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Contracting Costs, Covenant-Lite Lending, and Reputational Capital

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Abstract

Using a large sample of leveraged loans, we provide evidence that, despite having fewer creditor control rights, covenant-lite (Cov-Lite) loans have similar recovery rates and significantly lower spreads than loans with maintenance covenants. We find that the propensity to borrow Cov-Lite is related to various proxies for the reputational capital of a borrowing firm's private equity sponsor. We construct a simple model to illustrate the relationship between reputational capital, covenants, and loan spreads in the leveraged loan market. Our model illustrates how reputational capital can substitute for covenants in mitigating agency costs of debt, leading to lower loan spreads for Cov-Lite loans.

I. Introduction

Covenants are generally considered to be an important source of state-contingent creditor control rights. Theoretical models in the contracting literature predict that assigning state-contingent control rights to creditors can enhance firm value (see, e.g., Aghion and Bolton (1992), Dewatripont and Tirole (1994)). The idea behind these models is that financial covenants enable a shift of control rights from shareholders to creditors when a borrower's performance falls below certain accounting thresholds. Recent studies show that lenders actively use these control rights to protect their interests and that stronger covenant protection is associated with lower loan spreads.[1]

Given this literature, the widespread adoption of covenant-lite (Cov-Lite) loan structures in the leveraged loan market over the last decade would seem to imply a

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[1]See, for example, Chava and Roberts (2008), Nini, Smith, and Sufi ((2009), (2012)), Roberts and Sufi (2009), Matvos (2013), and Bradley and Roberts (2015).

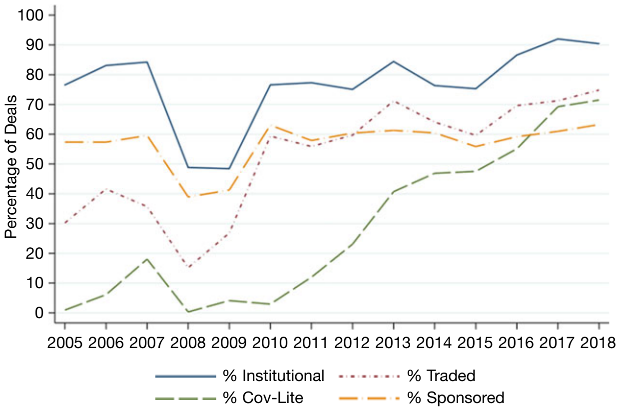
significant weakening in lender control rights, and thus an increase in credit risk exposure.[2] As shown in Figures 1 and 2, Cov-Lite loan structures are now the dominant structure for borrowing in the leveraged loan market, particularly among private equity (PE)-backed firms.[3] Accompanying the trend in Cov-Lite lending has been an increase in the participation of nonbank institutions and loan trading in leveraged loans. Indeed, by the end of 2018 over 90% of all leveraged loan deals had at least one institutional loan tranche and over 70% of all leveraged loan deals included at least one tranche that traded in the secondary market.[4]

One explanation for the growth of Cov-Lite lending is that in contrast to traditional bank lenders, nonbank institutional lenders, such as mutual funds and collateralized loan obligations (CLOs), lack either the ability or incentive to engage in intensive monitoring. In addition, bargaining frictions and incentive conflicts

FIGURE 1

Percentage of Institutional Deals and Cov-Lite Deals

Figure 1 presents the annual percentages of deals, based on their number, in our database of leveraged loans that have at least one institutional tranche (solid line), the percentage of deals that have at least one traded tranche (dotted line), the percentage of deals that have at least one Cov-Lite tranche (green dashed line), and the percentage of deals by PE-sponsored borrowers (orange dashed line). The sample consists of both sponsored and nonsponsored deals. Institutional loan tranches are defined as Term B, Term C, or Term D loans. Traded loan tranches are identified by having either a break price or a break date in LCD.



[2]Unlike traditional bank loans, Cov-Lite loans do not have maintenance covenants, but like bonds they have incurrence covenants. Maintenance covenants require borrowers to maintain compliance and are typically monitored on a monthly or quarterly basis. In contrast, incurrence covenants are covenants that the borrower must comply with only upon the occurrence of certain actions such as a debt issuance, dividend payment, share repurchase, merger, acquisition, or divestiture. As Ivashina and Vallée (2022) point out, covenant strength can be defined along a number of dimensions. Our focus is on the use of maintenance covenants, and we refer to loans with maintenance covenants as covenant-heavy (Cov-Heavy) and to loans without maintenance covenants as covenant-lite (Cov-Lite).

[3]As of the end of 2018, covenant heavy deal structures are still the dominant structure among nonsponsored borrowers.

[4]Throughout this article, we define institutional loans as Term B, Term C, and Term D loans. We do not include pro rata loans in this definition as they include revolving credit lines and Term A loans that are typically (although not exclusively) bank-funded.

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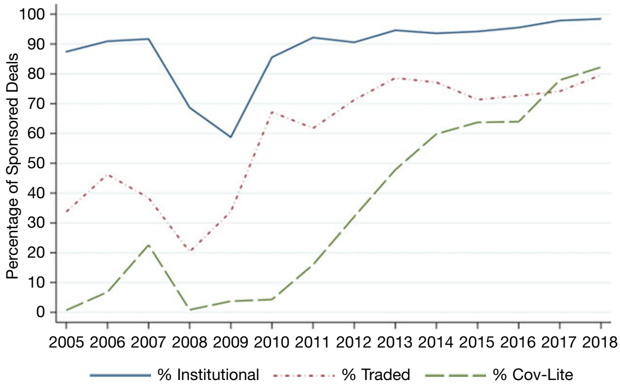
FIGURE 2

Percentage of Institutional Deals and Cov-Lite Deals Among Sponsored Deals

Figure 2 presents the annual percentages of sponsored deals, based on their number, in our database of leveraged loans that have at least one institutional tranche (solid line), the percentage of deals that have at least one traded tranche (dotted line), and the percentage of deals that have at least one Cov-Lite tranche (green dashed line). The sample consists of both sponsored and nonsponsored deals. Institutional loan tranches are defined as Term B, Term C, or Term D loans. Traded loan tranches are identified by having either a break price or a break date in LCD.



between lenders are likely to be more severe in larger loan syndicates that include both bank and nonbank lenders. Thus, Cov-Lite structures reflect a trade-off between lowering the contracting and renegotiation frictions associated with larger and more diverse lending syndicates at the expense of increased credit risk through weakened creditor control rights.[5]

Given this trade-off one would expect, controlling for loan and borrower characteristics, Cov-Lite loans to be associated with higher default rates, lower recovery rates upon default, and higher loan spreads than institutional loans with maintenance covenants. Yet, as shown in Figure 3, Standard and Poor's (S&P) reports *lower* default rates among Cov-Lite loans in their leveraged loan index. Moreover, as we document in this article, on average, recovery rates are *similar* between Cov-Lite and covenant-heavy (Cov-Heavy) term loans of equal priority, and, as shown in Figure 4, spreads on Cov-Lite term loans are significantly *lower* than on term loans with maintenance covenants. One potential explanation for these findings is selection; firms with lower agency costs of debt are able to borrow without maintenance covenants and the lower spreads we observe on Cov-Lite loans are the reflection of these lower agency costs. The question then becomes: what are the factors that are positively correlated with the propensity to use Cov-Lite and negatively correlated with the agency costs of lending?

In this article, we hypothesize that reputational capital with creditors is one such factor, and we empirically examine the impact of reputational capital on the

[5]An example of the concerns raised by this trade-off is a recent article in the Economist that states: "For evidence of a deterioration in the quality of credit, the worriers point to the growing proportion of leveraged loans issued without 'covenants'—agreements which require firms to keep their overall level of debt under control." See https://www.economist.com/briefing/2019/03/14/should-the-world-worry-about-americas-corporate-debt-mountain.

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FIGURE 3

S&P/LSTA Leveraged Loan Index Default Rates

Figure 3 presents monthly default rates for first-lien Cov-Heavy (solid line) and Cov-Lite loans (dashed line) in the S&P/LSTA Leveraged Loan Index. The default rates to generate this figure are obtained from the LLI Default Rates file in S&P's LCD database. To calculate default rates S&P defines a default as an issuer filing for bankruptcy, the loan facility being downgraded to "D," or an issuer missing an interest payment on the loan facility without a forbearance. Default rates are calculated as the number of defaulted issuers in the last 12 months, divided by the total number of issuer not in default 12 months ago.

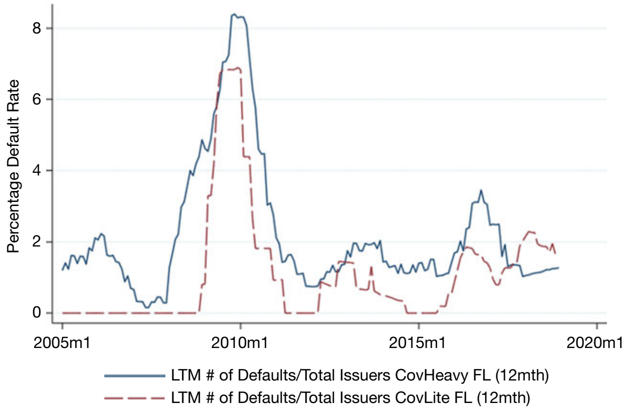
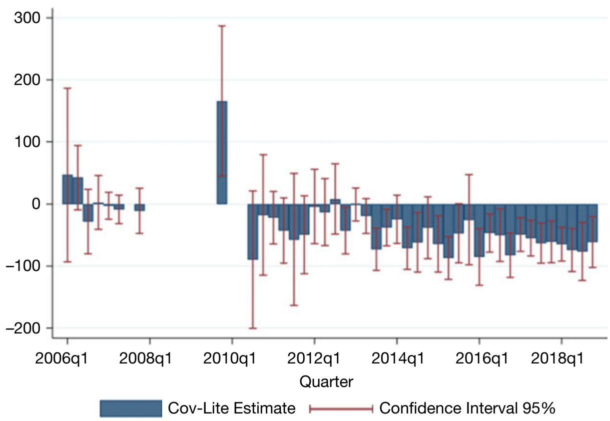


FIGURE 4

Cov-Lite Discount/Premium Cross-Sectional Evidence

Figure 4 presents quarterly estimates of the difference between loan spreads on Cov-Heavy and Cov-Lite institutional term loans. The sample consists entirely of first-lien Term B loans (including Term C and Term D loans) from both sponsored and nonsponsored deals. Each bar in the figure displays the coefficient estimate on a Cov-Lite indicator variable from a quarterly cross-sectional regression in which the loan spread (in bps) is the dependent variable. Only quarters in which more than two Cov-Lite loans were originated are included in the analysis. The cross-sectional regressions contain the following additional control variables: the natural logarithm of the inflation-adjusted loan amount, the natural logarithm of the loan maturity, S&P's issuer-level rating fixed effects (including a category for unrated firms), and loan purpose fixed effects. Standard errors are heteroscedasticity robust.



terms of loan contracts in the leveraged loan market.[6] Following Diamond (1989), we define reputational capital with lenders in the context of repeat dealings in the credit market when borrowers adjust their behavior to influence how lenders assess their creditworthiness. To motivate our hypothesis and our empirical analysis, we construct a simple model to illustrate how reputational capital with lenders can function as a substitute for covenants for firms that require frequent and repeated access to the leveraged loan market to finance their investment activities. We argue that reputational capital is likely to be particularly important for PE-backed, or sponsored, firms because of sponsors' frequent need for leveraged loans to finance acquisitions. In this regard, our model is an extension of recent work by Malenko and Malenko (2015) on PE firm reputational capital in the market for leveraged buyouts (LBOs).

Our model focuses on firms that repeatedly engage in acquisitions and require repeated access to the leveraged loan market for funding. We assume that debt financing has benefits but also agency costs that arise because acquiring firms have the ability to divert resources from target firms in the event of distress, which is to the detriment of creditors. Acquiring firms can earn rents from their acquisitions based on their skill at identifying target firms, their skill at implementing operational improvements at the targets they acquire, as well as the degree to which they can use debt financing to fund their acquisitions. This ability to earn rents limits their incentives to divert resources for their private benefit and creates reputational capital with lenders. Lenders are willing to rely on reputational capital rather than maintenance covenants to control the agency costs of debt if they believe that acquiring firms will not divert resources away from creditors.

Acquiring firms that lack reputational capital with lenders can mitigate the agency costs of lending by borrowing through a debt contract with maintenance covenants instead. We assume that covenants limit acquiring firms from diverting resources because they allow lenders to intervene upon the receipt of a noisy signal of the realized state of the world. However, because lenders' actions are based on a noisy signal, the use of maintenance covenants is costly as it may lead to inefficient liquidation. In the context of the leveraged loan market, inefficient liquidation occurs when a covenant violation provides a false signal that the firm is distressed.

We derive several insights and predictions from our model. First, our model shows how reputational capital with lenders can serve as a substitute for covenants in mitigating the agency costs of debt that avoids the costs associated with inefficient liquidation. Consequently, the greater an acquiring firm's skill in identifying targets and implementing operational improvements, the greater its reputational capital with lenders, and the greater the likelihood it will borrow using Cov-Lite loan structures. Second, controlling for credit quality, spreads will be lower for Cov-Lite loans than when borrowing is supported by maintenance covenants

[6]Reputational capital is likely not the only reason for the use of Cov-Lite structures. As discussed in Griffin, Nini, and Smith (2021) and Ivashina and Vallée (2022) there are several other reasons for the loosening of covenant structures, such as the potential reaching for yield by institutional investors, relationship-based lending, and changes in the informative of accounting-based covenants. As we discuss later, reputational capital and these other mechanisms are not mutually exclusive.

