Spring 5-15-2015

Three Essays in Accounting Regulation and Debt Contract Characteristics

Bryan Graden
Washington University in St. Louis

WASHINGTON UNIVERSITY IN ST. LOUIS

Olin Business School

Dissertation Examination Committee:
Richard Frankel, Chair
Gauri Bhat
Joseph Cullen
Jared Jennings
Carl Sanders

Three Essays in Accounting Regulation and Debt Contract Characteristics

by

Bryan S. Graden

A dissertation presented to the
Graduate School of Arts & Sciences
of Washington University in
partial fulfillment of the
requirements for the degree
of Doctor of Philosophy

May 2015
St. Louis, Missouri

Table of Contents

List of Figures

List of Tables

Acknowledgments

In depositing this dissertation, I recognize that it is not the product of my efforts alone. The development of the dissertation has benefited from feedback, insights, and support from many sources which warrant recognition.

First and foremost, I acknowledge that I could not have completed the dissertation without divine support and inspiration from heaven. God is the source of all truth, and I know that I was blessed with motivation and inspired ideas in writing and defending this dissertation. I commend it to God and recognize His hand in its completion.

Second, I am deeply grateful to my wife Sarah for being an unfailing source of support and confidence, for staying up with me during late nights, and for pushing me to meet deadlines when I wanted to stop short. Completing the dissertation is just as much her accomplishment as it is mine. I am also grateful to my children Brie, Alex, and Elijah for being my biggest fans, cheering me on every day when I came home from school and being a source of joy.

I am indebted to my Dissertation Chair, Richard Frankel, for guidance in developing this paper. He has contributed substantially to developing the contribution, hypotheses, research design, and sample selection. His training was invaluable not only for the dissertation but also for my ongoing research efforts. I am also grateful to my dissertation committee members, Gauri Bhat and Jared Jennings, for their timely feedback, suggestions, and encouragement, and I thank Joseph Cullen and Carl Sanders for taking part as members of the defense committee.

I also recognize certain individuals who buoyed me up during difficult times and enriched my experiences during my time in the doctoral program. I offer a special thanks to Mahendra Gupta for providing mentorship and frequently expressing his confidence in my ability to see the dissertation through to completion. Ted Christensen also served as a sounding

board and confidante to help me navigate challenging phases of the doctoral program and always shows his faith in my ability to succeed in research.

I am grateful to my friends in the Olin Business School who encouraged me in completing the dissertation including Sarah Grantham (former Ph.D. Coordinator), Erin Murdock (current Ph.D. coordinator), and Donna Cerame. They provided coursework and travel support, as well as timely moral support through the ups and downs of the program. They also provided encouragement and were indispensable in scheduling and carrying out the dissertation defense.

Additionally, I recognize contributions from colleagues and research presentation participants. I extend a special thanks to John Donovan for valuable contributions to the development of the third essay including extensive data collection. I am grateful to Chad Larson, Radha Gopalan, Zawadi Lemayian, Josh Lee, Tim Gubler, John Donovan, Hojun Seo, and Fernando Lopez for comments and suggestions. I am grateful to Roger Silvers for providing 20-F reconciliation data and for helpful insights related to the third essay. I also thank Joon Hong, Li Sang, Ziren Xu, Heran Sun, and Ke Liu for their research assistance. Stephen Vance, Ron Allen, and staff at the Olin Library at Washington University in St. Louis also provided valuable assistance in accessing lending agreements from the university's microfiche collection.

The essays in this dissertation have benefited from comments from blind reviewers, discussants including Wolfgang Schutze, and participants at the Washington University in St. Louis Accounting Summer Paper Presentation Workshop, BYU Accounting Research Symposium, International Accounting Section Midyear Meeting, and workshop participants at New Mexico State University, Illinois State University, Central Michigan University, University

of Toledo, Oklahoma State University, University of New Hampshire, Georgia Southern University, and the AAA Midwest Regional Meeting.

Finally, I acknowledge the generous financial support provided by the Olin Business School.

Bryan S. Graden

Washington University in St. Louis

May 2015

Dedicated to my late grandfather William Frederick Graden.

ABSTRACT OF THE DISSERTATION

Three Essays in Accounting Regulation and Debt Contract Characteristics

by

Bryan S. Graden

Doctor of Philosophy in Business Administration

Washington University in St. Louis, 2015

Professor Richard Frankel, Chair

This dissertation is comprised of three essays relating to accounting regulation and debt contracting. The first essay is designed to draw inferences about lenders' demand for lease accounting rules in light of proposed lease accounting standard changes. I study changes in lease-related debt covenants surrounding the adoption of Statement of Financial Accounting Standards 13: *Accounting for Leases* in 1976. I find that lenders are significantly less likely to inhibit leasing activity via lease restrictions after SFAS 13 adoption and that lenders are significantly more likely to modify debt covenants to capitalize operating leases across time in the post-SFAS 13-adoption period. The findings suggest that lenders adapt debt covenant definitions to changes in accounting standards. Further, the findings indicate that lenders adapt debt covenant definitions to changes in borrowers' financial reporting incentives.

The second essay investigates whether lenders capitalize operating leases uniformly when defining debt covenants. I argue that bankruptcy treatment of leases affects lenders' incentives to incorporate operating leases into debt covenants leading to differential treatment of operating leases as opposed to a "one-size-fits-all" contracting treatment of operating leases. Using a hand-collected sample of lending agreements from firms that use operating leases extensively, I find a positive association between the probability of lenders capitalizing operating leases into debt

covenants and the duration of borrowers' lease contracts. The results indicate that lenders discriminate among operating leases when designing debt covenants and suggest that operating leases vary in their effect on credit risk.

The third essay examines the relation between contract-specified accounting standards and private lender country of domicile. Prior studies provide evidence suggesting that equity investors' information gathering and processing costs are related to differences in reported accounting standards. While lenders have access to private information about prospective borrowers, I document that US lenders are more likely to contract on US accounting standards that match their home country. These findings generalize to Canadian, UK, and IFRS-country lenders and suggest that lenders exhibit a preference for home-country GAAP. In additional tests, I examine whether the degree of difference between borrower- and lender-country accounting standards affects the likelihood that a debt contract from a US lender specifies US GAAP and whether contracting on similar GAAP affects other loan terms. I find no significant effect on the probability of contracting on US GAAP when accounting differences are larger. Similarly, I find no significant evidence that lenders modify loan spread, maturity, and financial covenant use for loans from US lenders that specify US accounting standards.

PREFACE

This dissertation is comprised of three essays relating to accounting regulation and debt contract characteristics. The general theme centers on how lenders are affected by accounting rules as applied by the borrower. While the three essays address different research questions, the common theme among them is how accounting rules affect lenders' contracting choices. The purpose is to make inferences about lenders' demand for accounting rules and how accounting rules affect lenders' costs of contracting.

The first two essays consider how banks' contracting incentives are affected by changes in lease accounting rules and the characteristics of off-balance-sheet leases. These essays provide evidence about how lenders change their use of debt covenants related to leases with the hope of informing standard setters about the nature of lenders' demand for contractible measures related to leases (i.e., measures lenders can use to incorporate leases into debt covenants). Investigating lease accounting regulation and debt covenants is an important issue for several reasons. First, lenders care about leases because leases increase firm leverage which increases potential bankruptcy costs for lenders. Second, prior literature considers how off-balance-sheet or operating leases are associated with credit ratings and loan spreads but is relatively silent regarding debt covenants. Debt covenants are a critical aspect of a lending agreement as a monitoring mechanism providing for the transfer of control rights (see, e.g., Tirole 2006; Chava and Roberts 2008). Third, the Financial Accounting Standards Board released proposed modifications to current lease accounting rules that capitalize nearly all leases and prior research provides evidence that equity investors capitalize operating leases. However, recent evidence documents that lenders account for off-balance-sheet leases when pricing loans and do so selectively (Altamuro, Johnson, Pandit, and Zhang 2014). Given that debt covenants play an

important role in contracting for leases, the first two essays provide evidence regarding whether lenders change covenant definitions after adopting Statement of Financial Accounting Standards 13: *Accounting for Leases* and whether lenders change covenant definitions according to off-balance-sheet lease characteristics. The purpose is to make inferences regarding lenders' demand for accounting rules, whether price protection alone is sufficient to protect lenders in the contracting process, and to determine whether lenders discriminate among operating leases when defining debt covenants.

The final essay addresses accounting regulation in a cross-country setting. Given a global economy where each country has its own accounting standard-setting body, I investigate whether the existence of differing accounting standards across countries affects what standards a loan agreement uses for assessing covenant compliance. Prior research suggests that accounting standard differences are a source of costs to equity investors in making cross-border investment decisions (see e.g., Bradshaw, Bushee, and Miller 2004; Covrig, Defond, and Hung 2007; and Yu and Wahid 2014). However, little evidence exists about whether accounting-standard differences affect debt-market participants. I argue that "translating" or mapping from one set of accounting standards to another is costly to lenders and provides incentive for them to contract on accounting standards (to be used for assessing covenant compliance) that coincide with accounting standards prevalent in lenders' country of domicile. Studying contract-specified accounting standards provides empirical evidence related to the costs lenders face when contracting in an environment with multiple accounting standards, and the findings provide evidence about how differences in accounting standards affects lenders' costs of contracting. Together, these essays provide evidence regarding lenders' demand for accounting rules and how accounting rules affect lenders' costs of contracting.

Chapter 1: Lease Accounting Rule Changes and Debt Covenant Characteristics

1.1 Introduction

Financial statement users have long claimed that current financial reporting for leases lacks transparency and provides insufficient disclosure (e.g., McGregor 1996). Beginning in 2009, the FASB undertook the project of revamping Statement of Financial Accounting Standards 13: *Accounting for Leases* (SFAS 13 or ASC 840) with the objective of providing "enhanced disclosures [and] greater transparency of a lessee's financial leverage."[1] This paper explores how banks incorporate financial reporting for leases into debt contracts. I study whether lease accounting rules produce numbers that are used in debt covenants and whether contracting parties adjust these numbers. My motivation is to infer the nature of lenders' and borrowers' demand for lease accounting rules.

Lenders have incentive to monitor leasing activity. First, contractual lease payments increase the credit risk of the borrower. Leases have the potential to dilute lenders' claims and may serve as a source of financing of risky investments, both of which decrease the value of lenders' debt (Tirole 2006). Second, while lenders have many contracting mechanisms at their disposal to mitigate the impact of leasing activity on debt value including interest rates, debt covenants play a particularly important role in the context of leases. Because interest rates protect only against *expected* expropriation of value from debt to equity holders, the monitoring role of covenants and the ability of lenders to transfer control rights protects lenders against *unexpected* changes in

[1] FASB: *"Proposed Accounting Standards Updated (Revised): Leases (Topic 842)*, May 16, 2013.

borrower leases that may be associated with destruction of firm value (e.g., Tirole 2006 and Chava and Roberts 2008).

Although lenders have reason to monitor borrower leases via covenants, the extent to which lenders use accounting rules to define debt covenants is unclear. On one hand, prior research documents that lenders use generally accepted accounting principles (GAAP) as a starting point for writing covenants (Leftwich 1983). For example, if a borrower enters into a leasing arrangement that has characteristics of a debt-financed asset purchase such as a bargain purchase option, the lender can write a debt covenant to capture the effect of the lease on borrower credit risk by using GAAP-based long-term debt measures reported on the borrower's balance sheet because GAAP requires recognition of leases with bargain purchase options. On the other hand, research provides contract-level evidence that lenders use modified measurement rules to systematically exclude certain accruals from covenant definitions (Li 2010; Li 2012). In the case of leases, if a borrower enters into a leasing arrangement that is a debt-financed asset purchase in substance but which falls outside the balance-sheet recognition requirements of GAAP, then the lender must write a debt covenant based on alternative measurement rules to adequately restrict borrower leasing activity.

To investigate lenders' demand for lease accounting rules, I examine how debt covenants relating to leases change after borrowers adopt SFAS 13. Prior to SFAS 13, financial reporting for leases was limited to rental expense on the income statement and disclosures regarding future minimum lease payments for capital and operating leases. The most prevalent form of lease covenants came in the form of restrictions of annual rental payments. I argue that lease restrictions impose costs on the borrower in terms of funding capital investments. Because a lease restriction explicitly limits the level of lease payments, the borrower loses access to capital projects that

require lease financing if the lease restriction is binding and must forego the otherwise profitable investment opportunity. Subsequent to SFAS 13, firms report capital leases on the balance sheet and operating leases in the footnotes. With the advent of capital lease liabilities, lenders can contract directly on GAAP to monitor borrower leasing activity. If capital leases adequately capture lease-related credit risk, GAAP-based covenants (e.g., debt-equity ratios) will sufficiently monitor borrower leasing risk and reduce contracting costs to the borrower by providing greater financing flexibility for investment projects. Thus, I expect that lenders are less likely to continue using lease restrictions and equally or more likely to use GAAP-based covenants after SFAS 13 adoption.

Using a hand-collected sample of lending agreements written before and after SFAS 13 adoption, I find that lenders are significantly less likely to include lease restrictions after borrowers adopt SFAS 13. At the same time, I document that lenders heavily use debt-equity covenants based exclusively on GAAP in both the pre- and post-SFAS 13 adoption periods. Multivariate analyses indicate no significant change in the probability of including GAAP-based debt-equity covenants after SFAS 13 adoption. Given that pre-SFAS 13 GAAP does not capitalize leases and post-SFAS 13 GAAP recognizes capital leases on the balance sheet, the results suggest that after SFAS 13 adoption lenders contract on balance sheet accounting measures for leasing activity in lieu of tailored lease restrictions.

I also investigate lenders' response to SFAS 13 financial reporting rules in the post-adoption period. I document an increase in the ratio of rental expense to capital lease liability over time for the universe of Compustat firms indicating a more pronounced role for operating leases relative to capital leases. I find that debt contracts are more likely to contain covenants that capitalize operating leases across time during post-adoption years, which contrasts with prior

evidence from lending contracts that lenders appear to ignore operating leases in debt covenants (El-Gazzar 1993). Taken together, the findings suggest that lenders are sensitive to lease accounting rules and react to standard changes that affect balance-sheet recognition of leases. Further, lenders appear to adapt to shifts in the nature of lease transactions as borrowers entered into more operating leases relative to capital leases as a form of financing.

While the results of this study hold after controlling for a rich set of borrower and loan characteristics, loans with multiple lease-related covenants, and alternative estimation techniques, the findings are subject to caveats. First, the sample may exhibit selection bias. Given the difficulty of obtaining debt contracts surrounding SFAS 13 adoption, I employ a number of sample selection criteria to identify firms affected by SFAS 13. To the extent that I capture only those firms that were unable to renegotiate lease contracts to avoid capital leases, the sample firms may differ from other firms in ways unobservable to the researcher, which limits the generalizability of my findings. Second, the small sample inhibits my ability to include additional controls such as firm and time fixed effects that could account for unobservable firm-specific characteristics and events such as the consolidation of banks that occurred after banking deregulation during the sample period. To the extent that the models do not incorporate firm- and time-specific effects that are correlated with the likelihood of using lease covenants, the models may be misspecified. Finally, the composition of firms in the sample does not enable me to perform within-firm analysis of covenant changes.[2] The change in covenants from the pre to the post-SFAS 13 period may compare firms with different characteristics. While I control for a number of firm-level observables, the pre

[2] The sample contains only eight firms with contracts before and after SFAS 13 adoption (16 contracts), which limits my ability to estimate within-firm regressions.

and post firms may differ in unobservable ways that limit my ability to make valid comparisons of covenant changes across the accounting standard change.

This study contributes to both accounting standard setting and extant debt-contracting research. First, this study is relevant to the ongoing debate surrounding the current and proposed lease accounting standards. SFAS 13 accounting rules introduced balance-sheet recognition of capital leases according to bright-line criteria relating to lease characteristics. The results of this study indicate that lenders changed the nature of lease-related debt covenants from restrictive covenants to covenants incorporating capital leases. The recent Exposure Drafts (ED) intensify the SFAS 13 recognition and disclosure requirements for leases proposing balance-sheet recognition of all lease contracts with terms greater than 12 months. I expect this study to inform the standard-setting process by providing evidence of lenders' demand for balance-sheet measures of leasing activity.

Second, I document contrasting findings to extant research examining changes in debt contract characteristics in response to changes in accounting rules. Prior studies find that mandated accounting changes *diminish* the contractibility of GAAP. Frankel, Seethamraju, and Zach (2008) study whether lenders include GAAP goodwill in net worth covenants and find that lenders are more likely to exclude goodwill from net worth covenants after the FASB issued SFAS 141 and SFAS 142 relating to business combination and goodwill accounting. Ball, Li, and Shivakumar (2013) find a significant decline in both the frequency and probability of using financial covenants after mandatory IFRS adoption. The authors also provide evidence that lenders substitute financial covenants with non-financial covenants.[3] My results differ from previous studies in that I

[3] As part of their analyses, Ball et al. (2013) hand collect a sample of lending agreements. They note that the hand-collected sample contains no covenant modifications to exclude the effects of fair value accounting.

document that lenders' initial response to SFAS 13 adoption is to use capital lease liability on the balance sheet while discontinuing the use of lease restrictions. The findings suggest that SFAS 13 produces measures that correlate with debt value *enhancing* the contractibility of GAAP for leases. Further tests indicate that this enhancing effect dissipates across time consistent with the leasing industry adapting to altered incentives to structure lease transactions to achieve off-balance-sheet lease classification.[4]

Third, I contribute to extant research investigating how debt-market participants make adjustments for leasing activity. Prior empirical studies document significant associations between operating leases and credit ratings and loan spreads (e.g., Lim, Mann, and Mihov 2003; Batta, Ganguly, and Rosett 2012; Kraft 2012; Altamuro et al. 2013). These findings indicate that lenders account for borrower expropriations relating to leases *in expectation* when pricing debt agreements. My findings differ from prior literature by documenting that lenders change debt covenant definitions in response to innovations in accounting rules upon which the covenants are based. Importantly, the findings emphasize the role of debt covenants, separate from price protection, to mitigate *unexpected* borrower actions that decrease the value of debt to lenders.[5]

Fourth, the findings of this study complement a growing literature relating to debt contract design. Early studies based on legal handbooks of best contracting practices provide evidence that public bondholders tailor accounting rules to define financial covenants (Leftwich 1983). More recent studies document an association between income-statement based financial covenants and

[4] The setting of lease accounting rule changes is well suited to answering questions related to debt contracting for two reasons. First, lease accounting is an alternative means of financing (relative to debt financing) and may be significant to a borrower's capital structure (Eisfeldt and Rampini 2009). Second, because the SFAS 13 bright-line rules allow for transaction structuring, it is difficult to assert without empirical evidence that SFAS 13 properly partitions between economic liabilities and rentals in a way that is informative to lenders about borrower credit risk.
[5] Lenders face limits on their ability to price protect through interest rates. As interest rates become too high, lenders attract borrowers of decreasing credit quality. If borrower credit quality is too poor, lenders will ration credit (Tirole 2006).

increased application of fair value accounting (e.g., Li 2010; Demerjian 2011; Li 2012). These studies provide evidence consistent with fair value adjustments and transitory accruals diminishing the value of GAAP for debt contracting. My study provides evidence that lenders design contracts that incorporate borrower leases into debt covenants. It is the first study to empirically document the specific covenants lenders use to monitor leasing activity and documents how those covenants changed around the adoption of lease accounting standards.

Finally, this study relates to prior work on the consequences of SFAS 13. Imhoff and Thomas (1988) argue that lessees had incentive to renegotiate lease contracts to avoid debt covenant violations due to capital leases being recognized on the balance sheet. The study documents a negative relation between pre-SFAS 13 footnoted capital lease levels and changes in capitalized leases during the transition years prior to adopting SFAS 13. The authors posit that the findings are indicative of lessees substituting from capital leases to operating leases. Extending the authors' findings, I document that in years following SFAS 13 adoption, the probability that lenders use debt covenants that capitalize operating leases increases across time suggesting that the nature of operating leases changed across the sample period. This result is consistent with arguments that SFAS 13 bright-line rules engender transaction structuring blurring the distinction between capital and operating leases (McGregor 1996).

1.2 Background and Hypothesis Development

1.2.1 The Role of Debt Covenants

Debt covenants provide a mechanism unique from price protection to preserve debt value. Tirole (2006) notes that the potential for loss of debt value is not sufficient to justify the existence of covenants. Price protection anticipates borrower actions that diminish the value of debt by shifting firm value away from debtholders to shareholders (i.e., changing the allocation of the

corporate pie among claimants on firms assets) or by destroying firm value (i.e., decreasing the size of the pie). However, the price of debt is effective *in expectation*. The principal justification for covenants is to mitigate *unexpected* decreases in debt value (Tirole 2006; Chava and Roberts 2008). Covenants protect debt value in two ways. First, covenants explicitly restrict actions that expropriate wealth from debtholders. Common restrictions include limitations on dividend payments and capital expenditures (Smith and Warner 1979). In the context of this study, lenders restrict leases by limiting the amount of aggregate lease payments made by the borrower (i.e., lease restrictions). Second, covenants enable lenders to exert influence on corporate decisions. Lenders' influence comes in the form of bargaining power when borrowers violate covenants such as financial ratios. Prior research supports the "transfer of control rights" role of debt covenants by documenting changes in corporate behavior including investments and accounting choices following covenant violations (e.g., Chava and Roberts 2008; Nini, Smith, and Sufi 2012; Tan 2013).

Important to this study, covenants assist lenders in monitoring leasing activity. Lenders' concern for leases stems from the effects of leasing on debt value. Contractual lease payments increase the operating leverage of the borrower and dilute lenders' claims to firm assets. Leases may also serve as the financing vehicle of risky investments. These possibilities threaten the value of lenders' debt and justify the use of covenants (Tirole 2006).

1.2.2 The Evolution of Lease Accounting Standards

Prior to the promulgation of SFAS 13, firms followed guidance from Accounting Principles Board Opinion No. 5: *Reporting of Leases in Financial Statements of Lessee* (APB 5), which was issued in 1964. Under APB 5, firms were required to book rental expense on the income statement for lease payments and disclose future rental amounts in the footnotes (Accounting Principles

Board 1964). In 1973, the SEC issued Accounting Standards Release 147 requiring separate footnote disclosures for "financing leases" defined as noncancelable leases with either a lease term greater than or equal to 75 percent of the leased asset useful life or a provision guaranteeing the fair market value of the leased asset (Securities and Exchange Commission (SEC) 1973). In 1976 the Financial Accounting Standards Board (FASB) promulgated Statement of Financial Accounting Standards 13: *Accounting for Leases* (SFAS 13). This standard provides guidance on recognition and disclosure of leases based on four criteria of lease contracts:

1) the lease contract contains a bargain purchase option,

2) the lease contract contains a provision for transfer of ownership at the end of the lease term,

3) the present value of future lease payments is greater than or equal to 90 percent of the fair market value of the leased asset,

4) the lease term is greater than or equal to 75 percent of the useful life of the leased asset.

Leases meeting any one of these criteria require balance-sheet entries to report a lease asset and lease liability and income statement entries to amortize the lease asset and book interest expense for the lease liability. All other lease contracts are categorized as operating leases. Operating leases require no balance-sheet recognition of a lease asset or liability. Lease payments are expensed on a straight-line basis (rather than expensed as incurred) regardless of rental escalators or other fluctuations in payments, and lessees provide only footnote disclosures of future minimum lease payments. SFAS 13 stipulated that firms apply the new standard retroactively which entailed applying SFAS 13 rules to all existing leases and presenting a comparative balance sheet showing what the capital lease liability would have been had SFAS 13 been in effect in the fiscal year prior to adoption. Given concerns regarding costs of implementation including covenant

violation, the FASB initially allowed for a five-year transition period. However, the SEC reduced this period to two years. Thus, for fiscal years ending after 1979, firms were required to comply with SFAS 13 (Securities and Exchange Commission 1977).

Firms' use of operating leases grew substantially across time with ongoing debate regarding potential deficiencies of the standard (McGregor 1996). Over thirty years after the release of the original standard, the Financial Accounting Standards Board (FASB) released a statement of Preliminary Views in 2009 followed by two Exposure Drafts (ED) in August 2010 and May 2013 that outline proposed changes to lease accounting. The ED proposes a "right-of-use" model taking the perspective that leases are a stream of payments in exchange for the right to use an asset or property. The ED proposes capitalizing all leases with lease terms exceeding 12 months. Lessees recognize separate right-of-use assets and associated lease liabilities representing the financing of the assets. In subsequent periods after initial measurement, lessees record income statement entries by amortizing the right-of-use asset on a straight-line basis and recognizing interest expense on the lease liability (Financial Accounting Standards Board 2013).

