

## **Mandatory Accounting Rules and Private Contract Solutions—Evidence from Lease Accounting**

**Abstract:** We study the private lending market's accounting solutions for operating leases and how FASB's new lease accounting standard (ASC 842) affects them. Contrary to a popular assumption in prior literature, we find that most loan contracts *exclude* capitalized operating leases from debt and debt-based covenants (like debt-to-earnings ratio covenants), regardless of the accounting standards in place. Where operating leases are counted as debt, their measurements are often tailored to individual transactions. We report that firms with larger operating lease obligations pay no higher or lower interest spread than firms with smaller operating lease obligations, and the new standard's implementation does not change this pattern. Firms with more intense operating lease obligations are more likely to renegotiate contracts to include/update fixed-GAAP clauses to undo ASC 842's capitalization requirement. The new standard creates a potential unintended effect: upon losing leases' off-balance sheet treatment, firms gravitate away from leases to purchases, and the associated (expected) borrowings subject firms to more and tighter debt-based covenants.

## 1. Introduction

This paper studies the impact of the Financial Accounting Standard Board (FASB)'s new lease standard (Accounting Standards Codification Topic ASC 842) on private loan contracting. The standard's biggest, and perhaps most controversial, change is the requirement that operating leases be capitalized as liabilities and assets on the balance sheet whereas such capitalization was previously disallowed under SFAS 13 (ASC 840). We address two issues. First, do contracting parties adopt operating lease measures tailored to specific economic transactions, despite the mandated accounting rules, and how would FASB's new lease rule affect such practices? Second, did the new lease rule create unintended consequences for private contracting by altering the cost-benefit trade-offs of leasing versus other alternative financing choices? Our inquiry informs the long-standing debate on how accounting regulation affects private production of accounting information (Zeff 1978; Leftwich 1980, 1983; Lys 1984; Waymire and Basu 2008).

Whether private lenders implicitly capitalize borrowers' operating lease costs when designing contracts is unclear, let alone how the new rules will affect these practices. A firm's lease payments reduce its funds available to service debt, increasing the likelihood that the firm defaults. The U.S. bankruptcy laws also make it easier for the lessors of a defaulting firm to regain control of the leased assets than for the same firm's creditors to repossess the secured assets (Eisfeldt and Rampini 2008). So, on paper, firms with larger operating lease obligations pay higher interest rates to compensate for the heightened credit risk they pose. However, this argument assumes that lenders only use balance sheet data to assess lease-induced risks. Lease expenses (or rental payments) are readily available on the income statement, under both the old and the new rules, and lenders, like stock investors, use primarily earnings numbers rather than balance-sheet numbers to assess firm risks (Dichev 2008). Moreover, lenders have private knowledge about the

borrowers and are sophisticated enough to use it to forecast the loans' viability—beyond the information that capitalizing operating leases can provide.

Using a large sample of private loans during 2011-2021, We report that capitalized operating leases are predominantly written *out* of private loan contracts, regardless of externally mandated lease accounting principles. More than 90 percent of the contracts do not count operating leases as debt and exclude them from debt-based covenants like debt-to-earnings. Consistent with lender's utilization of income-statement numbers, about a quarter of these contracts add fixed charge coverage covenant which incorporates lease and interest expenses.<sup>1</sup> Regressions show that firms with larger operating lease obligations do not pay higher or lower loan interest rates than other firms, affirming that capitalized operating leases do not influence loan pricing across firms. However, within a firm, increases in the firm's operating lease obligations are associated with increases in the interest spread. The new lease standard hardly changed the (lack of) explanatory power of capitalized operating leases, as the extent to which loan interest rates vary with capitalized operating leases is similar before and after the new standard.

If private contracting parties rationally exclude capitalized operating leases from contracts because they view the expected benefits of doing so to outweigh the costs, then it could be in the best interest of both parties to renegotiate fixed-GAAP clauses to block the new standard's impact. We show firms with larger operating lease obligations are more likely to renegotiate contracts after the new rule takes effect. This finding aligns with ample anecdotal evidence that credit agreements were renegotiated after the new standard's implementation to add or update fixed-GAAP clauses.

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<sup>1</sup> Fixed charge coverage ratio is typically calculated as the borrower's EBITDA (or other variants of net income) divided by the sum of the borrower's debt interest and principal payments and rental expenses. According to our descriptive analysis in Table 1, Panel C, more than half of fixed charge coverage covenants exclude rental expenses from the calculation. The measure captures whether a borrower can generate enough earnings to cover its periodic financing expenditures.

Renegotiations are not without costs, involving legal and administration expenses as well as the additional record-keeping associated with preparing multiple sets of financial statements under different accounting systems.

The new lease standard likely has an unintended (if not baleful) effect. By eliminating the off-balance sheet treatment of operating leases, firms move away from leasing to debt-financed purchases which, in turn, could affect contracts' covenant structures. Several findings corroborate this inference. First, we find that, while the number of financial covenants in loan contracts is unchanged after the new standard's implementation, covenants shift toward being debt-based (i.e., covenants written on debt numbers) away from non-debt-based. Second, debt-based covenants are written with tighter thresholds under the new accounting regime—both in raw magnitude and as a percentage of the previous threshold—but no such effect is observed for non-debt-based covenants. Third, we find that firms with many operating leases prior to ASC 842 adoption take disproportionately more debt after ASC adoption. Finally, we report that debt-based covenants are tightened more when high-operating lease borrowers take on more debt under ASC 842.

We also find that financially constrained firms—smaller firms and firms that hold less cash—are affected most by the new lease standard. These firms benefit more from keeping their operating leases off the balance sheet, so losing this benefit badly disrupts their financing-investment decisions. Moreover, financially constrained firms can ill afford new accounting systems and/or accounting experts to implement the new standard (Watts and Zimmerman 1978). Our findings show that the tightening in debt-to-earnings covenants under ASC 842 is greatest among financial constrained firms with many operating leases.

This paper makes three main contributions. First, it provides novel evidence concerning private lenders' preferred accounting measurements of operating leases. Our findings that most

private contracts expunge operating leases from debt and frequently use fixed-GAAP clauses to undo the externally mandated lease capitalization are at odds with the conventional view that loan contracts are written as if operating leases were capitalized (e.g., Imhoff et al. 1991; Altamuro et al. 2014; Park et al. 2015).<sup>2</sup> Second, it joins a growing list of literature that informs accounting standard-setters (FASB and IASB) on the costs and benefits of the new lease rules (e.g., Giner and Pardo 2017; Binfare et al. 2021; Chatterjee 2021; Milian and Lee 2021; Yoon 2021). Third, it adds to the vigorous debate about how private market forces, such as the private loan market, shape accounting practices irrespective of regulated accounting standards in place.

## **2. Lease accounting standards and private contract solutions to operating leases**

### **2.1. Background and related literature**

FASB on Feb 25, 2016 issued ASU 2016-02, Leases (Topic 842), which became effective for public companies with fiscal years beginning after December 15, 2018 and overhauled how companies report lease arrangements in financial statements. The most important (and, given the contentious responses during the rule's comment periods, perhaps most controversial) change is that companies recognize on the balance sheet assets (i.e., right-of-use assets) and liabilities (i.e., lease obligations) arising from all leases extending more than twelve months. Both the asset and liability should reflect the present value of future lease payments. Under the previous lease

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<sup>2</sup> Our finding that most contracts exclude operating leases from debt contradicts the finding of Leftwich (1983) who inspects loan contracts issued before 1977 and shows that operating leases were often included in debt contracts. The divergent findings can be due to several reasons. First, the two studies differ greatly in their sample sizes and compositions. Leftwich concentrated on only a handful of contracts where operating leases were vital to borrowers' operations, whereas our study uses a much larger and diverse set of firms. Second, it is possible that professional norms in the loan market have evolved a lot since Leftwich (1983) era, such that capitalizing operating leases became less economically relevant in private contracts or were substituted by other contractual provisions, like fixed charge coverage ratio, designed to incorporate lease-induced risks. Third, there could be mutual learning between the private lending market and the standard-setters, whereby the private market gradually learned about and adopted the non-capitalization approach mandated in SFAS 13 which was issued in 1976 and had not applied to borrowers covered by Leftwich (1983). Inertia on the part of the contracting parties could also explain why most contracts continued to write operating leases out of contracts despite ASC 842's capitalization requirements.

principles (ASC 840, SFAS 13), only capital leases were reported on the balance sheet, while operating leases were excluded. The lessee firms instead recognized rental expenses in the income statement and disclosed in footnotes to financial statements operating lease information such as certain minimum (undiscounted) future lease payments. The new rules will disproportionately affect firms highly reliant on operating leases (like retailers and restaurants) which report large increases in their assets and liabilities. The new standard, however, does not change the reporting on the income statement.

A series of high-profile financial scandals in the early 2000s including the Enron scandal drew much attention from the regulators and the public to off-balance sheet arrangements that posed financial risks. The Securities and Exchange Commission (“SEC”) in its 2005 Report remarks there “may be approximately \$1.25 trillion in non-cancellable future cash obligations committed under operating leases that are not recognized on issuer balance sheets, but are instead disclosed in the notes to the financial statements.”<sup>3</sup> In the regulators’ view, many companies had exploited loopholes in SFAS 13, structured lease arrangements to intentionally fail the four bright-line tests for lease capitalization stipulated in the rule (and also for tax purposes), and excluded long-term operating lease obligations from the balance sheet. Encouraged by the SEC which enforces FASB rules on publicly traded companies, FASB in 2006 launched a joint project with the International Accounting Standards Board (IASB) to write new rules that would bring more lease liabilities on the balance sheet (Weidner 2017). The standard purports to improve the transparency of lease reporting and help financial statement users including creditors to more

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<sup>3</sup> Section 401(c) of the Sarbanes-Oxley Act of 2002 required the SEC to conduct a study of filers and issue a report concerning (1) the extent of off-balance sheet arrangements and (2) whether existing accounting practices accurately reflect the economics of these arrangements. After examining financial statements filed by 200 issuers and conducting qualitative assessments of GAAP, the SEC on June 15, 2005 issued the report (<https://www.sec.gov/news/studies/soxoffbalancrpt.pdf>).

accurately assess the economics and risks of firms' lease arrangements. The FASB issued a 2009 discussion paper on the lease rule reform, a first exposure draft in 2010, a revised exposure draft in 2011, and in 2016 issued ASU 2016-02 to promulgate the new lease accounting rules.

