Renegotiation and the Choice of Covenants in Debt Contracts

by

Daniel Andres Saavedra Lux
Master of Business Administration
MIT Sloan School of Management (2009)

SUBMITTED TO THE MIT SLOAN SCHOOL OF MANAGEMENT IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

Doctor of Philosophy
AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY
SEPTEMBER 2015

Signature of Author: Signature redacted

MIT Sloan School of Management
July 13, 2015

Certified by: Signature redacted

Joseph Weber
George Maverick Bunker Professor of Management
Professor of Accounting
Thesis Supervisor

Accepted by: Signature redacted

Catherine Tucker
Professor of Marketing
Chair MIT Sloan PhD Program

Renegotiation and the Choice of Covenants in Debt Contracts

by

Daniel Andres Saavedra Lux

Submitted to the MIT Sloan School of Management on July 13, 2015 in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

Abstract

I investigate whether and how expected future contract renegotiation considerations affect the type of covenants used in ex-ante debt contracts. I find that when future contract renegotiation costs are expected to be high, debt contracts are less likely to include covenants that restrict the borrower's financial flexibility in good states. This finding suggests that when renegotiation costs are high, borrowers and lenders avoid the use of covenants that are more likely to hold up the borrower and force it to bypass value-enhancing corporate policies (e.g., investments). Consistent with this interpretation, the negative relationship between renegotiation costs and the presence of flexibility-reducing covenants becomes stronger when the borrower has fewer outside options and financial flexibility becomes more valuable. Finally, I find that when future renegotiation costs are expected to be high, debt contracts have more covenants that are directly linked to the current performance of the borrower, which allows for a more efficient allocation of decision rights between the borrower and lenders. Overall, this study provides initial evidence about how renegotiation considerations affect the design of covenant packages in debt contracts.

Thesis Supervisor: Joseph Weber
Title: George Maverick Bunker Professor of Management
Professor of Accounting

Acknowledgments

I would like to thank the members of my dissertation committee: Anna Costello, Michelle Hanlon, Rodrigo Verdi, and Joseph Weber (Chair) for guidance, feedback, and suggestions on this paper. Furthermore, I thank David Abboody, Dan Amiram, Joshua Anderson, Paul Asquith, Bill Baber, Tim Baldenius, Dan Bens, Nittai Bergman, Mark Bradshaw, Craig Chapman, Lin Cheng (discussant), John Core, Hans Christensen, Ed deHann, Peter Demerjian, Yiwei Dou, Ron Dye, Richard Frankel, Henry Friedman, John Gallemore, Pingyang Gao, Joao Granja, Nick Guest, Ilan Guttman, Jack Hughes, Scott Keating, April Klein, Charles Lee, Becky Lester, Christian Leuz, Alvis Lo, Andrey Malenko, Miguel Minutti-Meza, D.J. Nanda, Valeri Nikolaev, Chris Noe, Bugra Ozel, Heidi Packard, Reining Petacchi, Josh Ronen, Sugata Roychowdhury, Nemit Shroff, Doug Skinner, Cliff Smith, Eric So, Florin Vasvari, Regina Wittenberg-Moerman (discussant), Joanna Wu, Ben Yost, Jeff Zwiebel, and seminar participants at Boston College, the University of Chicago, Georgetown University, INSEAD, LBS, the University of Miami, the MIT Accounting Workshop, the MIT Finance Lunch, Northwestern University, Stanford University, New York University, the University of Rochester, UCLA, Washington University in Saint Louis, the 2015 FARS Midyear Meeting, and the 2014 Annual Meeting of the AAA for helpful suggestions. I would also like to thank Charles Bensinger (Jones Day), Charles Kane, Guillermo Ortiz (Mitsubishi UFJ Financial Group), Luis Paz-Galindo (Blue Road Capital), Pascal Saavedra (KfW Bank), and Andrew Strehle (Brown Rudnick LLP) for their helpful discussions. In addition, I thank Hillary Ross for her continuous support as the program manager of the PhD program at the MIT Sloan School of Management. All errors are my own.