1.2.3 Hypotheses

Using covenants involves a trade-off between type I and type II errors. On one hand, parties prefer covenants that facilitate the timely transfer of control rights to prevent borrower actions such as overinvestment that transfer wealth from the lender (type II errors). On the other hand, covenants may lead to lender opportunism if states where the borrower is not in financial distress trigger a violation and transfer control rights to the lender (type I errors). Costs of writing covenants may occur ex ante in the drafting phase of writing a contract and include negotiating if and how many covenants to include, how the covenants are calculated, how tightly the covenants are set, and how frequently covenant compliance assessments occur. Ex post, costs include

monitoring covenant compliance and a decrease in total wealth as a result of constraining borrower activities that transfer wealth from lenders (Smith and Warner 1979).[6] Lenders define covenants based strictly on GAAP or based on negotiated measurement rules which use GAAP as a basis and then make non-GAAP adjustments (Li 2010). Leftwich (1983) argues that the costs and benefits of contracting can be inferred from observation:

> *"[T]here is a paucity of evidence of the costs and benefits of alternative accounting rules. The sources of some of those costs and benefits can be inferred by examining measurement rules that are endorsed, modified, or rejected in private contracts…[I]f users systematically reject or modify rules with particular properties (e.g., rules allowing upward revaluation of assets), we can infer that those rules are not cost-justified for that group of users."*

Thus, observing how lenders change debt covenants in response to the advent of SFAS 13 measures of lease liability provides an indication of lenders' demand for contractible measures of leasing activity.

Figure 1 shows changes in the financial reporting treatment of lease contracts and how lenders' menu of available covenant choices changed across accounting rule regimes. Prior to SFAS 13, APB 5 and ASR 147 provided financial reporting guidance for leases, and the vast majority of leases were kept off the balance sheet and appeared only as rental expense on the income statement. To capture any effect of leasing activity on operating leverage, lenders either restricted leasing activity directly, where lease restrictions are dollar thresholds limiting the borrower's annual lease payments, or used a non-GAAP covenant adjustment to capitalize lease

[6] Lenders have incentive to restrict borrower activity that increases *total* wealth (e.g., adopting risky, positive NPV investments) because few of the benefits accrue to the lender.

rental expense. The balance sheet did not report a liability associated with a firm's leases—debt covenants defined using GAAP liabilities such as debt-to-equity ratios would not capture changes in borrower leases. However, lenders still placed constraints on leasing activity via lease restrictions or capitalizing rental expense.

Subsequent to SFAS 13 adoption, firms record a capital lease liability (and associated lease asset) for lease contracts meeting one of the four criteria noted above. I argue that, relative to covenants based on capital lease liability, lease restrictions impose net costs on the borrower. Because a lease restriction explicitly limits a borrower's lease payments, the borrower loses access to capital projects that require lease financing if the lease restriction is binding. Thus, the borrower must forego a profitable investment opportunity because of the lease restriction. To the extent that the capital lease liability adequately informs lenders about changes in debt value associated with leasing activity, using the GAAP-based covenants rather than lease restrictions mitigates capital investment opportunity costs (to the borrower):

H1: Lenders are less likely to use lease restrictions in debt contracts after borrowers adopt SFAS 13.

H2: Lenders are more likely to base debt covenants on balance-sheet measures of capital lease liability after borrowers adopt SFAS 13.

While I predict that lenders likely discontinue using lease restrictions in the post-adoption period, it is not a foregone conclusion that capital lease liabilities continue to provide a contractible measure correlated with debt value in the post-adoption period. Imhoff and Thomas (1988) argue that contracting incentives such as avoiding covenant violations led firms to renegotiate lease contracts prior to adopting SFAS 13. They measure the change in capital leases during the transition period and document that firms with greater pre-adoption capital leases have a larger

decrease in capital leases relative to the pre-adoption and post-adoption periods. If firms substitute away from capital to operating leases, then the capital lease liability becomes less reflective of firms' lease contracting choices. More importantly, if firms structure leasing arrangements to keep leases off balance sheet, the underlying economics of leasing arrangements become further blurred and the capital lease liability no longer captures the effect of leasing activity on debt value. Moreover, the use of operating leases to side-step bright-line thresholds became an increasingly common practice among corporations after the passage of SFAS 13 (Imhoff Jr., Lipe, and Wright 1991). I predict that lenders have incentive to capitalize operating leases in response to lessee incentives to engage in operating leases:

H3: The probability of capitalizing operating leases in debt covenants increases across time in the post-SFAS 13 adoption period.

1.3 Research Design

To test the first two hypotheses regarding the choice of lease-related covenants (H1 and H2), I employ the following model:

$$\begin{aligned} COVENANT\_CHOICE_{i,j,t} &= \beta_0 + \beta_1 POST_t + \beta_2 LEASEINTENSITY_i + \beta_3 SIZE_{i,t} + \beta_4 LEVERAGE_{i,t} \\ &+ \beta_5 BM_{i,t} + \beta_6 ROA_{i,t} + \beta_7 TANGIBILITY_{i,t} + \beta_8 INDEXRETURNS_t \\ &+ \beta_9 SPREAD_j + \beta_{10} MATURE_j + \beta_{11} LOANSIZE_j + \beta_{12} SECURED_j \\ &+ \beta_{13} SYNDICATE_j + \beta_{14} OTHERLEASECOV_j + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where the dependent variable, *COVENANT_CHOICE*, is an indicator variable equal to one if firm *i*'s contract *j* starting in year *t* contains a lease-related covenant and zero otherwise. I use two dependent variables to capture changes in lenders' covenant choices when borrowers adopt SFAS 13.

The first dependent variable, *LEASE_RESTRICTION*, indicates whether the contract contains a provision restricting leasing activity. The main variable of interest in the model is *POST*, an indicator equal to one if the loan start date occurred after the borrower adopted SFAS 13, and zero otherwise. If SFAS 13 accounting measures provide net monitoring benefits to the lender, I expect that lenders will be less likely to use lease restrictions. Thus, I predict a negative coefficient for β_1. The second dependent variable, *DEBT-EQUITY*, indicates whether the contract contains a debt-to-equity ratio. If SFAS 13 measures capture economic liabilities arising from leasing activity, GAAP-based covenants may be more cost-effective to use relative to alternative covenants, and I expect that lenders are equally or more likely to use GAAP-based covenants. I expect lenders to use debt-equity ratios in the post-adoption period, allowing the balance-sheet capital lease liability to affect covenant calculations. Thus, I predict a positive coefficient on β_1.

In addition to the *POST* variable, I include a measure of the importance of a firm's leasing activity, *LEASEINTENSITY*, as the ratio of capital lease liability to pre-lease assets. Because of the lack of data on leasing activity both before and after the standard change, I measure leasing intensity in the year of SFAS 13 adoption.[7] As the choice of lease restriction in the pre- and post-SFAS 13 periods could be confounded by the amount of leasing activity, I include this variable as a control in the model. Firms' leasing activity is likely to change after adopting SFAS 13, and leasing activity is also likely correlated with lenders' decision to restrict leasing activity. Thus, failing to include this variable would constitute an omitted variable problem that would bias the coefficient of β_1. To account for variation in agency costs among borrowers, I include firm characteristics including *SIZE*, the log of market value of equity; *LEVERAGE*, the ratio of total

[7] I provide more in depth discussion of how this variable is calculated in the Sample Selection section of the paper and in APPENDIX 1.2.

liabilities to market value of equity; *BM*, the book value of equity-to-market value of equity; *ROA*, return on assets; and *TANGIBILITY*, the ratio of net PP&E to total assets (e.g., Frankel, Seethamraju, and Zach 2008; Ball, Li, and Shivakumar 2013).

In addition to these measures, I include macroeconomic- and debt contract-level variables as controls. The sample period is characterized by volatile interest rates particularly in the early 1980's. To account for fluctuations in macroeconomic conditions, I include *INDEXRETURNS*, the 12-month buy-and-hold value-weighted CRSP index returns ending on the date of contract initiation. I also include controls for debt contract characteristics: *SECURED*, loans that require collateral; *MATURE*, the log of loan maturity in years; *LOANSIZE*, the total loan proceeds scaled by total assets in the fiscal year prior to the loan start year; and *SYNDICATE*, an indicator for syndicated loans. Finally, debt covenants may overlap in restricting leasing activity. For example, a contract may include a lease restriction and a debt-equity ratio that capitalizes operating leases. To ensure that the results are not driven by contracts containing multiple lease-related covenants, I include *OTHERLEASECOV*, an indicator equal to one if a contract contains more than one covenant that restricts leases or capitalizes operating leases.

To investigate how covenant modifications change during the post-adoption period, I estimate the following model:

$$\begin{aligned} NONGAAP_{i,j,t} = {} & \alpha_0 + \alpha_1 TREND_t + \alpha_2 SIZE_{i,t} + \alpha_3 LEVERAGE_{i,t} + \alpha_4 BM_{i,t} + \alpha_5 ROA_{i,t} \\ & + \alpha_6 TANGIBILITY_{i,t} + \alpha_7 INDEXRETURNS_t + \alpha_8 SPREAD_j + \alpha_9 MATURE_j \\ & + \alpha_{10} LOANSIZE_j + \alpha_{11} SECURED_j + \alpha_{12} SYNDICATE_j \\ & + \alpha_{13} OTHERLEASECOV_j + \nu_{i,t} \end{aligned} \tag{2}$$

where the dependent variable, *NONGAAP*, is an indicator variable equal to one if firm *i*'s contract *j* starting in year *t* capitalizes operating leases and zero otherwise. The main variable of interest, *TREND*, is a time trend from the beginning of the sample period to the end of the sample

period increasing by one for each subsequent year. Hypothesis 3 predicts that the probability of non-gaap adjustments that capitalize operating leases is increasing across time in the post-adoption period. Thus, I expect a positive coefficient for α_1. The remaining variables in the model are defined similarly to Equation 1 above.

1.4 Sample Selection and Results

1.4.1 Sample Selection and Descriptive Statistics

To form a sample of contracts, I focus on firms with high lease intensity before adopting SFAS 13. This subset of firms provides a powerful sample for examining the contracting effects of SFAS 13 adoption, and I designate this as the *SFAS 13 Adoption Sample*. To select the sample of contracts, I first identify the fiscal year of SFAS 13 adoption using *Compustat* footnote codes.[8] This initial screen of firms with available footnote codes limits the sample to 1,027 unique firms. Table 1 Panel A displays the frequency by fiscal year of SFAS 13 adoption for sample firms. Consistent with the SEC shortening the transition period, the majority of sample firms adopted SFAS 13 in 1978 with the remainder adopting in 1979. Thus, most firms in the sample had relatively short transition periods relative to the promulgation of SFAS 13 in November 1976. I further restrict the sample to firms with five consecutive years of *Compustat* coverage prior to the accounting rule change year to ensure that I have data to calculate firm variables around contract initiation. This screen yields a sample of 1,019 firms. In addition, I screen firms lacking data for return on assets, market value of equity, book to market, net income, or total assets. These screens reduce the sample size to 707 firms.

Next, I proxy for leasing intensity prior to adoption using the capital lease liability in the year of adoption scaled by pre-lease total assets (i.e., total assets minus capital lease liability), then

[8] See APPENDIX 1.2 for additional details regarding the sample selection and data collection procedures.

select firms with a ratio of at least 10 percent. These selection criteria yield a potential sample of 170 firms. I use this sample to manually search the "Index to Exhibits" portion of available 10-K filings between 1971 and 1989 and hand collect all available private lending agreements. Finally, I manually code debt covenants, covenant adjustments, loan amounts, maturities, and other loan-level data necessary for the empirical tests. These detailed hand collection procedures yield a sample of 113 lending agreements. After screening on available contract-level data, the final sample used in my analyses consists of 90 lending agreements (42 unique sample firms). Of these agreements, 23 are from the pre-SFAS 13 period (15 unique firms) and 67 are from the post-SFAS 13 period (27 unique firms).

Table 1 Panel B displays the industry distribution of sample firms using the Fama-French 10 classification. Consistent with prior research, I find that sample firms are concentrated in certain industries (Ge 2006). As Panel B indicates, 67 percent of sample firms are in the Shops industry. Using a broader Fama-French classification (untabulated), 41 percent of firms are in the retail industry, 19 percent are in the wholesale industry, 13 percent in the transportation industry, and 10 percent in the restaurant industry.

Table 2 displays descriptive statistics for the SFAS 13 Adoption Sample.[9] Panel A reports summary statistics for the full sample and for the *pre-* and *post-* SFAS 13 adoption subsamples. Notably, lease restrictions decline from the pre- to the post-SFAS 13 adoption periods with 70 percent of contracts containing lease restrictions in the pre period and only 33 percent in the post period. The difference in means is significant at the one-percent level. The use of debt-equity covenants sees no significant change across subsamples while loan maturity increases

[9] I winsorize continuous variables to mitigate the effect of outliers. Results remain significant when using the unwinsorized sample.

significantly. Figure 2 charts the proportion of pre- and post-SFAS 13 adoption contracts containing lease restrictions and debt equity ratios. The bar chart indicates visually the large drop in the use of lease restrictions, consistent with my predictions. In the pre-SFAS 13 period, debt contracts have an average maturity of 2.80 years. This contrasts with the post-SFAS 13 period in which average maturity is 4.34 years, an increase of 1.5 years, which is significant at the five-percent level. Additionally, the use of collateral in debt contracts declines from 30 percent in the pre-adoption period to 13 percent in the post-adoption period. These statistics provide an indication that lenders may have changed contracting behavior after SFAS 13 adoption.

Panel B displays Spearman correlations for variables used in the regression analyses. Consistent with Hypothesis 1, the variable *Post* is negatively correlated with the variable *Lease_Restriction* at the one-percent level. In addition, lease restrictions are significantly negatively correlated with the trend variable suggesting that lease restrictions are less likely to be included in contracts in later sample years. Moreover, lease restrictions are not positively correlated with capitalizing operating leases but are instead significantly negatively correlated. *Lease_Restriction* also exhibits significant correlations with firm characteristics such as firm size, leverage, and book-to-market which I control for in multivariate analyses.

Consistent with Hypothesis 2, the univariate results show little correlation between SFAS 13 adoption and debt-equity ratio usage. This univariate result indicates that lenders neither significantly increase nor significantly decrease the use of debt-equity ratios. Finding no change in debt-equity ratios is not inconsistent with my hypothesis: 1) debt-equity ratios in the pre-adoption period do not incorporate leases whereas post-adoption period ratios capture capital leases, 2) debt-equity ratios occur in nearly three-fourths of sample contracts, and 3) the use of debt-equity ratios remains relatively stable from the pre- to the post-adoption period. These

univariate statistics suggest it is plausible that lenders use debt-equity ratios as an alternative mechanism to lease restrictions to monitor borrower leasing activity.

Relating to the third hypothesis, Figure 3 charts the mean and median ratio of rental expense to capital leases for the universe of Compustat firms by year during the post-SFAS 13 adoption period. Both lines trend upward indicating the shift in financing away from capital leases toward operating leases. Consistent with Hypothesis 3, the occurrence of non-gaap lease covenants is positively and significantly correlated with the trend variable indicating that lease capitalization is more likely in later sample years.

1.4.2 Results

Table 3 presents results estimating Equation 1, the covenant choice model testing Hypothesis 1 relating to lease restrictions (H1). The table presents coefficient estimates of logistic regressions with *Lease_Restriction* as the dependent variable and *Post* as the explanatory variable of interest. Given the small sample size, I present four specifications beginning with a *Post* as the only explanatory variable and building to include controls to provide an indication of the strength of the main result. The first column estimates only the *Post* variable with a negative coefficient estimate significant at the one-percent level consistent with H1 that lease restrictions decline after SFAS 13 adoption. Column 2 introduces *Lease Intensity* to control for the amount of borrower leasing activity. In this specification, *Post* continues to be negative and significant. Columns 3 and 4 include additional controls for borrower and loan characteristics and macroeconomic effects (i.e., *IndexReturns*). Across specifications, the sign and magnitude on *Post* remain fairly stable and are statistically significant indicating that contracting behavior for leases changed after adoption of SFAS 13 lease accounting rules. Proxies of agency costs generally support agency theory where larger firms and firms with more tangible assets are less likely to contain restrictions on leases

although book-to-market has a positive coefficient indicating that firms with more growth opportunities are less likely to restrict leasing activity.[10]

To test Hypothesis 2 (H2) relating to the use of debt-equity ratios, I estimate a logistic model using *Debt-Equity* as the dependent variable indicating whether a contract contains a debt-equity covenant consistent with GAAP.[11] As in Table 3, I display four specifications building up the model from one explanatory variable, *Post*, to the full model with all controls. Beginning with the main variable of interest, I note that *Post* is negative and insignificant indicating no significant change in the probability of lenders writing debt-equity covenants. The coefficient remains insignificant across the four specifications when adding in control variables. Turning to the control variables, *ROA* is negative and significant indicating that when borrowers have higher ROA, lenders are much less likely to use debt-equity covenants. Importantly, debt-equity ratios are used more than 72 percent of the time in both the pre and the post periods in the univariate statistics. In the regression analyses, while I do not observe a significant increase in the likelihood of debt contracts including debt-equity ratios, I also do not observe a significant decline. Given that debt-equity ratios are used heavily across sample periods, the multivariate results suggest that lenders use debt-equity ratios without lease restrictions to control risk related to leasing activity, imposing a lower contracting cost on the borrower. Together with the tests of H1 using *Lease_Restriction*, the findings indicate that capital lease liability as reported on the balance sheet provided lenders with a contractible measure to protect against lease-related credit risk.[12]

[10] The positive coefficient for book-to-market is not completely inconsistent with the cost of lease covenants. Leasing represents an important source of financing, and restricting this funding source for firms with growth options may be too costly for the borrower to bear.

[11] For this analysis, I take care to code the debt-equity covenant equal to one only in instances where the covenant is defined strictly based on GAAP (i.e., the covenant makes no modifications to include off-balance-sheet leases).

[12] The SFAS 13 Adoption Sample spans 1972 to 1989. One concern with this sample period is that lending agreements multiple years away from SFAS 13 adoption are not likely to be affected by SFAS 13 alone. For example, the FASB issued updates to SFAS 13 in 1979, relating to renewals, sale-leaseback transactions, and contingent rentals. To address this concern, I estimate the models in Tables 3 and 4 using five-year windows

Turning to Table 5, I present coefficient estimates of logistic regressions from Equation 2 to test the third hypothesis. In this table, the dependent variable is an indicator variable equal to one if a debt-equity covenant capitalizes operating leases. The key variable, α_1, is a time trend, and the model is estimated for the post-adoption period only. Restricting the analysis to the post-adoption period decreases the sample to 67 contracts. Table 5 presents four specifications building from a single regressor, *TREND*, to a specification including controls for borrower and loan characteristics. The first two columns indicate a positive and significant coefficient estimate for α_1. The third and fourth columns include controls for the levels of rent expense and capital leases (both scaled by total assets) as borrower leasing activity varies across the sample period and is likely correlated with the choice of including non-GAAP covenant adjustments. *TREND* continues to exhibit a positive and significant coefficient indicating that the probability of capitalizing operating leases increases across time. These results suggest that lease-related covenants vary temporally consistent with the increased importance of operating leases relative to capital leases.

1.4.3 Robustness

In addition to the above analyses, I conduct various untabulated tests to assess the robustness of the results. One of the principal concerns in the identification of the model is the partitioning variable between the pre- and post-adoption periods. I rerun tests using an alternative measure of the *POST* variable where I define *POST* as contracts written after 1976, the year the FASB promulgated SFAS 13. Using the modified variable, the sign and magnitude of the coefficients is similar, and the statistical significance across specifications does not change.

surrounding the adoption window of 1977 to 1979. Coefficient estimates for *Post* are significant at the five-percent level using a five-year window surrounding SFAS 13 adoption. Additionally, all results in the paper are presented with two-sided t-statistics.

Another concern in the analyses relates to the trend in operating to capital leases. Specifically, the year 1988 shows a large spike in the ratio of operating to capital leases based on the universe of Compustat firms. To the extent that the sample contains outliers of rent-to-capital leases, the extreme observations could be driving the results. To test the robustness of the model of non-GAAP covenant adjustments in Equation 2, I exclude observations from the year 1988 and re-estimate the model. Excluding contracts from 1988 drops the sample to 61 contracts, and the coefficient estimates are stable in magnitude and sign across the four specifications. The statistical significance of *TREND* is significant at the five-percent level as a single regressor and including borrower and loan characteristics. When I include *RENT*, *CAP*, and *TWOLEASECOV*, the coefficient on *TREND* is no longer statistically different from zero with p-values of 10.1 and 11.8, respectively. Although the coefficient is not significant at conventional levels, it continues to have a positive sign and a magnitude similar to the specifications reported in Table 5. Overall, the results appear consistent with the original analysis, and I attribute the drop in significance in part to a lack of power due to the small sample size.

Finally, the tables present results using logistic estimation, which imposes functional form assumptions on the model. In untabulated analyses, I estimate the models using probit and linear probability models. Re-estimating Tables 3 to 5 based on these alternative models, I find similar results in terms of sign, magnitude, and statistical significance.

1.5 Conclusion

This study examines the nature of borrowers' and lenders' demand for lease accounting rules. Given that leasing is such a prevalent form of financing and that leasing transactions have the potential to reduce loan value, changes in lease accounting standards represent a compelling setting for understanding how accounting rules affect lenders' cost-benefit tradeoffs of using

GAAP measures for lending covenants. I provide evidence on lenders' choice of lease-related debt covenants for loan contracts before and after borrowers adopt Statement of Financial Accounting Standards 13: *Accounting for Leases* (SFAS 13). Using a hand-collected sample of private lending agreements, I find that lenders are significantly *less* likely to write covenants directly restricting leasing activity after borrowers adopt SFAS 13 lease accounting rules. I also find no significant change in the likelihood of using GAAP debt-equity covenants. These results suggest that SFAS 13 measures of leasing activity capture borrower credit risk without the need to directly restrict leases. Moreover, the results indicate that lenders not only price protect against lease-associated credit risk but also rely on debt covenants to mitigate *unexpected* changes in borrower leasing activity.

In addition to the above analyses, I investigate lenders' response to SFAS 13 financial reporting rules in the post-adoption period. I document an increase in the ratio of rental expense to capital lease liability over time. In multivariate analyses, I find that the probability of capitalizing operating leases increases during the post-adoption period. Taken together, the findings suggest that lenders adapt to shifts in the economic magnitude of lease financing as borrowers entered into more operating leases as a form of financing relative to capital leases.

The results of this study are timely in informing the debate regarding current and proposed accounting rules in the recent FASB Exposure Drafts (2010 and 2013) that propose substantial changes to financial reporting for leases. This study provides evidence from a contracting perspective that SFAS 13 accounting standards affect whether lenders define debt covenants based on GAAP measures and to what extent GAAP-based covenants enhance lenders' ability to monitor borrower credit risk. This study also provides evidence that lenders modify contract terms in response to changes in the use of operating leases.

1.6 References

Accounting Principles Board. 1964. "Reporting of Leases in Financial Statements of Lessee." *Statement No. 5* AICPA.

Altamuro, Jennifer, Rick Johnston, Shailendra Pandit, and Haiwen Zhang. 2014. "Operating Leases and Credit Assessments." *Contemporary Accounting Research*, 551-580.

Ball, Ray, Xi Li, and Lakshmanan Shivakumar. 2013. "Mandatory IFRS Adoption, Fair Value Accounting and Accounting Information in Debt Contracts". SSRN Scholarly Paper ID 2278946. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=2278946.

Batta, George, Ananda Ganguly, and Joshua Rosett. 2014. "Financial Statement Recasting and Credit Risk Assessment." *Accounting & Finance* 54 (1): 47-82.

Chava, Sudheer, and Michael R. Roberts. 2008. "How Does Financing Impact Investment? The Role of Debt Covenants." *The Journal of Finance* 63 (5): 2085–2121.

Demerjian, Peter R. 2011. "Accounting Standards and Debt Covenants: Has the 'balance Sheet Approach' Led to a Decline in the Use of Balance Sheet Covenants?" *Journal of Accounting and Economics* 52 (2–3): 178–202.

Eisfeldt, Andrea L., and Adriano A. Rampini. 2009. "Leasing, Ability to Repossess, and Debt Capacity." *Review of Financial Studies* 22 (4): 1621–57.

El-Gazzar, Samir M. 1993. "Stock Market Effects of the Closeness to Debt Covenant Restrictions Resulting from Capitalization of Leases." *The Accounting Review* 68 (2): 258–72.

Financial Accounting Standards Board. 2013. "Proposed Accounting Standards Update (Revised): Leases (Topic 842)" File Reference No. 2013-270 (May 16, 2013).

Frankel, Richard, Chandra Seethamraju, and Tzachi Zach. 2008. "GAAP Goodwill and Debt Contracting Efficiency: Evidence from Net-Worth Covenants." *Review of Accounting Studies* 13 (1): 87–118.

Ge, Weili. 2006. "Off-Balance-Sheet Activities, Earnings Persistence and Stock Prices: Evidence from Operating Leases". SSRN Scholarly Paper ID 816044. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=816044.