Our paper is related to but distinguished from literature examining how sophisticated market participants, including creditors and institutional investors, adjust for off-balance sheet operating lease commitments when assessing borrowers' financial health. Altamuro et al. (2014) report that both bank lenders and credit rating agencies adjust for operating leases by showing that leverage ratios incorporating imputed measures of capitalized operating leases improve the explanatory power of the models of loan spread and credit ratings. However, based on our reading of numerous credit agreements, loan contracts often exclude the capitalized amounts of operating leases from debt and debt-related accounting metrics (e.g., debt-to-earnings ratio), suggesting that contracting parties do not count operating leases as debt. This pattern holds true even for borrowers with many operating leases, although contracts written for these firms might include a fixed coverage ratio (at times alongside a debt-to-earnings ratio) that embed rental expenses reported on the income statement. In other words, lenders can monitor changes in lease obligations from the income statement, as lease expenses reflect the impact of leasing activity on cash flows and earnings. As discussed later, less than 10 percent of contracts include capitalized operating leases in so-called "adjusted debt" or "lease-adjusted debt."

Another observation is that most firms had in place fixed-GAAP (also known as 'frozen GAAP') clauses around the time when the new lease standard went into effect. These clauses ensure that operating leases continue to be reported the way they were when the contract was initially written, shielding the borrowers from any mechanical effects of accounting rule changes. However, lenders simply ignoring any operating leases is unlikely. Rather, the private loan market

likely developed its desired, and highly customized, methods of contracting on operating lease data, whether the FASB mandates operating lease capitalization or not. These private demands likely evolve from a combination of business norms, professional expectations, and long-standing bank-borrower relationships. This market-based solution parallels how firms voluntarily reported nominal (as little as \$1 dollar) intangible assets long before FASB's publication of SFAS 2 which mandated immediate expensing of research and development (R&D) costs (Waymire and Basu 2008). Imposing one-size-fits-all mandatory accounting rules may not only increase the costs that borrowers incur to negotiate fixed-GAAP provisions (whose sole purpose is to undo the rule), but also inadvertently disrupt private contracting by shifting borrowers' lease versus buy decisions, as we later explore.

## **2.2. Accounting standard-setting and private market mechanisms**

There has been a long-standing debate on what institutions, accounting standard-setters, market participants, or some combination of both, are better-suited for designing accounting solutions and how to trade off the benefits and costs of these institutions in creating values for financial statement users. Whereas accounting standard-setters have coordination power and produce centralized accounting solutions that make financial data more comparable and in many cases more transparent (Baxter 1953), they may not have as much expertise and experience as market participants in designing rules relevant to varying economic transactions (Jamal et al. 2003; Sunder 2005; Waymire and Basu 2022). The public choice theory also argues that public actors pursue self-interests and can be captured by the parties they seek to regulate (Stigler 1971), and there is evidence that FASB's standard-setting is politicized or driven by ideologies despite its due-process (Watts and Zimmer 1978; Zeff 2005; Gipper, Lombardi, and Skinner 2013). Advocates for government-mandated accounting rules (Congress-empowered SEC delegates its



standard-setting authority to FASB) assume there are failures in the private production of accounting information, which Leftwich (1980) and others vigorously rebut. Requiring top-down rules that uniformly apply to all transactions with superficially similar attributes without considering the nuances of the underlying economic characteristics could undermine the reliability of accounting numbers and misleads investors (Waymire and Basu 2008; Hombach and Sellhorn 2022).

Where accounting practices are unregulated (like in private contracts), professional norms and shared expectations can evolve (albeit sometimes slowly) to tailor accounting rules for the economic incentives of the parties (Sivakumar and Waymire 2003; Leftwich 1980). The idea is that if a proposed solution turns out to be bad, the market can self-correct, design and implement another solution, and repeat the process until the new solution produces larger net benefits than the incumbent one. Although accounting information produced privately may not be comparable across firms/transactions since no two firms/transactions are identical, the market can usually converge to several sets of measurement rules accepted by all parties (in the pure sense of *generally accepted* accounting principles). For example, most loan contracts use GAAP as a ‘starting point’ and modify some rules to better reflect the economic transactions (Leftwich 1983; Li 2016). These modified rules can then be copied by other entities into their loan contracts if the benefits of applying the modified rules are greater than the costs of designing rules of their own. In the lease domain, we find that “best practices” over the last decade for addressing operating leases is to exclude them from debt, although a small percentage of contracts (no more than 10 percent) view including operating leases in debt as more economically pertinent to their own transactions. Of course, devising different sets of accounting rules for private contracts and external reporting involves duplicate efforts and additional record-keeping costs. While these costs are almost

unavoidable, the dominance of private accounting measurement practices suggests that the benefits of designing these private accounting rules outweigh the record-keeping costs.<sup>4</sup>

### **2.3. Hypotheses Development**

#### ***Do lenders incorporate capitalized operating leases when pricing the loan?***

Whether lenders factor in capitalized operating leases when assessing borrowers' credit risk and how the underwriting practices would change because of changes in FASB's rule is theoretically unclear. On the one hand, operating lease commitments reduce the amount of cash available to service debt, increasing borrowers' default likelihood. Moreover, according to the U.S. Bankruptcy Code (§365 of 11 U.S.C), upon borrower default the lessor of the borrower's operating leases will ordinarily be the first to receive lease payments before other creditors receive their interest payments if the borrower elects to continue using the lease (Eisfeldt and Rampini 2008). The lessee also must return the asset to the lessor if it decides not to use the asset. Thus in bankruptcy a lessor can more easily regain control of the leased asset than a secured lender can repossess its collateral, which is subject to automatic stay in Chapter 11 (i.e., it cannot be seized or foreclosed in bankruptcy).<sup>5</sup> To the extent that continual lease payments in bankruptcy erode the creditor's ability to recoup their investments and that operating leases are easier to repossess than secured property, lenders are expected to factor in operating lease obligations even if the accounting rule disallows their capitalization. On the other hand, if operating leases can be "hidden" from the balance sheet (as happened with the previous rule), firms with large operating leases can

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<sup>4</sup> The public choice theory also argues that regulators (and standard-setters) pursue their political self-interests and can be captured by the parties they seek to regulate (Stigler 1971), which can explain why market self-corrections can be a better mechanism in some cases than regulation.

<sup>5</sup> The legal, tax, and accounting classifications of leases share important similarities and can all be attributed to who retains the ownership rights of the asset in question. Operating leases for accounting purpose are usually also true leases in the legal and tax spheres. A true lease, under the US bankruptcy law, receives preferential treatment than secured debt in bankruptcy as lessee must either return first the leased asset to the lessor if it decides against continuing to lease it or, if it wishes to keep leasing the asset, make the scheduled lease payments.

avoid reporting large liabilities. The off-balance sheet treatments, combined with the prevalence of fixed-GAAP clauses that strip out operating lease capitalizations, means that borrowers with larger operating lease commitments can present less credit risk on paper. Consequently, lenders could grant lower interest rates to borrowers with higher operating leases.

Lenders also have reasons not to capitalize operating leases when setting loan terms. One reason is that lenders can monitor borrowers' financial health by examining their income statements which, under both the previous and the new accounting rules, recognize rental expenses for leases. For example, lenders routinely watch earnings before interest, tax, depreciation and amortization expenses (EBITDA) to evaluate borrower's debt service abilities, and this metric is reduced dollar-for-dollar by rental expenses: increases in borrower's lease obligations flow fully through the income statement. As such, income statement numbers can substitute for balance sheet numbers informing lenders about changes in borrowers' default risk arising from operating leases. This view comports with the basic purpose of a business which is to make more revenues than expenses and with investors largely using profit measurements to assess firm risks (Dichev 2008). The second reason is that lenders gain private knowledge about their borrowers through ongoing lending relationships, which allows lenders to forecast borrowers' future conditions beyond what is reflected in reported data. Thus, shocks to centralized lease accounting rules do not necessarily affect how private markets contract for operating leases. We formulate the first set of hypotheses in null form as follows:

*H1a: Borrowers' capitalized operating leases do not affect the interest rates charged on their loans.*

*H1b: The extent to which borrowers' capitalized operating leases factor into their loan interest rates does not change after the new lease accounting rule goes into effect.*

***Do borrowers with large operating lease obligations amend contracts after ASC 842 took effect?***

Borrowers are likely to renegotiate their loan contracts to avoid covenant breaches inadvertently triggered by accounting rule changes. Borrowers with many operating leases, whose liabilities and assets can rise sharply under the new rule, are likely to be more sensitive to the changes. Contracts that do not already include a fixed GAAP clause are likely to be renegotiated. Even when a contract already has a fixed GAAP clause, language in the contract can be updated to fully neutralize the new mandate. Our sample includes both types of loan contract adjustments.