I. INTRODUCTION

Incomplete contracting theories have been a building block for models in economics, finance, and accounting for decades (see Hart 2001; Roberts and Sufi 2009a; Christensen, Nikolaev, and Wittenberg-Moerman 2015, for recent reviews).[1] These theories build on the idea that it is either not feasible or too costly for contracting parties such as borrowers and lenders to write contracts that perfectly anticipate all future scenarios. As a result, transacting parties are left exposed to the risk that they might face a costly future renegotiation. This expectation can in turn lead to inefficiencies in terms of investment or other value-enhancing corporate decisions. Despite the widespread use of incomplete contracting theories, few if any empirical studies have directly examined the extent to which future renegotiation considerations affect debt contract structures (Roberts 2014).[2] This paper contributes to the literature by providing initial evidence about how ex-post renegotiation considerations affect the ex-ante choice of covenants in syndicated loan agreements.

Investigating the effect of renegotiation costs on contract design in the syndicated loan market is interesting for a number of reasons. First, this setting offers large variation in terms of expected future renegotiation costs. Private debt contracts can just have one lender or more than 50 of them. Theory and anecdotal evidence suggest that the borrower's cost to renegotiate a contract increases with the number of creditors (e.g., Smith and Warner 1979; Bolton and Scharfstein 1996; Asquith, Beatty, and Weber 2005). If the loan

[1] See, e.g., Klein, Crawford, and Alchian (1978), Williamson (1979, 1983), Grossman and Hart (1986), Hart and Moore (1988, 1990), Sridhar and Magee (1996), Gigler et al. (2009), Caskey and Hughes (2012).

[2] Asquith, Beatty, and Weber (2005) is an exception. They hypothesize and find that future renegotiation considerations affect the inclusion of performance pricing provisions in syndicated loan contracts.

syndicate only comprises one lender or a reduced number of lenders, the costs of renegotiating the contract are usually low. For instance, anecdotal evidence suggests that smaller syndicates often waive amendment fees. However, if the syndicate is dispersed, the borrower might find it harder to get approval from a significant majority of lenders without making costly concessions (e.g., higher loan amendment fees) or without experiencing significant delays in getting the contract modified.[3] Second, focusing on syndicated loan contracts allows me to better identify the effect of renegotiation on contract design. In particular, while, by the beginning of the syndication process, the firm has already made the capital structure decision to issue private debt, uncertainty still exists with respect to the number of lenders that will be on the contract at the end of the process. In contrast, looking at the effect of renegotiation in the context of the choice between private versus public debt or debt versus equity might be confounded by other factors such as the borrower's opacity or marginal tax rate.[4] A final reason why this is a relevant setting is that around 80 percent of all firms use private debt agreements to finance their operations (Sufi 2009).

My main prediction is that the specific covenant package that contracting parties are willing to agree on varies with the potential costs associated with renegotiating covenants after loan inception. In particular, I focus on covenants because incomplete contracting theories (e.g., Aghion and Bolton 1992) suggest that the covenant package can

[3] An example involves Solutia Inc., a St. Louis chemical company that could only amend the terms of its line of credit after agreeing to a much higher interest rate (Ip 2002).

[4] For instance, Bharath, Sunder, and Sunder (2008) provide evidence that firms that are more opaque and need more monitoring are more likely to issue private debt as opposed to public debt. Graham (1996) provides evidence that marginal tax rates affect the propensity to issue debt.

be a mechanism to (1) leave the decision rights with the borrower in good states, and (2) transfer the control rights to the lender in bad states. Covenants are commonly included in debt contracts because they mitigate lender concerns that borrowers might engage in opportunistic behavior after a loan has been initiated. A downside, however, is that covenants can also limit firms' ability to make value-enhancing corporate decisions, such as investments, when borrowers are performing well and are far from default. Thus, I predict that when future renegotiation costs are expected to be high, contracting parties will be less likely to include covenants that reduce the borrower's financial flexibility in good states.