Imhoff, Eugene A., and Jacob K. Thomas. 1988. "Economic Consequences of Accounting Standards: The Lease Disclosure Rule Change." *Journal of Accounting and Economics* 10 (4): 277–310.

Imhoff Jr., Eugene A., Robert C. Lipe, and David W. Wright. 1991. “Operating Leases: Impact of Constructive Capitalization.” *Accounting Horizons* 5 (1): 51–63.

Kraft, Pepa. 2012. “Rating Agency Adjustments to GAAP Financial Statements and Their Effect on Ratings and Credit Spreads”. SSRN Scholarly Paper ID 1266381. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=1266381.

Leftwich, Richard. 1983. “Accounting Information in Private Markets: Evidence from Private Lending Agreements.” *The Accounting Review* 58 (1): 23–42.

Li, Ningzhong. 2010. “Negotiated Measurement Rules in Debt Contracts.” *Journal of Accounting Research* 48 (5): 1103–44.

———. 2012. “Performance Measures in Earnings-Based Financial Covenants in Debt Contracts”. SSRN Scholarly Paper ID 1966112. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=1966112.

Lim, Steve C., Steven C. Mann, and Vassil T. Mihov. 2003. “Market Evaluation of off-Balance Sheet Financing: You Can Run but You Can’t Hide.” *Texas Christian University* working paper (2003).

McGregor, Warren. 1996. “Accounting for Leases: A New Approach.” *Financial Accounting Series* No. 163-A (July).

Nini, Greg, David C. Smith, and Amir Sufi. 2012. “Creditor Control Rights, Corporate Governance, and Firm Value.” *Review of Financial Studies* 25 (6): 1713–61.

Securities and Exchange Commission (SEC). 1973. “Accounting Series Release (ASR) No. 147: Notice of Adoption of Amendments to Regulation Six Requiring Improved Disclosure of Rules”. SEC, Washington, D.C.

———. 1977. “Accounting Series Release (ASR) No. 225: Lease Accounting and Disclosure Rules”. SEC, Washington, D.C.

Smith, Clifford W., and Jerold B. Warner. 1979. “On Financial Contracting : An Analysis of Bond Covenants.” *Journal of Financial Economics* 7 (2): 117–61.

Tan, Liang. 2013. “Creditor Control Rights, State of Nature Verification, and Financial Reporting Conservatism.” *Journal of Accounting and Economics* 55 (1): 1–22.

Tirole, Jean. 2006. *Corporate Finance*. Cambridge University Press.

Appendix 1.1: Variable Definitions

Variable	Definition	Data Source
DEPENDENT VARIABLES		
Lease Restriction	Indicator variable equal to one if a contract specifies a dollar threshold limitation on leasing activity and zero otherwise.	Hand Collection
Debt-Equity	Indicator variable equal to one if a contract contains a debt-equity covenant and zero otherwise.	Hand Collection
Nongaap	Indicator variable equal to one if a contract modifies GAAP definitions with respect to lease accounting and zero otherwise.	Hand Collection
INDEPENDENT VARIABLES		
Post	Indicator variable equal to one if a contract is initiated after the borrower adopts SFAS 13 and zero otherwise.	
Trend	Time trend variable from the beginning of the post period until the end of the post period incrementing by year.	
Lease Intensity	Calculated in the year of FAS 13 adoption ('aftnt23') as the difference in capital lease liability (data84) between the adoption year and the prior fiscal year divided by total assets (data6) less adoption-year capital lease liability (data84).	Compustat
Size	Log of market value of equity (log(data199*data25)).	Compustat
Leverage	Total liabilities (data181) divided by market value of equity (data199*data25).	Compustat
BM	Book value of equity (data60) divided by market value of equity (data199*data25).	Compustat
ROA	Earnings before extraordinary items (data18) divided by total assets (data6).	Compustat
Tangibility	Net PP&E (data8) divided by total assets (data6).	Compustat
IndexReturns	Equal to 12-month CRSP value-weighted index returns from one year prior to contract initiation to the date of contract initiation.	CRSP

Variable	Definition	Data Source
INDEPENDENT VARIABLES		
Spread	Equals the log of spread plus 10 basis points. I calculate spread in two steps. First, at the facility level, I sum the stated interest rate margins and applicable benchmark rates such as LIBOR or Prime rate (excluding fees such as revolving credit commitment fees) then subtract off the Federal Funds Rate on the contract initiation date to calculate the spread. If a facility specifies multiple borrowing types such as LIBOR loans and Prime loans, I average the spread within the facility. Second, I calculate a weighted average spread at the package level using the facility amount.	Hand Collection
Mature	Equals the log of loan maturity in years.	
Loan Size	Log of loan principal at the package level.	Hand Collection
Secured	Indicator variable equal to one if a loan requires collateral and zero otherwise.	Hand Collection
Syndicate	Indicator variable equal to one if a loan is from a syndicate of lenders and zero otherwise.	Hand Collection
OtherLeaseCov	Indicator variable equal to one if a loan contains more than one covenant relating to leases (e.g., debt-equity covenants in combination with lease restrictions).	Hand Collection

Appendix 1.2: Details of Sample Selection for SFAS 13 Adoption Sample

I focus on firms with high lease intensity before adopting SFAS 13 because adopting the standards should have a large effect on both borrowers and lenders. However, leasing intensity is not readily observable in the pre-SFAS 13 period because the prior accounting standards required only disclosure of future lease payments. It was with the advent of SFAS 13 and the differentiation of capital and operating leases that *Compustat* first provided coverage of footnoted future minimum lease payments. Indeed, (Ge 2006) notes that *Compustat* lacks coverage of the "thereafter" portion of footnoted operating leases prior to 2000. Hence, selecting the sample on leasing activity at the time of contracting is not feasible.

However, a unique data item in *Compustat* enables us to calculate a measure of the amount of capital leases brought onto the balance sheet as a result of SFAS 13 adoption. *Compustat* collects limited data on firms that disclose the adoption of new accounting rules. The *Compustat* data item 'aftnt23' provides a marker, "AC" (i.e., Accounting Change) to signify the fiscal year in which the firm applied SFAS 13. An additional feature of *Compustat* coverage I exploit for sample selection is that SFAS 13 stipulates that firms retroactively apply the lease accounting standard and restate prior year balance sheet information. Thus, in the year of adoption, the financial statements appearing in the 10-K or Annual Report display both the current and prior year *as if* the firm had applied SFAS 13 in both periods. To be consistent with accounting rules in effect at the time financial statements were submitted, in the year *prior* to adoption, *Compustat* continues to reflect the balance sheet with the pre-SFAS 13 rules rather than the retroactively applied balance sheet amounts—i.e., *Compustat* does not compile data on retroactively applied SFAS 13 lease liabilities.

In theory, capital lease liabilities for firm-years prior to SFAS 13 are "0".[13] In the year of adoption, the capital lease liability will reflect the new lease accounting rules and have an amount recognized as a capital lease liability. Thus, I define *Lease Intensity* using the following formula where *t* represents the fiscal year of SFAS 13 adoption:

$$\boldsymbol{LEASE\ INTENSITY} = \frac{(\boldsymbol{CAPITAL\ LEASE\ LIABILITY_t})}{(\boldsymbol{TOTAL\ ASSETS_t - CAPITAL\ LEASE\ LIABILITY_t})}$$

I measure leasing intensity as the capital lease liability in the initial adoption year, scaled by pre-lease total assets (i.e., total assets minus capital lease liability), then select firms that experience a change in capital lease liability to pre-lease total assets of at least 10 percent. These are firms that had off-balance sheet leases that met SFAS 13 criteria to have capital lease treatment and are firms for which lenders will most likely consider leasing activity in writing loan covenants. The capital lease liability in the year of adoption proxies for the financial statement effect of the new lease standard.[14] To validate the footnote code noting the fiscal year of SFAS 13 adoption, I cross-

[13] A small number of firms have a positive value for capital lease liability in *Compustat*. Accounting rules per APB 5 provide for firms booking a lease liability for lease agreements that are installment purchases (from the side of the lessee or installment sales from the side of the lessor).

[14] The amount of capital lease liability coming onto the books in the adoption year is only a proxy for the effect of the standard. Taking the difference between the adoption-year SFAS 13 capital lease liability and the pre-SFAS 13 capital lease liability yields an amount that can be decomposed into distinct portions relating to the effect of SFAS 13 adoption and changes the firm makes to its leasing activity during the adoption year as in the following formula:

$$\begin{aligned}\Delta CAPITAL\ LEASE\ LIABILITY \\ &= [CAPITAL\ LEASES_{t-1,restated} - CAPITAL\ LEASES_{t-1,pre-FAS13}] \\ &+ CAPITAL\ LEASE\ ADDITIONS_{t,FAS13}\end{aligned}$$

The effect of SFAS 13 is shown in brackets. In the year prior to SFAS 13 adoption, most firms had no capital lease liability because they did not apply the new standard. In the year of adoption, the firms were required to present comparative balance sheet amounts as if SFAS 13 had been in effect in the prior year. Comparing these two amounts is the correct measure for determining the effect of SFAS 13 on the firm—i.e., how much capital lease liability did SFAS 13 adoption bring onto the balance sheet. The remaining amount of the change in capital lease liability represents either additions to capital leases or deletions of capital leases in the adoption year. One concern for sample selection is that firms were actively restructuring leasing contracts to achieve operating lease accounting treatment (Imhoff and Thomas 1988). If the change in leasing contracts is unobservable, it could induce sample selection bias. For a small number of firms, I manually calculated the decomposed change in capital lease liability using restated amounts from financial statements in the SFAS 13 adoption year and note that firms tended to *add* capital leases in the transition year rather than decrease the amount of capital leases. This alleviates concerns that

checked 20 observations by inspecting the "Significant Accounting Policies" section of the financial statements in the 10-K filings or Annual Reports in the year of adoption to ensure that *Compustat* accurately identified the fiscal year of adoption. I found only one instance where the *Compustat* code was applied to the incorrect year.[15]

To collect lending agreements pre- and post-SFAS 13 adoption, I use the following procedures. As noted in prior studies, the Dealscan loan data are limited prior to the 1990's and the data come from two principal sources including 10-K filings from the SEC. Because the SEC maintains only sparse electronic storage of 10-K and other filings prior to the 1994 EDGAR implementation, I obtain 10-K filings for my sample firms from microfiche copies of the filings located in the Olin Library at Washington University in St. Louis. I first identify all available 10-K filings in the library collection for my sample firms. Due to limitations in the microfiche collection, I lose 35 firms. For the remaining firms, I look for the "Index to Exhibits", a listing of contracts and agreements required in the 10-K filing to identify potential lending agreements. The Index to Exhibits notes whether a listed contract is included as an attachment to the 10-K or incorporated by reference to a previous filing such as an 8-K or 10-Q. Once I identify all the

firms shifted away from capital leases in the adoption year. It could be the case that sample firms adjusted leasing activity even before year *t-1*; however, the transition periods for my sample periods are mostly within one or two years.

[15] Any potential errors in the fiscal year of SFAS 13 adoption will affect the calculation of the lease intensity calculation. The lease intensity calculation exploits the footnote code by showing the increase in balance sheet lease liability that is due to SFAS 13 plus or minus additions or discontinuances of lease contracts that would be capitalized per SFAS 13. For accurate footnote codes, the change calculation will yield a large change for firms that are most affected by SFAS 13. The change will be small for firms with few leases affected by the new standard. If a firm adopted SFAS 13 in 1977, but *Compustat* miscoded the adoption year as 1978, then the lease intensity calculation would compare 1978 to 1977, where both years are post-adoption. If *Compustat* miscoded the adoption year as 1977 but the firm adopted in 1978, then the lease-intensity calculation would compare 1977 to 1976, where both years are pre-adoption. In either case, the error observations will result in computing a small change in balance-sheet lease amounts. If the error observation had few leases affected by SFAS 13, then the error does not affect sample selection. If the error observation had many leases affected by SFAS 13, then the firm would be misclassified as having a small change in balance-sheet lease amounts and would, therefore, be excluded from the sample. Hence, any coding errors would result in a smaller sample. As long as coding errors occur randomly, sample selection bias does not present a concern.

potential lending agreements, I scan all available agreements that are included as attachments to the 10-K filings in the library collection. For the remaining contracts incorporated by reference, I submit document requests to the SEC to obtain the lending agreements attached to other filings not in the library collection.

Figure 1.1: SFAS 13 Adoption

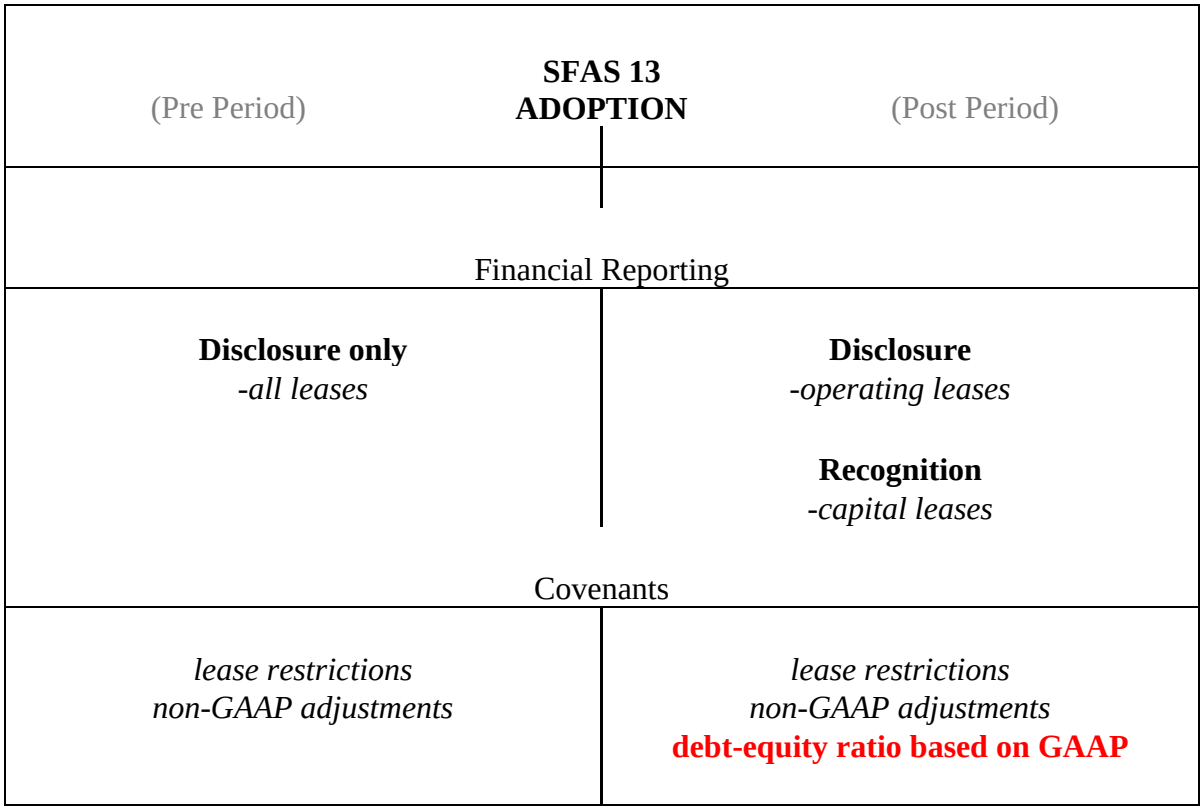


Figure 1.1: SFAS 13 Adoption. This figure presents observed financial reporting for leases and lease-related lending covenants in periods before and after SFAS 13 adoption.

Figure 1.2: Lease-Related Debt Covenants Surrounding SFAS 13 Adoption

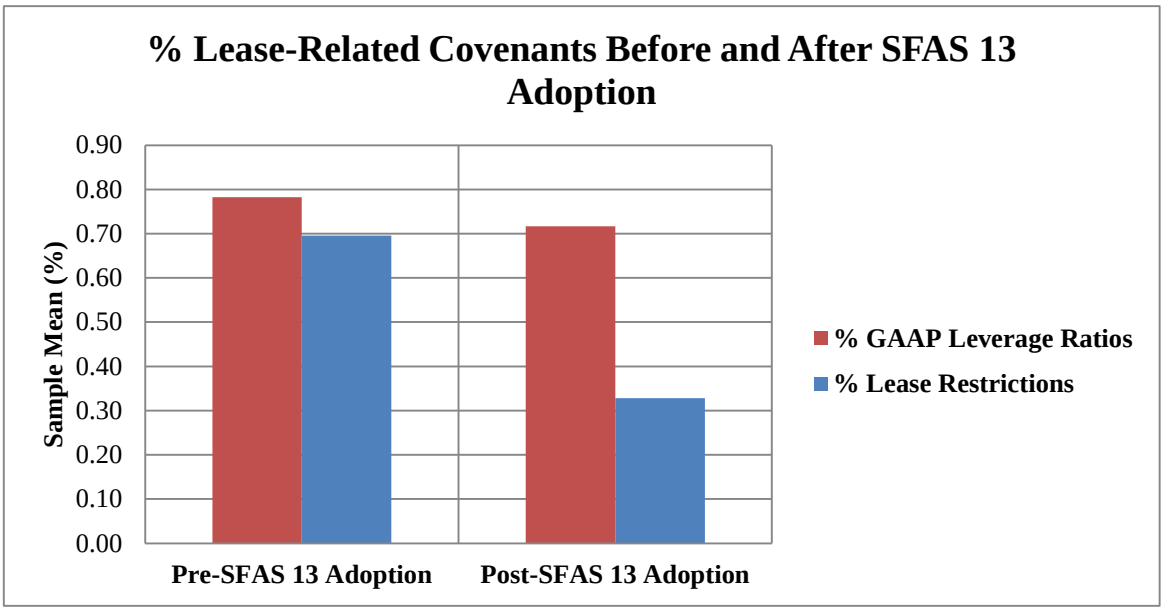


Figure 1.2: Lease-Related Debt Covenants Surrounding SFAS 13 Adoption. This figure displays a bar chart of sample means of GAAP leverage ratios (in red) and lease restrictions (in blue) in the pre- and post-SFAS 13 adoption periods. This figure illustrates the change in lease-related covenants within the sample from the pre- to the post-SFAS 13 adoption period.

Figure 1.3: Rental Expense to Capital Lease Liability Over Time

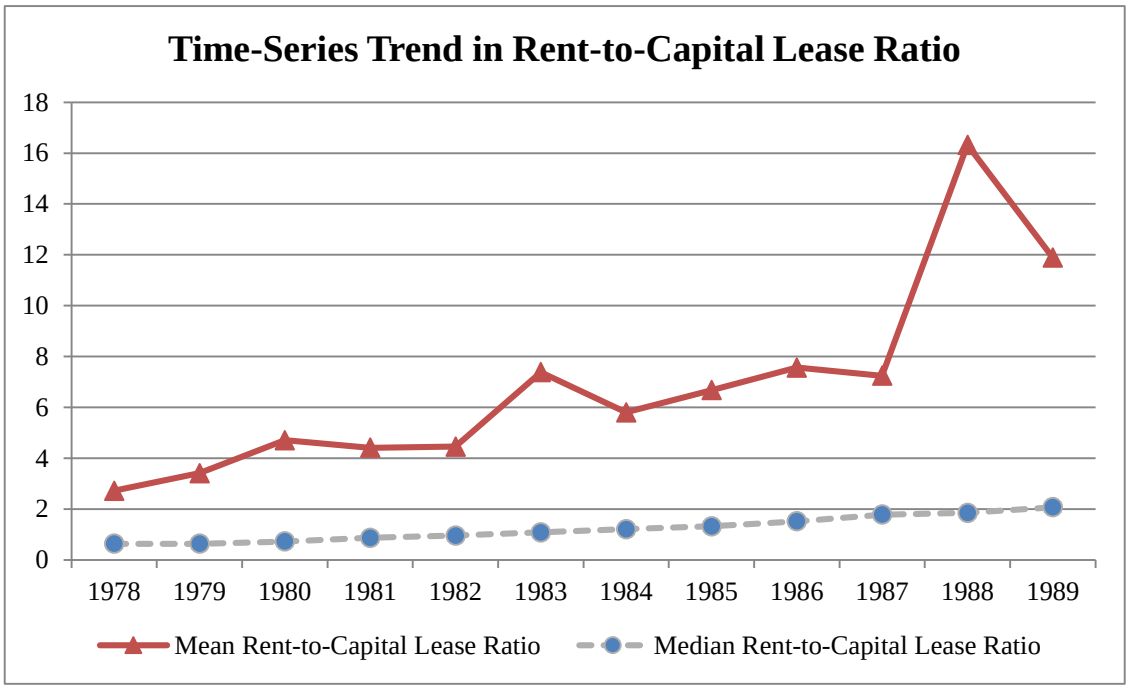


Figure 1.3: Rental Expense to Capital Lease Liability Over Time. This figure graphs the ratio of rental expense (*data47*) to capital lease liability (*data84*), the Rent-to-Capital Lease Ratio, during the post-SFAS 13-adoption period starting with the last adoption year of the SFAS-13 Adoption Sample (i.e., 1978) through the end of the sample period (i.e., 1989). The solid line with triangular markers plots the fiscal-year mean of the Rent-to-Capital Lease Ratio. The dashed line with dot markers plots the fiscal-year median of the Rent-to-Capital Lease Ratio. The y-axis measures the magnitude of the Rent-to-Capital Lease Ratio. The x-axis displays fiscal years (*yeara*).

TABLE 1.1

SFAS 13 Adoption Sample

Panel A: SFAS 13 Adoption by Fiscal Year

Fiscal Year	# Firms	% Firms
1977	7	16.7
1978	25	59.5
1979	10	23.8
Total	42	100

Panel B: Firm Observations by Industry (Fama-French 10)

Industry Group	# Firms	% Firms
Healthcare	2	4.8
Manufacturing	2	4.8
NonDurables	10	23.8
Shops	28	66.6
Total	42	100

Table 1.1 presents sample distributions across time and industries. Panel A displays the distribution of SFAS 13 adoption by year. Panel B displays industry distributions using the Fama-French 10 classification.

TABLE 1.2

Descriptive Statistics for SFAS 13 Adoption Sample

Panel A: Summary Statistics

	Full Sample N=90			Pre-SFAS 13 Contracts N=23		Post-SFAS 13 Contracts N=67		Post_loan = 0 vs. Post_loan =1		
Variable	Mean	Median	Std Dev	Mean	Median	Mean	Median	Difference in means	t-stat	
Lease_restriction	0.42	0.00	0.50	0.70	1.00	0.33	0.00	-0.37	-3.22	***
Debt-equity	0.73	1.00	0.44	0.78	1.00	0.72	1.00	-0.07	-0.61	
Nongaap	0.26	0.00	0.44	0.17	0.00	0.28	0.00	0.11	1.04	
Trend	9.40	9.00	4.44	3.52	3.00	11.42	11.00	7.90	16.89	***
Lease Intensity	0.22	0.18	0.13	0.24	0.14	0.22	0.18	-0.02	-0.67	
MVE	240.49	127.63	342.15	103.20	77.25	287.62	160.90	184.42	3.70	***
Leverage	2.51	1.61	2.78	3.32	2.63	2.23	1.47	-1.09	-1.33	
BM	1.18	0.92	1.06	1.61	1.29	1.03	0.82	-0.57	-1.87	*
ROA	0.04	0.04	0.03	0.03	0.04	0.04	0.04	0.01	0.96	
Tangibility	0.45	0.40	0.17	0.38	0.35	0.47	0.41	0.09	2.18	**
IndexReturns	0.13	0.16	0.20	-0.02	-0.12	0.18	0.20	0.21	4.77	***
Spread	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.00	-0.61	
Maturity	3.95	3.02	2.70	2.80	2.02	4.34	3.24	1.54	2.42	**
LoanSize	110.48	24.75	252.86	25.16	20.00	139.77	38.57	114.61	3.21	***
Secured	0.18	0.00	0.38	0.30	0.00	0.13	0.00	-0.17	-1.85	*
Syndicate	0.57	1.00	0.50	0.57	1.00	0.57	1.00	0.00	0.02	
OtherLeaseCov	0.19	0.00	0.39	0.09	0.00	0.22	0.00	0.14	1.45	

Table 1.2 presents descriptive statistics for firm-level and contract-level data used to estimate Equation (1) for a sample of contracts in the pre- and post-SFAS 13 adoption periods. Panel A presents summary statistics and Panel B presents Spearman correlations (bolded items are significant at the 1% level). The table displays descriptive statistics for the full sample of contracts, the subsample of pre-SFAS 13 adoption contracts, and the subsample of post-SFAS 13 adoption contracts. The far right columns display the difference in means between the pre-SFAS 13 adoption subsample (Post = 0) and the post-SFAS 13 adoption subsample (Post = 1) with t-statistics testing the significance of this difference using a t-test. ***, **, and * indicate that differences in means are statistically significant at the 1%, 5%, and 10% levels, respectively. See APPENDIX 1.1 for variable definitions.

