.00341
	(0.017)	(0.017)	(0.006)	(0.006)
PE × *Violate*	0.226**	0.238**	-0.126***	-0.126***
	(0.105)	(0.106)	(0.044)	(0.044)
R-squared	0.397	0.401	0.0639	0.0642
Bank x Time FE	Y	Y	Y	Y
Sector x Time FE	Y	Y	Y	Y
Loan Controls	Y	Y	Y	Y
Covenant-type FE	N	Y	N	Y
N	43,478	43,478	37,274	37,274

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(a) *Notes: This table reports OLS estimates where the dependent variable is the natural logarithm of loan commitment between a given firm-bank pair at time t. The only difference from the benchmark regressions is that we exclude covenant waivers or resets in our definition of covenant violations. PE is an indicator variable taking the value of 1 if a loan involves a PE-owned borrower and 0 otherwise. Sector-time fixed effects are defined at the 2-digit NAICS level. Time FEs are at the year-quarter level of the SNC report date. Loan controls include utilization rate, total loan commitment in logs, time-to-maturity, indicators for supervisory risk rating, loan type (credit lines, term loans, etc.), and loan purpose. Covenant types are split into performance-based and non-performance-based. All explanatory variables are defined in Appendix A. Standard errors are clustered at the Bank × Time level.*