The following example illustrates the basic intuition behind my prediction. Loan contracts often include capital expenditure covenants that specify the type and size of investments that firms can make. Now suppose that the firm is performing well and that an unexpected positive NPV project arises that can only be achieved if the current loan contract is modified (e.g., because the new investment exceeds the maximum amount allowed under the original agreement). To do so, the borrower will need to convince a significant majority of all lenders (a majority between 67 percent and 100 percent is usually required). If the syndicate is dispersed, the borrower will anticipate a higher probability of a costly renegotiation in the form of higher loan amendment fees, delays in the approval of contract modifications, or, in an extreme case, the risk of not getting the modification approved. This situation, in turn, will lead to inefficiencies because the borrower will not have the proper ex-ante incentives to pursue this type of profitable investment opportunity. Therefore, using the number of lenders as my proxy for

renegotiation costs, I hypothesize that when renegotiation is more costly (i.e., when the number of lenders is large), the contracting parties will exclude covenants that restrict investments or other important corporate policies in good states.

However, it is important to note that contracts that give the borrower more financial flexibility in good states also increase the risk shifting and asset substitution risk to which lenders are exposed in bad states. As a result, it is ex-ante unclear whether future renegotiation considerations will affect the choice of covenants in debt contracts. This study's purpose is to shed some light on this empirical question.

To test my prediction, I classify covenant packages as *flexibility-reducing* in two different ways. First, I focus on whether debt contracts include a capital expenditure covenant. This covenant is present in approximately 24 percent of all debt contracts and explicitly limits firms' capital expenditures. Second, I construct a covenant index to measure the extent to which a particular covenant package is flexibility reducing. Specifically, I rank covenant packages as more flexibility reducing in the following descending order: the contract includes a capital expenditure covenant, the contract includes a balance sheet covenant but no capital expenditure covenant, and finally, the contract includes income statement covenants but no capital expenditure or balance sheet covenant. As I discuss in Section III, implicit in this classification is the assumption that when the firm is performing well, balance sheet covenants limit the borrower's ability to engage in value-enhancing action more than do income statement covenants.[5]

[5] For example, income statement covenants are usually less restrictive in terms of allowing firms to make investment and/or capital structure decisions in good states because they are more directly linked to the performance of the borrower. In contrast, balance sheet covenants are linked to the borrower's net worth or

A challenge with studying the relationship between the dispersion of the syndicate and covenant choice is that the number of lenders might be determined endogenously.[6] For instance, it could be that firms that need less monitoring not only have more dispersed syndicates but also fewer covenants that restrict the borrower's financial flexibility. To address these concerns, I use an instrumental variables strategy in my main tests (in addition to the traditional OLS estimates) and supplement it with a propensity matching methodology in the robustness section.

The instruments I employ are based on Ivashina (2009). She uses two measures – *Syndicate Reputation* and *Reciprocal*—that capture variation in the level of information asymmetry between the lead arranger and the *deal-specific* group of syndicate participants.[7] The intuition is that when the lead bank has a lower level of information asymmetry with its loan co-investors, participating lenders will be less concerned about opportunistic behavior of the lead arranger. This in turn will allow the lead arranger to retain a lower share of the loan and syndicate it to a larger number of participants. Using these instruments (and controlling for the lead arranger's overall reputation/screening ability) enables me to identify shifts in the number of lenders/renegotiation costs that are likely exogenous to the asymmetric information between the lead arranger and borrower.

---

total assets, which are aggregate measures of past management actions and only slowly reflect improvements in the borrower's performance.

[6] Sufi (2007) and Ball, Bushman, and Vasvari (2008) suggest that the level of information asymmetry between the borrower and the lead arranger affects the structure of the syndicate.

[7] *Syndicate Reputation* is measured based on the number of past deals arranged by the lead bank with at least one of the current participants. *Reciprocal* measures the existence of a past relationship in which the participant and lead bank switched roles. I describe these measures in detail in Section III.