Panel B: Spearman Correlations

		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1)	Lease_restriction	**-0.10**	**-0.40**	**-0.38**	**-0.32**	-0.08	**-0.33**	**0.29**	**0.32**	-0.15	-0.23	-0.14	**0.45**	0.04	-0.03	0.13	0.07	0.22
(2)	Debt-equity		**0.30**	0.14	-0.07	0.04	0.02	0.12	0.02	**-0.28**	-0.11	-0.07	0.15	-0.07	0.03	0.15	-0.02	0.23
(3)	Nongaap			**0.36**	0.11	0.18	0.27	-0.08	-0.13	-0.04	0.12	0.01	-0.09	-0.05	0.15	0.06	0.15	0.24
(4)	Trend				**0.76**	0.09	**0.38**	**-0.35**	**-0.44**	0.10	0.05	**0.35**	-0.13	0.15	0.26	-0.11	0.12	0.12
(5)	Post					-0.01	0.21	-0.14	-0.25	0.16	**0.28**	**0.43**	-0.06	0.26	0.22	-0.19	0.00	0.15
(6)	Lease Intensity						0.15	-0.01	-0.15	-0.11	**0.46**	0.04	0.01	-0.15	0.20	0.25	**0.28**	0.13
(7)	Size							**-0.38**	**-0.33**	0.22	0.22	-0.09	**-0.32**	**0.32**	0.06	-0.09	**0.31**	0.07
(8)	Leverage								**0.87**	**-0.65**	-0.12	0.12	**0.39**	0.04	**-0.29**	0.28	0.10	0.13
(9)	BM									**-0.47**	-0.18	0.05	0.25	0.05	**-0.33**	0.16	0.05	0.12
(10)	ROA										0.10	-0.19	**-0.38**	0.07	0.19	**-0.38**	-0.07	-0.09
(11)	Tangibility											0.15	-0.04	-0.05	0.14	0.11	0.01	0.15
(12)	IndexReturns												0.09	0.02	-0.06	0.11	-0.08	0.02
(13)	Spread													-0.04	-0.04	0.21	0.02	0.10
(14)	Mature														0.13	**-0.41**	**0.32**	-0.05
(15)	LoanSize															0.02	**0.44**	0.02
(16)	Secured																0.00	0.22
(17)	Syndicate																	0.02
(18)	OtherLeaseCov																	

Table 1.2 presents descriptive statistics for firm-level and contract-level data used to estimate Equation (1) for a sample of contracts in the pre- and post-SFAS 13 adoption periods. Panel A presents summary statistics and Panel B presents Spearman correlations (bolded items are significant at the 1% level). The table displays descriptive statistics for the full sample of contracts, the subsample of pre-SFAS 13 adoption contracts, and the subsample of post-SFAS 13 adoption contracts. The far right columns display the difference in means between the pre-SFAS 13 adoption subsample (Post = 0) and the post-SFAS 13 adoption subsample (Post = 1) with t-statistics testing the significance of this difference using a t-test. ***, **, and * indicate that differences in means are statistically significant at the 1%, 5%, and 10% levels, respectively. See APPENDIX 1.1 for variable definitions.

TABLE 1.3

Covenant Choice Model: Lease Restrictions

Variable	Lease Restriction	Lease Restriction	Lease Restriction	Lease Restriction
Post	**-1.5423*** [-2.94]**	**-1.5582*** [-2.91]**	**-1.5039* [-1.79]**	**-2.3941** [-2.55]**
Lease Intensity		-0.6362 [-0.32]	7.9903* [1.68]	11.2489*** [2.65]
Size			-0.5337* [-1.78]	-0.6589** [-1.98]
Leverage			-0.2500 [-1.24]	-0.4657* [-1.65]
BM			2.4521* [1.95]	2.7098** [2.16]
ROA			43.2642 [1.63]	50.3777 [1.49]
Tangibility			-5.7913* [-1.65]	-8.7343** [-1.96]
IndexReturns			-2.4641 [-1.40]	-0.7704 [-0.31]
Spread			20.5542*** [2.76]	24.2782*** [3.75]
Mature			1.0203* [1.81]	1.4090** [2.54]

Variable	Lease Restriction	Lease Restriction	Lease Restriction	Lease Restriction
LoanSize			0.0000	0.0000
			[1.10]	[0.36]
Secured			0.5491	0.1948
			[0.42]	[0.21]
Syndicate			-0.3650	-0.3509
			[-0.41]	[-0.37]
OtherLeaseCov				3.3295
				[1.58]
N	90	90	90	90
Pseudo R-Squared	7.74%	7.85%	46.30%	53.35%

Heteroskedasticity-robust t-statistics in brackets
**** p<0.01, ** p<0.05, * p<0.1*

Table 1.3 presents coefficient estimates from a logit model estimating Equation (1) for the SFAS 13 Adoption Sample of lending contracts collected before and after SFAS 13 adoption. The dependent variable, *Lease Restriction*, is an indicator equal to one for contracts that contain lease restrictions and zero otherwise. The main variable of interest, *POST*, is an indicator variable equal to one for periods after a borrower adopts SFAS 13 lease accounting standards. See APPENDIX 1.1 for detailed definitions of the remaining independent variables.

TABLE 1.4

Covenant Choice Model: Debt-Equity Covenants

Variable	Debt-Equity
Post	**-0.1078**
	[-0.12]
Lease Intensity	3.3792
	[1.06]
Size	0.2837
	[1.01]
Leverage	-0.0179
	[-0.09]
BM	0.1156
	[0.21]
ROA	-26.1351**
	[-2.24]
Tangibility	-1.8364
	[-0.85]
IndexReturns	-1.4000
	[-0.87]
Spread	3.1066
	[1.62]
Mature	-0.3404
	[-0.68]

Variable	Debt-Equity
LoanSize	0.0000*
	[1.71]
Secured	-0.0203
	[-0.02]
Syndicate	-0.8574
	[-1.17]
OtherLeaseCov	1.9504*
	[1.68]
N	90
Pseudo R-Squared	19.21%

Heteroskedasticity-robust t-statistics in brackets
**** p<0.01, ** p<0.05, * p<0.1*

Table 1.4 presents coefficient estimates from a logit model estimating Equation (1) for the SFAS 13 Adoption Sample of lending agreements collected before and after SFAS 13 adoption. The dependent variable, *Debt-Equity*, is an indicator variable equal to one if a loan contract contains a debt-to-equity covenant that is based on GAAP and not adjusted with respect to leases and zero otherwise. The main variable of interest, *POST*, is an indicator variable equal to one for periods after a borrower adopts SFAS 13 lease accounting standards. See APPENDIX 1.1 for detailed definitions of the remaining independent variables.

TABLE 1.5

Covenant Choice Model: Non-GAAP Adjustments

Variable	Non-GAAP
Trend	**0.7021****
	[2.17]
Size	-0.3865
	[-0.73]
Leverage	0.3971
	[0.98]
BM	-0.6217
	[-0.59]
ROA	18.0380
	[1.06]
Tangibility	5.3825**
	[2.33]
IndexReturns	-2.8727
	[-1.43]
Spread	1.4982
	[0.59]
Mature	0.1180
	[0.26]

Variable	Non-GAAP
LoanSize	0.0000
	[0.24]
Secured	-0.3449
	[-0.31]
Syndicate	0.3178
	[0.43]
OtherLeaseCov	0.7838
	[0.91]
N	67
Pseudo R-Squared	30.56%

Heteroskedasticity-robust t-statistics in brackets
**** p<0.01, ** p<0.05, * p<0.1*

Table 1.5 presents logit model coefficient estimates estimating Equation (1) for the SFAS 13 Adoption Sample of lending agreements collected before and after SFAS 13 adoption. The dependent variable is an indicator equal to one if financial covenants make non-GAAP adjustments for leases and zero otherwise. The main variable of interest, *TREND*, is a time trend variable from the beginning of the post period until the end of the post period incrementing by year. See APPENDIX 1.1 for detailed definitions of the remaining independent variables.

Chapter 2: Do Lenders Uniformly Capitalize Operating Leases in Debt Covenants?

2.1 Introduction

At the center of the debate regarding proposed lease accounting standards is the extent to which leases should be capitalized on the balance sheet. Lease contracts vary substantially in nature from equipment rentals to land and office buildings and characteristics including lease term, renewal options, and residual value guarantees. Disagreement exists among financial statement users and between the FASB and IASB on the degree to which different types of leases receive different financial reporting treatment.[16] The purpose of this study is to examine the relation between operating lease characteristics and contractual definitions of lease-related financial covenants in private lending contracts to provide empirical evidence regarding whether lenders treat operating leases equally or differently in debt covenants based on operating lease characteristics.

Current accounting rules specify bright-line thresholds to partition leases into capital or operating leases for financial reporting.[17] The leasing industry has evolved based on these thresholds with lease contracts becoming increasingly more complex to achieve operating lease classification, which avoids recognition of the leases on the balance sheet (Imhoff Jr., Lipe, and Wright 1991). While the contracts have evolved, financial statement users question whether

[16] For example, the FASB supports a "dual approach" for leases. Most capital or financing leases separately report amortization of the lease asset and interest expense on the lease liability whereas most operating leases report a single lease expense. The IASB in contrast supports a single financial reporting approach where all capitalized leases separately report amortization of the lease asset and interest expense on the lease liability (Tysiac 2014).
[17] See Statement of Financial Accounting Standards 13: Accounting for Leases (SFAS 13) or Accounting Standards Codification 840 (ASC 840).

accounting rules faithfully represent the economic substance of these transactions. Prior research in lease accounting indicates that credit market participants account for operating leases in credit ratings (e.g., Kraft 2012) and that private lenders do not price operating leases uniformly (Altamuro et al. 2013). Similar to Altamuro et al. (2013), I expect banks to adjust for operating leases on a case-by-case basis depending on lease characteristics. However, I consider how lenders incorporate lease heterogeneity into debt covenant definitions. Prior research argues for the unique role of debt covenants for monitoring (see, e.g., Tirole 2006 and Chava and Roberts 2008) and finds evidence consistent with the distinctive role of debt covenants in the context of lease accounting (Graden 2014). Understanding whether leases are given equal treatment for debt covenants is important because debt covenants mitigate *unexpected* wealth transfers from debt holders to shareholders (e.g., Jensen and Meckling 1976; Tirole 2006). In this paper, I study the association between operating lease characteristics and the likelihood that lenders capitalize or adjust for operating leases for debt covenant calculations (i.e., non-GAAP adjustments) to provide empirical evidence of lenders' demand for contractible measures of leasing activity.

From a contracting perspective, lenders have incentive to mitigate circumstances that lower the value of the debt. Lease contracts, if structured in the right way, may affect the value of lenders' claims due to the effect of lease terms on the lenders' ultimate priority in bankruptcy. Bankruptcy courts treat leases as either executory contracts (i.e., administrative expenses) or security interests (UCC).[18] How bankruptcy courts characterize leases affects the priority of payments in arrears and distributions from the bankruptcy estate to creditors (Oei 2008). If the court rules a lease as an

[18] Courts differentiate between "true leases" and "security interests." The true lease designation is used when the court deems a lease arrangement to be an executory contract which receives priority treatment similar to administrative expenses necessary for the on-going operation of the bankrupt firm. The security interest designation is used when the court deems a lease arrangement to be a financing arrangement or debt-financed asset purchase (Mayer 2005).

executory contract and the lessee chooses to continue using the leased asset (i.e., the lessee "assumes" the lease), the lessor has a priority claim to payments in arrears.[19] Alternatively, if the court rules a lease as a security interest, then lessors are ranked with creditors on a *pro rata* basis implying that existing creditors' claims may be diluted with the influx of lessors as additional claimants of the bankruptcy estate (Eisfeldt and Rampini 2009). These stylized facts from the bankruptcy code provide a setting to test lenders' incentives to incorporate operating leases into debt covenants depending on underlying lease characteristics. Both cases above predict a higher probability of loss conditional on bankruptcy. Because of the unique role covenants play in protecting creditors, I predict that leases with greater risk of being assumed by the lessee or being characterized by the bankruptcy court as security interests are associated with a higher probability of lenders capitalizing operating leases in financial covenants.

Practitioners and regulators argue that the leasing industry has evolved substantially since the promulgation of SFAS 13 in 1976. Particularly, operating lease agreements are much more prevalent in recent years and have become more complex (e.g., Imhoff Jr., Lipe, and Wright 1991; Securities and Exchange Commission (SEC) 2005). To provide the most relevant contract data to inform standard setting, I hand-collected a sample of private debt contracts from 2008 to 2011 and determine how lenders adjust for borrowers' operating leases. Multivariate analyses show a significant positive relation between a proxy for lease contract duration and the probability of the lending contract capitalizing operating leases (i.e., non-gaap adjustments).[20] The evidence suggests

[19] If the lessee rejects the lease, the lessee must relinquish possession of the leased asset (e.g., returning equipment or vacating a retail shopping location) but is under no obligation to continue lease payments or cure payments in arrears. The lessor may sue for damages but is limited in the amount it can claim for unpaid rent at one year's rent or 15 percent of the rent to be paid over the remaining term of the lease not exceeding three years (Ayer, Bernstein, and Friedland 2004).

[20] Leases with longer terms represent a greater risk to lenders' loss conditional on default because such leases are more likely to be recharacterized as debt in bankruptcy proceedings (Eisfeldt and Rampini 2009). Synthetic leases are contracts that are carefully structured to be classified as rentals for financial reporting purposes (i.e., operating

that lenders are aware of variation in lease terms and account for these terms when writing covenants. While the sample size and infrequent nature of other lease characteristics such as guaranteed residual value leases yield no significant associations with non-gaap covenant adjustments for operating leases, the findings provide modest evidence that lenders do not uniformly capitalize operating leases. These results are important in the standard-setting process by providing empirical evidence of the nature of lenders' demand for lease accounting rules.

This study contributes to several areas of the accounting literature including research on lease accounting rules and debt contract design. First, FASB's exposure draft capitalizes nearly all lease transactions with the intent of improving the financial reporting transparency of leases. Prior research, however, documents differences among financial statement user groups' treatment of operating leases. Extant studies generally find that equity investors capitalize all operating leases (Lipe 2001). In contrast to equity investors, Altamuro et al. (2013) find evidence suggesting that lenders discriminate among operating leases when setting loan spreads. In contrast with the proposed lease accounting standard, my findings suggest that lenders do not uniformly capitalize operating leases when writing debt covenants.

Second, I provide an additional explanation of lenders' demand for accounting rules—bankruptcy costs. The evidence is consistent with lenders avoiding bankruptcy-related costs by selectively capitalizing operating leases based on lease characteristics. Prior studies suggest that bankruptcy rules affect lessors' right of repossession (Eisfeldt and Rampini 2009), the price of private loans (Altamuro et al. 2013), and debt-market participants' sensitivity to purchase obligations relative to operating leases (Andrade, Henry, and Nanda 2014). The findings of this

leases) and economic liabilities, or capital leases, for tax purposes. Synthetic leases are treated as economic liabilities for bankruptcy purposes (Altamuro 2006).

paper indicate that bankruptcy rules affect private lenders' incentives to adjust for operating leases in debt covenants.

Finally, I contribute to studies of debt contract design. The debt contract design literature explores detailed contractual features documenting how lenders use accounting information in the contracting setting. Early studies investigate features of bond covenants (Smith and Warner 1979; Leftwich 1983). Recent studies investigate contracting changes around mandatory accounting pronouncements (e.g., Frankel, Seethamraju, and Zach 2008; Ball, Li, and Shivakumar 2013) and investigate trends toward income-statement based financial covenants that are associated with increased application of fair value accounting (e.g., Li 2010; Demerjian 2011; Li 2012). These studies provide evidence consistent with fair value adjustments and transitory accruals diminishing the value of GAAP for debt contracting. My findings document how lenders use current GAAP rules to incorporate leases into financial covenants and provide evidence of the nature of lenders' demand for lease accounting rules in the context of writing financial covenants.

2.2 Background and Hypotheses

2.2.1 Distinguishing Among Lease Types

The distinction between capital and operating leases has been at the heart of opposing views towards financial reporting for leases. The incumbent accounting standard, SFAS 13, partitions leases according to four bright-line criteria based on lease contract terms. On the FASB's standard-setting agenda has been revamping the bright-line thresholds in a joint project with the IASB. While the two standard setters and financial statement users generally agree that the right to use an asset has value that should be recognized on the face of the balance sheet, disagreement exists regarding the treatment of leases across asset classes such as real estate and

equipment as well as across industries. A recent article highlights the challenges of this joint work noting that, "the two boards came to different conclusions in preliminary votes on financial reporting guidance for lessees and for lessors. The boards will meet again…in an effort to resolve their differences and move forward together with the difficult project, which was first placed on their agendas in 2006 (Tysiac 2014)." Financial statement users expressed concern that the FASB's first Exposure Draft from August 2010 did not properly account for differences between real estate and equipment leases. Accordingly, in a second Exposure Draft issued in May 2013, the FASB proposed a "dual approach" of financial reporting treatment effectively differentiating between real estate leases and all other leases. The length of the standard-setting process and the quantity and divided nature of feedback from comment letters indicates the difficulty of how to draw the line between leases that represent assets financed with debt and leases that do not. The objective of this study is to provide empirical evidence under the current financial reporting standards of how lenders draw the line between capital and operating leases when writing debt covenants.

2.2.2 Bankruptcy Treatment: True Leases or Security Interests

One of the principal reasons lenders are likely to avoid a "one-size-fits all" method to account for leases relates to how leases are treated in bankruptcy. Bankruptcy courts refer to leases as either true leases or (disguised) security interests. [21] True leases are treated as executory contracts (i.e., administrative claims) in bankruptcy that are either assumed or rejected by the debtor or trustee (i.e., the lessee), subject to court approval (UCC). If the lessee assumes a lease, the lessee is allowed to continue to make payments and maintain possession or use of the leased

[21] See *In re Integrated Health Service Inc.*, 260 B. R. 71 [Bankr. D. Del. 2001] for an example of a court case distinguishing between true leases and security interests.

asset. However, the lessee must cure any defaults on lease payments in arrears. In the legal literature, lessees are required to "cure and assure" meaning that to continue the use of a leased asset, the lessee must pay the lessor any payments in arrears or provide adequate guarantee that payments will be made. These payments to cure receive priority treatment over creditors who are not allowed repossession of leased assets due to the automatic stay imposed by the bankruptcy court and who must wait until the reorganization plan under Chapter 11 is implemented to receive a *pro rata* share of the bankruptcy estate (Ayer, Bernstein, and Friedland 2004). Thus, lease payments in arrears receive priority over lenders' claims.[22] Leases ruled by the court to be security interests receive the same treatment as other financing arrangements: leased assets become part of the bankruptcy estate subject to automatic stay and lessors fall in line with other creditors for repayment (Krishnan and Moyer 1994). Legal research notes that determining the character of lease transactions occurs frequently in bankruptcy courts and has significant ramifications for lessees, lessors, and creditors (Abatemarco and Sabino 2008; Oei 2008). In essence, a borrower with leases that are reported as operating leases for financial statements may be deemed by the bankruptcy court to be (disguised) security interests in which case a lenders' share of the bankruptcy estate is diluted by the addition of lessors who receive their pro rata share alongside lenders. Hence, I expect that lenders selectively adjust for leases in debt covenants based on potential bankruptcy costs:

H1: Lenders are more likely to make non-GAAP covenant adjustments related to operating leases when the lease is likely to be treated as a security interest by the court.

[22] Distinguishing between leases that are more likely than other leases to be assumed by a lessee in bankruptcy is an empirical challenge. Without observing lease contracts and bankruptcy payouts, it is difficult to determine whether true leases or security interests have higher expected losses in bankruptcy. Thus, I do not explicitly test nor draw conclusions about the predictions related to assumed leases in bankruptcy. The inferences relate only to circumstances in which the bankruptcy court is likely to classify an operating lease as a security interest.

2.3 Research Design

The hypothesis predicts that lenders are more likely to capitalize a borrower's operating leases when the leases have characteristics that increase the probability of being characterized as security interests by the bankruptcy court. To test this hypothesis, I employ the following model:

$$Nongaap_{i,j,t} = \beta_0 + \beta_1 Lease\_term_{i,t} + \beta_2 Lease\_intensity_{i,t} + \sum \beta_i Loan - level\ controls + \sum \beta_i Borrower - level\ controls + \varepsilon_{i,t} \quad (1)$$

where the dependent variable, *Nongaap*, is an indicator variable equal to one if firm *i*'s contract *j* starting in year *t* capitalizes operating leases into financial covenants and zero otherwise. The explanatory variable of interest is *Lease_term*. SFAS 13 specifies four criteria to determine the classification of a lease. One of these criteria compares the length of the lease term to the useful life of the leased asset. The longer the lease term relative to the useful life of the asset, the more the leasing agreement is like a financed purchase (rather than a rental). Because I do not have access to lease agreements and lease contract terms, I use disclosed future minimum lease payments to derive a measure to proxy for the duration of a firm's leases. SFAS 13 disclosure rules require a schedule of future minimum lease payments five years from the balance sheet date with an aggregate amount of all future minimum lease payments thereafter.

Consistent with prior studies (e.g., Altamuro et al. 2013; Andrade et al. 2014) and the Standard & Poor's method of capitalizing operating leases (Standard & Poor's 2013), I measure *Lease_term* as the sum of five years plus the ratio of i) the lump sum of future minimum lease payments more than five years into the future (i.e., *Thereafter Portion*) divided by ii) the year t+5 future minimum lease payment (*Year 5 MLP*) as in the formula below:

$$Lease\_term = 5 + \frac{(Thereafter\ Portion)}{(Year\ 5\ MLP)}$$

This measure provides an indication of how many years into the future the firm has lease obligations. The *Lease_term* measure imposes a straight-line assumption into the calculation meaning that firms having a larger lump sum of lease obligations (i.e., the *thereafter* portion) relative to year 5 minimum lease payments are classified as having longer-term leases. I further assume that longer-term leases are more likely to have debt-like characteristics which lenders have greater incentive to capitalize.[23] Thus, I predict a positive relation between *Lease_term* and *Nongaap* (i.e., $\beta_1 > 0$).

The next set of tests examines additional measures of lease characteristics and the probability of capitalization into debt covenants:

$$Nongaap_{i,j,t} = \beta_0 + \beta_1 Retail_i + \beta_2 RP\_resid\_synth_{i,t} + \beta_3 Distress_{i,t} + \sum \beta_i Loan - level\ controls + \sum \beta_i Borrower - level\ controls + \varepsilon_{i,t} \quad (2)$$

In this model, I measure lease characteristics following Altamuro et al. (2013). The authors find evidence that firms in the retail industry, firms with related party leases or leases with guaranteed residual value, and distressed firms have incremental explanatory power for loan interest rates. These measures provide proxies of lease characteristics to capture lenders' incentives to adjust financial covenants. Altamuro et al. (2013) find evidence that operating leases of retail-industry firms resemble rentals (i.e., true leases). To proxy for leases that resemble rentals, I use an industry-based indicator variable, *Retail*, for firms in the Fama-French 48 Retail Industry classification. If lenders selectively capitalize operating leases that are in substance closer to economic liabilities, I

[23] If my proxy for synthetic leases is measured with error, I will be less likely to find an effect on lenders' propensity to make non-GAAP adjustments because of attenuation bias.

expect that lenders are less likely to make adjustments for firms in the retail industry and predict a negative sign for β_1.[24]

The next proxy, *RP_resid_synth*, captures lease characteristics that increase the likelihood that the bankruptcy court will recharacterize the lease from an operating lease to a security interest. Leases to related parties and leases with residual value guarantees are more likely to represent liabilities to the lessee and to be viewed as security interests by the bankruptcy court. In addition, leases characterized as synthetic leases are treated as security interests by the bankruptcy court. Synthetic leases represent a unique class of leases that are not distinguished separately from operating leases for financial reporting but have contract features that resemble economic liabilities such as balloon payments and residual value guarantees that leave the lessee ultimately responsible for the risks and rewards associated with asset ownership (Evans 1996). Moreover, synthetic lease financing arrangements require no down payments and require interest-only payments—thus, mechanical capitalization of the lease payments for these lease arrangements understates the future cash outflow due at the end of the synthetic lease term (Altamuro 2006; Zechman 2010). Bankruptcy court cases note a precedent of characterizing synthetic leases as security interests.[25] Thus, synthetic leases represent instances in which lenders have incentive to monitor borrower leases by capitalizing operating leases. To measure related party leases, residual value guarantees leases, and synthetic leases, I search SEC filings using 10-K Wizard.[26] Because related party, guaranteed residual value, and synthetic leases occur infrequently in the sample but have the same empirical prediction, I combine the measures into one variable *RP_resid_synth*

[24] As noted above, I measure *Retail* using the Fama-French 48 industry classification. Using a finer classification scheme is a more conservative measure of firms in the retail industry. A broader industry classification would label more firms as retail firms and would likely bias in favor of finding an effect.
[25] Unocal Corp. v. Union Oil, 177 F.3d 755 (9th Cir. 1999), cert. denied, 528 U.S.1061 (1999).
[26] I hand-collect data on synthetic leases from 10-K Wizard following (Zechman 2010) using the following search string: "synthetic leas∗" or "(residual w/10 guarantee) w/30 (operating leas∗ or rent∗)."

equal to one if a borrower discloses a related party, guaranteed residual value, or synthetic lease and zero otherwise.[27] I expect a positive sign for β_2 indicating that lenders are more likely to make non-GAAP adjustments when borrowers have leases with these attributes.