Renegotiation can be costly, involving legal and bank fees as well as onerous paperwork. Moreover, firms whose shares are publicly traded will need to prepare two sets of books if adopting fixed-GAAP clauses, one prepared in accordance with GAAP for the public, and the other tailored specifically for private lenders. The decision to renegotiate fixed-GAAP clauses thus depends on the following cost-benefit calculations: Do the expected benefits of including them exceed the expected costs of renegotiation, extra record-keeping and monitoring? A recurring concern raised by industry groups and lenders during the new standard's comment period is that capitalization of operating leases can trigger certain debt covenant violations even though the borrower's financial health has not deteriorated. To preempt these involuntary covenant breaches, borrowers have incentives (and perhaps the bargaining power) to amend loan contracts to write out capitalized operating leases from accounting variables. From the lenders' perspectives, they are unlikely to deny borrowers' requests to be protected from involuntary changes in accounting standards. Lending is a relationship business, and lenders are reluctant to jeopardize hard-won relationships with the borrower over accounting rule changes that are beyond the borrower's control. Thus, we hypothesize that loan contracts are more likely to be amended after ASC 842 took effect, especially by firms that rely more on operating leases and thus are more badly affected by the new lease rule.

There is abundant anecdotal evidence on credit agreement renegotiations to undo ASC 842's effect on accounting measurements. For example, Viacom, Inc on February 11, 2019, entered into an amended and restated credit agreement for a revolver loan, with JP Morgan Chase as the administrative agent and a group of other lenders. Compared to the previous version of the agreement written November 18, 2014, the amended contract add that "all terms of an accounting or financial nature used herein shall be construed, and all computations of amounts and ratios referred to herein shall be made, *without giving effect to .... any change in accounting for leases pursuant to GAAP* resulting from the adoption of Financial Accounting Standards Board Accounting Standards Update No. 2016-02, Leases (Topic 842) (Emphasis added). A similar clause was not found in the previous amendments of the same contract written on November 18, 2014, November 20, 2012, and December 13, 2011.<sup>6</sup> Besides adding the fixed-GAAP clause, the amendment also extended the maturity of the loan, which fits a general pattern whereby fixed GAAP clauses are often negotiated in conjunction with changes in other loan terms. One explanation is that the expected costs of negotiating fixed-GAAP clauses are so high relative to

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<sup>6</sup> In another example, Valero Energy Corp on March 19, 2019 amended and restated its existing revolving credit agreement. Besides extending the maturity of the credit line, the revised contract also updates the definition of 'capital lease obligation' to continue to exclude operating leases from being part of capitalized lease obligation which they ought to be under the new lease accounting standard. The inserted clause goes "any lease (or similar arrangement) that would have been characterized, classified or reclassified as an operating lease in accordance with GAAP prior to the date of the Borrower's adoption of Accounting Standards Codification 842 (or any other Accounting Standards Codification having a similar result or effect) (and related interpretations) (whether or not such lease was in effect on such date) shall not constitute a Capital Lease Obligation, and any such lease shall be, for all purposes of this Agreement, treated as though it were reflected on the Borrower's consolidated financial statements in the same manner as an operating lease would have been reflected prior to Borrower's adoption of Accounting Standards Codification 842." Similar language referring to ASC 842 was missing in the previous version of the same credit agreement, entered into on November 13, 2015, and capital lease obligation was simply defined as 'of any Person means the obligations of such Person to pay rent or other amounts under any lease of (or other arrangement conveying the right to use) real or personal property, or a combination thereof, which obligations are required to be classified and accounted for as capital leases on a balance sheet of such Person under GAAP, and the amount of such obligations shall be the capitalized amount thereof determined in accordance with GAAP.'

their expected benefits that contracting parties must seek additional benefits from other contract updates.

Our second hypothesis takes the following alternative form:

*H2: Borrowers with high operating leases renegotiate loan contracts more than borrowers with low operating leases after the new lease accounting rule goes into effect.*

***Do contracts written for borrowers with large operating lease obligations change covenant structures after ASC 842 took effect?***

Although the inclusion of fixed-GAAP clauses can “freeze” contract variable measurements, the new rule’s unintended effects on borrowers’ financing choices can potentially induce structural changes in debt covenants. We hypothesize that contracting parties will favor covenants written on debt (“debt-based covenants”) over other covenants (“non-debt-based covenants”) under the new lease accounting rule. Because firms can no longer keep operating leases off the balance sheet, the benefits of operating leases could be greatly reduced relative to the benefits of debt-financed purchases (for example, the tax benefits of accelerated asset depreciation and interest payments), changing the firms’ lease versus buy calculations. This (strategic) capital structure change has been observed in previous lease accounting rule changes. Imhoff and Thomas (1988) show that firms switched from capital leases to operating leases and other non-lease sources of financing in response to SFAS 13 which moved all capital leases from the footnotes to the balance sheet. Under the new standard, firms could plausibly switch from operating leases to debt-financed purchases if they perceive the former to be less desirable than the latter.

This shift in financing choice by the borrower will likely increase the lender’s demand for debt-based covenants for two reasons. First, as the borrower’s on-balance sheet liabilities rise, so

does the contract usefulness of debt-based covenants. Demerjian (2011) finds that firms with more operating leases, and hence more assets in place, use balance-sheet-based covenants more often. Second, to the extent that book leverage is a key parameter in lenders' credit risk models, borrowers that take on additional debt to finance their purchases pose greater credit risk to the lenders. Lenders anticipating such behavior will prefer covenants written on debt-related measures to prevent borrowers from raising too much debt. Likewise, lenders will likely impose tighter covenant thresholds in debt-based covenants to tamp down borrowers' future borrowings.

Admittedly, it is possible the covenant mix can shift the other way, i.e., from debt-based to non-debt-based covenant, if the new standard's capitalization mandate renders debt-based metrics noisier and less representative of borrowers' true creditworthiness. For example, as the new lease standard does not change lease reporting on the income statement, lenders may find income-statement-based covenants less noisy. However, we believe this effect is dominated by lenders' demand for more debt-based covenants to preempt borrowers' debt increases. Therefore, we formulate the following hypothesis in alternative form:

*H3a: Debt contracts written for high-operating lease borrowers are more likely to use covenants written on debt than covenants written on income-statement numbers after the new accounting standard goes into effect.*

*H3b: Debt contracts written for high-operating lease borrowers are more likely to set more restrictive debt-based covenants after the new accounting standard goes into effect.*

### **3. Sample selection, regression model, and descriptive data**

#### **3.1. Sample selection**

We build the sample using two main data sources. Loan data are from Refinitiv Dealscan. A credit agreement can contain multiple loan facilities (or tranches) including revolver loans, term

loans lent by commercial banks (Term A loans), and term loans lent by institutional investors (Term B loans). Different tranches can have different loan terms even within a credit agreement, although they are often governed by the same set of debt covenants. Dealscan provides detailed tranche-level data, such as the interest spread, maturity, and amount of the tranche. We retrieve from Dealscan a total of 19,916 loan observations associated with 10,498 loan tranches issued in the U.S. by 2,560 publicly traded corporations from 2010 to 2021. Note that origination of and amendments to a loan tranche are separate observations; for example, a loan tranche with two amendments during the sample period produces three loan observations.

Merging Dealscan to Compustat North America is no easy task because of a lack of common identifier—the GVKEY in Compustat and the Borrower\_ID in Dealscan are different. We therefore link the two datasets through company name using a combination of character-value matching algorithms and, when the algorithm produces no exact match, manual inspection. We were able to match most of the Dealscan loans with Compustat, covering 19,357 loan observations associated with 10,131 unique loan tranches taken out by 2,396 firms. Requiring firms to have necessary data to compute capitalized operating leases reduces the sample by 40 percent to 11,293 loan observations associated with 6,124 tranches taken out by 1,611 firms. Finally, we delete observations with missing financial data and loan data necessary for the main analyses, producing a baseline sample of 9,860 loan observations from 5,396 tranches issued by 1,462 firms.

### **3.2. Regression model**

We implement the following models to test the extent to which loan pricing and amendment decisions are explained by capitalized operating leases:



$$\begin{aligned}
& SPREAD_{ijt} (AMEND_{ijt}) \\
& = \beta_1 OLEASE_{it-1} + \beta_2 POST_t \times OLEASE_{it-1} + Firm\ attribute\ control_{it-1} \\
& + Loan\ attribute\ control_j + loan\ year\ FE + loan\ type\ FE + firm\ FE \\
& + \varepsilon_{ijt},
\end{aligned} \tag{1}$$

$SPREAD_{ijt}$  is the natural log of all-in spread drawn, net of upfront fees, on loan  $j$  taken out by firm  $i$  in year  $t$ . Likewise,  $AMEND_{ijt}$  indicates whether loan  $j$  is amended by firm  $i$  in year  $t$ .  $OLEASE$  is imputed capitalized operating leases scaled by total assets. We follow the standard lease capitalization method used in the prior literature to impute firms' operating lease obligations based on footnote disclosures of future lease payments. Under the previous lease standard (SFAS 13), firms must disclose in footnotes to their financial statements the annual minimum operating lease payments for the five years after the financial statement date and a lump sum of all minimum lease payments thereafter. We use these data to approximate the capitalized amounts of operating leases as if they were reported on the balance sheet. The assumption is that if lenders care about operating lease liabilities' impact on repayments, they should use similar (if not identical) procedures to impute borrowers' total operating lease obligations under the previous lease rule. We alternatively measure operating lease obligation by multiplying current rental expense at the time of the loan inception by 6 or 8, which are the numbers that lenders use most frequently in our sample to crudely calculate capitalized operating leases and are also consistent with previous studies (Ely 1995).  $POST$  is an indicator variable equal to one if the loan is issued after the adoption of ASC 842.

The coefficient on standalone  $OLEASE$  reflects the extent to which capitalized operating leases are factored into loan pricing or amendment decisions under SFAS 13. The coefficient of interest is  $\beta_2$  on the interaction of  $OLEASE$  and  $POST$ , which indicates how ASC 842 changes the mapping of capitalized operating leases into contract decisions.