Using a sample of 11,956 loan deals originated between 1995 and 2012 and an instrumental variables specification that includes controls for firm, contract, and lead arranger characteristics, I find that in the first-stage regressions, my instruments are significantly related to the number of lenders and are in the expected direction. Next, moving to the second-stage regressions, I find that when future renegotiation costs are expected to be high, debt contracts are less likely to include covenants that restrict the firm's financial flexibility (i.e., capital expenditure and/or balance sheet covenants). In economic terms, I obtain a decrease in the probability of including a capital expenditure covenant in the range of 2-3.5 percent across the OLS, IV, and propensity-match estimates. Overall, these results are consistent with my hypothesis that future renegotiation costs are an important determinant of how contracts are written and covenants are selected.

I then conduct cross-sectional tests based on variables that proxy for firms' ability to access alternative sources of financing. Renegotiation concerns should be particularly severe if the borrower has few outside options and cannot easily switch to other lenders at the renegotiation stage (e.g., Hart and Moore 1988). Thus, I predict that the effect of renegotiation on covenant choices is going to be stronger for the sample of borrowers that are more likely to face a costly future renegotiation. Consistent with this prediction, the negative relation between renegotiation costs and flexibility-reducing covenants is stronger when the borrower (1) has assets that are less redeployable, (2) has a credit rating below investment grade, and (3) is small.

Next, I investigate whether lenders, in exchange for giving the borrower more flexibility in good states, demand more covenants that are timelier in transferring decision

rights to the lenders in bad states.[8] Consistent with this intuition, I find that when renegotiation costs are high, contracts (1) have more income statement covenants and (2) are more likely to only rely on income statement variables that are directly linked to the current performance or changes in the credit risk of the borrower (Dechow 1994).[9]

This study makes two primary contributions. First, I provide initial evidence that future renegotiation and incomplete contract considerations are an important determinant of how covenant packages in debt contracts are written. Consistent with the intuition provided by theory (e.g., Aghion et al. 1994), I find that when future renegotiation costs are expected to be high, contracting parties will anticipate this and not contract on covenants that limit firms' financial flexibility in good states. While recent studies have investigated whether renegotiation costs affect the inclusion of performance pricing provisions (Asquith et al. 2005) or whether the terms of the initial contract play a role in the likelihood of future renegotiations (e.g., Roberts and Sufi 2009b; Nikolaev 2013), I am not aware of empirical studies that investigate how the choice of covenants in the ex-ante debt contract is determined by ex-post renegotiation considerations. In addition, the findings in my study suggest that contracting parties adjust the contract ex-ante to minimize ex-post renegotiation costs. More specifically, the choice of covenants in the original contract does not stave off costly renegotiation but rather allocates bargaining power to either the borrower or lender in different states of the world (Aghion and Bolton

[8] I also investigated whether lenders get compensated with higher interest rates but found no material results.
[9] Dechow (1994) provides evidence that earnings and cash flows are strongly related to firm's stock returns.

1992; Aghion et al. 1994).[10] As a result, my paper provides a rationale for the findings in Roberts and Sufi (2009b) that syndicated loan contracts are often renegotiated before their maturity.

Second, my study contributes to a better understanding of the role of accounting in debt agreements by providing evidence that contract renegotiation considerations are an important explanation for why specific accounting variables are used in debt contracts. A large and important literature provides evidence that accounting variables are critical to the design of efficient contracts and the allocation of debt capital (e.g., Smith and Warner 1979; Leftwitch 1983; Watts and Zimmerman 1986). However, to date, the fundamental forces that explain the cross-sectional variation in the use of accounting variables in debt agreements remain largely unexplored (Skinner 2011). My study contributes to this literature by showing that the selection of accounting based covenants is significantly determined by future renegotiation considerations.

The remainder of the paper is organized as follows: Section II discusses the prior literature and institutional background and develops my main predictions. Section III presents the research design and sample. Section IV discusses the empirical results. Section V presents robustness tests and Section VI concludes.

[10] For example, even in the absence of a Capex covenant in the original contract, the borrower might have incentives to renegotiate the contract if a good investment opportunity comes along. The borrower might be interested in, for instance, increasing the size or extending the maturity of the loan in order to finance the new investment. Moreover, as opposed to a contract that includes a Capex covenant, the borrower will have more bargaining power to negotiate a more favorable amendment to the contract.