Finally, Altamuro et al. (2013) predict that lenders have greater incentive to account for operating leases when the borrower is distressed. To capture distressed borrowers, I calculate z-scores for each four-digit SIC year during the sample period and define *Distressed* equal to one if the borrower has a z-score above the industry-year median and zero otherwise. The hypothesis predicts a positive sign for β_3 indicating that lenders are more likely to make non-GAAP adjustments when firms are distressed.

2.4 Sample Selection and Results

2.4.1 Sample Selection and Descriptive Statistics

To select the sample, I begin with all deals in the *Dealscan* database. I limit the sample to completed deals denominated in U.S. Dollars that contain leverage, debt-to-earnings, fixed charge coverage, and interest coverage debt covenants as these covenants are most likely to be modified by lenders to include operating leases. I then merge the *Dealscan* data into *Compustat* for all firms with available gvkey matches.[28] Using *Compustat* data on the disclosed future minimum lease payments relating to operating leases, I restrict the sample to firms having a ratio of present value of operating leases to total assets of 20 percent or greater.[29] Isolating firms that have relatively

[27] Combining the proxies into a single variable is consistent with the treatment of related party and residual value guarantee leases in Altamuro et al. (2013).
[28] Chava and Roberts (2008) provide the linking table for the Dealscan-Compustat matching. Additionally, I screen *Compustat* data for firms headquartered in the U.S. ('fic' = 'USA') and with positive values of total assets ('at'>0).
[29] Disclosure guidance according to SFAS 13 requires firms to list aggregate future minimum lease payments of all operating leases for the next five years, then a lump sum of such payments for all years thereafter. *Compustat* collects these data and labels them "mrc1" – "mrc5" and "mrcta" for the five years of future minimum lease payments and the thereafter portion, respectively. To calculate a present value amount of the operating leases, I use a 10 percent discount rate consistent with prior research (Ge 2006) and credit rating practices (Moody's Investor Service).

large amounts of operating leases provides a sample where off-balance-sheet leases play a significant role in the financing of the firm and are most likely to affect contracting incentives. In other words, if lenders make any adjustments for operating leases, I expect the adjustments to be most prevalent in firms with a significant amount of operating leases.

Using these sample selection criteria, I hand collect all available lending agreements from 2008 to 2011. This sample period is well suited to providing evidence about how lenders distinguish among operating leases. First, the leasing industry has evolved since the passage of Statement of Financial Accounting Standards 13: *Accounting for Leases* (SFAS 13). It is widely cited both in academic literature and among practitioners that firms structure transactions to achieve operating-lease financial reporting. Second, operating leases have not only become more prevalent but they have also become more complex (e.g., Imhoff Jr., Lipe, and Wright 1991; Securities and Exchange Commission (SEC) 2005). For example, the innovation of synthetic leases, which are reported as operating leases, are specially structured leases involving special-purpose entities and specific contractual terms to meet operating lease requirements for financial reporting while concurrently meeting tax requirements to classify the transaction as a capital lease for tax purposes to provide the lessee with an additional tax shield. A recent sample is beneficial in informing standard setters whether current contracting practices treat operating leases equally. Based on the sample selection criteria, the final sample of firms with available firm-level and contract-level data is 111 lending agreements.

Table 1 reports time, industry, and covenant distributions for the sample contracts and firms. Panel A documents that the distribution of contracts by year is relatively stable across time. Panel B highlights the industry concentration of my sample firms particularly in the retail industry with 60 percent of sample firms classified as retailers which is consistent with prior lease

accounting studies. Finally, Panel C tabulates the distribution of covenants types. Lenders capitalize operating leases into two types of covenants: leverage covenants and debt-to-earnings covenants. Leverage covenants occur in 16 percent of the sample and debt-to-earnings covenants occur in 84 percent of the sample.[30] Lenders capitalize operating leases in 36 percent of leverage covenants and 71 percent of debt-to-earnings ratios, and there are no instances in which lenders adjust for operating leases in both covenants simultaneously. Within each covenant type and for the sample overall, lenders exhibit variation in the degree to which they incorporate leases into financial covenants.

Table 2 displays sample descriptive statistics. Beginning with summary statistics presented in Panel A I note that of the available sample contracts, 40 percent contain covenant definitions that capitalize operating leases. This provides initial evidence of the degree of variation in the contractual treatment of operating leases. I also note that borrower use of operating leases differs along multiple dimensions. First, the average number of years of minimum lease payments ranges from 5 to 21 years with an average of 8.75 years. Additionally, the present value of future minimum lease payments relative to total assets varies from 22 percent of assets to 342 percent of assets with an average of 56 percent. These sample descriptive statistics are consistent with practice and findings from other studies indicating diversity in how extensively firms utilize leasing as a form of financing. The economic significance of sample operating leases is expected given the sample selection criteria but underscores the extent of lease financing in the sample. Finally, borrowers exhibit some degree of variation in terms of related party leases, leases with residual value

[30] Li (2010) and Demerjian (2011) report debt-to-earnings (or debt-to-cash flow) ratios in roughly fifty percent of their sample contracts. The nature of my sample selection criteria likely contribute to the high concentration of debt-to-earnings ratios in my sample.

guarantees, and synthetic leases with 11 percent of sample contracts exhibiting leases with these attributes.[31]

Panel B provides Spearman correlations for variables used in the multivariate analyses. I turn first to the variables used to test the hypotheses. The first variable of interest, *Lease_term* is positively correlated with non-GAAP adjustments as predicted in H1 and in untabulated analysis is significant at the five-percent level. *Retail* and *RP_res_syn* are also correlated with the dependent variable in the hypothesized direction, although the correlation is weaker. *Distress* exhibits a negative correlation in contrast to the expected positive sign.

2.4.2 Results

To provide evidence on H1, I estimate Equation (1) using a probit model. The first column displays coefficient estimates for the model using the *Lease_term* variable while the second column displays estimates using the log of *Lease_term*. The t-statistics in brackets are calculated using robust standard errors. Both specifications show a positive and significant coefficient on *Lease_term* and the log of *Lease_term* consistent with the predictions of H1. The results indicate that lenders are significantly more likely to capitalize operating leases when lending to borrowers with leases of longer duration. These findings suggest that operating lease characteristics affect the incentives lenders face when writing financial covenants. The negative sign on *Lease_intensity* indicates a lower probability of adjusting for operating leases when the present value of future minimum lease payments is higher on average. A positive relation would indicate a linear relation between operating lease intensity and contract adjustment consistent with a uniform treatment of

[31] Individually, related party, residual value guarantee, and synthetic leases occur less frequently. I aggregate these lease types into a single variable as they have the same directional prediction on lenders' incentives. Related party leases, residual value guarantees, and synthetic leases are all more likely to be characterized in bankruptcy as security interests with the result that lenders' recovery rates decline. Thus, the prediction is that these lease types are associated with an increased probability of capitalizing operating leases into financial covenant definitions.

operating leases (i.e., the more operating leases a borrower has, the more likely the lender is to capitalize those leases into debt covenants). In contrast to a uniform treatment, the negative relation for *Lease_intensity* in conjunction with the positive relation for *Lease_term* suggests that lenders consider lease terms in addition to the levels of operating leases when choosing how to define debt covenants. The results underscore the idea that uniformly capitalizing operating leases into debt covenants is not always in lenders' best interest.

In addition to these findings, the results also indicate that lenders are more likely to make non-GAAP adjustments when borrowers have more physical assets and negative ROA. Lessors are likely to have security interests in a lessee's *non-leased* assets which threatens lenders' bankruptcy priority. The negative coefficient on *Roa* is also consistent with lenders have greater incentive to incorporate operating leases to protect against an increased risk of bankruptcy when borrowers experience negative ROA.

Table 4 presents the results of estimating Equation 2. As in Table 1, I estimate the model using a probit specification with t-statistics calculated based on robust standard errors. This table reports coefficient estimates for three additional proxies of lease characteristics. In the first column, *Retail* has a negative coefficient but is not statistically different from zero. The negative coefficient indicates that contracts are less likely to include non-GAAP adjustments when borrowers are in the retail industry. Similarly, *RP_resid_synth* and *Distress* have coefficients in the predicted direction but are not significantly different from zero. The lack of statistical significance may indicate no effect of these variables on non-GAAP adjustments, a lack of power due to the small sample size, or noisy measures of lease characteristics. The remaining control variables have signs and magnitudes relatively consistent with Table 3 with the exception of *Lease_intensity*, which is no longer significant. Overall, the results from these analyses

indicate an association between lease characteristics and lenders' propensity to capitalize operating leases when defining debt covenants.

2.5 Conclusion

This paper examines the relation between borrowers' operating lease characteristics and lenders' propensity to capitalize operating leases in debt covenants. The purpose of studying this relation is to determine whether lenders treat operating leases equally for contracting purposes. The recent lease accounting exposure drafts from the joint FASB-IASB leasing project provide for balance-sheet treatment of substantially *all* leases. I argue that bankruptcy laws relating to leases affect lenders' ability to recover principal in bankruptcy proceedings and that these potential costs are related to variation in borrower lease characteristics. Thus, borrower lease characteristics affect lenders contracting incentives and are associated with differential treatment of operating leases as opposed to a "one-size-fits-all" contracting treatment of operating leases.

Using a hand-collected sample of lending agreements from 2008 to 2011, I find that lenders are significantly more likely to capitalize operating leases when borrower leases have longer lease terms. In addition to borrower lease term, I investigate other lease characteristics including related party, residual value guarantee, and synthetic leases and document no significant relations with lenders' propensity to adjust covenants and these lease characteristics. Overall, the analyses provide modest evidence that lenders tailor debt covenant definitions according to borrowers' operating lease characteristics. This study is relevant to standard setters by documenting variable treatment of operating leases in the debt contracting setting and providing an explanation of how bankruptcy costs affect lenders' incentives for capitalizing operating leases.

2.6 References

Abatemarco, Michael, J., and Anthony Michael Sabino. 2008. "'True Lease' Versus Disguised Security Interest: Is the United Trilogy Truly the Last Stand?" *UCC LJ* 40: 445–513.

Altamuro, Jennifer. 2006. *The Determinants of Synthetic Lease Financing and the Impact on the Cost of Future Debt*. SSRN Scholarly Paper ID 951514. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=951514.

Altamuro, Jennifer, Rick Johnston, Shailendra Pandit, and Haiwen Zhang. 2013. "Operating Leases and Credit Assessments." *Contemporary Accounting Research*.

Andrade, Sandro C., Elaine Henry, and Dhananjay Nanda. 2014. *The Impact of Operating Leases and Purchase Obligations on Credit Market Prices*. SSRN Scholarly Paper ID 1941896. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=1941896.

Ayer, John D., Michael L. Bernstein, and Jonathan Friedland. 2004. "Chapter 11 - '101.'" *American Bankruptcy Institute Journal* 23-9 (16).

Ball, Ray, Xi Li, and Lakshmanan Shivakumar. 2013. *Mandatory IFRS Adoption, Fair Value Accounting and Accounting Information in Debt Contracts*. SSRN Scholarly Paper ID 2278946. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=2278946.

Chava, Sudheer, and Michael R. Roberts. 2008. "How Does Financing Impact Investment? The Role of Debt Covenants." *The Journal of Finance* 63 (5): 2085–2121.

Demerjian, Peter R. 2011. "Accounting Standards and Debt Covenants: Has the 'balance Sheet Approach' Led to a Decline in the Use of Balance Sheet Covenants?" *Journal of Accounting and Economics* 52 (2–3): 178–202.Eisfeldt, Andrea L., and Adriano A. Rampini. 2009. "Leasing, Ability to Repossess, and Debt Capacity." *Review of Financial Studies* 22 (4): 1621–57.

Evans, Michael L. 1996. "Synthetic Real Estate Corporate America Goes Off Balance Sheet." *Journal of Property Management* 61 (6): 48–50.

Frankel, Richard, Chandra Seethamraju, and Tzachi Zach. 2008. "GAAP Goodwill and Debt Contracting Efficiency: Evidence from Net-Worth Covenants." *Review of Accounting Studies* 13 (1): 87–118.

Ge, Weili. 2006. *Off-Balance-Sheet Activities, Earnings Persistence and Stock Prices: Evidence from Operating Leases*. SSRN Scholarly Paper ID 816044. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=816044.

Graden, Bryan. 2014. *Lease Accounting Changes and Debt Covenant Characteristics*. Working Paper. Washington University in St. Louis.

Imhoff Jr., Eugene A., Robert C. Lipe, and David W. Wright. 1991. "Operating Leases: Impact of Constructive Capitalization." *Accounting Horizons* 5 (1): 51–63.

Jensen, Michael C., and William H. Meckling. 1976. "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." *Journal of Financial Economics* 3 (4): 305–60.

Kraft, Pepa. 2012. *Rating Agency Adjustments to GAAP Financial Statements and Their Effect on Ratings and Credit Spreads*. SSRN Scholarly Paper ID 1266381. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=1266381.

Krishnan, V. Sivarama, and R. Charles Moyer. 1994. "Bankruptcy Costs and the Financial Leasing Decision." *FM: The Journal of the Financial Management Association* 23 (2): 31–42.

Leftwich, Richard. 1983. "Accounting Information in Private Markets: Evidence from Private Lending Agreements." *The Accounting Review* 58 (1): 23–42.

Li, Ningzhong. 2010. "Negotiated Measurement Rules in Debt Contracts." *Journal of Accounting Research* 48 (5): 1103–44.

———. 2012. *Performance Measures in Earnings-Based Financial Covenants in Debt Contracts*. SSRN Scholarly Paper ID 1966112. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=1966112.

Lipe, Robert C. 2001. "Lease Accounting Research and the G4+1 Proposal." *Accounting Horizons* 15 (3): 299–310.

Mayer, David. 2005. "True Leases Under Attack: Lessors Face Persistent Challenges to True Lease Transactions." *Journal of Equipment Lease Financing* 23 (3, Part B): 1–25.

Moody's Investor Service. "Off-Balance Sheet Leases: Capitalization and Ratings Implications". October, 1999.

Oei, Shu-Yi. 2008. "Context Matters: The Recharacterization of Leases in Bankruptcy and Tax Law." *American Bankruptcy Law Journal* 82: 635.

Securities and Exchange Commission (SEC). 2005. "Report and Recommendations Pursuant to Section 401© of the Sarbanes-Oxley Act of 2002 On Arrangements with Off-Balance Sheet Implications, Special Purpose Entities, and Transparency of Filings of Issuers". http://www.sec.gov/news/studies/soxoffbalancerpt.pdf.

Smith, Clifford W., and Jerold B. Warner. 1979. “On Financial Contracting : An Analysis of Bond Covenants.” *Journal of Financial Economics* 7 (2): 117–61.

Standard & Poor’s. 2013. “Corporate Methodology: Ratios And Adjustments.” http://www.standardandpoors.com/prot/ratings/articles/en/us/?articleType=HTML&assetID=1245366688415.

Tirole, Jean. 2006. *Corporate Finance*. Cambridge University Press.

Tysiac, Ken. 2014. “No Easy Answers in Key Leases Standard Debate.” Accessed March 20. http://journalofaccountancy.com/News/20149794.htm.

UCC. “Uniform Commercial Code”. Legal Information Institute, Cornell University. http://www.law.cornell.edu/ucc/ucc.table.html.

Zechman, Sarah L. C. 2010. “The Relation Between Voluntary Disclosure and Financial Reporting: Evidence from Synthetic Leases.” *Journal of Accounting Research* 48 (3): 725–65.

Appendix 2.1: Variable Definitions

Variable	Definition	Data Source
NONGAAP	Indicator variable equal to one if a contract modifies GAAP definitions with respect to lease accounting and zero otherwise.	Hand Collection
Lease_term	Thereafter portion of future minimum lease payments (mrcta) divided by year 5 future minimum lease payments (mrc5) or year 4 future minimum lease payments if year 5 is a missing value (mrc4) (following Altamuro et al. (2013).	Compustat
Retail	Indicator variable equal to one if a firm is in a Retail industry as defined by the Fama-French 48 industry classification and zero otherwise.	Compustat
RP_resid_synth	Indicator variable equal ot one if a firm discloses related party leases, residual value guarantees, or synthetic leases in 10-K filings in the fiscal year prior to loan initiation and zero otherwise. I use search strings from Altamuro et al. (2013) to identify related party and residual value leases and Zechman (2010) to identify synthetic leases.	Hand Collection
Distress	Indicator variable equal to one if firm is above the median Altman z-score for the pooled sample of firms and zero otherwise. Altman z-score follows standard calculation based on prior literature.	Compustat
Lease_intensity	Equal to the present value of disclosed future minimum lease payments for operating leases following Ge (2006) modified to include the thereafter portion (mrcta).	Compustat
Spread	Equal to the log of the package-level mean of the maximum basis points identified in Dealscan's pricing dataset.	Dealscan
Deal_amount	Log of loan principal amount.	Dealscan
Maturity	Log of debt maturity in months.	Dealscan
PP	Indicator variable equal to one if a contract contains a performance pricing provision and zero otherwise.	Dealscan
Collateral	Indicator variable equal to one if a contract requires collateral and zero otherwise.	Dealscan
MVE	Common shares outstanding (csho) multiplied by end of year stock price (prcc_f).	Compustat
BM	Book value of equity (seq) divided by market value of equity (csho*prcc_f)	Compustat

Variable	Definition	Data Source
Leverage	Total debt (dltt+dlc) divided by total debt (dltt+dlc) plus book value of equity (seq) plus minority interest (mib)	Compustat
Tangibility	Net PP&E (ppent) divided by total assets (at).	Compustat
Roa	Earnings before extraordinary items (ib) divided by total assets (at).	Compustat
Loss	Indicator variable equal to one if a borrower has negative earnings before extraordinary items in the fiscal year prior to loan initiation and zero otherwise.	Compustat
Index_returns	Equal to 12-month CRSP value-weighted index returns from one year prior to contract initiation to the date of contract initiation.	CRSP

Table 2.1

Time, Industry, and Covenant Distributions

Panel A: Loan Contracts by Year

Year	# Contracts	% Contracts
2008	32	28.8%
2009	20	18.0%
2010	23	20.7%
2011	36	32.4%
Total	111	100.0%

Panel B: Firm Observations by Industry (Fama-French 10)

Industry Group	# Firms	% Firms
Durables	1	1.1%
HiTec	3	3.3%
Healthcare	4	4.4%
Manuf	1	1.1%
NonDurables	6	6.6%
Other	21	23.1%
Shops	54	59.3%
Telecom	1	1.1%
Total	91	100.0%

Panel C: Distribution of Financial Covenants and Non-GAAP Adjustments

Covenant Type	Covenant Freq.	% Sample	Non-GAAP Adj. Freq.	% Covenant
Leverage	11	16.4%	4	36.4%
Debt-To-Earnings	56	83.6%	40	71.4%
Total	67	100.0%	44	

Table 2.1 presents sample distributions across time, industries, and covenant types for the sample used to test non-GAAP covenant adjustments for operating leases. Panel A displays the distribution of loan contracts by year. Panel B displays industry distributions for firms using the Fama-French 10 industry classification. Panel C displays the distribution of covenant types and the frequency with which lenders capitalize operating leases within each covenant type.

TABLE 2.2

Sample Summary Statistics and Correlations

Panel A: Summary Statistics

Variable	N	Mean	Std Dev	Min	Q1	Median	Q3	Max
Nongaap	111	0.40	0.49	0.00	0.00	0.00	1.00	1.00
Lease_term	111	8.75	2.96	5.00	6.90	8.01	9.76	21.41
Retail	111	0.46	0.50	0.00	0.00	0.00	1.00	1.00
RP_resid_synth	111	0.11	0.31	0.00	0.00	0.00	0.00	1.00
Distress	111	0.41	0.49	0.00	0.00	0.00	1.00	1.00
Lease_intensity	111	0.56	0.45	0.22	0.35	0.47	0.61	3.42
Spread	111	5.12	0.77	2.81	4.83	5.16	5.62	6.55
Deal_amount	111	302.34	430.84	6.00	60.00	150.00	380.00	3000.00
Maturity	111	45.58	16.58	4.93	36.03	48.03	60.03	67.27
PP	111	0.62	0.49	0.00	0.00	1.00	1.00	1.00
Collateral	111	0.68	0.47	0.00	0.00	1.00	1.00	1.00
MVE	111	2290.07	4121.89	17.17	171.87	662.53	2114.75	19096.73
BM	111	0.76	0.72	0.06	0.30	0.52	1.07	3.75
Leverage	111	0.54	0.20	0.17	0.37	0.52	0.70	0.97
Tangibility	111	0.38	0.21	0.09	0.24	0.32	0.50	0.86
Roa	111	0.03	0.14	-0.43	-0.02	0.06	0.10	0.34
Loss	111	0.29	0.46	0.00	0.00	0.00	1.00	1.00
Index_returns	111	0.06	0.26	-0.44	-0.09	0.06	0.20	0.58

Table 2.2 presents summary statistics and correlations for the sample used to test non-GAAP covenant adjustments for operating lease activity. Panel A presents summary statistics and Panel B presents Spearman correlations. The summary statistics and correlations are for the sample of lending agreements collected from 2008 - 2011. *Significant at the one-percent level. See APPENDIX 2.1 for variable definitions.

Panel B: Spearman Correlations

		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1)	Nongaap	0.24	-0.12	0.07	-0.18	0.09	-0.28*	0.12	0.13	0.18	-0.34*	0.14	-0.25*	-0.07	0.32*	0.16	-0.19	0.07
(2)	Log(Lease_term)		-0.23	0.11	0.03	0.31*	0.14	-0.11	-0.02	0.12	0.02	0.07	-0.12	0.12	0.38*	-0.04	0.04	-0.13
(3)	Retail			-0.03	-0.02	0.05	-0.29*	-0.23	-0.09	0.09	-0.21	0.35*	0.11	-0.20	-0.22	0.13	-0.15	-0.14
(4)	RP_resid_synth				-0.11	-0.03	-0.01	0.04	0.11	0.09	-0.01	0.06	0.00	0.03	0.07	0.05	-0.16	0.00
(5)	Distress					-0.05	0.44*	-0.03	0.07	-0.07	0.42*	-0.25*	0.26*	0.21	-0.12	-0.37*	0.37*	0.03
(6)	Lease_intensity						-0.07	0.01	0.17	0.04	0.09	-0.20	0.05	0.03	0.12	-0.12	0.04	-0.12
(7)	Spread							-0.05	-0.14	-0.19	0.41*	-0.38*	0.33*	0.41*	-0.04	-0.46*	0.49*	0.00
(8)	Log(Deal_amount)								0.26*	0.11	0.17	-0.34*	-0.10	0.02	-0.08	0.04	-0.11	0.04
(9)	Maturity									-0.04	0.02	0.05	-0.08	0.03	0.06	0.02	-0.06	0.17
(10)	PP										-0.06	0.10	-0.03	-0.19	0.08	0.07	-0.20	-0.19
(11)	Collateral											-0.52*	0.36*	0.04	-0.13	-0.41*	0.36*	-0.11
(12)	Log(MVE)												-0.52*	0.01	0.08	0.58*	-0.42*	0.02
(13)	BM													-0.33*	-0.21	-0.69*	0.46*	-0.19
(14)	Leverage														0.12	-0.07	0.22	0.15
(15)	Tangibility															-0.03	0.07	0.02
(16)	Roa																-0.78*	0.14
(17)	Loss																	-0.06
(18)	Index_returns																	

Table 2.2 presents summary statistics and correlations for the sample used to test non-GAAP covenant adjustments for operating lease activity. Panel A presents summary statistics and Panel B presents Spearman correlations. The summary statistics and correlations are for the sample of lending agreements collected from 2008 - 2011. *Significant at the one-percent level. See APPENDIX 2.1 for variable definitions.