We control for various borrower financial variables that are likely to be associated with their contract outcomes including firms size defined as the natural log of total assets (*SIZE*); leverage ratio computed as total debt (excluding capital lease obligations) over total assets (*LEV*); capital lease obligations as a percentage of total assets (*CLEASE*); book-to-market ratio (*BTM*); return on assets calculated as earnings before extraordinary items over assets (*ROA*); Altman (1968)'s bankruptcy score (*ZSCORE*); cash over assets (*CASH*); intangible assets as a percentage of total assets (*INTAN*); cash flow volatility computed as the standard deviation of operating cash flows over the five years leading up to (and including) the loan initiation year (*STDCFO*); capital expenditures as a percentage of net property, plant, and equipment (*CAPX*). When *SPREAD* is the dependent variable, we also control for the natural log of months to loan maturity (*MATURITY*) and the natural log of loan amount (*LOANAMT*). When *AMEND* is the dependent variable, we further control for loan interest spread's potential covariance with loan amend decisions.

### **3.3. Descriptive Data**

Table 1, Panel A provides descriptive statistics for the variables used in our main regression analyses. The average (median) operating lease liabilities as a share of total assets is 4.1 (2.2) percent, and the average (median) capital lease liabilities as a share of total assets is 0.5 (0) percent. The average loan in the sample carries an interest spread of 221 basis points, has a maturity of 51 months, and is worth \$748 million. About 58 percent of the loans in our sample are amendments. Panel B displays the top 10 industries in terms of the average operating lease intensity as a share of total assets. Restaurants, furniture stores, and legal service providers use operating leases most heavily. On the other end of the spectrum, firms in the mining and oil & gas industries use minimal operating leases.

Panel C presents descriptive data concerning the measurement rules for operating leases in private contracts. We gather those data by reading credit agreements in firms' SEC filings (i.e., 8-Ks, 10-K/Qs). To make the collection manageable, we focus on loan tranches that were renegotiated at least once after ASC 842 became effective, so each loan tranche has at least one observation under both the previous and the new lease accounting standard. We also restrict loans with debt-to-earnings covenants, which allows us to see directly whether private contracts incorporate capitalized operating leases into debt. There are 818 such loans. Of them, we find that 743 (90.8 percent) exclude operating leases from debt. Among the 75 loans that do count capitalized operating leases as debt, 52 percent calculate capitalized operating leases by discounting future lease payables to the present value, and 48 percent approximate capitalized operating leases by multiplying rental expenses by a constant number (usually six or eight). Although capitalized operating leases are frequently excluded from private contracts, rental expenses are more commonly included in debt contracts. Of the 818 loans, 195 (23 percent) include a fixed-charge coverage ratio covenant, 42.56% of which include rental expenses in the fixed charge.

We also report the data separately for loans issued (or amended) before and after ASC 842 adoption. There is a slight increase in the percentage of loans that count capitalized operating leases as debt from before to after ASC 842 adoption—from 8.75% to 9.96%. There is a much larger increase in the percentage of contracts that calculate the present value of operating leases, from 46.81% to 60.71%, which is expected because the new standard mandates such a calculation method.

## **4. Results**

### **4.1. Loan pricing of capitalized operating leases before and after ASC 842 adoption**

We test H1a and H1b concerning the pricing of capitalized operating leases in syndicated loans and the new lease accounting standard's impact on it. Table 2 displays the results. In columns (1) and (2) we estimate equation (1) excluding the *POST* indicator variable and its interaction terms, thus evaluating the average effects of operating leases on loan spread. When the regression excludes firm fixed effects, as in column (1), the coefficient on *OLEASE* is insignificant, suggesting that firms with larger operating lease liabilities do not receive higher or lower loan spread, controlling for other credit-relevant factors. This finding aligns with the descriptive data in Table 1, Panel B that contracts routinely expunge capitalized operating leases from accounting measures. It also suggests that lenders can use alternative (and possibly better) information, like rental expenses from the income statement or private information to assess lease-related risks. Interestingly, the lack of a relation between loan spread and capitalized operating leases resides mainly in the cross-section. When we add fixed effects in column (2), *OLEASE* is positively associated with *SPREAD*, with the coefficient being borderline significant (p-value = 0.108). As a result. There appears to be a positive (albeit not statistically compelling) relation between loan spread and operating lease liabilities *within* a firm: as a firm increases its operating lease liabilities, so too do the interest rates it pays on its bank loans, all else equal.

In columns (3) and (4) we estimate the full version of equation (1), interacting *POST* with *OLEASE*. Across both specifications, we do not find evidence that the new lease rule affects the loan pricing of operating lease obligations, whether we include firm fixed effects or not. The coefficients on *POST*×*OLEASE* in columns (3) and (4) take on opposite signs (coefficient = -0.026 and 0.131) but both are far from statistically significant (p-values are 0.913 and 0.604). The takeaway is that the private loan market has developed desirable contract solutions for operating leases that are customized for individual transaction/borrowers and largely independent of FASB's

mandate on how leases ought to be treated, such that shocks to lease accounting rules do not influence lender's loan underwriting behavior.

#### 4.2. Loan amendments before and after ASC 842 adoption

We next explore firms' loan amendment patterns before and after ASC 842. In columns (1) and (2) we estimate equation (1) using a contract amendment indicator, *AMEND*, as the dependent variable. Column (1) excludes firm fixed effects, so the coefficient on  $POST \times OLEASE$  captures how firms with differing operating lease obligations vary in amendment behavior after the new rule became effective. Column (2) adds firm fixed effects, which eliminate any cross-firm, time-invariant differences in amendment behavior and operating lease obligations, thus isolating the changes in amendment behavior within a firm around the new standard. In column (1), the coefficient on *OLEASE* is 0.004 and insignificant ( $p = 0.969$ ), meaning that under SFAS 13, borrowers with larger operating lease obligations amend loan contracts no more or less than other borrowers. The interaction term of interest,  $POST \times OLEASE$ , is positive ( $=0.782$ ) and significant ( $p=0.003$ ), suggesting that operating-lease intensive borrowers are more likely than borrowers with less intensive operating lease obligations to amend contracts after the new rule goes into force. One negotiated item, based on our observation, is the fixed-GAAP clause; contracting parties either add such a clause or, if it is already in the contract, tighten the language to neutralize the impact of ASC 842. Adding firm fixed effects in column (2) does not change our inferences much.

In columns (3) and (4) we further interact *POST* with *CLEASE*, firms' capital lease liabilities scaled by total assets, as a falsification test. Because the new lease standard affects the accounting for capital leases much less than accounting for operating leases and because contracts always count capital leases as debt, borrowers with heavier capital leases, all else equal, have less need to renegotiate contracts to undo the new standard. Indeed, the coefficient on  $POST * CLEASE$

in columns is insignificant, suggesting that firms with more capital lease obligations do not change their amendment behavior around the new standard's implementation. In the same models, the coefficient on  $POST \times OLEASE$  stays positive and statistically significant. The collective evidence rejects H2, suggesting that ASC 842 induces firms to amend loan contracts (one purpose of which is to negotiate fixed-GAAP clauses that neutralize the standard's effect on operating lease measurements), and this pattern is more profound among firms with many operating leases, but not firms with many capital leases.

### **4.3. Covenant structure changes after ASC 842 adoption**

#### *4.3.1 Debt-based covenants vs. nondebt-based covenants*

We next examine the impact of the new lease accounting standard on loan covenant structures. We group debt covenants into two categories based on whether the covenant metric is written on debt, i.e., debt-based covenants versus nondebt-based covenants. The rationale for this classification is, absent fixed-GAAP provisions, ASC 842 is set to mechanically increase a firm's debt levels, affecting covenants written on debt and debt-related measures. Debt-based covenants include debt-to-earnings ratio, debt-to-equity ratio, and debt-to-net worth ratio, with debt-to-earnings by far the most prevalent. Nondebt-based covenants are usually based on income-statement and cash flow numbers, which lenders use to track periodic changes in borrowers' debt service ability (Christensen and Nikolaev 2012; Li 2016). These covenants, including interest coverage covenant, fixed charge covenant, and debt service charge covenant, are not mechanically affected by the new rule. Note that prior literature tends to group debt-to-earnings covenants along with other income-statement based covenants because the denominators of all these metrics are income statement numbers (Demerjian 2011; Christensen and Nikolaev 2012). Our classification

of debt-to-earnings covenants as debt-based fits the setting of our paper, i.e. ASC 842's much larger shocks to balance sheet representation than to income statement representation.

Table 4 Panel A displays the regression results. We estimate equation (1) using two measures of loan covenant structures as the dependent variable. In columns (1) and (2), the dependent variable is the number of financial covenants in a contract (*COVENANTNUM*), with column (2) adding firm fixed effects. The coefficient on *POST*×*LEASE* reveals no difference in the total number of financial covenants included in loan contracts written for firms with large operating lease obligations before and after the new standard, whether firm fixed effects are included or not. In columns (3) and (4) the dependent variable is the number of debt-based covenants as a proportion of the total number of covenants (*DEBTCOV\_PROP*), with column (4) adding firm fixed effects. In both columns, the coefficient on *POST*×*LEASE* is significantly positive (coefficient=0.545 and 0.707), indicating that the covenants shift toward debt-based accounting measures, especially among borrowers with large operating lease obligations. Overall, the findings support H3, showing that ASC 842 makes debt-based covenants more desirable than non-debt-based covenants when lending to borrowers with many operating leases.

#### 4.3.2 Covenant thresholds

We next explore how the new standard affects the numerical threshold formulated for the two most common covenants in our sample: debt-to-earnings covenant and interest coverage covenant. As discussed above, the former is a debt-based covenant, the latter an income-statement based covenant. We reason that borrowers with many operating leases can be subject to stricter debt-to-earnings covenants after ASC 842 takes effect. By contrast, to the extent that the new standard did not affect income statement, interest-coverage covenant threshold likely stays unchanged.