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because the likelihood of inefficient liquidation is priced into loans with covenants. Third, our model demonstrates that the noisier the signal associated with covenants is, the lower the threshold for borrowing based on reputational capital with lenders will be. Finally, our model also implies that, conditional on a default, the recovery rates between loans with and without covenants will be similar as both reputational capital and maintenance covenants are effective at limiting the diversion of resources from creditors.

We test these implications using a large sample of leveraged loan originations that occurred between 2005 and 2018 based on S&P's Leveraged Commentary and Data (LCD) database, which we supplement with data from DealScan, Preqin Pro, and Moody's Default and Recovery Database (DRD). We focus our main analysis on loans obtained by PE-backed, or sponsored, borrowers that are used to fund LBOs (both public-to-private as well as private-to-private deals) and mergers and acquisitions (M&As) for several reasons. First, PE firms repeatedly access the market for leveraged loans to finance their acquisitions and are significantly more active in the leveraged loan market relative to nonsponsored borrowers. Indeed, as shown in Figure 1, during our sample period the majority of the deals in the LCD database are by firms that are backed by PE sponsors. In addition, as we discuss in Section II, the average nonsponsored firm conducts only 0.52 deals per year in the leveraged loan market, compared to 1.89 for the average PE sponsor. Similarly, in fewer than 5% of cases do nonsponsored issuers engage in more than one leveraged loan transactions per year, compared to over 33% of cases for PE sponsors. Overall, the frequency with which PE sponsors access the leveraged loan market suggests that reputational concerns may be particularly important for PE sponsors.

Second, by examining loans associated with LBOs and M&As we are most likely observing the first loan in a potentially long loan path. As Roberts (2015) shows, loans are frequently renegotiated, even in the absence of covenant violations. By focusing on transactions at the beginning of a potential loan path, we can better isolate the influence of PE sponsors' reputation on loan structures from other potentially path-dependent factors that influence the structure of renegotiated loans.[7] Moreover, by focusing on the start of the loan path we can identify any Cov-Heavy revolving credit agreements that may provide term loan lenders with the benefits of delegated monitoring (see, e.g., Berlin, Nini, and Yu (2020)).[8]

Finally, while an acquiring firm's reputational capital with lenders is generally unobservable, in the context of our model it is directly related to the skill of the acquiring firm and the frequency with which it expects to conduct deals. Focusing on loans made to PE-sponsored firms has the advantage that it allows us to construct several different measures that proxy for the skill and the deal activity of the PE

[7]Our main results are robust to including all types of transactions. Our concern with including refinancing and restructured loans is that the identity of the lenders and the structure of the refinancing is likely to depend on the lenders and the structure of the original loan. Moreover, in the case of LBO's it is less likely that the structure of the deal is influenced by other loans that the firm has outstanding.

[8]Berlin et al. (2020) argue that almost all firms that borrow Cov-Lite also have revolving credit agreements that contain maintenance covenants. However, as we discuss later, the incentives of revolving credit lenders to monitor and enforce covenants are likely to be different from the incentives of lenders when all loans have maintenance covenants. This difference, in turn, will affect the enforcement of maintenance covenants.

firm, and consequently, its reputational capital with lenders. Specifically, our measure of PE skill is based on the performance of the PE firm's active funds, as measured by their internal rate of return (IRR), relative to peer funds, while our main measure for a PE firm's deal activity is based on its market share in the leveraged loan market. Thus, borrowing by sponsored firms provides a unique laboratory to test the importance of reputational capital.

We begin our main empirical analysis by examining the relationship between the covenant structure of leveraged loans used to finance LBOs and acquisitions and our proxies for PE sponsors' skill and deal activity. Because borrowers often obtain several loans which are part of the same deal, we begin our analysis at the deal level.[9] Consistent with the predictions of our model, we find that, controlling for credit quality, bank lending relationships, and year-fixed effects, the inclusion of loan tranches with of Cov-Lite structures in deals is significantly related to our various proxies of PE sponsor reputation.

Next, we extend our analysis to examine whether shocks to lenders' assessment of PE sponsors' skill, and therefore to its reputational capital, affect the covenant structure of their deals. We measure such shocks in two ways. The first is an indicator variable for whether the PE firm experienced an increase in the annual fraction of its funds that perform in the bottom quartile of the IRR distribution relative to funds with the same vintage. The second measure is the past rate of defaults and bankruptcies among a sponsor's portfolio firms. Overall, we find a negative and significant relationship between the likelihood that a sponsor uses a Cov-Lite structure and both of our measures of shocks to reputational capital. In some specifications, we include sponsor fixed effects so that identification is through within-sponsor variation over time in the performance of funds or past loans.

If reputational capital and covenants are substitutes, we also expect that Cov-Lite loans will have *lower* credit spreads than Cov-Heavy loans, controlling for borrower credit risk and other loan characteristics. We therefore examine the relationship between all-in-drawn spreads and covenant structure. Consistent with the predictions of our model, we find a negative and significant relationship between loan spreads at both the loan tranche and the deal level. Specifically, we document that for LBOs and acquisitions within the same firm-level rating category, all-in-drawn spreads on the first-lien institutional tranches are, on average, between 43 and 65 basis points *lower* for Cov-Lite loans relative to the spreads on loans with maintenance covenants.

Finally, one of the key insights of our model is that reputational capital can serve as a substitute for covenants in mitigating the agency costs of debt, if covenants and reputational capital are both effective in limiting acquiring firms' ability to divert resources away from creditors. This implies that, conditional on a default, the recovery rates on Cov-Lite and Cov-Heavy loans should be similar, once loan and borrower characteristics are controlled for. We therefore examine

[9]Deals in LCD generally consist of several loan tranches. As such they are similar to loan packages in DealScan. One important difference, however, is that in LCD the individual loans in a deal can have different covenants structures, whereas in DealScan all loans in a package are generally subject to the same covenants.

recovery rates following bankruptcies on a subset of term loans from our sample for which we have the necessary recovery information from Moody's DRD. We document that recoveries on Cov-Lite term loans tend to be lower than for Cov-Heavy term loans, but that these differences are primarily driven by differences in the priority of these loans in borrowers' debt structures. Importantly, we find no statistically significant difference in the recovery rates between Cov-Lite and Cov-Heavy term loans of *equal* priority, which is consistent with the notion that both covenants and reputational capital can be effective at limiting diversion.[10]

Our findings of lower spreads associated with Cov-Lite lending contrasts with the finding of earlier research by Becker and Ivashina (2016) and Billett, Elkamhi, Popov, and Pungaliya (2016) who find higher spreads on Cov-Lite loans. As we discuss later in the article, there are several important differences between our studies and these earlier papers. First, the samples used in these papers end early in the last decade when, as shown in Figure 1, Cov-Lite lending was just getting started. Second, and more important, spreads are likely to depend on lien structure and may vary with loan types. To control for these differences, we restrict our spread analysis to first-lien institutional term loans. Finally, we focus our analysis on sponsored loans where reputational capital is likely to play a more important role.

While our empirical results are consistent with the hypothesis that reputational capital and covenants are substitutes for controlling agency problems, alternative mechanisms may also be at play. For example, more reputable borrowers may be able to favorably influence contract terms through bargaining power or better access to capital. While it is difficult to separate the influence of bargaining power from reputational capital (the present value of future rents from not diverting), our findings concerning recovery rates suggest that the lower spreads associated with Cov-Lite loans do not come at the expense of greater loss exposure.

Another alternative explanation is that Cov-Lite lending is simply part of a broader trend toward looser covenants because, as Becker and Ivashina (2016) argue, efficient ex post renegotiations in the event of a violation are more difficult when loans are held by a diverse set of institutional investors. Our model and empirical findings are consistent with increased renegotiation costs leading to greater use of Cov-Lite structures. Specifically, the difficulty in renegotiating covenants ex post is likely to increase the incidence of inefficient defaults arising from false positives, thus raising the cost of borrowing with covenants. Indeed, consistent with the importance of creditor coordination problems, we find that the propensity to use Cov-Lite structures in deals is significantly related to whether the loan trades in the secondary market. Our findings are in line with previous studies that document that wider loan syndication and diverse incentives of nonbank and bank lenders are associated with weaker covenant structures, and are also consistent with previous papers that document that proxies for PE activity in the loan market are related to the structure and pricing of loans to portfolio companies.[11]

[10]These findings on recovery rates are also in line with prior findings by Moody's (2020).

[11]Demiroglu and James (2010) find a negative relation between all-in-drawn spreads and their PE sponsor reputation measure. However, they find no statistically significant relationship between covenant structure and their reputation measures. Additionally, their analysis is based on a sample of sponsored loans that ends in 2007, before the widespread use of Cov-Lite loan structures.

The rest of the article is organized as follows: In Section II, we document the higher borrowing activity of PE sponsors relative to nonsponsored borrowers in the leveraged loan market to motivate our focus on sponsored firms in our empirical analysis, and we present summary statistics for deal characteristics of our sample. In Section III, we present our model of the relationship between reputational capital and covenant structure and develop our hypotheses. Section IV contains our main empirical findings while Section V provides a summary, our conclusions, as well as a discussion of potential concerns that arise from lending based on reputational capital.

II. PE Activity in the Leveraged Loan Market

A key assumption of the model we develop in Section III is that some borrowers can build reputational capital with lenders because of their repeated need to access the leveraged loan market to finance future acquisitions. In this section, we document that this assumption is in line with empirical observations from one of the largest segments of the leveraged loan market where Cov-Lite lending is particularly dominant—leveraged loans to borrowers sponsored by PE firms. As we discuss below, PE sponsors are typically repeat players in the leveraged loan market, and as such reputation is likely to influence contract choice among PE-backed borrowers.

A. Deal Frequencies of PE Sponsors and Nonsponsored Borrowers

We begin by examining the deal frequencies of PE sponsors and nonsponsored borrowers in the leveraged loan market. To do so, we obtain information on leveraged loan market activity by PE sponsors and nonsponsored firms from S&P's Leveraged Commentary and Data (LCD). Similar to DealScan, LCD provides information on all-in-drawn spreads, the size, and the maturity of each tranche in a leveraged loan deal. We rely on LCD because it provides comprehensive information on whether or not the deal involved a PE sponsor, the name of the sponsors, and whether or not a deal has a loan tranche with a Cov-Lite structure.

For our empirical analyses, we obtain all U.S. Dollar denominated deals by U.S. companies that are completed between Jan. 1, 2000, and Dec. 31, 2018, from S&P's LCD database. We exclude loans to firms that operate in financial, nonprofit, utility, or government-related industries.[12] We further require deals to have nonmissing information on the amount for each tranche and we focus on deals that are not related to bankruptcy financing by excluding deals with a deal purpose of "DIP" or "Exit Financing."[13] While LCD's coverage starts in 2000, we begin our analysis of Cov-Lite usage in 2005 because Cov-Lite loan structures were infrequently used

[12]LCD's industry classification does not contain a separate category for financial firms. We excluded all firms that are in the "Insurance" industry. We also manually went over firms that are classified as "Services & Leasing" and dropped financial firms. Some examples of "Services & Leasing" Firms that we dropped are NASDAQ Inc, Guggenheim Partners LLC, The Mutual Fund Store, and TD Ameritrade Holding Corp.

[13]We adjusted all amounts to 2019 dollars using the Consumer Price Index for All Urban Consumers (Series CUSR0000SA0) from the Bureau of Labor Statistics.

prior to 2005. As we discuss later, we use information concerning deals prior to 2005 to construct some of the reputation and relationship measure we use in subsequent analyses.

Panel A of Table 1 provides summary statistics on the number of deals per year as well as the frequency distribution of the number of deals by PE sponsors and nonsponsored firms in the leveraged loan market. The unit of observation in this panel is an issuer-year for nonsponsored firms and a sponsor-year for PE sponsors. As shown, PE sponsors, on average, conduct almost four times as many transactions in the leveraged loan market per year than nonsponsored borrowers. Moreover, the median nonsponsored firm does not borrow in the leveraged loan market on an annual basis and it is relatively rare for nonsponsored borrowers to engage in multiple deals per year. In contrast, in over 33% of cases PE sponsors engage in more than one leveraged loan transaction per year, and in almost 9% of cases they engage in more than five transactions. Overall, the summary statistics in Panel A of Table 1 indicate that sponsors are, on average, repeat players in the leveraged loan market, which suggests that reputational capital may be more important to PE sponsors than to nonsponsored borrowers.

B. Covenant and Syndicate Structure in the Leveraged Loan Market

In addition to differences in the frequency of deals, loans to sponsored and nonsponsored borrowers, on average, also differ in terms of their covenant structures, the degree to which there is secondary market trading, as well as in the importance of institutional funding. Panel B of Table 1 provides deal-level summary statistics for our sample of deals to sponsored and nonsponsored borrowers. Because we focus much of our subsequent analysis on loans associated with acquisition financing, we report summary statistics for the full sample and the sample of acquisition-related loans in both cases. We test for differences between sponsored and nonsponsored deals in Table IA.1 in the Supplementary Material and summarize the main findings here.