II. PRIOR LITERATURE, INSTITUIONAL BACKGROUND, AND HYPOTHESIS

Prior Research

Two streams of research are closely related to my paper. The first consists of research that examines incomplete contracting theories and empirical research on contract renegotiation. The second consists of research that investigates the design of covenant packages.

Incomplete Contracting Theories

The central idea of incomplete contracting theories is that most contracts cannot describe all possible future scenarios of the relationship between the borrower and lenders involved (Klein, Crawford, and Alchian 1978; Williamson 1979 1983; Grossman and Hart 1986; Hart and Moore 1988 1990). In particular, contracting parties may (a) not be able to define ex-ante the contingencies that may later occur, (b) find it too costly to describe all future contingencies in a contract, or (c) have to rely on courts that cannot verify the contracted-upon contingencies and actions (Tirole 1999). As a result, the contract will need to be renegotiated in the future, which gives rise to hold-up problems and transaction costs that might affect the ex-ante incentives of the contracting parties to engage in actions that would maximize the joint surplus of the relationship/contract.

Theoretical models have also proposed solutions to the hold-up and incentive problems associated with renegotiations (e.g., Aghion and Bolton 1992; Aghion, Dewatripont, and Rey 1994). One of the key insights of these models is that debt contracts should allocate the decision rights to the contracting party that will contribute more to the joint surplus. In other words, in the context of a debt contract, the ex-ante contracts should

be written so that the borrower retains the decision rights in good states (i.e., when the borrower is performing well), whereas the lenders should have the decision rights in bad states (i.e., when the borrower is approaching default).

Empirical Research on Contract Renegotiation

There is little empirical evidence about how future renegotiation considerations affect the design of debt contracts. The exception is Asquith et al. (2005), who provide evidence that future renegotiation costs affect the likelihood of including a performance pricing provision in a debt contract.

The majority of empirical research focuses on studying the renegotiation of debt contracts after loan initiation. Dichev and Skinner (2002) provide evidence that 30 percent of contracts that include current ratio or net worth covenants are renegotiated before maturity. Roberts and Sufi (2009b) study all renegotiations of a sample of loan agreements by public firms. They find that renegotiation is extremely likely; more than 90 percent of long-term loan contracts are renegotiated before maturity and renegotiation is rarely a consequence of distress or default. They also find that renegotiation is determined by the arrival of new information regarding credit quality, investment opportunities, and the borrower's collateral, as well as macroeconomic fluctuations. Finally, they find evidence that ex-ante contractual contingencies are used to influence bargaining power of the contracting parties in ex-post renegotiation.

The findings of Roberts and Sufi (2009b) suggest that renegotiation is the norm, not the exception, in private debt contracts.[11] When the probability of ex-post renegotiation is 90 percent for long-term loan contracts, the expectation of renegotiation likely plays an important role in ex-ante contractual terms. My study extends this research by investigating how ex-ante optimal contracts are influenced by ex-post renegotiation costs. In particular, I investigate how the choice of covenants at contract origination is determined by ex-post bargaining considerations.

Design of Covenant Packages

The literature that studies the design of debt contracts is well established. (See Armstrong, Guay, and Weber (2010) and Roberts and Sufi (2009a) for recent reviews.) For instance, it is well known that covenants are used to mitigate agency conflicts between debt holders and equity holders (Smith and Warner 1979: Watts and Zimmerman 1986; Dichev and Skinner 2002).