TABLE 2.3

Non-GAAP Lease Covenant Analysis: Lease Term

Variable	Pred	Nongaap	Nongaap
Lease_term	**+**	**0.1783***** **[2.78]**	
Log(Lease_term)	**+**		**1.5154**** **[2.42]**
Lease_intensity		-1.0409** [-2.43]	-0.8913** [-2.24]
Spread		-0.2751 [-1.16]	-0.2696 [-1.13]
Loan_size		1.6860** [2.02]	1.6004* [1.91]
Mature		-0.2552 [-1.01]	-0.2565 [-1.02]
PP		0.1078 [0.35]	0.091 [0.29]
Collateral		-0.8742** [-2.37]	-0.8936** [-2.41]
Size		-0.1055 [-0.71]	-0.1169 [-0.77]
BM		-0.4499 [-1.17]	-0.4492 [-1.18]
Leverage		-1.1073 [-1.20]	-1.0488 [-1.15]
Tangibility		2.4244*** [2.80]	2.4138*** [2.81]

Variable	Pred	Nongaap	Nongaap
Roa		-2.8969*	-2.8544*
		[-1.78]	[-1.77]
Loss		-0.8005	-0.8383
		[-1.51]	[-1.59]
Index_returns		0.831	0.8608
		[1.41]	[1.46]
Constant		2.0594	0.3826
		[1.05]	[0.18]
N		111	111
Pseudo R-Squared		32.73%	32.16%

Heteroskedasticity-robust t-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Table 2.3 presents coefficient estimates from a probit model estimating Equation (1) for the sample of lending agreements collected from 2008 - 2011. The dependent variable is an indicator equal to one if lenders capitalize operating leases (i.e., *Nongaap*) and zero otherwise. The main variable of interest, *Lease_term*, equals five plus the ratio of the "thereafter" portion of disclosed future minimum lease payments divided by the year five future minimum lease payments. See APPENDIX 2.1 for detailed definitions of the remaining variables.

TABLE 2.4

Non-GAAP Lease Covenant Analysis: Industry, Lease, and Lessee Characteristics

Variable	Pred	Nongaap	Nongaap	Nongaap
Retail	-	**-0.3744**		
		[-1.16]		
RP_resid_synth	+		**0.3789**	
			[0.80]	
Distress	+			**0.1784**
				[0.52]
Lease_intensity		-0.2892	-0.3089	-0.2536
		[-0.94]	[-1.03]	[-0.82]
Spread		-0.2097	-0.1714	-0.1757
		[-0.88]	[-0.72]	[-0.73]
Loan_size		1.5179*	1.6180*	1.6497*
		[1.80]	[1.95]	[1.92]
Mature		-0.3122	-0.3123	-0.2972
		[-1.22]	[-1.22]	[-1.11]
PP		0.2309	0.197	0.2111
		[0.75]	[0.65]	[0.69]
Collateral		-0.9418***	-0.9432***	-0.9491**
		[-2.61]	[-2.70]	[-2.41]
Size		-0.0356	-0.0841	-0.0585
		[-0.25]	[-0.59]	[-0.42]
BM		-0.3587	-0.4484	-0.4305
		[-0.99]	[-1.19]	[-1.20]
Leverage		-0.9601	-0.9434	-0.9917
		[-1.07]	[-1.02]	[-1.12]

Variable	Pred	Nongaap	Nongaap	Nongaap
Tangibility		2.7515***	2.9423***	2.9895***
		[3.31]	[3.61]	[3.77]
Roa		-2.8042*	-2.6071*	-2.7959*
		[-1.81]	[-1.66]	[-1.81]
Loss		-0.8014	-0.6927	-0.8106
		[-1.48]	[-1.31]	[-1.55]
Index_returns		0.5938	0.6494	0.6413
		[1.06]	[1.17]	[1.16]
Constant		2.5342	2.3949	2.1575
		[1.32]	[1.23]	[1.10]
N		111	111	111
Pseudo R-Squared		29.74%	29.43%	29.18%

Heteroskedasticity-robust t-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Table 2.4 presents coefficient estimates from a probit model estimating Equation (2) for the sample of lending agreements collected from 2008 - 2011. The dependent variable is an indicator equal to one if lenders capitalize operating leases (i.e., *Nongaap*) and zero otherwise. The main variables of interest are *Retail*, an indicator equal to one for borrowers classified as retail firms according to the Fama-French 48 industry classification and zero otherwise; *RP_resid_synth*, an indicator equal to one if the borrower discloses related party, residual value guarantee, or synthetic leases in 10-K filings in the fiscal year preceding contract initiation and zero otherwise; and *Distress*, an indicator variable equal to one if the borrower's z-score is below the four-digit SIC industry median z-score value and zero otherwise. See APPENDIX 2.1 for detailed definitions of the remaining variables.

Chapter 3: Do Cross-Country Differences in Accounting Standards Affect the Costs of Contracting?

3.1 Introduction

This paper studies whether differences in accounting standards across countries affect lenders' costs of contracting. I investigate the relation between accounting standards required in private debt agreements and lenders' country of domicile and how this relation varies with the number of accounting rule differences between borrower-country and lender-country accounting standards. I also examine loan spread, maturity, and financial covenant use when contract-specified accounting standards match lender-country accounting standards. I argue that accounting standard differences increase lenders' costs of performing due diligence to screen potential borrowers and increase lenders' costs of defining financial covenants at loan inception. Studying the above relations provides evidence of how variation in global accounting standards influences debt contracting terms.

Prior studies document that differences in accounting standards across countries are correlated with cross-border equity investment decisions (see, e.g., Bradshaw, Bushee, and Miller 2004; Covrig, Defond, and Hung 2007; Francis, Huang, and Khurana 2014; Yu and Wahid 2014). The findings from these studies suggest that equity investors incur costs to acquire and process information when evaluating firms that report financial information according to accounting principles that differ from investors' home countries. The findings also suggest that conformity to US accounting principles, voluntary adoption of International Accounting Standards (IAS), and the mandatory adoption of International Financial Reporting Standards (IFRS) reduces the cost of foreign investment.

Little evidence exists, however, regarding accounting standard differences and debt-market participants. While lenders have a payoff structure that differs from equity investors and are concerned with evaluating the net assets of borrowers, they acquire and process financial information to make loan decisions (Watts 2003). Private lenders expend effort to screen out borrowers that are not creditworthy and to set loan terms including financial covenants, and these activities make use of firm financial information. I argue that lenders incur incremental costs to translate financial results from borrower accounting standards to lender accounting standards when screening potential foreign borrowers and to incorporate the implications of these differences when negotiating financial covenants. Lenders must account for these "translation costs" when making loan decisions and drafting loan terms.[32]

To examine how accounting standard differences affect lenders' contracting behavior, I hand-collect a sample of 215 private debt agreements from cross-listed foreign firms available in SEC filings during the period from 1994 to 2012 and determine the set of generally accepted accounting principles (GAAP) specified in each contract (e.g., US GAAP, UK GAAP, or IFRS). I first examine the relation between contract-specified accounting principles and the lender country of domicile in a probit regression where the dependent variable is an indicator equal to one if the debt contract specifies US GAAP as the set of accounting principles used for contracting purposes (i.e., debt covenant compliance).[33] The primary explanatory variable is whether a contract is originated by a lending office domiciled in the US (based on the lending office address specified in the debt agreement). This relation is designed to test the hypothesis that lenders face costs of evaluating potential borrowers that report financial information based on accounting standards that

[32] While accounting standard differences likely affect both the loan decision and negotiating loan terms, I do not attempt to measure these constructs separately given a lack of data on loan approvals or rejections.
[33] The key variables of interest remain statistically significant when estimating the models using logistic regressions.

differ from the accounting standards most commonly used in the lender's home country. The extent of these costs determines whether lenders extend loans to borrowers reporting different GAAP and whether debt covenants are based on lender-country GAAP or borrower-reported GAAP. The results of the probit analyses indicate that US lenders are significantly more likely to use US GAAP as the basis for contracting. This finding suggests that the incremental translation costs drive a lender preference for accounting standards that are consistent with the lender's country of domicile. To corroborate these findings, I estimate models using Canadian GAAP, UK GAAP, and IFRS as dependent variables and Canadian lenders, UK lenders, and IFRS-country lenders as explanatory variables.[34] Similar to the findings from US lenders, the analyses indicate that contracts are significantly more likely to specify accounting standards that are consistent with accounting standards prevalent in the lender's country (after controlling for same-country loans). Overall, the results indicate that accounting standard differences are costly to lenders and that lenders prefer their home-country accounting standards for contracting purposes.

I next examine whether the *degree* of differences between borrower-reported accounting standards and lender-country accounting standards affects lenders' contracting costs. I argue that lender costs of "translating" from borrower-country to lender-country accounting standards are increasing in the extent of divergence of accounting standards between two countries. As borrower- and lender-country accounting standards diverge, lenders exert even greater effort and cost to learn borrower-country GAAP and understand the contracting implications of the accounting differences (e.g., how borrower-country GAAP correlates with borrower credit risk

[34] I select UK, Canadian, and IFRS-country lenders for additional tests because they represent the largest proportions of lender countries outside of the US in the sample. These three countries comprise 31 percent, 16 percent, and 20 percent of sample observations, respectively. The remaining lender countries individually comprise 10 percent or less of the sample (see Table 1 Panel C).

and to what extent the lender must modify the borrower accounting principles to derive metrics for monitoring).[35]

To test this hypothesis, I estimate a probit model where the dependent variable is an indicator equal to one if the debt contract specifies US accounting standards and zero otherwise. I measure accounting standard differences between borrower-lender country pairs following Bae, Tan, and Welker (2008).[36] Interacting this measure with an indicator for lenders domiciled in the US (*US Lender*) captures how lenders' preference for their home-country accounting standards varies with the degree to which borrowers' accounting principles differ from US GAAP. I find no statistical evidence that the degree of accounting standard differences impacts the likelihood that US lenders contract on US GAAP.

Finally, I investigate how loan terms vary when the contract-specified accounting standards are consistent with the lender's home country accounting standards. I argue that lenders reduce contracting costs when accounting standards required in the loan agreement are the same as accounting standards prevalent in the lender's country of domicile. Moreover, lenders provide more favorable loan terms under these circumstances. To test this hypothesis, I estimate least squares regressions where the dependent variables are loan spread, maturity, and number of financial covenants used and the primary explanatory variable of interest is the interaction of an indicator for contracts specifying US GAAP and an indicator for US-domiciled lenders. The

[35] I argue that lenders' costs of translating from one set of accounting standards to another are increasing in the extent of accounting differences. Lenders may require borrowers to base covenant compliance on a second set of accounting standards that coincide with the lenders' country of domicile. However, borrowers bear costs of converting from borrower-country to lender-country accounting standards. In the absence of theory regarding the costs borrowers and lenders face when confronted with another set of accounting standards, I am unable to make predictions about circumstances in which contracting costs are minimized by borrowers converting versus lenders translating from one set of standards to another.

[36] Borrowers listed on sample loan contracts are often subsidiaries of the cross-listed firm. I employ the Bae, Tan, and Welker (2008) measure (*BTW*) at the parent-company level (i.e., cross-listed firm) because subsidiaries likely provide accounting reports based on the parent-company reporting standards as part of consolidation. Additionally, I lose fewer contracts when applying the *BTW* measure to the parent versus subsidiary firms.

hypothesis predicts that when US lenders contract using US accounting standards, lenders provide more favorable loan terms with lower loan spreads, longer maturities, and fewer financial covenants. The regression results indicate no significant relation between loan spreads, maturity, and financial covenant use for contracts underwritten by US lenders and specifying US GAAP. The absence of a significant relation could indicate a low-power sample due to the small sample size. Alternatively, the lack of findings may suggest that while lenders prefer contracting on the accounting standards of their home country, contracted accounting standards are not of first-order importance to warrant a modification of other contract terms.

This paper contributes to extant research on two main fronts. First, this study relates to research investigating the extent to which differences among existing accounting standards affect the costs of information acquisition and processing activities of capital market participants. Prior studies investigate how accounting standard differences affect institutional investment (Bradshaw et al. 2004), equity analysts (Bae et al. 2008), foreign mutual fund investment (see, e.g., Covrig et al. 2007; DeFond et al. 2011; Yu and Wahid 2014), and cross-border mergers and acquisitions (Francis, Huang, and Khurana 2014). My paper complements this research with evidence from credit-market participants. Despite private lenders having access to inside information for screening and negotiating contract terms at the outset of a loan, the findings suggest that private lenders prefer contracting on GAAP from their country of domicile consistent with GAAP differences increasing lenders' contracting costs.

Second, this study is related to prior papers investigating how changes in international accounting standards affect contracting outcomes. Recent studies provide evidence of how IFRS adoption affects the ability of accounting information to predict credit ratings and how private lenders structure credit agreements (see, e.g., Florou, Kosi, and Pope (2012), Chen, Chin, Wang,

Yao (2013), Florou and Kosi (2013), Ball, Li, and Shivakumar (2013)). Rather than focusing on a single accounting standard change, my study provides evidence more broadly regarding cross-country variation in accounting standards and how differences in accounting standards affects lenders' contracting incentives. Additionally, my study provides unique descriptive evidence of the variation in contract-specified accounting standards of cross-listed firms.

3.2 Hypothesis Development

3.2.1 Accounting Standard Differences and Contracting Costs

The first research question investigates how cross-country accounting standard differences relate to lenders' contracting costs. Prior studies examine how accounting standard differences and voluntary and mandatory accounting changes affect cross-border investment. These papers argue that investors exert less time and effort to acquire and process information when investing in firms that report financial information according to accounting rules that comply more closely with US standards (Bradshaw, Bushee, and Miller 2004), when firms voluntarily adopt International Accounting Standards (IAS) (Covrig, Defond, and Hung 2007), when IFRS adoption results in greater comparability with industry peers (DeFond, Hu, Hung, and Li 2011), and when the differences in accounting standards between investors and investees is smaller (Yu and Wahid 2014). The findings from these prior studies suggest that changes in financial reporting practices and accounting standard differences affect the costs of foreign investment. These studies relate specifically to equity investors. Although debt investors have differing payoffs from equity investors, debt investors acquire and process financial information when considering potential borrowers and designing the lending agreement including financial covenant definitions. These efforts are complicated when accounting standards of potential borrowers differ from accounting standards in a lender's country of domicile. For example, lenders must exert additional time and

effort to translate financial results from borrower GAAP to lender-country GAAP when performing due diligence. Additionally, when borrower and lender-country accounting standards differ, lenders expend effort to incorporate accounting standard differences into debt covenant definitions. Thus, lenders bear costs of contracting on accounting standards that differ from their standard practice that include learning and understanding the contracting implications of an alternative set of accounting standards. Because accounting standards affect contracting costs, lenders are likely to exhibit a preference for contracting on accounting standards that coincide with the prevalent accounting standards of their home countries:

H1: Lenders domiciled in the US are more likely to contract on US accounting standards than foreign accounting standards.

While the arguments support the prediction that lenders minimize contracting costs by contracting on accounting standards consistent with their home country, it is not immediately obvious that financial reporting affects lenders' ability to gather and process information. Prior literature notes that single lenders and lead arrangers in syndicate arrangements have access to inside information about the firm (see, e.g., Fama (1985), Bharath, Sunder, and Sunder (2008), Nikolaev (2010)). Private information about a borrower could substitute for accounting information from financial reporting. Moreover, recent findings suggest that banks modify GAAP when writing debt covenants (Li 2010); thus, lenders may tailor accounting rulers regardless of the set of standards used. Hence, it is not a foregone conclusion that differences in accounting standards affect lenders' costs of contracting.

I expect that lenders' translation costs from borrower to lender accounting standards vary with the degree of differences between lender-country and borrower-country accounting standards. As the number of accounting-rule differences between lender and borrower GAAP increase,

lenders exert even greater effort to learn the alternate accounting rules of the borrower. This argument suggests that lenders may avoid the translation costs by *requiring* the borrower to report a second set of financial statements. As accounting standard differences increase, lenders have a greater aversion for the translation costs and are more likely to *require* the borrower to provide financial statements and assess covenant compliance using lender-country accounting standards (i.e., suggesting a positive relation between accounting standard differences and contract-specified accounting standards). However, requiring a second set of financial statements places a burden on the borrower who may negotiate against supplying a second set of books (i.e., suggesting a negative relation between accounting standard differences and contract-specified accounting standards). The net effect of these opposing costs is an empirical question:[37]

H2: US lenders are even more likely to contract on US accounting standards when the differences between borrower and lender accounting standards are greater.

3.2.2 Effect of Accounting Standard Differences on Other Contracting Features

I next consider how accounting standard differences are correlated with other contractual features. Beatty, Ramesh, and Weber (2002) study the relation between loan spreads and voluntary and mandatory accounting change exclusions. The authors find evidence suggesting that borrowers pay higher spreads to maintain flexibility in accounting standards. If lenders face large translation costs given accounting standard differences, lenders may be willing to provide incentive for borrowers to incur the cost to produce financial statements that match the lender's country. If

[37] If accounting standard differences between borrowers and lenders are sufficiently large, the translation costs may be prohibitively high. Rather than imposing the requirement to provide a second set of financial statements on the borrower, the lender may choose not to lend to borrowers with different accounting standards and select potential borrowers who already follow accounting standards consistent with the lender's home country. Given a lack of data on loan acceptance or denial, I cannot rule out this alternative explanation.

lenders reduce contracting costs by contracting on home-country accounting standards, lenders may offer borrowers more favorable loan terms including lower rates, longer maturities, or fewer financial covenants:

H3: When US lenders contract on US accounting standards, the loan will contain lower interest rates, longer maturities, and fewer financial covenants.

3.3 Research Design

To test the first hypothesis, I model lender preference for US accounting principles used for debt covenants in the following equation:

$$USGAAP = \alpha_0 + \alpha_1 US\_Lender + \sum \alpha_i Country\text{-}specific\ controls + \sum \alpha_i Debt\text{-}specific\ controls + \sum \alpha_i Borrower\text{-}specific\ controls + e \quad (1)$$

where the dependent variable, *USGAAP* is an indicator variable equal to one when accounting principles specified in the lending agreement are US GAAP and zero otherwise. The main explanatory variable of interest is *US_Lender*, an indicator variable equal to one if the lending office is located in the US and zero otherwise. I predict that lenders contract on accounting standards consistent with the standards of their country of domicile. In other words, US lenders contract on US GAAP ($\alpha_1 > 0$).

At the country level, I control for the strength of the borrower's home country rule of law, *RuleLaw*, based on the index from Kaufmann, Kraay, and Mastruzzi (2007). At the firm level, lenders' preference for US GAAP is likely to be mitigated when a quality audit is performed on the accounting information to ensure sufficient reliability for contracting activities. I proxy for audit quality using *BigN*, an indicator for Big 4 or Big 5 auditors as applicable during the sample period. Additionally, lenders' incentives to choose GAAP used for financial covenant compliance are likely affected by various sources of agency costs. For example, poorly-performing firms, firms

experiencing losses, and firms with fewer tangible assets represent a higher risk to lenders. To control for potential sources of agency costs, I include proxies for loan and borrower characteristics that prior literature identifies as being correlated with lenders' contracting incentives. To mitigate the effect of outliers, I winsorize continuous variables at the 1- and 99-percent levels.

To test the second hypothesis relating to differences in accounting principles, I augment Equation 1 with a measure of differences between borrower-reported GAAP and US GAAP in Equation 2:

$$USGAAP = \beta_0 + \beta_1 Btw + \beta_2 US\_Lender + \beta_3 Btw*US\_Lender + \sum\beta_i Country\text{-}specific\ controls + \sum\beta_i Debt\text{-}specific\ controls + \sum\beta_i Borrower\text{-}specific\ controls + e \quad (2)$$

where the dependent variable, *USGAAP*, is defined as in Equation 1. I proxy for differences in financial reporting standards between borrower and lender countries using the variable *Btw* following Bae et al. (2008). Bae et al. (2008) measure differences in accounting standards by comparing countries' domestic GAAP to International Accounting Standards (IAS) based on data from 2001 across 21 accounting rules. The measure is based on borrower-lender country pairs. If both countries in a pair are similar to or differ from IAS along a given dimension, the country pair is coded as having similar standards (i.e., given a value of 0). If one of the two countries in the pair differs from IAS, the country pair is coded as having dissimilar accounting standards (i.e., given a value of 1). The measure then sums the number of differences between the country pair across the 21 accounting rules. An ideal measure would provide annual comparisons across sample years; however, the authors' measure represents the most recently available data of this kind and is the best available proxy used in other international studies (see, e.g., Christensen, Hail, and Leuz (2013), Ball, Li, and Shivakumar (2013)). The primary measure of interest is the interaction of *Btw* and *US_Lender* (β_3). The hypothesis predicts that contracts are more likely to specify US GAAP for contracting when borrower financial reporting differs to a greater extent from lender-country

accounting standards (i.e., $\beta_3 > 0$). Country, loan, and borrower controls are measured similarly to Equation 1.

Equation 3 models how contract-specified accounting standards affect other contractual features:

$$Contract\_Feature = \gamma_0 + \gamma_1 USGAAP + \gamma_2 US\_Lender + \gamma_3 USGAAP*US\_Lender + \sum \gamma_i Country\text{-}specific\ controls + \sum \gamma_i Debt\text{-}specific\ controls + \sum \gamma_i Borrower\text{-}specific\ controls + e \quad (3)$$

where *Contract_Feature* is replaced by loan spread, loan maturity, and the number of covenants included in the contract. I measure these variables at the loan package level as described in the Sample Selection section of the paper and in APPENDIX 3.1. The hypothesis predicts that when US lenders contract on US accounting standards, the loan will have lower interest rates, or $\gamma_3 < 0$; longer maturities, or $\gamma_3 > 0$; and require fewer financial covenants, or $\gamma_3 < 0$. The remaining variables are defined similarly to Equations 1 and 2.

3.4 Sample Selection and Results

3.4.1 Sample Selection and Descriptive Statistics

To gather a sample of debt contracts, I begin with foreign firms cross-listed on US exchanges. Dealscan does not indicate which set of accounting standards is specified in a contract. Because cross-listing firms file lending agreements with the SEC, I am able to obtain a sample of contracts to observe the contract-specified accounting standards.[38]

I identify all firm years for which a cross-listing firm filed a form 20-F from 1994 to 2013 then search 10-K Wizard for private debt agreements. I exclude contracts that do not specify the

[38] Ball, Hail, and Vasvari (2013) find that the interest rate spreads on syndicated loans do not change following the decision to cross-list on an exchange in the United States, which suggests that the decision to cross-list on a US exchange alone does not materially affect the economic circumstances for private debt contracting, and therefore, the results should be generalizable.

set of accounting standards used for reporting financial information to the lender or for debt covenant calculations.[39][40] I manually collect loan data including the set of accounting standards used for financial covenants, loan date, amount, maturity, and the number and type of covenants. I exclude contracts that do not contain all data used in the empirical tests. I then merge in firm-level financial information from Compustat as of the most recently completed fiscal year prior to the contract date using the SEC's CIK identifier. Many contracts contain both term loans and revolving lines of credit. I find that accounting standards specified and debt covenants defined in the sample of private lending agreements do not vary among loan facilities within the same loan package. Hence, the analyses are conducted at the package level. For loan features such as interest rates and maturities that are set at the facility level, I aggregate these variables at the package level (see APPENDIX 3.1 variable definitions for details of the aggregation procedure). The sample selection criteria yield a final sample of 215 contracts.

Turning to descriptive statistics of the sample, Table 1 displays distributions of GAAP required in the sample contracts, contracts by year, and borrower and lender countries. Panel A provides important descriptive evidence—in the sample of debt contracts, US accounting standards are specified in only 14 percent of the sample contracts. Local GAAP occurs far more frequently with 58 percent of contracts requiring non-US and non-IFRS accounting standards. Contracts specify IFRS in 19 percent of contracts, Mexican GAAP in 14 percent of contracts, and

[39] For each contract I obtain from the 10-K Wizard search, I search within the contract for "GAAP," "generally," "accounting," "principle," "IFRS," and "standard." Using these search terms, I identify approximately 200 contracts as having no mention of GAAP. Based on keyword searches, the excluded contracts are mainly amendments which typically articulate only those aspects of an agreement that contracting parties renegotiate, which is consistent with these contracts not mentioning accounting standards used. Identifying the accounting standards used would require an in-depth search to obtain the original lending agreements, if available, from SEC filings.

[40] Excluding contracts with no mention of accounting principles may induce bias into the sample. Certain borrowers, lenders, or time periods may be underrepresented. The excluded contracts fall in the latter portion of the sample period with excluded contracts concentrating in 2009, 2010, and 2013 potentially underrepresenting the latter portion of the sample period.

UK GAAP in approximately 14 percent of contracts. Approximately nine percent of the sample contracts give borrowers flexibility to report financial information according to more than one set of accounting standards, typically local GAAP or international standards (either IAS or IFRS depending on the contract date). In addition, Panel A shows the prominence of US GAAP, UK GAAP, Canadian GAAP, Mexican GAAP, and IFRS in the sample as required in the lending agreements, as reported by cross-listed borrowers, and as required in lenders' country of domicile. Panel B indicates that 80 percent of the sample contracts occurred between 2002 and 2009. Consistent with mandatory IFRS adoption in 2005 for EU firms, Panel B indicates a distinct trend in local GAAP versus IFRS requirements. The histograms in Figure 1: Panels A and B (graphing the data from Table 1: Panel B) illustrate lenders' heavy use of local GAAP leading up to mandatory IFRS adoption as well as lenders' shift to IFRS *after* the mandate. Overall, these descriptive findings emphasize the variety of accounting rules specified in debt agreements. Table 1 Panel C indicates the variation in borrower and lender countries with the largest proportion of borrowers in the sample coming from Mexico (20 percent), Canada (20 percent), and the UK (17 percent) and the largest proportion of lenders being domiciled in the UK (31 percent), the US (18 percent), and Canada (16 percent).