As shown, consistent with the idea that reputational capital may be more important for PE sponsors because of their more frequent need to access the market for leveraged loans, the use of Cov-Lite structures is more common among sponsored deals than nonsponsored deals. Indeed, about 42% of sponsored deals use Cov-Lite structures compared to about 23% for nonsponsored deals (the difference is significant at the 1% level). In addition, about 92% of sponsored deals include an institutional term loan B tranche, and about 64% have a tranche that subsequently trades in the secondary market, compared to about 64% and 46% for nonsponsored deals, respectively. Consistent with the findings of Berlin et al. (2020), almost all revolving credit agreements are classified as having maintenance covenants by LCD.[14] Conditional on having a revolving credit agreement in the deal, the revolving portion of the deal represents on average between 17% and 19% of the total deal amount for sponsored deals, compared to 34% to 48% for nonsponsored deals.

[14]While not tabulated for brevity, conditional on a deal containing a revolving line about 98% of all revolving lines of credit to sponsored firms are classified as covenant heavy by LCD.

TABLE 1

Deal Activity in the Leveraged Loan Market for PE Sponsors and Nonsponsored Firms and Sample Summary Statistics

Panel A of Table 1 presents the average number of deals per year, as well as the frequency distribution of the number of deals per year for PE sponsors and for nonsponsored borrowers between 2005 and 2018. For PE sponsors we create a panel data set of the annual number of deals that each PE sponsor backs in a given year. A PE sponsor enters our sample in the year it backs its first deal in LCD and exits the sample in year it backs its last deal in LCD. The unit of observation in this panel data set is a sponsor-year. For nonsponsored borrowers, we create a panel data set of the annual number of deals in LCD for each issuing firm in a given year. An issuer enters our sample in the year of its first deal in LCD and exits the sample in the year of its last deal in LCD. The unit of observation in this data set is an issuer-year. Panel B presents summary statistics for the leveraged loan market deals in our sample from LCD, split between sponsor-backed deals and nonsponsor-backed deals, and by whether the deal was for acquisition purposes (LBO or M&A). All variables are defined in Appendix B.

Panel A. Deal Frequencies

		Frequency Distribution of No. of Deals Per Year							
	Average No. of Deals Per Year	No. of Deals	0 (%)	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	>5 (%)
PE sponsors	1.885		33.70	32.46	11.76	6.26	4.06	2.85	8.91
Nonsponsored firms	0.520		52.71	42.94	3.96	0.34	0.04	0.00	0.00

Panel B. Sample Summary Statistics

	Sponsored deals						Nonsponsored deals					
	All deals			LBO & M&A			All deals			M&A		
	Mean	P50	No. of Obs.	Mean	P50	No. of Obs.	Mean	P50	No. of Obs.	Mean	P50	No. of Obs.
General Deal Characteristics												
DEAL_SIZE	703.778	391.655	5,458	723.608	362.662	2,580	914.411	527.130	3,829	1,091.672	575.969	994
NUM_TRANCHES	1.798	2.000	5,458	2.042	2.000	2,580	1.585	1.000	3,829	1.822	2.000	994
D_COVLITE	0.420	0.000	5,458	0.419	0.000	2,580	0.227	0.000	3,829	0.219	0.000	994
D_COVLITE_FL_TLB	0.409	0.000	5,458	0.405	0.000	2,580	0.221	0.000	3,829	0.218	0.000	994
D_COVHEAVY_RC	0.585	1.000	5,458	0.739	1.000	2,580	0.609	1.000	3,829	0.699	1.000	994
D_TLB	0.922	1.000	5,458	0.935	1.000	2,580	0.640	1.000	3,829	0.685	1.000	994
D_FL_TLB	0.919	1.000	5,458	0.933	1.000	2,580	0.633	1.000	3,829	0.682	1.000	994
D_SL	0.206	0.000	5,458	0.275	0.000	2,580	0.056	0.000	3,829	0.081	0.000	994
D_TRADED	0.637	1.000	5,458	0.612	1.000	2,580	0.460	0.000	3,829	0.495	0.000	994
CUSHION	8.994	0.000	5,458	11.349	0.000	2,580	6.255	0.000	3,829	8.152	0.000	994
SP_ISSUER_RATING	16.406	15.000	5,458	16.859	15.000	2,580	16.070	14.000	3,829	16.366	14.000	994
PERC_COVLITE	90.049	100.000	2,291	85.451	90.476	1,082	84.267	100.000	868	75.865	84.615	218
PERC_COVHEAVY	19.055	13.141	3,192	16.823	12.739	1,906	47.787	37.090	2,330	34.501	23.697	695
Pricing and Maturity												
FL_TERM	5.790	5.909	4,527	6.010	6.006	2,067	5.426	5.420	2,916	5.608	5.739	742
FL_TLB_TERM	6.009	6.000	4,888	6.259	6.500	2,334	5.951	6.000	2,354	6.197	6.745	654
FL_SPREAD	376.421	353.571	4,527	384.273	375.000	2,067	298.659	275.000	2,916	308.405	275.000	742

(continued on next page)

TABLE 1 (continued)

Deal Activity in the Leveraged Loan Market for PE Sponsors and Nonsponsored Firms and Sample Summary Statistics

Panel B. Sample Summary Statistics (continued)

	Sponsored deals						Nonsponsored deals					
	All deals			LBO & M&A			All deals			M&A		
	Mean	P50	No. of Obs.	Mean	P50	No. of Obs.	Mean	P50	No. of Obs.	Mean	P50	No. of Obs.
FL_TLB_SPREAD	394.307	375.000	4,888	403.416	400.000	2,334	341.182	300.000	2,354	349.755	325.000	654
Syndicate Characteristics												
NUM_LENDERS	4.706	4.000	5,063	4.685	4.000	2,386	8.113	6.000	3,501	8.751	7.000	883
SPONSOR_BANK_REL	45.789	45.161	4,794	42.387	40.909	2,218	–	–	0	–	–	0
Sponsor Reputation Proxies												
MARKET_SHARE	1.113	0.881	5,458	1.000	0.718	2,580						
ln(NUM_DEALS_1)	2.107	2.197	5,458	2.004	2.079	2,580						
FRAC_LOW_PERFORMING	0.154	0.000	3,807	0.156	0.000	1,722						
D_INC_LOW_PERFORMING	0.116	0.000	3,625	0.116	0.000	1,626						
DEFAULT_RATE	0.918	0.000	4,783	0.859	0.000	2,185						
No. unique sponsors/Issuers			447			361			1,802			752

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The inclusion of second-lien loans is also significantly more common in sponsored deals relative to nonsponsored deals. Indeed, between 20% and 28% of sponsored deals contain a second-lien loan. Later, when we examine the relationship between spreads and covenant structure, it is important to control for the credit enhancement associated with the loan. To calculate the credit enhancement provided by subordinated creditors to first-lien lenders we calculate the amount of the total deal that consists of second-lien loans and high-yield bonds. We refer to the amount of subordination relative to the total deal amount as the deal cushion. As shown, the average cushion in sponsored deals is between 9% and 11%.

To summarize, loans to PE-sponsored borrowers rely more heavily on institutional funding, are more likely to trade, and are more likely to have a Cov-Lite institutional tranche. In the next section, we develop a model to show how reputation, acquired through frequent dealing in the leveraged loan market, can serve as a substitute for covenants in mitigating agency costs of debt. Our model leads to several hypotheses which we test empirically later in the article.

III. Model of Reputational Capital and Covenants

Our model is based on Malenko and Malenko (2015)'s model of reputation in the LBO market. While Malenko and Malenko (2015) assume that the agency problem between shareholders and creditors cannot be mitigated by maintenance covenants, our model allows for this possibility and thus provides an extension of their model.[15] Our model is intended to illustrate how the expected value of future rents from borrowing in the leveraged loan market to finance acquisitions can serve as a source of reputational capital. The model is also intended to show that the reliance on reputational capital to mitigate agency problems depends on the cost and efficiency of enforcing written contract provisions designed to mitigate agency problems. As a result, as the efficiency of enforcing covenants declines (i.e., the signal-to-noise ratio of covenants deteriorates), ceteris paribus, the lower the threshold for of borrowing without covenants will be as well.

The setup of the model is as follows: There are three types of agents: creditors, acquiring firms, and standalone firms who are also potential target firms. In our model, acquiring firms are distinguished from standalone firms by three features. First, acquiring firms are assumed to have the ability to make operational improvements to the target firms they acquire, and the degree to which they can make operational improvements is a function of their skill. Second, acquiring firms are repeat players in the acquisition market. Third, because acquiring firms are repeat players in the acquisition market, the targets they acquire can borrow based on their own assets and, potentially, based on the reputation of the acquiring firm that holds equity in the borrower. Thus, in our model, a key difference between standalone firms and acquiring firms is the potential for reputational capital with lenders. Given these assumptions, and the results from Section II, the acquiring firms in our model

[15]For parsimony, Malenko and Malenko (2015) do not include covenants in their model. However, they conjecture that covenants should be less restrictive when the PE sponsor is of higher skill and has a track record of not diverting. We extend their model to formally show how covenants and reputation interact.

resemble PE sponsors that acquire targets through their funds, where the acquired targets become independent subsidiaries. However, these are obviously simplifying assumptions as some standalone firms may also create value through acquisitions and be repeat players in the acquisition market.

Time is discrete and indexed by integer values $t = 0, 1, \ldots$. There is a continuum of targets or standalone firms $\gamma \epsilon [0,1]$ each period and a continuum of acquiring firms with measure 1. Each target firm is assumed to live for one period and is randomly assigned one acquiring firm that can bid for the target.[16] We assume that acquiring firms are endowed with skill which determines the likelihood that a given acquiring firm can add value to a target by making operational improvements at the start of each period. We assume that if an acquiring firm cannot add value through operational improvements, it will not bid and the target will remain independent.[17]

In any period, there are two possible states (B, G) that determine the cash flows realized by the target firm at the end of the period. We assume the value of the target is X_B in the bad state and $X_G + g(D)$ in the good state, where $X_G > X_B$ and D is the principal value of a one-period zero-coupon bond issued by the target firm. As in Malenko and Malenko (2015), the function $g(D)$ reflects the net benefit of debt financing. If a given target remains independent, we assume that the likelihood of the good state is given by $q_T \sim U(0, \overline{q})$ where $0 < \overline{q} < 1$. If it gets acquired by acquiring firm i, and the acquiring firm can add operation value, the value added occurs through an increase in the likelihood of the good state occurring to $q_i = q_T + \Delta q_i$ where $\Delta q_i \sim U(0, 1 - \overline{q} - \varphi)$ and $0 < \varphi < 1 - \overline{q}$.

We assume that the probability that acquiring firm i can add value for the target it is assigned is p_i. In the context of our model, p_i is a measure of the skill of the acquiring firm in identifying target firms for which value can be added, while Δq_i represents the amount of value-added conditional on identifying an undervalued target. Higher values of p_i lead to higher expected rents from acquisitions and increase the value of reputational capital, as do higher expected values of Δq_i. We assume, for simplicity, that all agents observe p_i, that they know the likelihood of the good state (q_T and Δq_i, respectively) at the beginning of each period, that the distributions of q_T and Δq_i are also known, and that credit markets are competitive.[18] Figure 5 illustrates the timeline associated with our model.

As in Malenko and Malenko (2015), we model the shareholder-creditor conflict by assuming that shareholders (referring to shareholders of standalone firms and the acquiring firm, respectively) can divert a portion of the cash flows earned in each state. However, diversion is inefficient in the sense that for an amount x that is diverted shareholders only receive λx where $0 < \lambda < 1$. This diversion of cash flows

[16]We assume each acquiring firm is randomly assigned to a target for simplicity. An alternative would be to model competition among acquiring firms of differing skill for a given target through a competitive auction process. Adding a competitive auction process reduces the expected rents earned by individual acquirers and can lead to additional equilibria where the use of covenants can depend on the skill of the acquiring firm, but should not change the basic predictions of our reputation-building model.

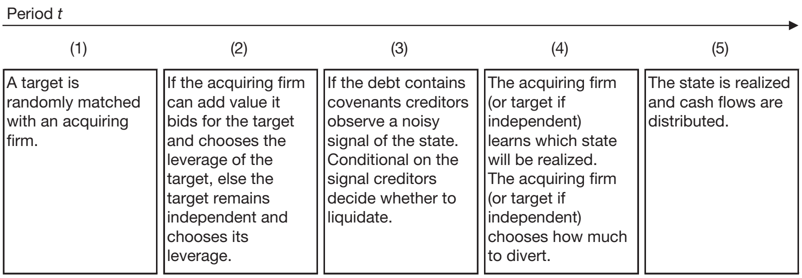
[17]One justification for this assumption is that the acquiring firm (e.g., a PE sponsor) must arrange financing prior to acquiring the target and as part of the due diligence process reveal to the lender the operational changes that it expects to make.

[18]A more realistic, but complicated, modeling assumption would be that market participants learn about a PE firm's skill through observing the past performance of the PE firm's acquisition.

FIGURE 5

Timeline of the Model

Figure 5 presents the timeline of our model.



represents an agency cost of debt. Diversion is assumed to be observable but not verifiable so that it cannot be contracted away.