More recently, researchers have begun to investigate the specific design of covenant packages. Beatty, Ramesh, and Weber (2002) provide evidence that the design of covenant packages is affected by firms' desire for accounting flexibility. Frankel, Seethamraju, and Zach (2008) find that changes in the accounting rules for goodwill (i.e., SFAS141 and 142) have led to modifications of covenants in debt contracts. Li (2010) investigates contractual definitions of net income and net worth in debt contracts. Demerjian (2011) documents a sharp decline in the use of covenants measured with balance sheet variables and attributes it to standard setters' shift towards a balance sheet, or

[11] See also Roberts (2014), Denis and Wang (2014), and Dou (2014).

fair values, approach. Lastly, Christensen and Nikolaev (2012) argue that financial covenants control the conflicts of interest between lenders and borrowers via two different mechanisms. They hypothesize that capital (i.e., balance sheet) covenants control agency problems by aligning debt holder-shareholder interests, whereas performance (i.e., income statement) covenants serve as trip wires that limit agency problems via the transfer of control to lenders in states where the value of their claim is at risk.

None of the studies in this literature, however, examine how future potential renegotiation costs affect the design of debt covenant packages. My study contributes to this literature by providing evidence that renegotiation costs affect the choice of covenants. In particular, I find that when renegotiation costs are high, contracts are more likely to include income statement covenants but less likely to include capital expenditure and/or balance sheet covenants.

Institutional Background

In this section, I provide institutional background information about the negotiation of debt covenants at loan initiation and the renegotiation of debt contracts after loan inception.

The Process of Negotiating Debt Covenants at Loan Inception

The premise underlying my analysis is that contracting parties have a reasonable idea about how large the syndicate is going to be *before* the final covenant package in the debt agreement is determined. This assumption seems to be consistent with how practitioners describe the process of negotiating debt covenants (see, e.g., Standard & Poors 2014) and with survey evidence indicating that retaining financial flexibility is the

primary consideration that firms take into account when negotiating debt contracts (Graham and Harvey 2001).[12]

The syndication process usually starts with the lead arranger soliciting informal feedback from potential investors on how much appetite they have for the deal and at what price they are willing to invest. Once this initial information has been collected, the lead arranger will be able to obtain a reasonable estimate of the number of lenders interested in the deal. Moreover, with this information an information memo (IM), which includes details about the covenant structure of the deal, is negotiated with the borrower. More specifically, the IM will include *the list of terms and conditions,* which is a preliminary term sheet describing the pricing, structure, collateral, covenant package, and other terms of credit.[13] Next, the lead arranger will formally market the deal to potential investors. Once the loan is closed and the lead arranger sells parts of the loan to other financial institutions, the final terms (including covenants) are then documented in detailed credit and security agreements (Standard & Poors 2014).

Renegotiation of Debt Contracts

A typical renegotiation (involving material changes to the contract) begins with the borrower approaching the lead arranger with a proposal to amend the existing debt contract.[14] For example, suppose that the borrower wants to invest in a new project that can only be done if the current limit for capital expenditures is increased. In this case, the

[12] I was able to corroborate this assumption through numerous discussions with borrowers, lenders, and lawyers involved in the syndication of corporate loans.
[13] The IM typically will include an executive summary, investment considerations, a list of terms and conditions, an industry overview, and a financial model.
[14] I thank a number of practitioners for detailing the renegotiation of material contract amendments.

borrower will submit a proposal to the lead arranger that will include all the information about the new project including cash flow and profitability projections. Once the lead arranger has revised (and potentially updated) the proposal to amend the contract, it will submit it to all loan participants. This proposal will also include the amendment fees that lenders will get in the event of the contract modification. Finally, the proposal is submitted to a vote by all loan co-investors. Typically a significant majority – between 67 and 100 percent of all lenders – is required. In general, the more important the amendment is, the higher the majority that is required to modify the contract.[15]

Hypothesis

My main hypothesis is that when future contract renegotiation costs are expected to be high, contracts will be less likely to include covenants that reduce the financial flexibility of the borrower in good states. This type of arrangement would be consistent with incomplete contracting theories (e.g., Aghion and Bolton 1992), which suggest that in the presence of costly renegotiation the borrower should retain decision rights when it is performing well. As a result, by excluding "flexibility-reducing" covenants, the borrower will have the proper ex-ante incentives to pursue value-enhancing corporate opportunities in good states of the world, thereby maximizing the value of the contract.