Table 4, Panel B displays the results. In column (1) the dependent variable is an indicator reflecting whether a debt-to-earnings covenant threshold is modified from the previous contract, which we call *Debt\_Earn\_Chg*. The coefficient of interest on *POST*×*OLEASE* is positive and statistically significant, suggesting that contracts written for high-operating lease firms are more likely than contracts written for low-operating lease firms to amend the threshold of debt-to-earnings covenants after ASC 842 adoption. In column (2) where the dependent variable is an indicator of whether an interest-coverage covenant threshold is changed, which we call *Int\_Cov\_Chg*, the coefficient on *POST*\**OLEASE* indicates that high-operating leases are no more or less likely to adjust the threshold of interest-coverage covenants after ASC 842 adoption.

We next explore *how* the debt-to-earnings covenant thresholds change. In column (3), the dependent variable is the change in debt-to-earnings covenant threshold (*Debt\_Earn\_ChgAmt*), calculated as the difference between the thresholds specified in the new and old contracts. To illustrate, if a debt-to-earnings threshold is raised from 3.5 to 5.5, then *Debt\_Earn\_ChgAmt* equals 2. The coefficient on *POST*×*OLEASE* is negative (-0.877) and statistically significant ( $p = 0.015$ ), suggesting that contracts written for high-operating lease firms adjust downward debt-to-earnings covenant threshold (i.e., the covenant becomes tighter) after the new rule goes into force.

The measure used in column (3) captures the raw amount of threshold changes, which could be biased by the possibility that covenants set loosely, by default, have more room to tighten than covenants that are already set tight. To mitigate the concern, in column (4), we use the percentage changes in covenant threshold levels (*Debt\_Earn\_ChgPct*) as the dependent variable. Going back to the previous example, *Debt\_Earn\_ChgPct* equals 57%  $((5.5-3.5)/3.5)$ . Again, the coefficient estimate for *POST*×*OLEASE* in column (4) is negative (-0.237) and statistically



significant ( $p=0.022$ ), confirming that debt-to-earnings covenants tighten more on borrowers with larger operating lease obligations after the implementation of the new standard.

#### **4.4. Do firms switch from operating leases to debt-financed purchases under the new rule?**

We now evaluate whether the post-ASC 842 shift in covenant structures is driven by borrowers preferring debt-financed purchases to leases under the new accounting standard. The new lease accounting rule eliminates an important benefit of operating leases, i.e., their off-balance treatments, altering the cost-benefit calculations dictating the lease versus buy decisions. If firms perceive the net benefits of leasing to be smaller than those of purchases under the new standard, they will buy the asset with borrowed money over leasing it. Anticipating this behavioral change, lenders rationally respond by imposing more and tighter debt-based covenants. So, whereas ASC 842 could mitigate the risks associated with hidden debt by mandating lease capitalization, it might inadvertently disrupt preparers' financing choices, especially among those that rely heavily on operating leases to keep business running.

We conduct two sets of analyses to evaluate this proposition. First, we examine whether firms generally take on more debt after the new standard takes effect. We include in this analysis all Compustat firms with the necessary data to compute capitalized operating lease liabilities. We run an OLS regression where the dependent variable is the leverage ratio (debt-to-asset) and the independent variables include *POST*, *OLEASE*, *POST*  $\times$  *OLEASE*, as well as the full set of firm-level control variables included in the main model. The leverage ratio excludes operating lease liabilities to ensure that our results are not mechanically driven by the new lease standard adding more operating lease liabilities to the balance sheet. We also made an adjustment to the timing of the operating lease liabilities. To assess how firms with differing operating lease commitments before the new standard's implementation changed their debt financing after the standard's

implementation, we measure a firm's operating lease liabilities for the fiscal year before ASC 842 adoption (*OLEASE\_PreASC842*), whereas in the main regression, we measure a firm's operating lease liabilities in the year the loan is signed.

We report the results in Table 5, Panel A, column (1). The coefficient on  $POST \times OLEASE$  equals 0.495 and statistically significant at the 1 percent level. As hypothesized, high-operating lease firms increase debt more after ASC 842, consistent with firms the standard pushing firms away from operating leases to debt financing. The leverage ratio in column (1) includes capital leases. To ensure that capital lease changes are not driving the result, we separate out the capital lease portion of leverage (*CLEASE*) and other (and much larger) portions of leverage (*LEV\_EXCLEASE*) and repeat the regression using these two subcomponents as the dependent variable. Column (2) reports the results using *CLEASE* as the dependent variable. We see that instead of switching from operating leases to capital leases, firms with large pre-ASC 842 operating lease obligations also decrease their capital lease usage after SC 842 adoption. Put it differently, unlike SFAS 13 which mainly resulted in a reallocation between capital and operating leases (Imhoff and Thomas 1988), ASC 842 could steer firms away from leasing altogether and toward other alternative financing sources. In column (3), the coefficient on  $POST * OLEASE$  is positive (0.501) and highly statistically significant ( $p < 0.01$ ). This result, combined with that in column (2), suggests that firms dial back their leasing activity – whether capital leases or operating leases – and raise more debt to finance purchases ASC 842.

We also examine whether the tightening of debt-to-earning covenants observed earlier is attributable to borrowers taking on more debt under ASC 842. We compute for each firm the difference between its average leverage ratio in the pre-ASC 842 period and the post-ASC 842 period. We then create an indicator variable *HIGHALEV* equal to one for firms whose leverage

ratio changes belong in the top quartile of the sample distribution. We interact this variable with *POST*, *OLEASE* and *POST*×*OLEASE* in equation (1). Table 5, Panel B displays the results. When the dependent variable is the raw change in debt-to-earnings covenant threshold (*Debt\_Earn\_ChgAmt*) in column (3), the coefficient on *POST*×*OLEASE*×*HIGHΔLEV* is negative (-1.163) and statistically significant ( $p=0.040$ ), suggesting that high-operating lease borrowers that accrue more debt after ASC 842 implementation are subject to significantly tightened debt-to-earnings covenant threshold. We obtain similar results in column (4) using the percentage change in debt-to-earnings covenant threshold (*Debt\_Earn\_ChgPct*). These results also verify that the observed changes in covenant structures after ASC 842 are *not* driven by the standard mechanically forcing capitalized operating leases onto the balance sheet, but by the rule's unintended effect of driving firms to borrow more. The reason is that our calculation of leverage ratio excludes capitalized operating leases, so any observed change in leverage ratio must be unrelated to operating leases. If the mechanical capitalization of operating leases drives the covenant results, those results ought not to be varying with changes in leverage ratios that exclude operating leases.

#### **4.5. Do ASC 842 affect other major contract terms?**

Our results so far support that the new lease accounting standard induces lenders to tighten debt-based covenants to discourage borrowers from taking on too much debt post-ASC 842 implementation. However, because most contracts include fixed GAAP clauses to undo the new lease rule's impact and because some contracts already use earnings-based metrics like fixed charges to incorporate rental expenses on the income statement, loan spread was not affected by the new rule. A natural question is whether the new lease standard affects other major contract terms including loan amount, loan tenor, and whether or not the loan is collateralized. Theory does

not provide clear guidance on this issue, so this analysis is exploratory in nature. There are arguments for no change in major loan terms. The presence of fixed-GAAP clauses and the fact that the new accounting standard hardly changes the borrower's underlying economics, how much a lender is willing to lend and for how long is unlikely to change under the new rule. Similarly, there is little reason to expect that lenders will demand more or fewer collaterals from the borrower under the new rule. It is also possible that other contract terms become more favorable. The premise of FASB's new rule is to improve transparency of firms' lease reporting, so financial statement users, including lenders, can more properly assess firms' financial condition. If the improved transparency is big enough to help even sophisticated lenders to decipher lease-related risks of which they are previously unaware, lenders could assign more favorable loan terms to reward these benefits. Although those benefits do not show up as lower loan spread, it is possible that lenders could give borrowers better deals in other loan contract terms. On the other end of the spectrum, lenders anticipating borrowers' future debt increases likely to negotiate for tighter contract terms just like they do with covenants structures. For example, they can preemptively reduce the borrowing amount or require more collateral to safeguard borrowers' future cash flows. Likewise, they might be inclined to make shorter-term loans so they can more flexibly renegotiate should borrowers increase debt in the future.

We re-estimate equation (1) where the dependent variable is the natural log of loan amount, the log of the number of months to loan maturity, and an indicator variable reflecting whether the loan is collateralized. Table 6 reports the results. As with the main analysis, for each dependent variable, we report the results both with and without firm fixed effects. Across all specifications, the coefficient on  $POST \times OLEASE$  is insignificant, suggesting that the new lease rule has minimal impacts on major loan terms beyond interest spread.

How does one interpret the totality of our findings? One unambiguous finding is that the supposed transparency benefits of FASB's new lease accounting standard do not manifest in the private loan market. Lenders have sophisticated and often tacit knowledge about borrowers' financial conditions and they can capably assess borrowers' lease-related risk-reward trade-offs (for example by monitoring rental expenses reported on the income statement) irrespective of the accounting standards in place, although accounting standards can serve as a 'starting point' in designing contracts. The prevalence of fixed-GAAP clauses around the adoption of ASC 842 confirms this view. Contracting parties weigh the costs and benefits of different contract approaches to operating lease data and settle on the most desired method commensurate with each specific transaction or lending relationship. The new lease standard could inadvertently upset that balance and lead to less desirable contracting by making leasing less attractive for the borrower. Second, the new lease rule imposes at least two types of costs on the borrower (which eventually could spread to the lender) in addition to the high fixed costs of transitioning to the new reporting system: the direct cost of negotiating fixed-GAAP clauses and the indirect cost of the forced shifts in firms' financing choices (i.e., from leasing to debt-financed purchase) which in turn cause certain debt-based covenants to be tightened. What is unclear though is whether these costs are large enough to inflict long-term harm on the contracting parties or whether the new lease rule's expected costs in the private loan market can be offset, or even outweighed, by the expected benefits the same borrower could reap from the public markets via improvement in lease disclosure transparency.