We model the costs and benefits of debt financing in a way that provides shareholders with an incentive to take on risky debt.[19] Specifically, we make the following assumptions about g:

$$g(0)=0 \text{ and } g'(D)>0 \textit{ and } g''(D)<0 \text{ and } g'(D^*)=0 \text{ for some } D^*>X_B.$$

The assumption that the benefits of debt are increasing for $D>X_B$ implies that it is optimal for the firm to issue risky debt in the absence of agency costs of debt. We further assume that agents are risk neutral and that the period discount rate is r. To make sure that, given debt D^*, shareholders only have an incentive to divert in the bad state we assume:

$$D^* \leq (1-\lambda)(X_G+g(D^*)). \qquad (1)$$

Note that our conditions further imply that, given debt D^*, diversion is always optimal for shareholders in the bad state since $(1-\lambda)X_B<D^*$.

As we discuss below, the debt policy that shareholders pursue depends on the ability of acquiring firms to earn rents through future acquisitions, as well as on the quality of the signal associated with covenant violations about the true state of the world. To facilitate the exposition of the model, we separately discuss the four cases that are relevant for our model in the following subsections and we provide a brief preview of each case below.

Section III.A discusses the base case where shareholders are unable to borrow with covenants and acquiring firms lack the ability to engage in reputation building through repeated acquisitions. This case demonstrates how the agency costs associated with diversion limit shareholders' ability to choose the optimal amount of debt (D^*) and derives some of the necessary assumptions for the rest of the model.

Section III.B extends the base case by allowing acquiring firms to engage in repeated acquisitions. This case demonstrates how repeated acquisitions allow acquiring firms to earn rents, which creates an incentive for them not to divert resources to the

[19]Our focus is on outcomes that involve taking on risky debt, since many acquisitions, especially LBOs by PE firms, involve taking on at least some risky debt.

detriment of creditors and builds reputational capital with lenders. The main insights from this case are that lenders will allow acquiring firms to borrow the optimal amount of debt (D^*) if the incentives for nondiversion are large enough, and that the incentive for nondiversion is increasing with the skill of the acquiring firm.

Section III.C extends the base case by allowing shareholders to borrow through debt contracts that contain maintenance covenants when they lack the ability to engage in reputation building through repeated acquisitions. This section demonstrates that while covenants mitigate shareholders' ability to divert resources away from creditors, they are costly and can lead to inefficient liquidation because lenders' enforcement of the covenant is based on a noisy signal of the state of the world. It further demonstrates that maintenance covenants can allow shareholders to borrow the optimal amount of debt (D^*), provided that the quality of the signal associated with covenant violations is sufficiently high.

Section III.D discusses the main case where acquiring firms can borrow with covenants and can build reputation through repeat acquisitions. While this case is similar to the one without covenants discussed in Section III.B, a key differences is that maintenance covenants also allow acquiring firms to borrow the optimal amount of debt (D^*). Consequently, whether the incentives for nondiversion are large enough to allow acquiring firms to borrow the optimal amount of debt (D^*) without maintenance covenants will not only depend on the skill of the acquiring firm, but also on the quality of the signal associated with covenant violations. Finally, this case also demonstrates that the borrowing costs of acquiring firms that are able to borrow without maintenance covenants will be lower relative to acquiring firms that borrow with maintenance covenants.

A. Base Case Without Covenants

We begin by examining the debt policy of the target as an independent firm. Because the target is not a repeat borrower it cannot acquire reputational capital and therefore creditors will assume that target shareholders will divert anytime a target chooses $D > (1-\lambda)X_B$. As a result, creditors will price protect themselves against diversion and target shareholders will only choose leverage exceeding $(1-\lambda)X_B$ if the benefits of higher leverage outweigh the deadweight costs of diversion. Specifically, suppose target shareholders take on $D > (1-\lambda)X_B$ then creditors will only provide

$$\frac{q_T \min(X_G + g(D), D)}{1+r}.$$

The value of the target with leverage is thus

$$\frac{q_T \max(X_G + g(D) - D, 0) + (1-q_T)\lambda X_B}{1+r} + \frac{q_T \min(X_G + g(D), D)}{1+r}.$$

Which equals

$$\frac{q_T(X_G + g(D)) + (1-q_T)X_B}{1+r} - \frac{(1-q_T)(1-\lambda)X_B}{1+r}.$$

The second term in this equation represents the deadweight cost of diversion. Given our assumptions about g, the value of the target is maximized at D^*. Consequently, for the target to choose $D=(1-\lambda)X_B$ the deadweight costs of diversion have to be sufficiently large. We therefore assume that

$$\frac{(1-\overline{q})(1-\lambda)X_B}{\overline{q}} \geq g(D^*)-g_0, \text{where } g_0=g((1-\lambda)X_B).$$

Under this assumption, the target will find it optimal to take $D=(1-\lambda)X_B$ and therefore the value of the independent target will be:

$$V_0=\frac{q_T(X_G+g_0)+(1-q_T)X_B}{1+r}.$$

We next examine the debt policy of the acquiring firm. For this analysis, we first assume that an acquiring firm can add operational value and can commit to not diverting value from creditors. We further assume that the acquiring firm has bargaining power in the sense that the rents that it will be able to earn will be the difference between the standalone value of the target and the valuation of the acquiring firm for a given level of debt D:

$$\frac{\Delta q_i \cdot \Delta X+q_i \cdot g(D)-q_T g_0}{1+r}, \text{where } \Delta X=(X_G-X_B).$$

Given our assumptions about g, the acquiring firm will find it optimal to take on debt of D^* in this case.

In the event that the acquiring firm is able to add value but is unable to commit to not diverting, creditors will assume that it will divert whenever $D>(1-\lambda)X_B$. As a result, the rents that the acquiring firm is able to earn when $D>(1-\lambda)X_B$ will be reduced by the deadweight costs of diversion as follows:

$$\frac{\Delta q_i \cdot \Delta X+q_i \cdot g(D)-q_T g_0}{1+r}-\frac{(1-q_i)(1-\lambda)X_B}{1+r}.$$

Given our assumptions, these rents are maximized for D^*. However, if the acquiring firm chooses $D=(1-\lambda)X_B$ it will not have to bear the deadweight costs and can earn rents of

$$\frac{\Delta q_i \cdot \Delta X+q_i \cdot g_0-q_T g_0}{1+r}.$$

As a result, the acquiring firm will find it optimal to choose $D=(1-\lambda)X_B$ instead of D^* if

$$\frac{(1-q_i)(1-\lambda)X_B}{q_i} \geq g(D^*)-g_0.$$

Given that the left-hand side of this inequality is declining in q_i, we will assume that the deadweight costs are large enough such that both the target and the acquiring firm will find it optimal to choose $D=(1-\lambda)X_B$. This can be satisfied by assuming that

(2) $$\frac{\varphi(1-\lambda)X_B}{(1-\varphi)} \geq g(D^*) - g_0.$$

B. Borrowing with Reputational Capital

In a repeated game setting, the present value of future rents that the acquiring firm can earn will depend on its ability to add value through operational improvements as well as its ability to add value through leverage. Its ability to add value through leverage will be determined by its reputation with lenders for not diverting resources to their detriment. In this context, following Malenko and Malenko (2015), we assume that creditors follow a grim trigger strategy such that if an acquiring firm diverts value, creditors assume that it will divert in the future whenever it takes on debt $D > (1-\lambda)X_B$. In this setting, Proposition 1 describes the conditions under which acquiring firms will value reputation.

Proposition 1. A given acquiring firm i will value its reputation for nondiversion and take on debt D^* to finance each of its future acquisitions if

(3) $$\lambda X_B < \frac{\gamma}{r} p_i E[q_i](g(D^*) - g_0).$$

Proof. See Appendix A.

The left-hand side of equation (3) is the one-time gain from diversion and the right-hand side of equation (3) is the present value of the difference in future expected rents generated using debt of D^* rather than debt equal to $(1-\lambda)X_B$. The present value of future rents is a function of the likelihood an acquiring firm finds a target each period (γ), the probability that the acquiring firm can add value to the target (p_i), and the gain in value associated with the higher leverage the acquiring firm can take on for its target firms as a result of its reputational capital. Since one can think of p_i as a measure of the acquiring firm's skill, equation (3) therefore indicates that the value of reputational capital is increasing in the skill of the acquiring firm.

Proposition 1 demonstrates how reputation can serve as a commitment mechanism for acquiring firms not to divert value from creditors. If the difference in the expected future rents from using the optimal amount of leverage of D^* rather than $(1-\lambda)X_B$ exceed the one-time benefit of diverting, acquiring firms will prefer not to divert value from creditors. Additionally, Proposition 1 further predicts that an acquiring firm will value its reputational capital more when the benefits from leverage are larger and its skill is higher.

C. Borrowing with Covenants

In the case with covenants borrowers can choose between a debt contract with covenants and one without covenants. Similar to Berlin and Loeys (1988), we assume that covenants provide lenders with a noisy signal of the state of the world (Y_G, Y_B). If the noisy signal creditors receive indicates the bad state of the world, the covenants shift control rights to creditors and we assume that they will liquidate the firm.[20] If the firm is liquidated, the payoff at the end of the period is X_B.[21] We assume that $P[Y_G] = \rho \cdot q_i$, where $0 < \rho < 1$, so that the likelihood of a positive signal varies with the ex ante likelihood of the good state. The parameter ρ measures the informativeness of the signal that creditors receive, with higher levels of ρ corresponding to a more informative signal of the actual state of the world. We model the accuracy of the signal in a way that makes covenants particularly effective at mitigating diversion by defining $P[X_G|Y_G] = 1$ and $P[X_G|Y_B] = \frac{q_i(1-\rho)}{1-q_i\rho}$. In other words, we assume that the covenant threshold is set such that a covenant violation is a noisy signal of the occurrence of the bad state.[22]

While the covenants limit shareholders' ability to divert in the bad state, covenants are costly because they can lead to inefficient liquidation in the good state. Inefficient liquidation occurs when creditors receive a bad signal, but the good state occurs (i.e., a false negative signal). Intuitively, for covenants to add value the cost associated with inefficient liquidation must be small relative to the expected gain from additional leverage. Note that, the likelihood of inefficient liquidation $\left(\frac{q_i(1-\rho)}{1-q_i\rho}\right)$ is decreasing in ρ. Therefore, as we demonstrate below, whether covenants add value will depend on the quality of the signal, as measured by ρ.

1. Standalone Firms

Because the standalone firms (targets) cannot commit to not diverting value in the bad state, the use of covenants can increase their debt capacity if the signal lenders receive from a covenant violation is sufficiently informative. For a given level of debt, an independent firm will be able to borrow the following amount when covenants are used

$$\frac{q_T\rho\min(X_G + g(D), D) + (1 - q_T\rho)\min(X_B, D)}{1+r}.$$

Therefore, the value of the target is

$$\begin{aligned} &\frac{q_T\rho\max(X_G + g(D) - D, 0) + (1 - q_T\rho)\max(X_B - D, 0)}{1+r} \\ &+ \frac{q_T\rho\min(X_G + g(D), D) + (1 - q_T\rho)\min(X_B, D)}{1+r} \\ &= \frac{q_T\rho(X_G + g(D)) + (1 - \rho q_T)X_B}{1+r}. \end{aligned}$$

Which can be rewritten as

[20] We discuss a possible extension of the model that allows for renegotiation rather than liquidation in Section III.F.

[21] Liquidation is assumed to be inefficient for good firms that receive a negative signal and are liquidated. Assuming that the payoff if liquidated is X_B is one simple way to model this inefficiency.

[22] An alternative way to model accuracy of covenant signals is to assume that covenants provide a noisy signal of the occurrence of both the good and bad state which adds an additional inefficiency associated with covenants (i.e., some bad firms receive a good signal, in which case they divert, leading to creditor losses).

$$V_0 + \frac{1}{1+r}[q_T\rho(X_G+g(D)) + (1-\rho q_T)X_B - q_T(X_G+g_0) - (1-q_T)X_B], \tag{4}$$

where V_0 is the standalone value of the target when it does not borrow with covenants and can only borrow $D=(1-\lambda)X_B$, as defined in Section III.A.

Equation (4) states that the value of the independent firm when it can borrow with covenants is equal to its standalone value without covenants (V_0) plus the net benefit associated with borrowing with covenants (the term in brackets). Given our assumptions, the net benefits of borrowing with covenants are maximized at D^*. However, as we illustrate with Lemma 1, whether the benefits of borrowing D^* with covenants exceed the costs will depend on the informativeness of the signal that creditors observe. The minimum required precision of the signal, in turn, will depend on the value gained from taking on additional leverage. The greater the value gained from additional leverage, the lower the required precision of the signal for covenants to add value.

Lemma 1. Covenants will add to the borrowing capacity of the standalone firm if $\rho > \rho_0$. Where

$$\rho_0 = \frac{X_G + g_0 - X_B}{X_G + g(D^*) - X_B}. \tag{5}$$

Proof. See Appendix A.

2. Single Deal by an Acquiring Firm

In the case where an acquiring firm can add operational value but otherwise cannot commit to not diverting value covenants can similarly add to the acquiring firm's borrowing capacity if ρ is sufficiently large. As we derive in Appendix A, the value of the target in this case is

$$V_0 + \frac{1}{1+r}[q_i\rho(X_G+g(D)) + (1-\rho q_i)X_B - q_T(X_G+g_0) - (1-q_T)X_B]. \tag{6}$$

As in the case of standalone firms, the net benefits of borrowing with covenants (the term in brackets) are maximized at D^*. Moreover, as we formulate in Corollary 1, the minimal required precision of the signal required for acquiring firms to prefer borrowing through covenants is the same as for standalone firms.

Corollary 1. Covenants will add to the borrowing capacity of the acquiring firm if $\rho > \rho_0$. Moreover, the acquiring firm will borrow D^*.