Table 2 Panel A displays summary statistics for the sample. Of the available lending agreements in the sample, only 14 percent contract on US GAAP while 58 percent of contracts require local GAAP and 19 percent require IFRS. Additionally, US lenders account for only 19 percent of contracts in the sample. While the sample firms are cross-listed on US equity markets, they appear to access foreign capital heavily. Maturities average approximately 49 months consistent with other samples of international lending agreements. Spreads average 300 basis points, which is higher than other studies but is not surprising given the nature of the firms in the

sample where the average return on assets is negative seven percent and 38 percent of borrowers experienced losses in the year prior to contract initiation. The sample exhibits large variation in borrower size and loan amounts with total assets of borrowers ranging from under $1 million up to $459 billion and loan amounts ranging from $1 million up to $15 billion. The summary statistics also indicate that 60 percent of sample contracts are between a borrower and lender from the same country consistent with findings in the finance literature (Carey and Nini 2007). Lenders and borrowers transacting within the same country are likely to use the same set of accounting rules. As such, the research design could simply be capturing lenders and borrowers located in the same country.[41] To account for this, I include a control for within-country lending, *Samectry*, as a right-hand-side variable to provide additional support for the hypothesis that lender preference for home-country accounting principles is driven by costs of information processing and acquisition rather than lenders selecting borrowers based on geographical distance.[42] In addition, I note from the sample collection efforts that some sample firms voluntarily provide full financial statements according to US GAAP. While these instances occur infrequently in the sample (10 percent of sample contracts), I include an indicator variable in the regression analyses to control for firms that voluntarily supply US GAAP financial statements.

Table 2 Panel B displays spearman correlations for the variables used in regression analyses. Consistent with H1, *USGAAP* and *US_Lender* are positively correlated significant at

[41] The research design does not account for selection bias where lenders may be screening out potential borrowers that report accounting principles different from the lender's home country. To the extent that lenders choose borrowers based on borrower-reported GAAP, the tests may have limited generalizability.

[42] Some countries allow financial reporting according to either local GAAP or international standards (e.g., as of 2010 Japan permits IFRS reporting on a voluntary basis but does not mandate IFRS). Hence, borrowers may report international standards while lenders in the same country may initiate the bulk of loans in local GAAP. In untabulated statistics, I identify 31 contracts where borrower and lender are in the same country and the contract specifies GAAP that is different from lender-country GAAP. The results of the tests do not change when I rerun the tests using an alternative definition for *Samectry* where the indicator variable equals one when borrower and lender are domiciled in the same country *and* the required GAAP is the same as the lender-country GAAP.

the five-percent level (untabulated). The univariate statistics do not indicate strong correlations among *USGAAP* and hypothesized loan characteristics including spread, maturity, and the number of financial covenants. The correlations provide initial evidence that choosing US GAAP does have a strong effect on other loan terms.

3.4.2 Results

Table 3 presents probit model results estimating Equation 1. I present results of three specifications beginning with only the variable of interest, *US_Lender*, then estimating the model with additional control variables. Across all three specifications, *US_Lender* is positive and significant indicating that when US banks loan to cross-listed borrowers, the contracts are significantly more likely to specify US GAAP than local GAAP or IFRS. In particular, regardless of whether the lender and borrower are domiciled in the same country or whether the borrower voluntarily chooses to report US GAAP, US lenders continue to exhibit a strong preference for writing financial covenants based on US GAAP.

The next analysis includes variables with proxies of accounting standard similarity following Bae, Tan, and Welker (2008). I compute country-pair accounting rule differences using the cross-listed firm country of operations (as opposed to the borrower level where the borrower is oftentimes a subsidiary of the cross-listed firm). Including the *Btw* variable and its interaction *Btw_USLender*, I estimate how variation in accounting standard differences affects US lender preference for US GAAP. Table 4 presents probit model coefficient estimates using robust standard errors. As in Table 3, I report three specifications beginning with a baseline model, then adding additional explanatory variables. First, I document a positive and significant coefficient on the *Btw* variable indicating that when country-pair accounting standards diverge, contracts are more likely to specify US GAAP on average. Next, I document a negative coefficient on

Btw_USLender. This coefficient is not statistically different from zero across specifications after controlling for country, loan, and borrower characteristics as well as for borrowers and lenders domiciled in the same country and borrowers who voluntarily report US GAAP. Hypothesis 2 predicts that larger differences in accounting standards are associated with a lower probability of US lenders contracting on US GAAP. The lack of findings suggest that information acquisition and processing costs are offset by borrower-borne costs of producing a second set of financial statements. In other words, while the lender avoids the effort of learnings a second set of GAAP, the contracting parties are worse off because the borrower incurs incrementally more cost to produce financial statements in response to lenders' demand for financial information. Hence, borrowers and lenders minimize overall contracting costs by writing debt covenants based on borrower GAAP rather than lender-country GAAP.

Table 5 presents results related to H3 regarding the effects of lender preference for accounting principles on other contract terms. The table presents specifications with loan spreads, debt maturity, and the log of the number of financial covenants included in the contract serving as the dependent variables. The first three columns regress loan spread on an indicator for contracts requiring US GAAP, an indicator for US lenders, and the interaction. The hypothesis predicts that lenders will offer lower interest rates to borrowers when contracting on lenders' home-country accounting principles. The first two specifications show a positive and significant coefficient for *USGAAP*US_Lender* indicating that when US lenders contract on US GAAP, loan spreads are higher on average while non-US lenders contracting on US GAAP require lower interest rates. After controlling for same-country loans and voluntary US GAAP borrowers, the coefficients are no longer significant at conventional levels. The results for non-US lenders could indicate that they perceive US GAAP to be of sufficiently higher quality than local GAAP to warrant lower interest

rates on loans. The findings for US lenders is counterintuitive but could indicate that the borrowers systematically have higher risk. While somewhat surprising, the results are consistent with Carey and Nini (2007) who document that US lenders consistently charge higher spreads on syndicated loans to foreign borrowers than European lenders over a sample period from 1992 to 2002.

The remaining columns of Table 5 display results from estimating Equation 3 relating to debt maturity and covenant use. The middle three columns of Table 5 present coefficient estimates of loan maturity on *USGAAP*US_Lender* show mixed results though none of the coefficients is statistically different from zero. There appears to be no clear directional effect of contract-specified accounting standards and debt maturity. The final three columns on the right provide results of estimating Equation 3 with *Log_cov* as the dependent variable equal to the log of one plus the number of financial covenants contained in the sample debt contracts. Coefficients on *USGAAP*US_Lender* are negative across specifications consistent with the prediction although the estimated coefficients are not statistically significant at conventional levels. Overall, the results of Table 5 do not provide convincing evidence to suggest that lender preference for accounting principles has an economically significant impact on other aspects of loan contracts.

3.4.3 Supplemental Analysis

The results in Table 3 indicate a positive and significant relation between US lenders and contracts specifying US accounting principles. To ensure that this finding is not isolated to US lenders, I investigate whether a similar relation holds for lenders of other countries. As Table 1 Panel C indicates, while there is a great degree of variation in lender countries, the largest proportion of non-US lenders are domiciled in the UK and Canada. I augment Equation 1 changing the dependent variable and lender country indicators where the dependent variable is now equal to one for Canadian or UK GAAP respectively and zero otherwise and the main right-hand-side

variable of interest is an indicator equal to one if the lender is domiciled in Canada or the UK respectively. In addition to these two specifications, I include a third specification based on whether the lender is domiciled in a country that mandates IFRS for financial reporting. The dependent variable is equal to one if the contract requires IFRS and zero otherwise. The right-hand-side variable is an indicator equal to one if the lender is domiciled in an IFRS-reporting country and zero otherwise.

Table 6 reports coefficient estimates of probit regressions of Equation 1 augmented as described above. These tests show a positive and significant coefficient for each of the lender indicator variables for Canadian, UK, and IFRS-reporting lenders after controlling for country, loan, and borrower characteristics. These findings underscore the results of Table 3 suggesting that lenders across countries face similar costs of contracting due to GAAP differences.[43]

The analysis of H2 as reported in Table 4 uses *Btw* as a proxy for accounting-standard differences between borrower and lender countries. I employ two modifications in untabulated analyses to test the sensitivity of the results to the choice of proxy for accounting-standard difference. First, as noted in Bae, Tan, and Welker (2008), the *Btw* measure is based on accounting standards in place as of 2001. Given the extent of convergence of accounting standards internationally including the EU mandated IFRS adoption in 2005, I estimate the model using observations prior to 2005. US GAAP occurs in only six contracts prior to 2005. To

[43] In untabulated analyses, I document that the results for Canadian, UK, and IFRS-country lenders also hold after controlling for borrowers and lenders domiciled in the same country. In additional untabulated results, I note a similar positive and significant coefficient for Mexican lenders. In tests with French lenders, regressions of French GAAP on a French lender indicator alone yield similar results. When including control variables as in the specifications for Canadian, UK, and Mexican lenders, *BigN* and *Collat* were perfect predictors. After running a reduced model excluding these two covariates, the model perfectly predicts the dependent variable. These diagnostics indicate that there is insufficient variation in the control variables among contracts requiring French GAAP to estimate the augmented model based on Equation 1. However, running the model excluding indicator variables (e.g., *PP* and *Loss*) estimates the model and yields a positive and significant coefficient for the French lender indicator consistent with the findings for the other countries tabulated in Tables 3 and 6.

estimate this specification, I use ordinary least squares regressions with bootstrapped standard errors (based on 400 replications). The results using this alternative sample and estimation technique yield similar findings to Table 4. I also proxy for accounting-standard differences using 20-F reconciliation data where I replace the *Btw* measure in Equation 2 with levels and changes of reconciliation differences between home-country and US GAAP (scaled by total assets). Because the SEC eliminated the requirement for IFRS-reporting cross-listed firms to reconcile to US GAAP, I restrict the sample to years prior to the SEC elimination in 2007. This restriction reduces the sample to 121 observations. Using a baseline model without control variables, I find no statistically significant differences on the interaction of reconciliation differences and US lenders.

3.5 Conclusion

The objective of this study is to examine how accounting standard differences across countries are correlated with lender contracting costs. I examine the relation between contract-specified GAAP and lender-country GAAP and how this relation is affected by differences in borrower-reported GAAP and lender-country GAAP. Observing lenders' contracting behavior provides an indication of the underlying costs of contracting. I argue that, similar to equity investors (Bradshaw, Bushee, and Miller 2004), private lenders use accounting information to acquire and process information in the contracting process and that accounting standard differences give rise to translation costs that lenders must account for when evaluating potential borrowers and setting contract terms. Consistent with this notion, I find that debt contracts are significantly more likely to specify US GAAP when underwritten by a US lender. I examine this relation more broadly and find consistent results for Canadian lenders, UK lenders, and IFRS-country lenders suggesting that accounting standard differences are costly to lenders and result in a lender preference for accounting standards

that match those prevalent in its home country. In the next set of tests, I find statistically significant evidence that US lenders are more likely to contract on US GAAP when accounting-rule differences are large. I also investigate the extent to which lender preferences for accounting standards affect how lenders set other loan terms including spread, maturity, and covenant use but find no evidence to conclude that contract-specified accounting standards significantly affect other loan terms.

This study is not without limitations. While I document a significant positive relation between US lenders and the probability that the private debt contract specifies the use of US GAAP, the finding could be interpreted in two ways. First, the results are consistent with lenders selecting borrowers that are already reporting US GAAP. Second, the results are consistent with US lenders *requiring* US GAAP to avoid translation costs in the presence of accounting standard differences. Neither the data nor the statistical design are sufficient to differentiate between these two explanations. Additionally, I employ multiple criteria to select the sample to make data collection more feasible. The sample selection criteria may induce bias into the sample that may exclude lending agreements, borrowers, or lenders that differ systematically from the population of interest. To the extent that the sample is biased, the generalizability of the findings may be limited.

This paper contributes to extant research in two ways. First, my study is most closely related to literature investigating how differences in accounting rules affect equity investors' information acquisition and processing costs (see, e.g., Bradshaw, Bushee, and Miller (2004), Covrig, Defond, and Hung (2007), DeFond, Hu, Hung, and Li (2011)). The findings in the literature support the view that greater conformity to US accounting standards, voluntary IAS adoption, and mandatory IFRS adoption decrease investors' information acquisition and

processing costs. My paper provides evidence from debt investors consistent with this view. I find a significant relation between US-domiciled lenders and the likelihood that contracts specify US GAAP, and this relation carries over to Canada, UK, and IFRS-reporting countries. These findings suggest that cross-country accounting standard differences affect lenders' contracting costs and result in lenders exhibiting a preference for contracting on accounting standards from their country of domicile.

Second, this study relates to prior work investigating how changes in international accounting standards affect credit ratings and the structure of private debt agreements (see, e.g., Florou, Kosi, and Pope (2012), Florou and Kosi (2013), Chen, Chin, Wang, Yao (2012)). I contribute to these studies by providing novel evidence of contract-specified accounting standards from a sample of hand-collected debt agreements, and the findings suggest that the contracted standards reveal lenders' preference for home-country accounting standards for contracting purposes.

3.6 References

Ball, Ray, Xi Li, and Lakshmanan Shivakumar. 2013. *Mandatory IFRS Adoption, Fair Value Accounting and Accounting Information in Debt Contracts*. SSRN Scholarly Paper ID 2278946. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=2278946.

Beatty, Anne, K. Ramesh, and Joseph Weber. 2002. "The Importance of Accounting Changes in Debt Contracts: The Cost of Flexibility in Covenant Calculations." *Journal of Accounting and Economics* 33 (2): 205–27.

Bharath, Sreedhar T., Jayanthi Sunder, and Shyam V. Sunder. 2008. "Accounting Quality and Debt Contracting." *The Accounting Review* 83 (1): 1–28.

Bradshaw, Mark T., Brian J. Bushee, and Gregory S. Miller. 2004. "Accounting Choice, Home Bias, and U.S. Investment in Non-U.S. Firms." *Journal of Accounting Research* 42 (5): 795–841.

Carey, Mark, and Greg Nini. 2007. "Is the Corporate Loan Market Globally Integrated? A Pricing Puzzle." *The Journal of Finance* 62 (6): 2969–3007.

Chen, Tai-Yuan, Chen-lung Chin, Shiheng Wang, and Chun Yao. 2013. *The Effect of Mandatory IFRS Adoption on Bank Loan Contracting*. SSRN Scholarly Paper ID 2159001. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=2159001.

Christensen, Hans B., Luzi Hail, and Christian Leuz. 2013. "Mandatory IFRS Reporting and Changes in Enforcement." *Journal of Accounting and Economics*, Conference Issue on Accounting Research on Classic and Contemporary Issues University of Rochester, Simon Business School, 56 (2–3, Supplement 1): 147–77.

Covrig, Vicentiu M., Mark L. Defond, and Mingyi Hung. 2007. "Home Bias, Foreign Mutual Fund Holdings, and the Voluntary Adoption of International Accounting Standards." *Journal of Accounting Research* 45 (1): 41–70.

DeFond, Mark, Xuesong Hu, Mingyi Hung, and Siqi Li. 2011. "The Impact of Mandatory IFRS Adoption on Foreign Mutual Fund Ownership: The Role of Comparability." *Journal of Accounting and Economics* 51 (3): 240–58.

Fama, Eugene F. 1985. "What's Different about Banks?" *Journal of Monetary Economics* 15 (1): 29–39.

Florou, Annita, and Urska Kosi. 2013. *Does Mandatory IFRS Adoption Facilitate Debt Financing?* SSRN Scholarly Paper ID 1508324. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=1508324.

Florou, Annita, Urska Kosi, and Peter Pope. 2012. *Does Mandatory IFRS Adoption Improve the Credit Relevance of Accounting Information?* SSRN Scholarly Paper ID 1679672. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=1679672.

Francis, Jere R., Shawn X. Huang, and Inder K. Khurana. 2014. *The Role of Similar Accounting Standards in Cross-Border Mergers and Acquisitions*. Unpublished paper. University of Missouri at Columbia and Arizona State University.

Kaufmann, D., A. Kraay, and M. Mastruzzi. 2007. "Governance Matters VI: Aggregate and Individual Governance Indicators 1996–2006". Washington, D.C.: The World Bank.

Kee-Hong Bae, Hongping Tan, and Michael Welker. 2008. "International GAAP Differences: The Impact on Foreign Analysts." *Accounting Review* 83 (3): 593–628.

Li, Ningzhong. 2010. "Negotiated Measurement Rules in Debt Contracts." *Journal of Accounting Research* 48 (5): 1103–44.

Nikolaev, Valeri V. 2010. "Debt Covenants and Accounting Conservatism." *Journal of Accounting Research* 48 (1): 51–89.

Watts, Ross L. 2003. "Conservatism in Accounting Part I: Explanations and Implications." *Accounting Horizons* 17 (3): 207–21.

Yu, Gwen, and Aida Sijamic Wahid. 2014. "Accounting Standards and International Portfolio Holdings." *Accounting Review* 89 (5): 1895–1930.

Appendix 3.1: Variable Definitions

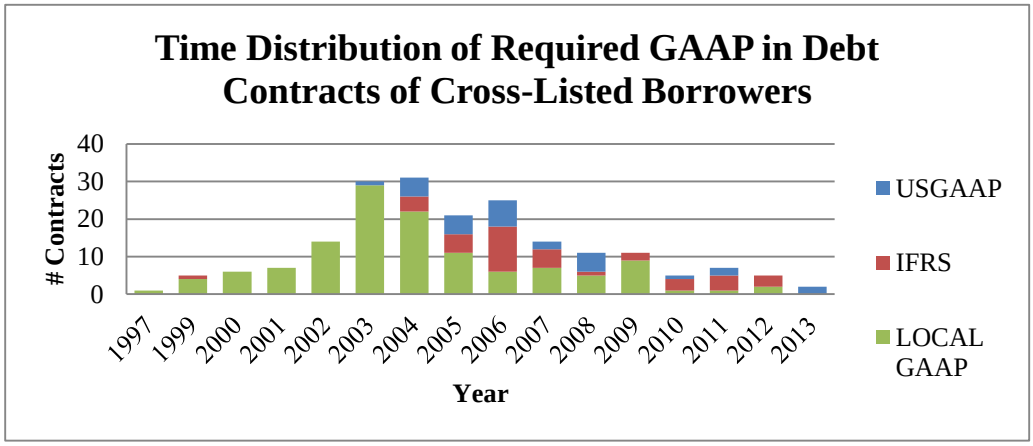
Variable	Definition	Data Source
USGAAP	Indicator variable equal to 1 if lending contract requires U.S. GAAP and 0 otherwise.	Hand collection
Localgaap	Indicator variable equal to 1 if lending contract requires home-country GAAP and 0 otherwise.	Hand collection
IFRS	Indicator variable equal to 1 if lending contract requires IFRS and 0 otherwise.	Hand collection
US_Lender	Indicator variable equal to 1 if the lender office listed in the loan contract is domiciled in the U.S. and 0 otherwise.	Hand collection
Btw	Equals the sum of country-pair sum differences between domestic accounting standards of cross-listed firm and International Accounting Standards (IAS) based on Bae, Tan, and Welker (2008).	Bae, Tan, and Welker (2008)
RuleLaw	Equals the country-specific time-series mean of the rule of law index from Kaufmann, Kraay, Mastruzzi (2007) based on cross-listed firm.	Kaufmann, Kraay, Mastruzzi (2007)
BigN	Indicator variable equal to 1 if the cross-listed firm is audited by a Big-N auditor in the year prior to the contract start date and 0 otherwise.	Compustat
Loansize	Equals the log of package-level loan amount in U.S. Dollars.	Hand collection
Spread	Equals the package-level interest rate. I compute this variable in two steps. First, at the facility level, I sum the stated interest rate margins and applicable benchmark rates such as LIBOR or Prime rate (excluding fees such as revolving credit commitment fees) then subtract off the LIBOR rate to calculate the spread. If a facility specifies multiple borrowing types such as LIBOR loans *and* Prime loans, I average the spread *within* the facility. Second, I calculate a weighted average spread at the package level using the US Dollar facility amount.	Hand collection
Maturity	Equals loan maturity (in months). I compute this variable as the median value of facility-level maturities within a package.	Hand collection
Log_cov	Equals the log of one plus the number of financial covenants in the contract.	Hand collection
Revolv	Indicator variable equal to 1 if the package contains a revolving credit facility and 0 otherwise.	Hand collection

Variable	Definition	Data Source
PP	Indicator variable equal to 1 if the package contains a performance-pricing provision and 0 otherwise.	Hand collection
Collat	Indicator variable equal to 1 if the package requires collateral and 0 otherwise.	Hand collection
Covenant	Indicator variable equal to 1 if the package contains financial covenants and 0 otherwise.	Hand collection
Size	Equals the log of borrower total assets in the year prior to the contract start date.	Compustat
Leverage	Equals total liabilities (LT) divided by total assets (AT) in the year prior to the contract start date.	Compustat
ROA	Equals earnings before extraordinary items (IB) divided by total assets (AT) in the year prior to the contract start date.	Compustat
Tangibility	Equals net property, plant, and equipment (PPENT) divided by total assets (AT) in the year prior to the contract start date.	Compustat
Loss	Indicator variable equal to 1 if borrower net income is negative and 0 otherwise.	Compustat
Samectry	Indicator variable equal to 1 if the borrower and lender are domiciled in the same country and 0 otherwise. I identify borrower country using the 'loc' code in Compustat indicating the country of the firm's primary operations. I identify lender country based on lender contact information provided in the sample lending agreements.	Hand collection and Compustat
USVoluntary	Indicator variable equal to 1 if the borrower voluntarily reports financial statements according to US GAAP and 0 otherwise.	Hand collection

Figure 3.1: Temporal Distribution of Contract-Specified GAAP

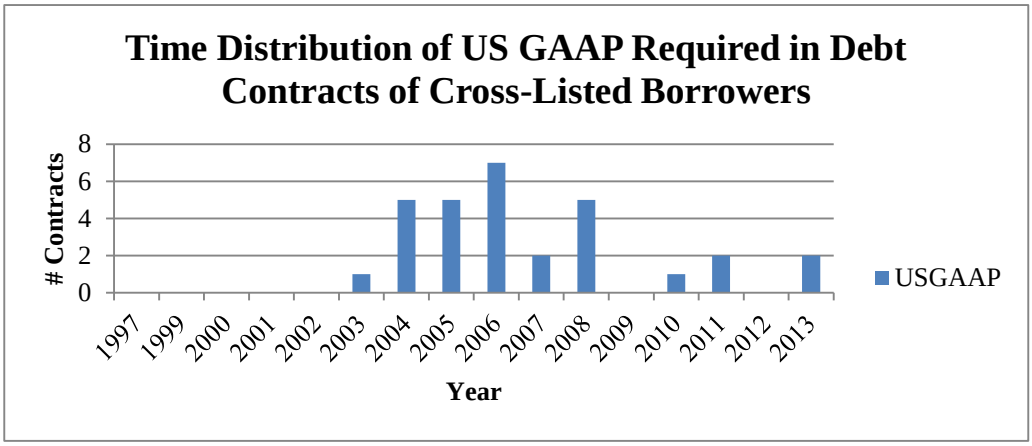
Panel A: Histogram of Contracts Specifying US GAAP, IFRS, and Local GAAP Across Sample Years

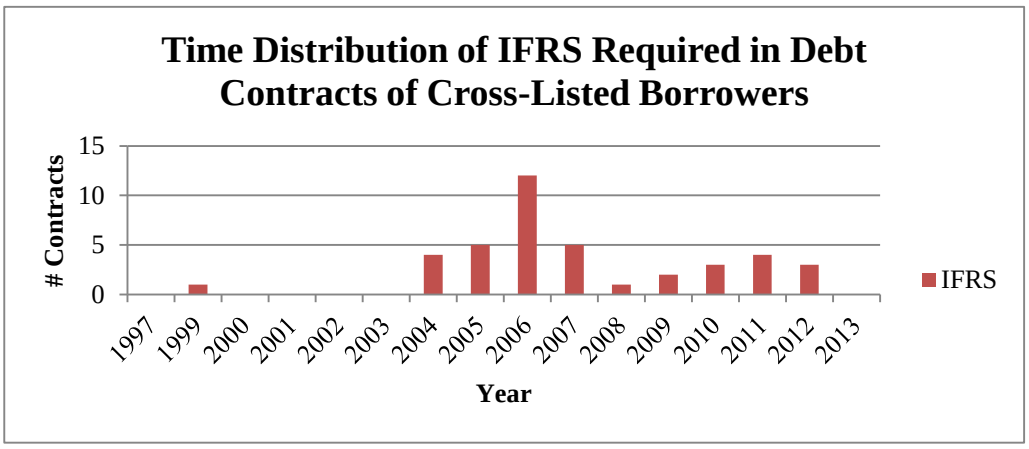
Figure 3.1: Temporal Distribution of Contract-Specified GAAP. Panel A presents a combined histogram of accounting standards specified in debt contracts over the sample period with contracts available from 1997 to 2013. The y-axis measures the number of contracts specifying a particular set of accounting standards in each year of the sample period and the x-axis indicates the contract year. This figure displays contracts requiring US GAAP (blue, top), IFRS (red, middle), and Local GAAP or domestic GAAP (green, bottom).