#### **4.6. Additional Analyses**

##### *4.6.1 Are financially constrained firms affected more by the new lease standard?*

We next examine whether borrowers with differing financial constraints are differentially affected by the new lease rule. Financially constrained firms are obvious beneficiaries of operating leases' off-balance sheet treatment under SFAS 13; their already over-stretched balance sheets would have been even more tenuous had their operating lease costs been capitalized. It is widely acknowledged that financially constrained firms prefer leasing to purchasing financed by debt because of the additional flexibility and debt capacity conferred by leasing (e.g., Caskey and Ozel 2019). Financially constrained firms also may lack the resources to quickly learn the nuances of the new standard and update their accounting systems accordingly—even outsourcing the accounting system can be costly and prone to errors. As such, to the extent that the new lease rule eliminates the balance-sheet treatment of operating leases, it could change the financing preferences of financially constrained firms with large “hidden” but legitimate operating lease obligations, which subjects them to stricter debt-to-earnings covenants.

We use two common proxies of financial constraints: the size of the firm as measured by the natural log of total assets (*SIZE*) and cash holdings as a percentage of total assets (*CASH*). Smaller firms and firms with less cash are more financially constrained because it is harder for them to raise external financing and they have less cash buffer to fund desirable projects should external financing fall through. We estimate an augmented version of equation (1), further interacting *SIZE* or *CASH* with *POST*, *OLEASE*, and *POST\*OLEASE*. The coefficient of interest sits with the triple interaction term *POST\*OLEASE\*SIZE (CASH)*, which we expect to be positive.

Table 7 displays the results. The coefficient on *POST\*OLEASE* continues to be negative and significant, again confirming that firms with many operating leases see the larger tightening in their debt-to-earnings covenants which, according to our other tests, are designed to deter increasing borrowing triggered by the lease rule change. As predicted, the coefficient on the triple

interaction term *POST\*LEASE\*SIZE* and *POST\*LEASE\*CASH* are both positive and significant, meaning that smaller firms and cash-strapped firms with many operating leases suffer even larger tightening in their debt-to-earnings covenants after the new rule kicks in. These findings affirm the notion that the new lease standard likely inflicts undesirable harms to financial constrained firms that especially value the off-balance sheet treatments of operating leases.

#### *4.6.2 Are results driven by COVID-19 pandemic?*

Because our post period (2019 through 2021) overlaps partially with the COVID-19 pandemic which hit most of the U.S. in March 2020, there is a concern that some of our results could be driven by the pandemic-related effects rather than the lease rule-induced effect. Specifically, firms with many operating leases, which tend to be restaurants and retailers, were hit especially hard by the pandemic and the government's policy reactions, which could subject them to less favorable contract terms like tighter covenant thresholds. We conduct several tests to make sure that our results are not an artifact of COVID pandemic but more because of the lease accounting rule. In the first approach, we restrict the sample to loans issued before 2020 when COVID struck and re-estimate our regression models using this smaller sample. In the second approach, we exclude from the sample industries that were hit particularly hard by the pandemic, including the restaurant, hotel, motion pictures, and transportation industries. Using both approaches, we find in untabulated analyses that changes in covenant structures among borrowers with heavier operating lease obligations continue to hold when limiting the sample to firms less affected by the COVID pandemic.

## **5. Conclusion**

This paper examines how private loan agreements account for operating leases and how the new lease accounting standard (ASC 842) affects these practices. The new accounting rule

requires operating lease costs to be capitalized as part of liabilities on the balance sheet, whereas under the previous rule these costs were kept off-balance sheet and disclosed in financial statement footnotes. We report that private loan participants, through a combination of industry norms, professional expectations, and long-standing lender-borrower relationships, have developed bespoke contract solutions for operating leases independent of the accounting standards in place. Most loan contracts *exclude* capitalized operating leases from debt under both the previous and new lease accounting rules; contracts are often amended to include fixed-GAAP clauses to undo the new standard's effect on accounting measurements. Borrowers with intense operating lease commitments often supplement a debt-based covenant (which excludes capitalized operating leases) with a fixed-charge coverage covenant (which includes operating lease expenses).

We report that the new lease standard does not affect how lenders account for operating lease costs in setting major contract terms including loan interest spread, loan maturity, and borrowing amount. A close examination reveals an unintended consequence of the new standard: By eliminating operating leases' off-balance sheet treatments, the standard steers borrowers away from operating leases (and even capital leases) and toward debt-financed purchases. Anticipating borrowers' increased debt levels, lenders include more, and tighter, debt-based covenants (such as debt-to-earnings covenants). The collective evidence aligns with the notion that the private loan market customizes contract solutions for operating leases commensurate with specific lending transactions. It raises the concern whether mandating a one-size-fits-all standard for operating lease reporting that fixates on balance-sheet representation, although not directly harming contracting flexibility, could inadvertently disrupt private contracting by shifting borrowers' financing incentives.



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TABLE 1  
*Sample and Descriptive Statistics*

Panel A: Summary Statistics for Main Regression Variables

Variable	N	Mean	SD	P25	Median	P75
<i>OLEASE</i>	9860	0.041	0.064	0.011	0.022	0.042
<i>CLEASE</i>	9860	0.005	0.013	0.000	0.000	0.002
<i>SIZE</i>	9860	8.099	1.504	7.104	8.042	9.024
<i>LEV</i>	9860	0.371	0.201	0.236	0.350	0.487
<i>BTM</i>	9860	0.432	0.498	0.207	0.379	0.636
<i>ROA</i>	9860	0.032	0.093	0.005	0.040	0.076
<i>ZSCORE</i>	9860	1.467	1.131	0.773	1.393	2.128
<i>CASH</i>	9860	0.092	0.099	0.023	0.059	0.128
<i>INTAN</i>	9860	0.315	0.233	0.102	0.296	0.502
<i>STDCFO</i>	9860	0.039	0.032	0.018	0.030	0.050
<i>CAPX</i>	9860	0.199	0.127	0.109	0.168	0.259
<i>SPREAD (bps)</i>	9860	220.669	128.594	137.500	175.000	275.000
<i>MATURITY (months)</i>	9860	51.456	18.733	42.000	60.000	60.000
<i>LOANAMT (\$M)</i>	9860	747.896	1444.190	150.000	380.896	850.000
<i>AMEND</i>	9860	0.583	0.493	0.000	1.000	1.000

Panel B: Operating lease intensity by industry

SIC 2-digit Code	Industry name	Operating lease / Assets
<b>Top 10</b>		
58	Eating & Drinking Places	0.343
25	Furniture & Fixtures	0.232
81	Legal Services	0.226
23	Apparel & Other Textile Products	0.171
83	Social Services	0.153
47	Transportation Services	0.150
78	Motion Pictures	0.144
7	Agricultural Services	0.141
52	Building Materials & Gardening Supplies	0.112
72	Personal Services	0.102
<b>Bottom 10</b>		
12	Coal Mining	0.001
10	Metal, Mining	0.004
59	Miscellaneous Retail	0.004
13	Oil & Gas Extraction	0.005
15	General Building Contractors	0.005
20	Food & Kindred Products	0.007
21	Tobacco Products	0.008
53	General Merchandise Stores	0.009
70	Hotels & Other Lodging Places	0.010
26	Paper & Allied Products	0.010

Panel C: Descriptive data on accounting measurements for operating leases in debt contracts

<b>A select sample of loans with debt-earnings covenants</b>	<b>Total</b>	<b>2011-2018 (ASC 840)</b>	<b>2019-2021 (ASC 842)</b>
# loans	818	537	281
# loans that exclude capitalized operating lease	743	490	253
# loans that include capitalized operating lease	75	47	28
% loans that include capitalized operating lease	9.17%	8.75%	9.96%
# loans that multiply rental expenses for operating leases by a constant number (as opposed to discounting future lease payables)	36	25	11
% loans that multiply rental expenses for operating leases by a constant number	48.00%	53.19%	39.29%
# loans that also include fixed charge covenants	195	140	55
# loans that include rental expenses in fixed charge	83	58	25
% loans that include rental expenses in fixed charge	42.56%	41.43%	45.45%

TABLE 2  
*Loan Pricing of Capitalized Operating Leases Before and After ASC 842*

	Dependent variable = <i>SPREAD</i>			
			(1)	(2)
<i>OLEASE</i>	0.065 (0.595)	0.473 (0.108)	0.068 (0.570)	0.484 (0.107)
<i>CLEASE</i>	1.398* (0.051)	0.755 (0.546)	1.574** (0.018)	0.637 (0.589)
<i>POST</i> × <i>OLEASE</i>			-0.026 (0.913)	0.131 (0.604)
<i>POST</i> × <i>CLEASE</i>			-0.992 (0.413)	0.468 (0.687)
<i>SIZE</i>	-0.075*** (0.000)	-0.084*** (0.000)	-0.075*** (0.000)	-0.083*** (0.001)
<i>LEV</i>	0.364*** (0.000)	0.344*** (0.000)	0.365*** (0.000)	0.338*** (0.000)
<i>BTM</i>	0.048** (0.022)	0.007 (0.701)	0.049** (0.021)	0.006 (0.743)
<i>ROA</i>	-0.603*** (0.002)	-0.062 (0.768)	-0.601*** (0.003)	-0.066 (0.756)
<i>ZSCORE</i>	-0.098*** (0.000)	-0.091*** (0.000)	-0.098*** (0.000)	-0.090*** (0.000)
<i>CASH</i>	-0.356*** (0.001)	0.080 (0.482)	-0.355*** (0.001)	0.079 (0.475)
<i>INTAN</i>	-0.080* (0.051)	0.198** (0.020)	-0.080* (0.051)	0.203** (0.015)
<i>STDCFO</i>	1.665*** (0.000)	0.674* (0.061)	1.665*** (0.000)	0.675* (0.058)
<i>CAPX</i>	-0.097 (0.231)	-0.261*** (0.001)	-0.096 (0.239)	-0.262*** (0.001)
<i>LOANAMT</i>	-0.069*** (0.000)	-0.036*** (0.000)	-0.069*** (0.000)	-0.036*** (0.000)
<i>MATURITY</i>	0.002 (0.902)	0.005 (0.653)	0.002 (0.902)	0.005 (0.660)
Loan year FE	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes
N	9860	9641	9860	9641
Adj. R <sup>2</sup>	0.521	0.739	0.521	0.739

This table reports the extent to which loan spread incorporates capitalized operating leases and how ASC 842 adopting changes the relation. The dependent variable *SPREAD* is the natural log of all-in-drawn spread. *OLEASE* is the imputed capitalized operating leases calculated as the present value of future lease payments. *POST* is an indicator for firm-years after ASC 842 implementation. P-values are reported in parentheses based on standard errors clustered at the industry (SIC two-digit) level.