Proof. See Appendix A.

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D. Repeat Deals, Reputation, and Covenants

In a repeated game setting the acquiring firm can borrow without covenants if it has a reputation for nondiversion. We assume that $\rho > \rho_0$ so that in the absence of reputation both standalone firms and acquiring firms will prefer to borrow with covenants. Creditors follow a grim trigger strategy such that if an acquiring firm diverts value, they assume that it will divert in the future whenever the firm borrows $D > (1-\lambda)X_B$ without covenants. This implies that once an acquiring firm diverts, the only way it will be able to borrow $D > (1-\lambda)X_B$ in the future is through debt contracts that contain covenants.

However, because borrowing with covenants is also optimal for standalone firms, acquiring firms' expected rents will be diminished relative to the case without covenants. Proposition 2 describes the conditions under which acquiring firms will value reputation in this setting.

Proposition 2. In the case where acquiring firms can borrow through covenants and $\rho > \rho_0$, a given acquiring firm i will value its reputation for nondiversion and take on debt D^* to finance each of its future acquisitions if

$$\lambda X_B < \frac{\gamma}{r} p_i (1-\rho) E[q_i] (\Delta X + g(D^*)). \tag{7}$$

Proof. See Appendix A.

As in the case without covenants in Proposition 1, Proposition 2 implies that an acquiring firm will value reputation more when its skill is higher and when the benefits from debt financing are higher. However, because borrowing with covenants also allows firms to borrow D^* and thus diminishes the rents from borrowing with reputation, Proposition 2 also implies that the required level of skill for an acquiring firm to value reputation is higher in the case of covenants (Corollary 2) and that the benefits of borrowing with reputation will be lower when the informativeness of covenants is higher (Corollary 3).

Corollary 2. For a given acquiring firm let $p_{\text{no cov}}$ denote the lowest level of skill such that equation (3) is satisfied, and let p_{cov} be the lowest level of skill such that equation (7) is satisfied. Then, $p_{\text{cov}} > p_{\text{no cov}}$.

Proof. See Appendix A.

Corollary 3. The benefits of borrowing based on reputation will be less valuable if the signal that creditors receive is more informative (i.e., if ρ is higher).

Proof. Follows directly from equation (7).

An additional implication of Corollary 3 is that the noisier the signal, the lower the required skill level of acquiring firms will need to be for them to value reputation.

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Finally, while our model implies that whether acquiring firms can borrow relying on only reputation will depend, in part, on their skill at implementing operational improvements, both acquiring firms with a relatively low level of skill $(p_i < p_{\text{cov}})$ and those with a relatively high level of skill $(p_{\text{cov}} < p_i)$ will borrow the same amount D^*. However, as shown in Corollary 4, for a given target, acquiring firms that rely on covenants will pay a higher interest rate when they can add the same value through operational improvements.

Corollary 4. For a given target, assume that both low-skilled acquiring firms $(p_i < p_{\text{cov}})$ and high-skilled acquiring firms $(p_{\text{cov}} < p_i)$ can add the same value through operational improvements. Low-skilled acquiring firms will borrow D^* with covenants and pay a higher interest rate than high-skilled acquiring firms which will borrow D^* without covenants using reputation.

Proof. See Appendix A.

E. Testable Hypotheses

Our model leads to several testable hypotheses. Our first hypothesis is based on Proposition 2 from our model, which implies that an acquiring firm will value its reputational capital with lenders more, the greater its skill in identifying targets and implementing operational improvements, and the more deals it expects to conduct in the future.

Hypothesis 1 (H1). Ceteris paribus, the greater an acquiring firm's reputational capital with lenders, the greater the likelihood its acquisition targets will borrow using Cov-Lite loan structures.

As discussed below, we test H1 by examining the covenant structure of leveraged loans by PE-sponsored borrowers used to finance LBOs and acquisitions. Because the value of a PE sponsor's reputation is ultimately unobservable, we construct several different proxies for the value of reputational capital based on the skill and the deal activity of the PE firm. We describe these various measures of PE fund performance and loan market activity in the next sections.

Our second testable hypothesis is based on Corollary 4, which predicts that holding credit risk constant, the all-in-drawn spread associated with Cov-Lite loans will be lower than on Cov-Heavy loans.

Hypothesis 2 (H2). If reputational capital serves as a substitute for maintenance covenants, Cov-Lite loans to acquiring firms are expected to have lower spreads than Cov-Heavy loans.

As discussed below, we test H2 by examining the relationship between the all-in-drawn spreads and the covenant structure of leveraged loans by PE-sponsored borrowers used to finance LBOs and acquisitions. Because spreads between Cov-Lite and Cov-Heavy loans might be different based on the lien structure and type of loan, we focus this analysis on first-lien institutional term loans and control for a variety of other loan characteristics, such as size and rating, as well as PE sponsor fixed effects in our regressions to help rule out confounding factors.

In the context of our model, reputation creates an incentive not to divert. An important assumption of our model is that maintenance covenants are also effective at limiting shareholders' ability to divert resources from creditors, because they are set in a way that results in some false negatives (for some good firms the signal creditors observe indicates that the bad state has occurred) but limits the occurrence of false positives (creditors will never observe a signal that the good state has occurred for bad firms). Diversion is prevented because a covenant violation implies a default and transfers control rights to creditors, who liquidate the firm. This implies that both borrowing with covenants and borrowing based on reputational capital are effective at limiting diversion by shareholders and leads to the following testable hypothesis:

Hypothesis 3 (H3). Conditional on a default, recovery rates between loans with and without maintenance covenants will be similar, ceteris paribus.

Hypothesis 3 is based on the idea that diversion reduces recoveries in the bad state. Therefore, if covenants and reputation are effective in mitigating diversion, recovery rates for Cov-Lite loans should be similar to the recovery rates on Cov-Heavy loans.[23] As discussed below, we test H3 by examining the recovery rates from a sample of leveraged loans by borrowers that filed for bankruptcy over our sample period based on Moody's Default and Recovery Database (DRD). While the DRD has the limitation of predominantly covering bankruptcies by large firms, which limits the sample size, it has the advantage that it provides detailed information on borrowers' debt structure at the time of default, including any differences in loan types, collateral and lien priority. This allows us to better isolate the relationship between recovery rates and differences in covenant structure of loans, from other differences between loan contracts that might be related to recoveries.

[23] In our model covenants and reputation both prevent diversion. In practice, it is difficult to determine whether restructuring transactions involve diversion, which is why we focus on recovery rates. Two widely cited examples of purported diversion by PE firms involved J Crew and Caesars Entertainment. Both firms filed for bankruptcy following a series of restructuring transactions (J Crew in 2020 and Caesars in 2015). The J Crew restructuring involved the transfer of intellectual property to an offshore entity controlled by the PE sponsor. J Crew's institutional term loan at the time of the restructuring was Cov-Lite (although there was also a Cov-Heavy revolver outstanding). As Ivashina and Vallée (2022) explain, J Crew exploited deductibles and carve outs in the incurrence (not maintenance) covenants to effect the transfer which enabled it to issue new secured debt which was used to restructure senior unsecured notes that were coming due. Caesars Entertainment's secured term loan was Cov-Heavy with a maintenance covenant requiring the ratio of senior secured leverage to EBITDA to be less than 4.47 to 1. Caesars negotiated a series of amendments revising the maintenance covenants to exclude newly issued secured debt when calculating covenant compliance. For a description of these transactions see Mugford and Chan (2019).

F. Discussion: Renegotiation and Monitoring Costs

While our model does not directly consider the ability to renegotiate contracts following a covenant violation, we conjecture that the ability to renegotiate should improve credit outcomes for lenders by allowing them to reduce the instances of inefficient liquidation following violations that are false positives. One potential way to model this would be to assume that bank lenders possess a costly monitoring technology that enables them to evaluate the borrower, conditional on a covenant violation, and receive a more informative signal of the state of the world (i.e., a higher ρ). While this should lead to fewer inefficient liquidations, the expected cost associated with such monitoring should still be reflected in ex ante loan spreads. Given that borrowing based on reputation avoids both the costs associated with inefficient liquidation and monitoring, spreads on Cov-Lite loans should still be lower than spreads on loans with maintenance covenants that allow for renegotiation.

IV. Empirical Results

A. Cov-Lite Usage and Reputational Capital

In this section, we present the tests of Hypothesis 1, which states that reputational capital is positively related to the propensity to use Cov-Lite loan structures. While our model can be applied to a broader set of firms that engage in repeat acquisitions, we focus our empirical analysis in this section on loans made to firms that are backed by PE sponsors. Borrowing by sponsored firms provides an ideal setting to test the predictions of our model for several reasons: First, the underlying assumption of our model with respect to repeat dealing by the same firm closely resembles the PE setting where individual target firms are acquired by PE funds and these acquisitions are frequently financed, in part, through the leveraged loan market. Second, PE-backed transactions are easier to identify than acquisitions made by other types of serial acquirers that are in line with the assumptions of our model, such as holding companies. Third, focusing on loans made to PE-sponsored firms has the advantage that it allows us to construct several different measures that proxy for the value of its reputational capital with lenders. Finally, the LCD data allow us to track the performance of loans made to PE-backed borrowers.

1. Proxies for the Value of Reputational Capital with Lenders

In the context of our model, reputational capital with lenders is more valuable for PE sponsors that are more skilled at implementing operational improvements at their acquisition targets and for PE sponsors that expect to conduct more acquisitions. We therefore construct several different proxies for the value of reputational capital based on the skill and the deal activity of the PE firm.

Our main measure of PE skill is based on the performance of the PE firm's active funds, as measured by their IRR relative to peer funds. Specifically, we calculate the annual fraction of the PE firm's active funds that are in the bottom quartile of the IRR distribution relative to other funds with the same vintage. We construct this measure using data on PE fund performance from Preqin Pro.

Specifically, we obtain data on capital calls, distributions, and estimated net asset values (NAVs) of individual PE funds from Preqin Pro's Private Capital Cash Flow data set. We restrict these data to PE funds that focus on the North American market and have a U.S. Dollar currency denomination and exclude fund of funds from the sample.[24] We aggregate these data on a quarterly basis and create a quarterly panel of cash flows and valuations from which we calculate quarterly IRRs for each PE fund. Because most cash flows tend to be capital calls early in the life of a fund, we only calculate IRRs 12 quarters after the fund has been launched. For each fund, we then benchmark its quarterly IRR against the IRRs of funds of the same vintage. We do so to control for business cycle and other vintage effects. We require at least five funds for which we can calculate IRRs for the same quarter for this comparison. Finally, for each PE sponsor, we aggregate these data at the calendar-year level by calculating the fraction of the PE sponsor's active funds with fourth-quarter IRRs that are in the bottom quartile of the IRR distribution relative to other funds with the same vintage. Preqin also reports performance by quartiles and while the choice of the bottom quartile is arbitrary it is designed to identify PEs with the poorest performing funds in a given cohort.[25]

We also proxy for the value of a PE firm's reputation with lenders based on its activity in the leveraged loan market. Specifically, following Demiroglu and James (2010) and Ivashina and Kovner (2011) we proxy for the value of PE reputation by the market share of the PE sponsor in the leveraged loan market, calculated as the sponsor's total number of deals in the leveraged loan market over the prior three calendar years and divided by the total number of sponsored deals in the leveraged loan market over the same time period, and the natural logarithm of 1 plus the number of deals the sponsor has undertaken over the past 3 years.

In the model, we assume for simplicity that lenders know the skill of the acquiring firm in implementing operational improvements to the targets they acquire. However, in practice, lenders likely also learn about the PE sponsor's skill and update their assessment of its reputational capital by observing within-sponsor variation in the performance of its past acquisitions. In this context, for a given PE firm, negative shocks to lenders' assessment of its reputational capital should increase the likelihood that the PE sponsor will have to finance future acquisitions with debt that includes maintenance covenants. We therefore extend our tests of H1 by examining the propensity of an acquiring firm to use Cov-Lite structures following shocks to its reputational capital. We measure such shocks by an indicator variable for whether the PE firm experienced an increase in the annual fraction of its funds that perform in the bottom quartile of the IRR distribution relative to funds with the same vintage, and through the past rate of defaults and bankruptcies among a sponsor's portfolio firms.

[24]We identify funds focusing on the North American market through the "Primary Region Focus" variable in Preqin and we identify fund of funds through the "Strategy" variable in Preqin.

[25]We prefer to use this relative measure of performance based on the distribution of IRRs within a fund's vintage for several reasons. First, comparing IRRs without adjusting for the vintage of the funds raises the concern that differences in IRRs might be mechanically related to differences between the age of the funds and the timing of when the funds were raised. Second, because the number of peer funds within a benchmark group can vary by vintage and quarter any performance metric should be adjusted for such differences in size.