Moreover, previous research suggests that borrowers prefer to retain financial flexibility. For instance, Graham and Harvey (2001) indicate that having sufficient financial flexibility is the primary consideration that firms take into account in shaping their debt policy. Borrowers need this financial flexibility to take advantage of profitable

[15] Unfortunately, the different thresholds are usually not disclosed.

investment opportunities, make acquisitions using cash or debt, or to change their capital structure and payout policy following unexpected changes in information asymmetry and taxes (e.g., Naranjo et al. 2014; Hanlon and Hoopes 2014). As a result, it seems plausible that contracting parties will consider renegotiation costs when writing the original contract.[16]

However, while excluding flexibility-reducing covenants can improve the firm's financial flexibility, this situation also increases the risk to lenders. For example, without covenants that limit the financial flexibility of the borrower, lenders are exposed to increased moral hazard risk. Borrowers could behave opportunistically and not have enough of their own capital at risk. As a result, it is ex-ante unclear whether future renegotiation considerations will affect the choice of covenants in debt contracts, and the outcome remains an empirical question. As a result, I state my first hypothesis in alternate form:

H1: *Ceteris paribus*, when future renegotiations are expected to be costly, it is less likely that contracts include flexibility-reducing covenants.

Next, I investigate cross-sectional variation in the extent to which future renegotiation considerations are important in the design of debt contracts. I would expect renegotiation concerns to be more important if the borrower has few outside options and cannot easily switch to other lenders at the renegotiation stage (e.g., Hart and Moore 1988). For instance, it is likely that firms with a poor or no credit rating will have fewer

[16] Flexibility-reducing covenants can negatively affect equity values because they contractually limit the firm's upside. In a Merton (1974) framework, the value of equity is equivalent to a call option on the firm's assets. The more covenants limit the firm's volatility/financial flexibility, the less valuable the call option is going to be.

alternative sources to raise external funds, which, in turn, will put such firms in a more disadvantageous bargaining position in the event of a future renegotiation (vis a vis firms with a good credit rating). As a result, I would expect that for this particular group of borrowers (i.e., firms with fewer outside options), the negative relationship between renegotiation costs and flexibility-reducing covenants will be stronger.[17] Based on these arguments, I state my second hypothesis in alternate form:

H2: *Ceteris paribus*, when the borrower is more likely to be held up, the negative relationship between renegotiation costs and flexibility-reducing covenants is stronger.

Finally, I investigate why lenders agree to the above discussed covenant packages. One possibility is that in exchange for giving the borrower more flexibility in good states, lenders demand more covenants that are timelier in transferring decision rights to the lenders in bad states. This type of arrangement would be in line with theory (e.g., Aghion and Bolton 1992) as this covenant package is more likely to (1) transfer control rights to the lender when the borrower is performing poorly, and (2) leave the decision rights with the borrower in good states. However, it not immediately clear whether borrowers will agree with including more covenants that are directly linked to its current performance or changes in the credit risk. This is because more of these covenants will increase the

[17] In this hypothesis it is important to distinguish the *direct* effect of outside options on covenants, from the *indirect* effect via renegotiation costs (i.e., what I am testing in H2). To the extent that outside options capture some agency costs, the lender is more likely to increase the use of flexibility-reducing covenants. However, from a renegotiation cost standpoint, the borrower is more concerned with future renegotiation costs when outside options are low. As a result, the use of flexibility-reducing covenants decreases with future renegotiation costs. These predictions are formalized in a model developed by Garleanu and Zwiebel (2009) and discussed later in the paper.

borrower's renegotiation costs in bad states. Based on these arguments, I state my third hypothesis in alternate form:

H3: *Ceteris paribus*, when future renegotiations are expected to be costly, it is more likely that contracts include more covenants that are directly linked to the current performance of the borrower.