Panel B: Separate Histograms of US GAAP, IFRS, and Local GAAP Across Years

Figure 3.1: Temporal Distribution of Contract-Specified GAAP. Panel B presents separate histograms of contract-specified accounting standards for US GAAP (blue), IFRS (red), and Local GAAP (green) for the sample contracts. The y-axis measures the number of contracts and the x-axis indicates the contract year.





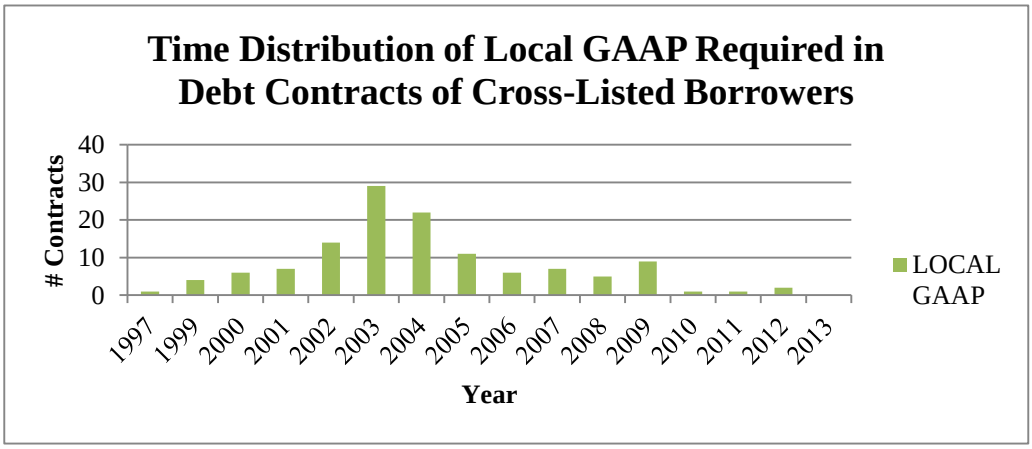


Table 3.1

Distributions of Contract-Specified GAAP, Loan Contracts by Year, and Borrower and Lender Countries

Panel A: Distribution of GAAP Specified in Debt Contracts

	Required	%	Lender	%	Borrower	%
Argentine	2	0.9%	1	0.5%	3	1.4%
Austrian			1	0.5%		
Belgian					1	0.5%
Brazilian	2	0.9%			2	0.9%
Canadian	26	12.1%	33	15.3%	26	12.2%
Chilean	2	0.9%	1	0.5%	2	0.9%
Chinese	4	1.9%	6	2.8%		
Flexible	20	9.3%				
French	16	7.4%	16	7.4%	20	9.4%
German			1	0.5%		
Hong Kong					2	0.9%
IFRS	40	18.6%	45	20.9%	30	14.1%
Indonesian	8	3.7%	7	3.3%	8	3.8%
Israeli	1	0.5%			1	0.5%
Japanese			1	0.5%		
Mexican	31	14.4%	16	7.4%	40	18.8%
Netherland	2	0.9%			3	1.4%
Netherland			2	0.9%	2	0.9%
South African	1	0.5%	1	0.5%	5	2.3%
Singapore			1	0.5%		
Spanish			1	0.5%		
Swedish	1	0.5%			3	1.4%
UK	29	13.5%	44	20.5%	31	14.6%
US	30	14.0%	38	17.7%	34	16.0%
Total	215	100.0%	215	100.0%	213	100.0%

Table 3.1 presents sample distributions of contract-specified accounting standards, frequency of contracts and contract-specified GAAP across time, and borrower and lender countries. Panel A displays the distribution of accounting standards. The first column displays GAAP specified in debt contracts, the second column displays GAAP required in the country where the lending office is domiciled, and the third column displays GAAP reported by the cross-listed borrower per the 20-F filing (or 10-K filing for voluntary US GAAP adopters). The “Flexible” designation refers to contracts in which the lender is indifferent between two sets of accounting standards such as French GAAP or IFRS. Three cross-listed firms reported financial information based on Argentine Banking GAAP and are labeled as 'Argentine GAAP'. One borrower reported financial statements based on Brazilian Corporate Law Accounting and is labeled as 'Brazilian GAAP'. Missing data limit the borrower-reported GAAP (column 3) to 213 observations.

Panel B: Distribution of Loan Contracts and Contract-Specified GAAP by Year						
Year	# Contracts	% Contracts	USGAAP	IFRS	LOCALGAAP	FLEXIBLE
1997	1	0.5%	0	0	1	0
1999	5	2.3%	0	1	4	0
2000	6	2.8%	0	0	6	0
2001	8	3.7%	0	1	7	0
2002	16	7.4%	0	1	14	1
2003	35	16.3%	1	1	29	4
2004	35	16.3%	5	6	22	2
2005	22	10.2%	5	6	11	0
2006	20	9.3%	7	5	6	2
2007	21	9.8%	2	6	7	6
2008	12	5.6%	5	1	5	1
2009	11	5.1%	0	2	9	0
2010	6	2.8%	1	3	1	1
2011	9	4.2%	2	4	1	2
2012	6	2.8%	0	3	2	1
2013	2	0.9%	2	0	0	0
Total	215	100.0%	30	40	125	20

Table 3.1 presents sample distributions of contract-specified accounting standards, frequency of contracts and contract-specified GAAP across time, and borrower and lender countries. Panel B displays the distribution of contracts across time and shows how contract-specified GAAP in the sample contracts is distributed over time where US GAAP, IFRS, and LOCALGAAP are defined in APPENDIX 3.1.

Panel C: Distribution of Borrower and Lender Countries

Country	Borrower Country	%	Lender Country	%
Argentina	3	1.4%	1	0.5%
Austria	1	0.5%	2	0.9%
Belgium	2	0.9%	0	0.0%
Brazil	3	1.4%	0	0.0%
Canada	43	20.0%	35	16.3%
Chile	2	0.9%	1	0.5%
China	6	2.8%	6	2.8%
France	24	11.2%	22	10.2%
Germany	0	0.0%	3	1.4%
Greece	1	0.5%	5	2.3%
Hong Kong	2	0.9%	0	0.0%
Indonesia	8	3.7%	7	3.3%
Ireland	4	1.9%	2	0.9%
Israel	1	0.5%	0	0.0%
Japan	0	0.0%	1	0.5%
Luxembourg	5	2.3%	0	0.0%
Mexico	43	20.0%	16	7.4%
Norway	2	0.9%	3	1.4%
Singapore	0	0.0%	1	0.5%
South Africa	9	4.2%	2	0.9%
Spain	0	0.0%	1	0.5%
Sweden	4	1.9%	1	0.5%
Switzerland	2	0.9%	0	0.0%
The Netherlands	13	6.0%	2	0.9%
United Kingdom	37	17.2%	66	30.7%
USA	0	0.0%	38	17.7%
Total	215	100.0%	215	100.0%

Table 3.1 presents sample distributions of contract-specified accounting standards, frequency of contracts and contract-specified GAAP across time, and borrower and lender countries. Finally, Panel C provides a country distribution displaying the frequency of borrower countries using the cross-listed firm country of domicile from Compustat ('loc') and the frequency of lender countries using the address of the lending office listed in the loan contract.

TABLE 3.2

Sample Summary Statistics and Correlations

Panel A: Summary Statistics

Variable	N	Mean	Std Dev	Min	Q1	Median	Q3	Max
USGAAP	215	0.14	0.35	0.00	0.00	0.00	0.00	1.00
LOCALGAAP	215	0.58	0.50	0.00	0.00	1.00	1.00	1.00
IFRS	215	0.19	0.39	0.00	0.00	0.00	0.00	1.00
Flexible	215	0.09	0.29	0.00	0.00	0.00	0.00	1.00
US_Lender	215	0.19	0.39	0.00	0.00	0.00	0.00	1.00
Spread	215	0.03	0.03	-0.01	0.01	0.02	0.04	0.16
Maturity (in months)	215	48.68	31.01	3.00	24.00	48.00	60.00	161.00
#Covenants	215	1.66	1.26	0.00	0.00	2.00	3.00	6.00
RuleLaw	215	0.99	1.00	-0.81	-0.39	1.74	1.78	1.98
BigN	215	0.88	0.33	0.00	1.00	1.00	1.00	1.00
Deal_Amount	215	1,183.66	2,579.86	1.00	55.00	288.83	1,000.00	15,105.60
Revolv	215	0.59	0.49	0.00	0.00	1.00	1.00	1.00
PP	215	0.43	0.50	0.00	0.00	0.00	1.00	1.00
Collat	215	0.25	0.43	0.00	0.00	0.00	0.00	1.00
Covenant	215	0.75	0.43	0.00	0.00	1.00	1.00	1.00
Total Assets	215	24,722.58	66,799.82	0.29	678.69	3,356.49	16,015.78	458,709.44
Leverage	215	0.68	0.36	0.09	0.47	0.62	0.79	2.42
ROA	215	-0.08	0.46	-3.40	-0.06	0.02	0.06	0.28
Tangibility	215	0.40	0.26	0.00	0.15	0.43	0.62	0.94
Loss	215	0.38	0.49	0.00	0.00	0.00	1.00	1.00
Samectry	215	0.60	0.49	0.00	0.00	1.00	1.00	1.00
USVoluntary	215	0.16	0.37	0.00	0.00	0.00	0.00	1.00

Table 3.2 presents summary statistics and correlations for the sample of cross-listed foreign firm debt contracts used in the regression analyses. Panel A presents summary statistics and Panel B presents Spearman correlations. *Significant at the one-percent level. See APPENDIX 3.1 for variable definitions.

Panel B: Spearman Correlations

		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1)	USGAAP	0.15	-0.03	0.12	0.15	0.21*	0.11	-0.12	0.01	0.11	0.24*	0.05	-0.14	0.07	0.08	0.07	-0.15	-0.11	0.63*
(2)	US_Lender		0.10	0.01	0.05	-0.14	-0.04	-0.07	-0.21*	0.07	0.17	0.06	-0.08	-0.03	0.06	0.05	-0.15	-0.32*	0.09
(3)	Spread			-0.02	0.00	-0.12	-0.21*	-0.53*	-0.37*	-0.25*	0.25*	-0.10	-0.38*	0.09	-0.48*	-0.05	0.41*	0.16	-0.02
(4)	Maturity (in months)				0.13	0.11	-0.01	0.00	-0.01	0.13	0.14	0.07	-0.12	0.12	0.09	0.12	-0.12	-0.09	0.13
(5)	Log_cov					-0.14	0.08	0.12	0.04	0.23*	0.03	0.77*	0.09	0.00	-0.03	0.00	-0.05	-0.07	-0.06
(6)	RuleLaw						0.25*	0.01	0.21*	0.14	0.29*	-0.09	-0.26*	-0.06	-0.04	-0.17	0.08	0.00	0.32*
(7)	BigN							0.19*	0.07	0.15	0.01	0.18*	0.16	-0.05	0.03	-0.12	0.11	-0.07	0.08
(8)	Loansize								0.43*	0.41*	-0.20*	0.28*	0.72*	-0.02	0.19*	-0.10	-0.18*	-0.03	-0.24*
(9)	Revolv									0.36*	-0.18*	0.17	0.26*	0.06	0.21*	-0.26*	-0.19*	0.18*	-0.03
(10)	PP										-0.06	0.28*	0.15	-0.16	0.08	-0.04	-0.11	-0.05	0.01
(11)	Collat											0.03	-0.30*	0.06	-0.14	0.04	0.16	-0.07	0.14
(12)	Covenant												0.26*	0.02	0.00	-0.13	-0.04	0.04	-0.13
(13)	Size													0.10	0.06	-0.16	-0.09	0.04	-0.40*
(14)	Leverage														-0.22*	0.20*	0.15	0.01	0.03
(15)	ROA															0.15	-0.84*	-0.13	0.17
(16)	Tangibility																-0.13	-0.28*	0.06
(17)	Loss																	0.16	-0.13
(18)	Samectry																		-0.20*
(19)	USVoluntary																		

Table 3.2 presents summary statistics and correlations for the sample of cross-listed foreign firm debt contracts used in the regression analyses. Panel A presents summary statistics and Panel B presents Spearman correlations. *Significant at the one-percent level. See APPENDIX 3.1 for variable definitions.

TABLE 3.3

Probit Regressions of US GAAP on US Lender

Variable	Pred	USGAAP	USGAAP	USGAAP
US_Lender	**(+)**	**0.5296****	**0.6746****	**1.2592****
		[2.12]	**[2.38]**	**[2.46]**
RuleLaw			0.2673*	0.037
			[1.72]	[0.17]
BigN			0.9769**	0.5116
			[2.14]	[1.08]
Loansize			-0.2445**	-0.5392***
			[-2.36]	[-3.22]
Spread			0.0087	-0.2075
			[0.04]	[-0.73]
Maturity			0.0414	0.2925
			[0.21]	[1.08]
Revolv			0.1702	0.7745*
			[0.58]	[1.92]
PP			0.5630*	0.9835**
			[1.70]	[2.03]
Collat			0.8187***	1.7118***
			[2.94]	[3.12]
Covenant			0.1226	0.3427
			[0.40]	[0.80]
Size			0.0592	0.7630***
			[0.64]	[4.04]

Variable	USGAAP	USGAAP	USGAAP
Leverage		0.7615	0.1325
		[1.40]	[0.29]
ROA		1.5568	-1.2309**
		[0.94]	[-2.09]
Tangibility		1.4310**	3.4252***
		[2.50]	[3.82]
Loss		-0.5438	-1.1486**
		[-1.43]	[-2.42]
Samectry			0.7682*
			[1.71]
USVoluntary			4.8646***
			[5.38]
Constant	-1.2040***	-3.4931**	-11.2098***
	[-9.65]	[-2.51]	[-4.67]
N	215	215	215
Pseudo R-Squared	2.53%	25.17%	65.32%

Heteroskedasticity-robust t-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Table 3.3 presents coefficient estimates from a probit model estimating Equation (1) for the sample of debt contracts from cross-listed borrowers. The dependent variable is an indicator equal to one if lenders require US GAAP for financial covenant compliance and zero otherwise. The main variable of interest, *US_Lender*, is an indicator variable equal to one if the lender of a sample contract is domiciled in the US and zero otherwise. See APPENDIX 3.1 for detailed definitions of the remaining variables.

TABLE 3.4

Analysis of Accounting-Rule Differences

Variable	Pred	USGAAP	USGAAP	USGAAP
Btw		0.0911***	0.1140***	0.2089***
		[3.75]	[3.95]	[2.69]
US_Lender		0.8262*	1.0932**	4.0384**
		[1.81]	[2.12]	[2.55]
Btw*US_Lender	**(+)**	**-0.0802**	**-0.0987**	**-0.3594**
		[-1.13]	**[-1.23]**	**[-1.63]**
RuleLaw			0.3216*	0.2781
			[1.82]	[1.06]
BigN			1.0048*	1.2069
			[1.90]	[1.48]
Loansize			-0.2972***	-0.7091***
			[-2.62]	[-3.00]
Spread			0.1538	-0.3292
			[0.52]	[-0.61]
Maturity			0.0287	0.4177*
			[0.15]	[1.72]
Revolv			0.2650	1.0743*
			[0.84]	[1.80]
PP			0.5813*	1.7319**
			[1.73]	[2.44]
Collat			0.9481***	2.7336***
			[3.35]	[2.80]
Covenant			0.5363	0.7748
			[1.48]	[1.57]

Variable	USGAAP	USGAAP	USGAAP
Size		0.1101	1.1211***
		[1.13]	[3.86]
Leverage		0.6082	0.0300
		[1.19]	[0.05]
ROA		1.1200	-1.8979**
		[0.90]	[-2.34]
Tangibility		1.6864***	5.6508***
		[2.86]	[3.84]
Loss		-0.5208	-1.2489**
		[-1.45]	[-2.12]
Samectry			1.7975**
			[2.13]
USVoluntary			6.3656***
			[4.05]
Constant	-1.5604***	-4.7943***	-19.0679***
	[-9.58]	[-3.25]	[-4.11]
N	215	215	215
Pseudo R-Squared	9.89%	31.55%	69.74%

Heteroskedasticity-robust t-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Table 3.4 presents coefficient estimates from a probit model estimating Equation (2) for the sample of debt contracts from cross-listed borrowers. The dependent variable is an indicator equal to one if lenders require US GAAP for financial covenant compliance and zero otherwise. The main variable of interest, *Btw*US_Lender*, is the interaction of *Btw*, a measure of differences in accounting principles based on Bae et al. (2008), and *US_Lender*, and indicator variable equal to one if the lender of a sample contract is domiciled in the US and zero otherwise. See APPENDIX 3.1 for detailed definitions of the remaining variables.

TABLE 3.5

Analysis of the Effect of Lender Preference on Loan Terms

Variable	Spread	Spread	Spread	Maturity	Maturity	Maturity	Log_cov	Log_cov	Log_cov
USGAAP	-0.1869**	-0.1151	-0.0404	0.2722	-0.0109	0.0849	0.2266	0.2200	0.4522***
	[-2.41]	[-1.29]	[-0.35]	[1.33]	[-0.05]	[0.30]	[1.56]	[1.53]	[2.74]
US_Lender	0.0808	-0.0314	0.0480	0.0274	-0.0713	-0.1384	0.0789	0.0011	0.0088
	[0.71]	[-0.31]	[0.49]	[0.18]	[-0.48]	[-0.89]	[0.72]	[0.01]	[0.07]
USGAAP*US_Lender	**0.4948****	**0.4013****	**0.2877**	**-0.0113**	**-0.0015**	**0.0731**	**-0.1247**	**-0.1468**	**-0.1817**
	[2.09]	**[1.98]**	**[1.37]**	**[-0.04]**	**[-0.00]**	**[0.23]**	**[-0.62]**	**[-0.74]**	**[-0.90]**
Spread					-0.0421	-0.0266		0.0555	0.0472
					[-0.45]	[-0.27]		[0.63]	[0.54]
Maturity		-0.0187	-0.0117					0.0573	0.0508
		[-0.44]	[-0.27]					[1.19]	[1.09]
Covenant		0.0357	0.0192		0.0363	0.0287			
		[0.33]	[0.18]		[0.26]	[0.21]			
RuleLaw		-0.1156***	-0.1186***		-0.0313	-0.0195		-0.1327***	-0.1210**
		[-2.90]	[-3.00]		[-0.45]	[-0.28]		[-2.87]	[-2.59]
BigN		-0.1717	-0.1400		-0.0556	-0.0707		0.1353	0.1450
		[-1.00]	[-0.84]		[-0.35]	[-0.43]		[1.07]	[1.14]

TABLE 3.5 (continued)

Analysis of the Effect of Lender Preference on Loan Terms

Variable	Spread	Spread	Spread	Maturity	Maturity	Maturity	Log_cov	Log_cov	Log_cov
Loansize		-0.0982***	-0.0880***		-0.0014	-0.0032		0.0328	0.0402
		[-3.82]	[-3.42]		[-0.03]	[-0.06]		[1.10]	[1.35]
Revolv		-0.0990	-0.1230		-0.0408	-0.0250		0.0141	-0.0000
		[-1.09]	[-1.36]		[-0.32]	[-0.20]		[0.14]	[-0.00]
PP		0.0477	0.0455		0.3468***	0.3405***		0.2096**	0.1989**
		[0.64]	[0.61]		[2.85]	[2.80]		[2.27]	[2.15]
Collat		0.1953***	0.1910**		0.2350*	0.2100		0.1067	0.0703
		[2.64]	[2.55]		[1.72]	[1.51]		[1.03]	[0.67]
Size		-0.0255	-0.0349		-0.0446	-0.0554		0.0103	-0.0196
		[-1.17]	[-1.40]		[-1.07]	[-1.09]		[0.42]	[-0.70]
Leverage		0.0108	0.0180		0.5813***	0.5956***		0.0135	0.0491
		[0.10]	[0.18]		[3.28]	[3.32]		[0.14]	[0.53]
ROA		-0.2169**	-0.2011*		0.8103***	0.8601***		0.1780**	0.2696***
		[-2.20]	[-1.86]		[4.54]	[4.42]		[2.21]	[2.96]
Tangibility		-0.2597*	-0.2192		0.1711	0.1082		-0.2596*	-0.2931*
		[-1.75]	[-1.45]		[0.65]	[0.40]		[-1.69]	[-1.80]
Loss		0.2870***	0.2757***		-0.0677	-0.0577		0.0696	0.0742
		[3.57]	[3.34]		[-0.49]	[-0.41]		[0.86]	[0.93]

Variable	Spread	Spread	Spread	Maturity	Maturity	Maturity	Log_cov	Log_cov	Log_cov
Samectry			0.1625**			-0.1585			-0.0103
			[1.98]			[-1.41]			[-0.12]
USVoluntary			-0.0537			-0.2032			-0.3606**
			[-0.50]			[-0.73]			[-2.54]
Constant	1.2532***	2.2743***	2.1457***	3.5905***	3.5588***	3.7810***	0.8014***	0.2501	0.5085
	[21.54]	[8.36]	[7.33]	[52.82]	[9.21]	[8.23]	[18.09]	[0.75]	[1.38]
N	215	215	215	215	215	215	215	215	215
Adjusted R-Squared	1.10%	42.93%	43.61%	-0.05%	14.56%	14.59%	0.44%	11.73%	13.39%

Heteroskedasticity-robust t-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Table 3.5 presents results of estimating Equation (3) for the sample of debt contracts from cross-listed borrowers. The dependent variables noted at the top of each column are measures of loan spreads (natural log of loan spread as defined in APPENDIX 3.1), loan maturities (natural log of loan maturity in months as defined in APPENDIX 3.1), and the number of covenants (natural log of the number of financial covenants). The primary variable of interest is the interaction of *USGAAP*US_Lender* where *USGAAP* is an indicator variable equal to one if a contract requires US GAAP and *US_Lender* is an indicator variable equal to one if a contract is from a US-domiciled bank. See APPENDIX 3.1 for detailed definitions of the remaining variables.

TABLE 3.6

Supplemental Analysis of Lender Preference: Canadian, UK, and IFRS Lenders

Variable	Canadian GAAP	UK GAAP	IFRS
Canadian_Lender	**3.1288*** [6.27]**		
UK_Lender		**1.9710*** [5.32]**	
IFRS_Lender			**1.3114*** [4.96]**
RuleLaw	0.7018** [2.34]	1.4459*** [4.44]	0.1705 [1.37]
BigN	0.1642 [0.21]	0.1416 [0.21]	-0.8071** [-2.13]
Loansize	0.2591 [1.55]	0.3352* [1.82]	-0.0778 [-0.92]
Spread	1.2601** [2.22]	0.2459 [0.69]	-0.1886 [-0.90]
Maturity	1.2941*** [4.31]	-0.0546 [-0.25]	0.2565 [1.62]
Revolv	0.1187 [0.19]	0.0361 [0.06]	-0.3104 [-1.12]
PP	0.2847 [0.52]	-0.5035 [-1.39]	0.5466** [1.97]
Collat	-0.1605 [-0.44]	-1.5301*** [-2.72]	0.1054 [0.39]
Covenant	0.0854 [0.16]	0.7856 [1.57]	0.0825 [0.26]

Variable	Canadian GAAP	UK GAAP	IFRS
Size	-0.5135***	-0.3216**	0.1131*
	[-4.03]	[-2.14]	[1.69]
Leverage	-0.0357	0.145	-0.6284
	[-0.08]	[0.26]	[-1.39]
ROA	0.5964	0.2905	0.7391
	[1.45]	[0.40]	[0.65]
Tangibility	-1.7422**	-0.5596	0.2088
	[-2.09]	[-0.79]	[0.41]
Loss	0.5554	0.3489	-0.1968
	[1.34]	[0.89]	[-0.56]
Constant	-7.8402***	-4.3042***	-1.7734
	[-3.86]	[-3.03]	[-1.54]
N	215	215	215
Pseudo R-Squared	68.89%	54.53%	24.88%

Heteroskedasticity-robust t-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Table 3.6 presents results from supplementary analyses of contract-specified accounting standards and lender country. The table displays coefficient estimates from a probit model estimating Equation (1) for the sample of debt contracts from cross-listed borrowers. Adapting from Table 3, the dependent variables noted at the top of each column are indicator variables for Canadian GAAP, UK GAAP, and IFRS, respectively. The explanatory variables of interest are indicators for Canadian, UK, and IFRS-country lenders, respectively. See APPENDIX 3.1 for detailed definitions of the remaining variables.