2. Reputation and the Propensity to Use Cov-Lite

We examine the relationship between propensity to use Cov-Lite and our proxies for sponsor reputation by estimating a linear probability model of the propensity to use a Cov-Lite structure for sponsored deals used to finance M&As or LBOs.[26] As mentioned above, we focus on acquisition-related loans for this analysis because for these deals we are most likely observing the first loan in a potentially long loan path. While including all deals has the advantage that we can potentially observe whether the effect of our reputation or relationship measures changes as the borrower progresses down a loan path, it also has the disadvantage that covenant structure is likely not independent of, but rather related to, prior loans that are being refinanced or restructured. In the Supplementary Material, we show that our results in this section are robust to the inclusion of all deals.[27]

Table 2 presents estimates of linear probability model relating the propensity to Cov-Lite to our reputation measures. In Panel A, we include the full sample of sponsored deals related to acquisitions and the dependent variable takes a value of 1 if the deal contains at least one Cov-Lite loan tranche, and 0 otherwise. In each regression, we use a different proxy for the value of reputational capital. Specifically, we use the fraction of the PE firm's active funds that are in the bottom quartile of the IRR distribution in columns 1 and 2, the sponsor's market share in columns 3 and 4, and the natural logarithm of one plus the number of deals as our measures in columns 5 and 6, respectively. We include year, industry, firm ratings, and deal size quartile fixed effects in all our regressions. Because a quarter of deals is to unrated firms, the ratings fixed effects include a category for unrated firms. However, our results are robust to excluding unrated firms from the sample.[28] In columns 2, 4, and 6 we include additional control variables for whether a deal also contains a Cov-Heavy revolving line of credit, whether it has a traded tranche, the number of syndicate members, and a sponsor-bank relationship measure. We define all control variables in Appendix B.

As shown in Panel A of Table 2, and consistent with Hypothesis 1, we find a negative and significant relation between the propensity to use Cov-Lite structures and the fraction of low-performing funds of a sponsor, indicating that less skilled sponsors are less likely to borrow using Cov-Lite structures. In addition, we find a positive and significant relationship between the market share of a sponsor and the number of deals a sponsor conducts, indicating that more active sponsors are more likely to borrow using Cov-Lite structures. Additionally, we document a positive and significant relation between the propensity to use Cov-Lite and whether the deal has a loan tranche that is subsequently traded in the secondary market. The positive relationship between Cov-Lite usage and loan trading is consistent with the argument by Becker and Ivashina (2016), that renegotiations in the event of a violation are more difficult when loans are diffusely held. Interestingly, we find no relation between the propensity to use Cov-Lite and the sponsor-bank relationship measure.

[26]We also estimate the propensity to use Cov-Lite using a logistic regression. The results using a logistics regression are similar to the linear probability model and are in Table IA.4 in the Supplementary Material.

[27]See Table IA.2 in the Supplementary Material.

[28]See Table IA.3 in the Supplementary Material.

TABLE 2

PE Sponsor Reputation and the Propensity of Using Cov-Lite Structures in Deals

Table 2 presents linear probability models of the propensity to include a Cov-Lite tranche in the deal. The sample consists of deals by sponsored firms for acquisition purposes (LBO and M&A). In Panel A, the dependent variable takes a value of 1 if a deal contains a Cov-Lite loan tranche, and 0 otherwise. REPUTATION_MEASURE denotes the proxy for the value of reputational capital. Each regression uses a different proxy for reputation capital, as indicated in the column headings. In Panel B, the sample is further restricted to deals with at least one first-lien term loan B. The dependent variable takes a value of 1 if a deal contains a Cov-Lite term loan B tranche, and 0 otherwise. All independent variables are defined in Appendix B. Ratings fixed effects are based on firm ratings and include a category for unrated firms. Standard errors are clustered by sponsor. Absolute values of *t*-statistics are presented in parentheses and statistical significance is indicated by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

	FRAC_LOW_PERFORMING		MARKET_SHARE		ln(NUM_DEALS_1)	
	1	2	3	4	5	6
Panel A. All LBO and M&A Deals						
REPUTATION_MEASURE	−0.119***	−0.124***	0.059***	0.049***	0.056***	0.057***
	(3.11)	(3.03)	(5.10)	(4.59)	(5.91)	(4.98)
D_COVHEAVY_RC		−0.143***		−0.136***		−0.133***
		(5.03)		(5.95)		(5.90)
D_TRADED		0.083**		0.077***		0.076***
		(2.47)		(2.96)		(2.92)
ln(NUM_LENDERS)		0.009		0.004		0.003
		(0.53)		(0.30)		(0.22)
SPONSOR_BANK_REL		0.001		0.000		0.001
		(1.28)		(1.11)		(1.54)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes
Firm ratings FEs	Yes	Yes	Yes	Yes	Yes	Yes
Size quartile FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.46	0.48	0.49	0.50	0.49	0.51
No. of obs.	1,718	1,566	2,577	2,185	2,577	2,185
Panel B. LBO and M&A Deals with a First-Lien TLB						
REPUTATION_MEASURE	−0.145***	−0.154***	0.062***	0.053***	0.058***	0.061***
	(3.63)	(3.69)	(5.23)	(4.91)	(5.95)	(5.26)
D_COVHEAVY_RC		−0.147***		−0.130***		−0.128***
		(5.21)		(5.67)		(5.67)
D_TRADED		0.074**		0.059**		0.058**
		(2.32)		(2.31)		(2.28)
ln(NUM_LENDERS)		0.018		0.009		0.008
		(1.01)		(0.63)		(0.54)
SPONSOR_BANK_REL		0.001		0.000		0.001
		(1.22)		(0.93)		(1.38)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes
Firm ratings FEs	Yes	Yes	Yes	Yes	Yes	Yes
Size quartile FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.46	0.48	0.49	0.50	0.49	0.51
No. of obs.	1,628	1,494	2,404	2,067	2,404	2,067

This finding is consistent with reputational capital and not bank-specific relationships determining the use of Cov-Lite structures. Specifically, at the initiation of a loan path, sponsors' reputation and not sponsor-bank-specific information acquired from past dealings appears to affect the propensity to use Cov-Lite.

A potential concern with the findings in Panel A of Table 2 might be that we include all acquisition-related deals in the sample, even though Cov-Lite loan structures are almost exclusively associated with institutional term loans. Moreover, given the findings on recovery rates in Section IV.C, an additional concern with the results in Panel A might be that the covenant structure of different loan tranches within a deal is also related to differences in their collateral or lien priority. Consequently, the positive relationship between our proxies for sponsors' reputational capital and the propensity to include a Cov-Lite loan tranche in a deal may be related to sponsors' ability to attract institutional participation to their deals or their ability to structure more complex deals that involve multiple tranches of different lien priority. To mitigate these concerns, we limit the sample to deals that contain at least one first-lien institutional term loan B tranche in Panel B of Table 2 and change the dependent variable in the regressions to be an indicator for whether the first-lien term loan B tranche is Cov-Lite. As shown our results are robust to these additional restrictions.

3. Shocks to Reputational Capital and the Propensity to Borrow Cov-Lite

In this section, we extend our tests of Hypothesis 1 and analyze whether shocks to lenders' assessments of sponsors' skill, and thus their reputational capital, affect the covenant structure of their deals, conditional upon receiving financing in the leveraged loan market. If deteriorating performance of a sponsor's funds or increasing defaults among a sponsor's portfolio of companies diminish lenders' assessments of the sponsor's skill, we would expect a negative relation between the likelihood of using a Cov-Lite deal structure and measures of deteriorating fund performance or the frequency of defaults in past years. To examine the relationship between the propensity to use Cov-Lite and shocks to sponsors' reputational capital, we estimate linear probability models similar to the ones in Table 2. We measure shocks to lender's assessment of a sponsor's skill through an indicator variable that takes a value of one if the PE firm experienced an increase in the annual fraction of its funds that perform in the bottom quartile of the IRR distribution relative to funds with the same vintage, and through the past rate of defaults and bankruptcies among a sponsor's portfolio firms.

Table 3 presents our results. Consistent with Hypothesis 1, the results in columns 1–2 of Panel A indicate that PE sponsors who see an increase in the fraction of their low-performing funds are, on average, about 5.6% less likely to borrow using Cov-Lite loan structures in their future deals. In column 3, we also control for sponsor fixed effects, so that identification is through within-sponsor variation in both the performance of their funds and the covenant structure of their deals, and we continue to find a negative and significant relationship between deteriorating fund performance and the propensity to borrow Cov-Lite. As shown, we find qualitatively similar results when we use the past rate of default of a sponsor's portfolio companies in columns 4–6, and when we limit the sample to deals with first-lien term B loans in Panel B.

Overall we view the findings in this section as consistent with the notion that more skilled and active PE sponsors value their reputational capital with lenders more highly, and are thus able to borrow Cov-Lite. However, one alternative explanation for the positive relationship between the propensity to use Cov-Lite and our proxies for PE reputation is that, because more reputable firms are more active in the leveraged loan market, they are able to negotiate more favorable loan terms with lenders. Stronger bargaining power by more active PE sponsors would not only imply the ability to negotiate better loan terms in terms of looser covenants, but it would also imply that lenders are exposed to greater risk of loss from Cov-Lite loans relative to Cov-Heavy loans. Therefore, we would expect loss-given-default rates to be higher for Cov-Lite loans which, as discussed in greater detail in Section IV.C, we do not observe.[29]

[29]Note that, as shown in Figure 3, S&P also documents lower default rates on Cov-Lite loans relative to Cov-Heavy loans in their Leveraged Loan Index over our sample period.

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TABLE 3

Shocks to PE Sponsor Reputation and the Propensity of Using Cov-Lite Structures in Deals

Table 3 presents linear probability models of the propensity to include a Cov-Lite tranche in the deal. The sample consists of deals by sponsored firms for acquisition purposes (LBO and M&A). In Panel A, the dependent variable takes a value of 1 if a deal contains a Cov-Lite loan tranche, and 0 otherwise. REPUTATION_SHOCK denotes the measure for the shock to reputational capital. Each set of regressions uses a different measure of shocks to reputational capital, as indicated in the column headings. In Panel B, the sample is further restricted to deals with at least one first-lien term loan B. The dependent variable takes a value of 1 if a deal contains a Cov-Lite term loan B tranche, and 0 otherwise. All independent variables are defined in Appendix B. Ratings fixed effects are based on firm ratings and include a category for unrated firms. Standard errors are clustered by sponsor. Absolute values of *t*-statistics are presented in parentheses and statistical significance is indicated by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

	D_INC_LOW_PERFORMING			DEFAULT_RATE		
	1	2	3	4	5	6
Panel A. All LBO and M&A Deals						
REPUTATION_SHOCK	−0.056*	−0.056**	−0.048*	−0.003**	−0.003**	−0.004**
	(1.87)	(2.04)	(1.88)	(2.31)	(2.01)	(2.47)
D_COVHEAVY_RC		−0.135***	−0.111***		−0.159***	−0.136***
		(4.58)	(3.75)		(6.63)	(5.42)
D_TRADED		0.090**	0.075**		0.090***	0.075***
		(2.51)	(2.19)		(3.27)	(2.73)
ln(NUM_LENDERS)		0.010	−0.013		0.007	−0.016
		(0.55)	(0.69)		(0.44)	(1.07)
SPONSOR_BANK_REL		0.001	−0.000		0.000	0.000
		(1.32)	(0.29)		(0.78)	(0.69)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes
Firm ratings FEs	Yes	Yes	Yes	Yes	Yes	Yes
Size quartile FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sponsor FEs	No	No	Yes	No	No	Yes
Adj. R^2	0.46	0.48	0.53	0.47	0.50	0.55
No. of obs.	1,622	1,479	1,461	2,182	2,017	1,967
Panel B. LBO and M&A Deals with a First-Lien TLB						
REPUTATION_SHOCK	−0.073**	−0.080***	−0.070***	−0.003**	−0.003*	−0.004**
	(2.42)	(2.88)	(2.92)	(2.07)	(1.96)	(2.41)
D_COVHEAVY_RC		−0.141***	−0.111***		−0.155***	−0.130***
		(4.92)	(3.72)		(6.53)	(5.31)
D_TRADED		0.085**	0.062*		0.076***	0.060**
		(2.45)	(1.89)		(2.80)	(2.27)
ln(NUM_LENDERS)		0.020	−0.004		0.012	−0.013
		(1.13)	(0.21)		(0.78)	(0.84)
SPONSOR_BANK_REL		0.001	−0.000		0.000	0.000
		(1.28)	(0.04)		(0.51)	(0.53)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes
Firm ratings FEs	Yes	Yes	Yes	Yes	Yes	Yes
Size quartile FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sponsor FEs	No	No	Yes	No	No	Yes
Adj. R^2	0.46	0.48	0.53	0.48	0.49	0.54
No. of obs.	1,545	1,417	1,399	2,058	1,913	1,862

B. All-in-Drawn Spreads and Covenant Structure

Hypothesis 2 predicts that spreads will be lower for Cov-Lite loans if reputational capital substitutes for maintenance covenants, and covenant violations involve, in some states, inefficient liquidation. To test Hypothesis 2, we examine the relation between all-in-drawn spreads and Cov-Lite structures. Because reputational capital is likely to be a more important determinant of spreads for borrowers backed by PE firms, we continue to focus on sponsored loans for these analyses and we continue to focus on loans for acquisition purposes.[30]

[30]As shown in Table IA.5 in the Supplementary Material, the findings are robust to including all sponsored deals. In addition, while we estimate the models at the deal level, we find similar results at the loan-tranche level in Table IA.7 in the Supplementary Material.