TABLE 3  
*Loan Amendments Before and After ASC 842*

	Dependent variable = <i>AMEND</i>			
	(1)	(2)	(3)	(4)
<i>OLEASE</i>	0.004 (0.969)	-0.144 (0.688)	0.003 (0.977)	-0.137 (0.700)
<i>POST</i> × <i>OLEASE</i>	0.782*** (0.003)	0.738** (0.034)	0.792*** (0.004)	0.766** (0.023)
<i>CLEASE</i>	0.731 (0.100)	1.800* (0.090)	0.793 (0.180)	2.023* (0.081)
<i>POST</i> × <i>CLEASE</i>			-0.351 (0.817)	-0.856 (0.568)
<i>SIZE</i>	0.007 (0.470)	0.042* (0.074)	0.007 (0.472)	0.041* (0.076)
<i>LEV</i>	0.195*** (0.000)	0.213** (0.019)	0.195*** (0.000)	0.215** (0.016)
<i>BTM</i>	0.019 (0.148)	0.009 (0.559)	0.019 (0.145)	0.010 (0.520)
<i>ROA</i>	-0.073 (0.407)	-0.517*** (0.001)	-0.072 (0.412)	-0.515*** (0.002)
<i>ZSCORE</i>	0.010 (0.239)	0.073** (0.011)	0.010 (0.240)	0.073** (0.011)
<i>CASH</i>	-0.465*** (0.000)	-0.250 (0.234)	-0.464*** (0.000)	-0.245 (0.241)
<i>INTAN</i>	-0.124*** (0.002)	-0.072 (0.570)	-0.124*** (0.002)	-0.070 (0.579)
<i>STDCFO</i>	-0.723** (0.034)	-0.039 (0.917)	-0.723** (0.034)	-0.042 (0.909)
<i>CAPX</i>	0.117 (0.147)	0.148 (0.212)	0.118 (0.144)	0.152 (0.205)
<i>LOANAMT</i>	0.001 (0.883)	-0.008 (0.247)	0.001 (0.883)	-0.008 (0.250)
<i>MATURITY</i>	-0.173*** (0.000)	-0.150*** (0.000)	-0.173*** (0.000)	-0.150*** (0.000)
<i>SPREAD</i>	-0.060** (0.036)	-0.180*** (0.000)	-0.060** (0.036)	-0.180*** (0.000)
Loan year FE	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes
N	9860	9641	9860	9641
Adj. R <sup>2</sup>	0.133	0.290	0.133	0.290

This table reports the results of how loan amend decisions vary with operating leases before and after ASC 842 adoption. The dependent variable *AMEND* is an indicator variable equal to one if the loan is an amendment and zero otherwise. P-values are reported in parentheses based on standard errors clustered at the industry (SIC two-digit) level.

TABLE 4  
Does ASC 842 Affect Financial Covenant Structures?

Panel A: Number and allocation of financial covenants

	Dependent variable			
	(1)	(2)	(3)	(4)
	<i>COVENANTNUM</i>	<i>COVENANTNUM</i>	<i>DEBTCOV_PROP</i>	<i>DEBTCOV_PROP</i>
<i>OLEASE</i>	-0.863** (0.018)	0.699 (0.483)	0.212 (0.172)	-0.035 (0.895)
<i>POST</i> × <i>OLEASE</i>	0.649 (0.332)	-0.652 (0.336)	0.545*** (0.008)	0.707*** (0.000)
<i>CLEASE</i>	0.098 (0.962)	2.783 (0.197)	0.985 (0.121)	0.459 (0.610)
<i>SIZE</i>	-0.145*** (0.000)	-0.012 (0.857)	0.018** (0.025)	0.004 (0.823)
<i>LEV</i>	-0.004 (0.975)	0.282 (0.126)	0.005 (0.952)	-0.070 (0.175)
<i>BTM</i>	-0.045 (0.318)	0.034 (0.349)	0.001 (0.964)	0.013 (0.408)
<i>ROA</i>	0.535** (0.013)	0.147 (0.495)	0.016 (0.862)	0.039 (0.694)
<i>ZSCORE</i>	0.003 (0.895)	0.004 (0.924)	-0.007 (0.617)	-0.019 (0.122)
<i>CASH</i>	-0.659*** (0.000)	-0.767*** (0.005)	-0.033 (0.743)	-0.083 (0.329)
<i>INTAN</i>	0.072 (0.562)	-0.373* (0.053)	0.025 (0.700)	-0.006 (0.927)
<i>STDCFO</i>	-0.525 (0.473)	-0.288 (0.755)	-0.318 (0.237)	-0.110 (0.638)
<i>CAPX</i>	0.066 (0.720)	-0.126 (0.358)	0.030 (0.662)	-0.052 (0.243)
<i>LOANAMT</i>	0.106*** (0.000)	0.025** (0.035)	-0.001 (0.912)	0.003 (0.467)
<i>MATURITY</i>	-0.061 (0.131)	-0.032 (0.251)	-0.027* (0.075)	-0.021*** (0.001)
<i>SPREAD</i>	-0.084 (0.184)	-0.144** (0.041)	0.010 (0.687)	-0.008 (0.648)
Loan year FE	Yes	Yes	Yes	Yes
Loan type FE	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes
N	9512	9301	4903	4703
Adj. R <sup>2</sup>	0.084	0.542	0.050	0.742



Panel B: Covenant threshold adjustments

	Dependent variable			
	(1)	(2)	(3)	(4)
	<i>Debt Earn Chg</i>	<i>Int Cov Chg</i>	<i>Debt Earn ChgAmt</i>	<i>Debt Earn ChgPct</i>
<i>OLEASE</i>	-0.277 (0.376)	0.645*** (0.001)	-0.114 (0.569)	-0.036 (0.592)
<i>POST</i> × <i>OLEASE</i>	0.863*** (0.000)	0.215 (0.608)	-0.877** (0.015)	-0.237** (0.022)
<i>CLEASE</i>	1.372 (0.188)	-0.766 (0.470)	1.815** (0.040)	0.548** (0.037)
<i>SIZE</i>	0.016 (0.532)	-0.016 (0.367)	0.009 (0.620)	0.004 (0.422)
<i>LEV</i>	-0.056 (0.560)	0.061 (0.314)	0.104 (0.223)	0.035 (0.209)
<i>BTM</i>	-0.007 (0.779)	0.010 (0.476)	-0.023 (0.460)	-0.004 (0.536)
<i>ROA</i>	-0.207 (0.186)	0.088 (0.393)	-0.235 (0.133)	-0.069* (0.094)
<i>ZSCORE</i>	0.049** (0.031)	-0.020** (0.032)	0.012 (0.453)	0.006 (0.254)
<i>CASH</i>	-0.041 (0.788)	-0.144 (0.331)	0.013 (0.923)	0.022 (0.696)
<i>INTAN</i>	-0.015 (0.904)	-0.162 (0.124)	-0.027 (0.781)	-0.004 (0.887)
<i>STDCFO</i>	0.693* (0.057)	-0.308 (0.338)	0.171 (0.581)	0.055 (0.505)
<i>CAPX</i>	0.050 (0.684)	0.017 (0.716)	0.008 (0.936)	0.001 (0.973)
<i>LOANAMT</i>	0.006 (0.146)	-0.000 (0.888)	0.006* (0.061)	0.002 (0.109)
<i>MATURITY</i>	0.005 (0.769)	-0.002 (0.850)	-0.002 (0.900)	0.002 (0.549)
<i>SPREAD</i>	-0.028 (0.168)	-0.022 (0.405)	-0.011 (0.396)	-0.005 (0.283)
Loan year, Loan type, & firm FE	Yes	Yes	Yes	Yes
N	3962	2375	3962	3962
Adj. R <sup>2</sup>	0.107	0.165	0.153	0.175

This table reports the results of how ASC 842 affects covenant structures among firms with differing operating lease intensity. Panel A examines the number and allocation of financial covenants. The dependent variable in columns (1) and (2), *COVENANTNUM*, is the total number of financial covenants included in the contract. The dependent variable in columns (3) and (4), *DEBTCOV\_PROP* is the number of debt-based covenants as a proportion of the sum of debt-based and non-debt-based covenants. P-values are reported in parentheses based on standard errors clustered at the industry (SIC two-digit) level. Panel B examines changes in debt-to-earnings and interest coverage covenant thresholds around ASC 842 adoption. P-values are reported in parentheses based on standard errors clustered at the industry (SIC two-digit) level.