We further limit the spread analysis to deals that include a first-lien institutional term loan tranche to avoid a mechanical relationship between spreads and lien priority and because Cov-Lite features are rare in deals with only pro rata tranches (which generally include revolving lines of credit and term A loans, both of which are typically bank-funded). We include in the regression analysis controls for whether the deal also includes a Cov-Heavy revolving line of credit, whether it has a traded tranche, the number of syndicate members, a sponsor-banking relationship measure, and loan maturity. In addition, since some deals include a second-lien tranche and for some LBOs and M&As senior unsecured or subordinated bonds, we include in some specifications a variable denoted as CUSHION, which is the dollar amount of debt junior to first-lien loans relative to the total dollar amount of debt issued (expressed in %). We control for the deal cushion, because Badoer, Dudley, and James (2020) find that loss-given-default on secured loans is significantly related to the cushion provided by unsecured and second-lien creditors. We include in all of the regressions year, industry, ratings, and deal size quartile fixed effects.[31]

Table 4 presents our results. In columns 1–3, the dependent variable is the value-weighted all-in-drawn spread (in basis points) across all institutional term loan tranches of a deal. The variable of interest is a dummy variable for whether the institutional loan is Cov-Lite. As shown, consistent with Hypothesis 2, we find that spreads on institutional Cov-Lite loans are significantly lower than spreads on institutional loans with maintenance covenants. For example, in column 1 we find that spreads on Cov-Lite loans are, on average, about 65 basis points lower than the spreads on institutional term loans with covenants, controlling for credit rating, loan size, industry and year-fixed effects. Moreover, as shown in column 3, these findings are robust to controlling for sponsor fixed effects and further indicate that sponsors, that have the ability to switch from Cov-Heavy borrowing to Cov-Lite borrowing see a reduction in borrowing costs.

In columns 4–6, we examine the relation between the total first-lien borrowing cost and Cov-Lite structures. For this analysis, the dependent variable represents the value-weighed all-in-drawn spread across all first-lien loan tranches in a deal. We conduct this second test of Hypothesis 2, to rule out the possibility that pro rata tranches, which are typically held by bank lenders, earn higher spreads associated with Cov-Lite deals. As shown, consistent with Hypothesis 2, we find that first-lien borrowing costs are significantly lower for deals with Cov-Lite tranches than deals without a Cov-Lite tranche.[32] These findings suggest that the lower spreads associated with Cov-Lite institutional tranches are not offset by higher spreads for the pro rata tranches in Cov-Lite deals.[33]

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[31]As mentioned before, we include an unrated category as part of the ratings fixed effect. However, as shown in Table IA.6 in the Supplementary Material, our results are robust to excluding unrated firms.

[32]If reputation is one factor affecting the spread differences between Cov-Lite and Cov-Heavy loans, we would further expect the spread difference to be significantly greater for sponsored borrowers than for nonsponsored borrowers. We examine this issue in Table IA.8 in the Supplementary Material and find that the spread difference is indeed significantly greater for loans to sponsored borrowers than for nonsponsored borrowers.

[33]As discussed in the introduction, several prior studies find spreads on Cov-Lite loans are higher spreads on loans with maintenance covenants (e.g., Becker and Ivashina (2016), Billett et al. (2016)). However, some of these studies are based on samples that generally end in 2013, before the widespread use of Cov-Lite structures, and some pool pro rata loan tranches and institutional term loans. As a result, it is unclear whether finding higher spreads for Cov-Lite loans reflects differences between the covenant

TABLE 4

All-in-Drawn Spreads and Cov-Lite Loan Structures

Table 4 presents linear models where the dependent variables are various measures of all-in-drawn spreads. The sample consists of all sponsored deals for acquisition purposes (LBO and M&A) that have at least one first-lien term loan B tranche. In columns 1–3, the dependent variable is the value-weighted all-in-drawn spread across all first-lien term loan B tranches of a deal. In columns 4–6, the dependent variable is the value-weighted all-in-drawn spread across all first-lien loan tranches of a deal. All independent variables are defined in Appendix B. Ratings fixed effects are based on firm ratings and include a category for unrated firms. Standard errors are clustered by sponsor. Absolute values of *t*-statistics are presented in parentheses and statistical significance is indicated by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

	First-Lien TLB Spread			First-Lien Spread		
	1	2	3	4	5	6
D_COVLITE_FL_TLB	−65.807***	−54.771***	−43.964***	−68.235***	−58.141***	−46.801***
	(11.02)	(8.54)	(7.18)	(10.65)	(8.79)	(7.11)
D_COVHEAVY_RC		23.754***	23.646***		11.816**	12.639**
		(4.11)	(3.62)		(2.06)	(2.12)
D_TRADED		−19.567***	−16.872***		−14.422***	−9.937**
		(3.97)	(3.27)		(2.97)	(2.12)
ln(NUM_LENDERS)		−19.716***	−10.818***		−22.518***	−14.234***
		(5.39)	(3.28)		(6.12)	(4.19)
SPONSOR_BANK_REL		0.064	−0.130		0.072	−0.149
		(0.64)	(1.33)		(0.79)	(1.60)
CUSHION		−0.461***	−0.590***		−0.272**	−0.391**
		(3.54)	(3.77)		(1.99)	(2.39)
ln(FL_TLB_TERM)		−7.318	2.838			
		(0.37)	(0.11)			
ln(FL_TERM)					5.498	17.456
					(0.25)	(0.66)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Industry FEs	Yes	Yes	Yes	Yes	Yes	Yes
Firm ratings FEs	Yes	Yes	Yes	Yes	Yes	Yes
Size quartile FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sponsor FEs	No	No	Yes	No	No	Yes
Adj. R^2	0.55	0.58	0.63	0.60	0.62	0.66
No. of obs.	2,331	2,024	1,950	1,961	1,694	1,623

C. Recovery Rates for Cov-Lite and Cov-Heavy Term Loans

Recall that our third hypothesis states that, conditional on a default, the recovery rates on Cov-Lite and Cov-Heavy loans should be similar. In this section, we therefore also examine the recovery rates of Cov-Lite and Cov-Heavy term loans for firms that filed for bankruptcy over our sample period.

1. Data on Recovery Rates for Cov-Lite and Cov-Heavy Term Loans

To construct the sample for these analyses, we obtain nominal recovery rates on term loans from U.S. firms, excluding financial firms and utilities, that filed for bankruptcy between 2005 and 2018 from Moody's Default and Recovery Database (DRD).[34] We focus our analysis on term loans because Cov-Lite loan structures are almost exclusively associated with term loans. The main advantage of the DRD is that it provides detailed information on borrowers' debt structures at default, as well

structure alone or also reflects other differences between deals with institutional tranches and pro rata tranches. More recent studies find either no significant difference or lower spreads on Cov-Lite loans (Demerjian, Horne, and Moon (2020), Prilmeier and Stulz (2020)).

[34]Moody's DRD uses up to three different methods to determine the nominal recovery rate of each debt security and provides a data field with Moody's recommended calculation method for each case. Depending on the availability of data, Moody's calculates recovery rates under the settlement method, the trading method, or the liquidity method. We use Moody's recommended method to calculate nominal recovery rates for all the loans in our sample.

TABLE 5

Summary Statistics for Term Loan and Firm-Level Recovery Rates

Table 5 presents recovery rates and summary statistics for term loans by borrowers that filed for bankruptcy between 2005 and 2018. Panel A presents recovery rates and summary statistics split by whether the term loan is Cov-Heavy or Cov-Lite. Panel B presents firm-level recovery rates and summary statistics for the term loans in Panel A, again split by whether the term loan is Cov-Heavy or Cov-Lite. Column 7, tests for differences in the mean values between Cov-Heavy and Cov-Lite loans, assuming unequal variances. All variables are defined in Appendix B. Statistical significance is indicated by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

	Cov-Heavy			Cov-Lite			Difference in Means
	Mean	P50	No. of Obs.	Mean	P50	No. of Obs.	
Panel A. Loan-Level Summary Statistics							
NOMINAL_RECOVERY	67.561	76.300	156	55.947	50.195	60	11.614**
COLLATERAL_RANK	1.365	1.000	156	1.817	2.000	60	−0.451***
D_SECOND	0.218	0.000	156	0.250	0.000	60	−0.032
D_UNSECURED	0.019	0.000	156	0.050	0.000	60	−0.031
PRINCIPAL	668.685	272.088	156	619.687	428.156	60	48.998
FRAC_PRINCIPAL_DEBT	0.314	0.265	156	0.353	0.274	60	−0.039
Panel B. Firm-Level Summary Statistics Split by Loan Covenant Structure							
FIRM_NOMINAL_RECOVERY	58.080	56.071	84	50.509	48.576	42	7.571*
TOTAL_DEBT	2,646.758	847.720	84	2,698.019	1,694.325	42	−51.260
D_EMERGED	0.798	1.000	84	0.857	1.000	42	−0.060
D_ACQUIRED	0.119	0.000	84	0.048	0.000	42	0.071
D_LIQUIDATED	0.083	0.000	84	0.095	0.000	42	−0.012

as detailed information on the collateral and lien priority of individual loans. Over this time period, the number of bankruptcies involving term loans covered by Moody's DRD that can be matched with our full sample of leveraged loans from LCD (including sponsored and nonsponsored loans) is relatively small, with only 119 bankruptcies involving 216 individual term loans.

Table 5 presents summary statistics at both the individual loan level (Panel A) and the firm level (Panel B) for this sample. As shown in Panel A, our sample comprises of 156 Cov-Heavy term loans and 60 Cov-Lite term loans, and over our sample period Cov-Heavy term loans have average nominal recovery rates that are about 11% higher than Cov-Lite term loans (significant at the 5% level). However, this difference between the recovery rates may be attributable to differences in the collateral or lien priority between the two types of loans, rather than differences in the covenant structure. To control for such differences Moody's assigns a collateral ranking to each debt security in a borrower's capital structure. This collateral ranking is an ordinal variable where a rank of one indicates a debt security of the highest priority in bankruptcy. As shown, consistent with their lower recovery rates, Cov-Lite loans also rank significantly worse in terms of the priority of their claim relative to Cov-Heavy loans, indicating the importance of controlling for the collateral rank of the loan when examining the relationship between recovery rates and covenant structure.

Panel B of Table 5 presents summary statistics at the firm level for the bankruptcies in our sample, split by whether the firm had outstanding Cov-Heavy or Cov-Lite term loans at the time of the bankruptcy. The total number of observations is slightly higher than 119 in this panel, because a few firms have both types of term loans outstanding. In most of these cases, the associated Cov-Lite term loans are second-lien loans. Overall, differences between the two groups of firms tend to be small. While borrowers with Cov-Heavy loans have slightly higher firm-level recovery rates, measured as the value-weighted nominal recovery rate across all their debt securities, the two groups have comparable amounts of outstanding total debt at the time of bankruptcy and their bankruptcy outcomes are similar.

2. Analysis of Recovery Rates of Cov-Lite and Cov-Heavy Term Loans

We formally test Hypothesis 3 by estimating linear regression models where the dependent variable is the nominal recovery rate on the term loan and our main independent variable of interest is an indicator variable for whether the term loan is Cov-Lite. Table 6 presents our results. In columns 1 and 2, we estimate the regressions over the full sample of term loans and include collateral rank fixed effects in both regression models. In columns 3 and 4, we estimate similar regressions but constrain the sample to term loans that have the highest priority within firms' debt structures. As shown, consistent with Hypothesis 3, we find no statistically significant difference between the recovery rates of Cov-Lite and Cov-Heavy term loans once differences in the priority of these loans are controlled for, or the sample is restricted to loans of equal priority in firms' debt structures.

V. Summary and Conclusion

In this article, we develop a simple model to illustrate how reputational capital with creditors can serve as a substitute for maintenance covenants in mitigating the agency cost of lending. Our model leads to several testable predictions concerning the use of Cov-Lite loan structures, the relationship between loan spreads and covenant structure, and the relationship between recovery rates and covenant structure. Our model further highlights that the reliance on reputational capital varies with the informativeness of covenants and the efficiency of covenant

TABLE 6

Term Loan Recovery Rates and Covenant Structure

Table 6 presents linear regressions where the dependent variable is the nominal recovery rate of the term loan (in %). The sample includes all term loans by borrowers that filed for bankruptcy between 2005 and 2018. In columns 1 and 2, the regressions are estimated on the full sample of term loans, while in columns 3 and 4, the regressions are estimated over the subsample of term loans that are secured and have a collateral rank of one. COVLITE is an indicator variable for whether a term loan is Cov-Lite. All other variables are defined in Appendix B. Standard errors are clustered by bankruptcy event and absolute values of *t*-statistics are in parentheses below the coefficient estimates. Statistical significance is indicated by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

	All Term Loans		Term Loans w. Collateral Rank 1	
	1	2	3	4
COVLITE	3.992	−7.777	−5.830	−6.738
	(0.60)	(1.24)	(0.66)	(0.84)
D_UNSECURED		−7.013		
		(0.49)		
ln(TOTAL_DEBT)		11.057***		11.827***
		(6.61)		(5.59)
D_LIQUIDATED		7.952		12.238
		(1.07)		(1.00)
D_ACQUIRED		1.973		8.372
		(0.19)		(0.63)
Year FEs	No	Yes	No	Yes
1-Digit SIC FEs	No	Yes	No	Yes
Collateral rank FEs	Yes	Yes	No	No
Adj. R^2	0.317	0.475	−0.002	0.275
No. of obs.	216	216	129	129

enforcement. Using a large database of deals in the leveraged loan market that are backed by PE sponsors, a segment of the leveraged loan market where reputational capital with lenders is likely particularly important, we find evidence consistent with these predictions. Specifically, we find that the propensity to use Cov-Lite loan structures is positively related to several proxies for PE sponsors' reputational capital with lenders. More important, we find that shocks to a PE sponsor's reputational capital with lenders, either through the poor performance of their funds or past loans to their portfolio firms, are associated with a reduced likelihood of obtaining Cov-Lite loans for their future acquisitions. Thus, we provide new evidence of sponsor-level reputational harm as a consequence of poor fund and loan performance. Finally, consistent with the importance of reputational capital, we also find that loan spreads are significantly lower on Cov-Lite institutional term loans relative to institutional term loans with maintenance covenants.

We conclude with a word of caution. While our results suggest that reputational capital and covenant are substitutes, the effectiveness of reputation in mitigating moral hazard is likely to vary over the business cycle. The value of reputational capital depends on the future expected rents from access to the leveraged loan market and is therefore likely to be least valuable during economic downturns when expected future deal flow is low. As a result, the value of covenant protection is likely to be counter-cyclical.

Appendix A. Additional Details on the Model and Proofs

A.1. Additional Proofs

Proof of Proposition 1. If an acquiring firm chooses to stick with a strategy where it does not divert value in the bad state and uses the same level of debt $D > (1-\lambda)X_B$ for all its targets it will expect to earn rents of

$$\max(X_B - D, 0) + \frac{\gamma}{r} p_i E[\Delta q_i \cdot \Delta X + q_i \cdot g(D) - q_T g_0].$$

Alternatively, if an acquiring firm chooses to divert it can only expect to earn rents of

$$\lambda X_B + \frac{\gamma}{r} p_i E[\Delta q_i \cdot \Delta X + q_i \cdot g_0 - q_T g_0].$$

Thus, an acquiring firm will value reputation if

$$\lambda X_B - \max(X_B - D, 0) < \frac{\gamma}{r} p_i E[q_i](g(D) - g_0).$$

And given our assumptions about D^* an acquiring firm will value reputation if

$$\lambda X_B < \frac{\gamma}{r} p_i E[q_i](g(D^*) - g_0). \qquad \square$$

Proof of Lemma 1. Note that the net benefits of borrowing D^* with covenants,

$$q_T\rho(X_G+g(D^*))+(1-\rho q_T)X_B-q_T(X_G+g_0)-(1-q_T)X_B$$

are increasing in ρ and that they are positive for $\rho=1$. Therefore, it will be sufficient to solve the following inequality for ρ:

$$q_T\rho(X_G+g(D^*))+(1-\rho q_T)X_B-q_T(X_G+g_0)-(1-q_T)X_B>0.$$

This leads to

$$\rho>\frac{X_G+g_0-X_B}{X_G+g(D^*)-X_B}.$$

□

Derivation of equation (6). Similar to the case for the standalone target, for a given level of debt, the acquired target will be able to borrow the following amount when covenants are used

$$\frac{q_i\rho\min(X_G+g(D),D)+(1-q_i\rho)\min(X_B,D)}{1+r}.$$

Therefore, the value of the target is

$$\begin{aligned}&\frac{q_i\rho\max(X_G+g(D)-D,0)+(1-q_i\rho)\max(X_B-D,0)}{1+r}\\&+\frac{q_i\rho\min(X_G+g(D),D)+(1-q_i\rho)\min(X_B,D)}{1+r}\\&=\frac{q_i\rho(X_G+g(D))+(1-\rho q_i)X_B}{1+r}.\end{aligned}$$

Which can be rewritten as

$$V_0+\frac{1}{1+r}[q_i\rho(X_G+g(D))+(1-\rho q_i)X_B-q_T(X_G+g_0)-(1-q_T)X_B].$$

Proof of Corollary 1. Note that the net benefits of borrowing with covenants,

$$q_i\rho(X_G+g(D))+(1-\rho q_i)X_B-q_T(X_G+g_0)-(1-q_T)X_B,$$

are increasing in ρ, positive for $\rho=1$, and that they are maximized for D^*. However, for acquiring firms to prefer borrowing D^* with covenants over borrowing $D=(1-\lambda)X_B$ without covenants it must also be the case that

$$\Delta q_i\cdot\Delta X+q_i\cdot g_0-q_Tg_0<q_i\rho(X_G+g(D^*))+(1-\rho q_i)X_B-q_T(X_G+g_0)-(1-q_T)X_B.$$

Note that if $\rho=1$ the right-hand side of this inequality can be rewritten as

$$\Delta q_i\cdot\Delta X+q_i\cdot g(D^*)-q_Tg_0$$

and the inequality is satisfied. Therefore, it will be sufficient to solve the inequality for ρ which leads to the following inequality

$$\rho > \frac{\Delta q_i(X_G - X_B) + q_i g_0 - q_T g_0 + q_T(X_G + g_0) - q_T X_B}{q_i(X_G + g(D^*)) - q_i X_B}.$$

Which can be rewritten as

$$\rho > \frac{X_G + g_0 - X_B}{X_G + g(D^*) - X_B}.$$

Note that the right-hand side term equals ρ_0 from equation (5). □

Proof of Proposition 2. If an acquiring firm chooses to stick with a strategy where it does not divert value in the bad state and uses the same level of debt $D > (1-\lambda)X_B$ for all its targets it will expect to extract rents of

$$\min(X_B - D, 0) + \frac{\gamma}{r} p_i E[\Delta q_i \cdot \Delta X + q_i g(D) - q_T g_0 - [\rho q_T(X_G + g(D)) + (1-\rho q_T)X_B - q_T(X_G + g_0) - (1-q_T)X_B]].$$

Alternatively, if an acquiring firm chooses to divert it can only expect to extract rents of

$$\lambda X_B + \frac{\gamma}{r} p_i E[\rho q_i(X_G + g(D)) + (1-\rho q_i)X_B - q_T(X_G + g_0) - (1-q_T)X_B - [\rho q_T(X_G + g(D)) + (1-\rho q_T)X_B - q_T(X_G + g_0) - (1-q_T)X_B]].$$

Thus, an acquiring firm will value reputation if

$$\lambda X_B - \min(X_B - D, 0) < \frac{\gamma}{r} p_i E[\Delta q_i \cdot \Delta X + q_i g(D) - q_T g_0 - [\rho q_i(X_G + g(D)) + (1-\rho q_i)X_B - q_T(X_G + g_0) - (1-q_T)X_B]].$$

The right-hand side of the inequality can be rewritten as

$$\frac{\gamma}{r} p_i(1-\rho)E[q_i](\Delta X + g(D)).$$

And for D^* the proposition follows: □

Proof of Corollary 2. Note that it is sufficient to prove that

$$(1-\rho)E[q_i](\Delta X + g(D^*)) < E[q_i](g(D^*) - g_0).$$

Or equivalently that

$$0 < g(D^*) - g_0 - (1-\rho)(\Delta \mathrm{X} + g(D^*)).$$

The right-hand side of the inequality can be rewritten as

$$\rho(X_G + g(D^*) - X_B) - (X_G + g_0 - X_B).$$

And because

$$\rho > \rho_0, \text{ where } \rho_0 = \frac{X_G + g_0 - X_B}{X_G + g(D^*) - X_B}$$

the proof follows. □

Proof of Corollary 4. A low-skilled acquiring firm will not value reputation and will borrow D^* with covenants. Consequently, it will be able to raise the following amount from creditors

$$\frac{q_i\rho \min(X_G + g(D^*), D^*) + (1 - q_i\rho)\min(X_B, D^*)}{1 + r}.$$

A high-skilled acquiring firm, on the other hand, will value its reputation and will be able to borrow the following amount from creditors without covenants

$$\frac{q_i \min(X_G + g(D^*), D^*) + (1 - q_i)\min(X_B, D^*)}{1 + r}.$$

And because $0 < \rho < 1$ the corollary follows. □

Appendix B. Definitions of Variables Used in This Study

DEAL_SIZE: Sum of amounts of RC, TLA, TLB, TLC, TLD, second-lien tranches, and related bonds amounts. In $mn adjusted for inflation. Source: S&P LCD.

NUM_TRANCHES: S&P LCD Number of loan tranches in a deal. Source: S&P LCD.

COVLITE: Dummy = 1 if the loan tranche is Cov-Lite. Source: S&P LCD.

D_COVLITE: Dummy = 1 if deal contains a Cov-Lite tranche. Source: S&P LCD.

D_COVLITE_FL_TLB: Dummy = 1 if deal contains a Cov-Lite first-lien TLB, TLC, or TLD tranche. First-lien tranches are identified as loans that have nonmissing information on their asset security and that are not classified as unsecured, second-lien, or super-priority loans. Source: S&P LCD.

D_COVHEAVY_RC: Dummy = 1 if deal contains a Cov-Heavy RC tranche. Source: S&P LCD.

D_TLB: Dummy = 1 if deal contains a TLB, TLC, or TLD tranche. Source: S&P LCD.

D_FL_TLB: Dummy = 1 if deal contains a first-lien TLB, TLC, or TLD tranche. First-lien tranches are identified as loans that have nonmissing information on their asset security and that are not classified as unsecured, second-lien, or super-priority loans. Source: S&P LC.

D_SL: Dummy = 1 if deal contains a second-lien tranche. Source: S&P LCD.

D_TRADED: Dummy = 1 if deal has a break date or a break price (indicates secondary loan market trading). Source: S&P LCD.

CUSHION: Ratio of the sum of second-lien amounts and related bond amounts to deal size (in %). Source: S&P LCD.

SP_ISSUER_RATING: Numerical mapping of S&P issuer rating: AAA = 1, AA+ = 2, …, D = 22, Unrated = 23. Source: S&P LCD.

PERC_COVLITE: Ratio of Cov-Lite amount to deal size conditional on a Cov-Lite tranche being in the deal (in %). Source: S&P LCD.

PERC_COVHEAVY: Ratio of Cov-Heavy RC amount to deal size conditional on an RC being in the deal (in %).

FL_TERM: Value-weighted maturity of first-lien tranches in a deal (i.e., RC, TLA, TLB, TLC, TLD) in years. Source: S&P LCD.

ln(FL_TERM): Natural logarithm of FL_TERM. Source: S&P LCD.

FL_TLB_TERM: Value-weighted maturity of first-lien TLB, TLC, and TLD tranches in a deal in years. Source: S&P LCD.

ln(FL_TLB_TERM): Natural logarithm of FL_TLB_TERM. Source: S&P LCD.

FL_SPREAD: Value-weighted spread of first-lien tranches (i.e., RC, TLA, TLB, TLC, TLD) in bps. Source: S&P LCD.

FL_TLB_SPREAD: Value-weighted spread of first-lien TLB, TLC, and TLD tranches in bps. Source: S&P LCD.

NUM_LENDERS: Number of distinct lenders in LenderShares file in DealScan for each deal that can be matched with LCD. Source: DealScan, S&P LCD.

ln(NUM_LENDERS): Natural logarithm of NUM_LENDERS. Source: DealScan, S&P LCD.

SPONSOR_BANK_REL: Number of deals in the matched sample of DealScan and LCD that the sponsor raised from the same bank over the prior 5 years relative to all the sponsor's deals in the matched sample of DealScan and LCD over the prior 5 years. Expressed in %. Source: DealScan, S&P LCD.

MARKET_SHARE: Ratio of a sponsor's number of deals over prior 3 calendar years to the total number of sponsored deals in LCD over the prior 3 calendar years. Expressed in %. Source: DealScan, S&P LCD.

ln(NUM_DEALS_1): Natural logarithm of 1 + number of a sponsor's deals over the prior 3 calendar years. Source: DealScan, S&P LCD.

FRAC_LOW_PERFORMING: Annual fraction of a sponsor's funds that perform in the bottom quartile of the IRR distribution relative to funds with the same vintage. Lagged by one calendar year. Source: Preqin.

D_INC_LOW_PERFORMING: Dummy = 1 if the FRAC_LOW_PERFORMING increased relative to the prior calendar year. Source: Preqin.

DEFAULT_RATE: Ratio of the number of a sponsor's defaulted firms in $(t-1)$ to the total number of sponsor's leveraged loan deals over $(t-2)$, $(t-3)$, and $(t-4)$. Expressed in %. Source: S&P LCD.

NOMINAL_RECOVERY: Nominal recovery rate of a debt security (expressed in %) and calculated following Moody's recommended method (i.e., settlement, trading, liquidity method). Source: Moody's.

COLLATERAL_RANK: Ordinal variable ranking debt by priority in bankruptcy, where a rank of one indicates a debt security of the highest priority. Source: Moody's.

D_SECOND: Dummy = 1 if the loan is a second or third lien loan. Source: Moody's.

D_UNSECURED: Dummy = 1 if the loan is unsecured. Source: Moody's.

PRINCIPAL: Total principal amount of the loan adjusted for inflation (in $mn). Source: Moody's.

FRAC_PRINCIPAL_DEBT: Fraction of PRINCIPAL to TOTAL_DEBT. Source: Moody's.

FIRM_NOMINAL_RECOVERY: Value-weighted nominal recovery across all debts of the firm, weighted by their Principal Amount. Source: Moody's.

TOTAL_DEBT: Total outstanding principal amount of all debts of the firm at the time of bankruptcy adjusted for inflation (in $mn). Source: Moody's.

ln(TOTAL_DEBT): Natural logarithm of TOTAL_DEBT. Source: Moody's.

D_EMERGED: Dummy = 1 if the firm emerged from bankruptcy. Source: Moody's.

D_ACQUIRED: Dummy = 1 if the firm was acquired from bankruptcy. Source: Moody's.

D_LIQUIDATED: Dummy = 1 if the firm was liquidated in bankruptcy. Source: Moody's.

Supplementary Material

To view supplementary material for this article, please visit http://doi.org/10.1017/S002210902300090X.

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