TABLE 5

*Mechanism Behind Covenant Structure Changes: Firms Switching from Leasing to Borrowing*

Panel A: Did firms borrow more after ASC 842 took effect? (an unintended effect of ASC 842)

	Dependent variable =		
	(1) <i>LEV</i>	(2) <i>CLEASE</i>	(3) <i>LEV_EXCLEASE</i>
<i>POST</i>	0.020*** (0.004)	-0.001* (0.053)	0.022*** (0.002)
<i>POST</i> × <i>OLEASE_PreASC842</i>	0.495*** (0.000)	-0.006* (0.096)	0.501*** (0.000)
<i>SIZE</i>	-0.004 (0.706)	-0.001* (0.068)	-0.003 (0.761)
<i>LEV</i>	-0.053*** (0.000)	0.000* (0.071)	-0.054*** (0.000)
<i>BTM</i>	-0.034* (0.079)	0.000 (0.891)	-0.034* (0.084)
<i>ROA</i>	-0.011*** (0.000)	0.000** (0.043)	-0.011*** (0.000)
<i>ZSCORE</i>	-0.217*** (0.000)	-0.007*** (0.000)	-0.203*** (0.000)
<i>CASH</i>	-0.083** (0.022)	-0.006*** (0.002)	-0.073** (0.036)
<i>INTAN</i>	0.007 (0.864)	-0.000 (0.712)	0.006 (0.884)
<i>STDCFO</i>	-0.011** (0.012)	0.000 (0.593)	-0.010** (0.012)
<i>CAPX</i>	14318 0.833	14318 0.748	14318 0.831
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
N	14,318	14,318	14,318
Adj. R <sup>2</sup>	0.833	0.748	0.831

Panel B: Interactive effects of leverage change

	Dependent variable			
	(1)	(2)	(3)	(4)
	<i>Debt_Earn_Chg</i>	<i>Int_Cov_Chg</i>	<i>Debt_Earn_ChgAmt</i>	<i>Debt_Earn_ChgPct</i>
<i>OLEASE</i>	0.026 (0.943)	0.888*** (0.001)	0.065 (0.753)	0.038 (0.573)
<i>POST</i> × <i>OLEASE</i>	1.735 (0.251)	0.154 (0.818)	0.066 (0.794)	0.020 (0.770)
<i>POST</i> × <i>OLEASE</i> × <i>HighΔLev</i>	-1.037 (0.552)	-0.167 (0.791)	-1.163** (0.040)	-0.327** (0.043)
<i>POST</i> × <i>HighΔLev</i>	0.019 (0.850)	0.011 (0.599)	0.076 (0.366)	0.025 (0.288)
<i>OLEASE</i> × <i>HighΔLev</i>	-0.919 (0.222)	-0.776** (0.040)	-0.348 (0.350)	-0.128 (0.326)
<i>CLEASE</i>	1.063 (0.354)	-0.252 (0.772)	1.404 (0.118)	0.442* (0.074)
<i>SIZE</i>	0.032 (0.226)	-0.012 (0.369)	0.016 (0.366)	0.006 (0.251)
<i>LEV</i>	-0.087 (0.335)	0.050 (0.500)	0.035 (0.634)	0.011 (0.645)
<i>BTM</i>	-0.008 (0.777)	0.015 (0.157)	-0.033 (0.376)	-0.008 (0.374)
<i>ROA</i>	-0.234 (0.183)	0.092 (0.141)	-0.242 (0.176)	-0.064 (0.160)
<i>ZSCORE</i>	0.048* (0.054)	-0.021 (0.131)	0.010 (0.604)	0.004 (0.452)
<i>CASH</i>	-0.036 (0.792)	-0.081 (0.575)	0.048 (0.723)	0.039 (0.473)
<i>INTAN</i>	-0.047 (0.715)	-0.109 (0.101)	-0.036 (0.742)	-0.003 (0.929)
<i>STDCFO</i>	0.694* (0.070)	-0.436 (0.233)	0.137 (0.676)	0.038 (0.662)
<i>CAPX</i>	0.054 (0.695)	0.024 (0.487)	0.003 (0.980)	0.002 (0.948)
<i>LOANAMT</i>	0.008 (0.150)	0.000 (0.959)	0.008* (0.059)	0.002* (0.094)
<i>MATURITY</i>	0.008 (0.705)	0.013 (0.241)	-0.003 (0.835)	0.002 (0.648)
<i>SPREAD</i>	-0.011 (0.559)	-0.021 (0.398)	-0.012 (0.281)	-0.004 (0.223)
Loan Year FE	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
N	3222	1929	3222	3222
Adj. R <sup>2</sup>	0.104	0.038	0.144	0.134

This table evaluates the mechanism behind the previously reported covenant structure changes in response to ASC 842 adoption. Panel A examines the extent to which firms with differing operating lease intensity at the time of ASC 842 adoption take on different levels of debt after ASC 842 goes into effect. Panel B examines whether the covenant structure changes by firms with higher operating lease obligations are more pronounced when these firms also took on greater debt after ASC 842 adoption. P-values are reported in parentheses based on standard errors clustered at the industry (SIC two-digit) level.

TABLE 6  
Other loan terms

	Dependent variable					
	(1)	(2)	(3)	(4)	(5)	(6)
	<i>LOANAMT</i>		<i>MATURITY</i>		<i>SECURED</i>	
<i>OLEASE</i>	-0.302 (0.364)	0.640 (0.133)	0.009 (0.936)	-0.617 (0.122)	0.210 (0.526)	0.376 (0.273)
<i>POST</i> × <i>OLEASE</i>	0.295 (0.488)	-0.471 (0.199)	0.012 (0.976)	0.236 (0.610)	-0.160 (0.554)	-0.110 (0.637)
<i>CLEASE</i>	-0.128 (0.926)	-3.238** (0.037)	-0.260 (0.684)	-0.442 (0.697)	1.282** (0.014)	-0.575 (0.450)
<i>SIZE</i>	0.584*** (0.000)	0.483*** (0.000)	-0.054*** (0.000)	-0.034 (0.177)	-0.016* (0.053)	0.004 (0.833)
<i>LEV</i>	0.220* (0.085)	0.244*** (0.002)	-0.073 (0.168)	-0.034 (0.656)	0.184*** (0.002)	0.067 (0.217)
<i>BTM</i>	-0.072** (0.013)	-0.003 (0.919)	0.020 (0.294)	-0.012 (0.682)	0.031** (0.043)	-0.009 (0.488)
<i>ROA</i>	0.019 (0.933)	-0.182 (0.376)	0.150* (0.075)	0.154 (0.153)	-0.177* (0.100)	0.088 (0.286)
<i>ZSCORE</i>	0.020 (0.681)	0.040 (0.243)	0.008 (0.484)	0.060** (0.040)	0.001 (0.915)	-0.024 (0.107)
<i>CASH</i>	-0.707** (0.046)	-0.181 (0.303)	0.114 (0.388)	0.072 (0.705)	-0.138 (0.173)	0.145 (0.242)
<i>INTAN</i>	-0.127 (0.596)	-0.241 (0.139)	0.096 (0.115)	0.340** (0.015)	0.110** (0.026)	0.141* (0.074)
<i>STDCFO</i>	1.039* (0.078)	0.042 (0.924)	-0.730** (0.012)	-0.609* (0.055)	1.028*** (0.001)	0.588** (0.025)
<i>CAPX</i>	0.246 (0.304)	-0.154* (0.088)	-0.066 (0.346)	-0.025 (0.745)	-0.122 (0.121)	-0.140 (0.148)
<i>LOANAMT</i>			0.057*** (0.000)	0.077*** (0.000)	-0.014* (0.099)	-0.004 (0.425)
<i>MATURITY</i>	0.224*** (0.000)	0.279*** (0.000)			0.047*** (0.010)	0.016 (0.302)
<i>SPREAD</i>	-0.392*** (0.000)	-0.290*** (0.000)	0.003 (0.902)	0.011 (0.657)	0.274*** (0.000)	0.055*** (0.007)
Loan Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes	No	Yes
N	9860	9641	9860	9641	9860	9641
Adj. R <sup>2</sup>	0.581	0.677	0.383	0.490	0.292	0.659

This table reports the results of how other major loan terms vary with capitalized operating leases before and after ASC 842 adoption. *LOANAMT* is the natural log of loan amount. *MATURITY* is the natural log of months to loan maturity. *SECURED* is an indicator of whether the loan is collateralized. P-values are reported in parentheses based on standard errors clustered at the industry (SIC two-digit) level.

TABLE 7  
*When Firms with Many Operating Leases Are Financially Constrained*

	Dependent variable			
	(1)	(2)	(3)	(4)
	<i>Debt_Earn_Chg</i> <i>Amt</i>	<i>Debt_Earn_Chg</i> <i>Pct</i>	<i>Debt_Earn_Chg</i> <i>Amt</i>	<i>Debt_Earn_Chg</i> <i>Pct</i>
<i>OLEASE</i>	-2.230 (0.113)	-0.869** (0.041)	-0.219 (0.412)	-0.069 (0.407)
<i>POST</i> × <i>OLEASE</i>	-6.842*** (0.000)	-1.894*** (0.000)	-1.608*** (0.005)	-0.414** (0.022)
<i>POST</i> × <i>OLEASE</i> × <i>SIZE</i>	0.873*** (0.000)	0.240*** (0.000)		
<i>SIZE</i>	0.010 (0.614)	0.004 (0.468)		
<i>POST</i> × <i>SIZE</i>	-0.018 (0.122)	-0.005 (0.151)		
<i>OLEASE</i> × <i>SIZE</i>	0.336 (0.115)	0.133** (0.042)		
<i>POST</i> × <i>OLEASE</i> × <i>CASH</i>			8.118** (0.029)	1.953 (0.111)
<i>CASH</i>			-0.064 (0.655)	-0.001 (0.986)
<i>POST</i> * <i>CASH</i>			0.002 (0.994)	0.010 (0.902)
<i>OLEASE</i> * <i>CASH</i>			0.544 (0.383)	0.184 (0.335)
Control	Yes	Yes	Yes	Yes
Loan Year, Loan Type, Firm FE	Yes	Yes	Yes	Yes
N	3962	3962	3963	3964
Adj R <sup>2</sup>	0.160	0.181	0.156	0.177

This table examines how borrower firms' financial constraints interact with these firms operating lease intensity in affecting the tightening of debt-to-earnings covenant thresholds after ASC 842 adoption. Two financial constraint proxies are used. *SIZE* is the natural log of book assets. *CASH* is cash holdings as a percentage of total assets. *P*-values are reported in parentheses based on standard errors clustered at the industry (SIC two-digit) level.