III. EMPIRICAL FRAMEWORK AND DATA

Empirical Framework

The purpose of this study is to investigate how future expected renegotiation costs affect the choice of covenants in the ex-ante debt agreement. This effect can be estimated by employing the following regression framework:[18]

$$Flexibility\ Reducing\ Covenants = \beta_0 + \beta_1 \#\ Lenders + \beta_2 Controls + \vartheta. \quad (1)$$

Here the outcome variable of interest is *Flexibility-Reducing Covenants*, which is either a dummy for the presence of a capital expenditure covenant or the value of the covenant index. The explanatory variable of interest is *# Lenders*, which is equal to the number of lenders participating in a loan deal.[19] These variables, together with the set of controls, are described in more detail below.[20] I winsorize all continuous variables at the

[18] Consistent with the suggestion in Angrist and Pischke (2009), throughout the paper I use a linear probability model as opposed to a non-linear limited dependent variable model. This allows for the easy interpretation of the coefficients as well as the use of fixed effects in the model. That said, I find similar results when I estimate the effect of renegotiation on the inclusion of a capital expenditure covenant using a Probit model.

[19] Using the natural logarithm of the number of lenders leads to similar results.

[20] To ensure that I only use accounting information that is publicly available at the time of a loan, I employ the following procedure: for those deal packages made in calendar year *t*, if the deal activation date is four months or more than the fiscal year ending month in calendar year *t*, I use the data of that fiscal year. If the

1 percent and 99 percent levels to limit the influence of outliers. In addition, the specification includes industry and year fixed effects. Finally, I cluster standard errors at the firm level.

My prediction is that $\beta_1 < 0$, suggesting that contracting parties will prefer to exclude flexibility-reducing covenants when the number of lenders is large and future renegotiation costs are expected to be high.

Flexibility-Reducing Covenants

The key variable of interest in this study is whether in the presence of high renegotiation costs, debt contracts include covenants that reduce the borrower's financial flexibility in good states of the world.[21] This covenant structure ensures that borrowers have the proper ex-ante incentives to engage in value-enhancing corporate policies when they are performing well. In the paper, I argue that both capex as well as balance sheet covenants are more restrictive in good states (i.e., when the firm is performing well) relative to income statement covenants. Next, I discuss each type of covenant and then present my classification into *Flexibility-Reducing Covenants*.

Capex covenant. As discussed in Nini, Smith, and Sufi (2009), this type of covenant explicitly limits firms' capital expenditures and often also imposes restrictions on

deal activation date is less than four months after the fiscal year ending month, I use the data from the fiscal year ending in calendar year $t-1$.

[21] I also considered investigating the effect of renegotiation costs on covenant tightness (e.g., Murfin 2012). However, this analysis presents significant challenges because covenant thresholds vary over time (Fang 2011; Li, Vasvari, and Wittenberg Moerman 2014), which introduces measurement error into the tightness estimation.

the type of investments that firms can make. As a result, this covenant can limit the borrower's ability to take on profitable investment opportunities in good states.

Balance sheet covenants. These covenants are calculated based on balance sheet variables, which often (and relative to income covenants as described below) only partially reflect improvements in the borrowers' performances or changes in credit risk.[22] The main balance sheet covenants are current ratio, leverage ratio, and net worth covenants.

1. The *current ratio* is defined as the ratio of current assets to current liabilities. This covenant regulates the minimum amount of liquidity that the borrower needs to hold at all times. However, this covenant can also limit the borrower's ability to finance investments or acquisitions with cash.
2. The *leverage ratio* is measured as the ratio of debt to net worth or, alternatively, to total assets. This covenant restricts the amount of debt that the borrower can take on. Moreover, it can be restrictive if the borrower wishes to issue debt to finance investments or to rebalance its capital structure.
3. The *net worth covenant* determines the minimum amount of equity that the borrower needs to keep inside the company. It can limit the borrower's ability to repurchase shares or to pay out dividends.

[22] Net worth, the primary variable used in balance sheet covenants, is understated and carried below market value (Watts, 2003). In addition, balance sheet variables are the result of a variety of decisions that are not necessarily informative about the borrower's current performance. For example, net worth is a summary measure that includes current income, retained earnings (including big bath charges, acquisition accounting, cookie jar "reserves"), and dividend and payout decisions. In other words, the current performance of the firm (i.e., current net income) is only one of many components of net assets or net worth.

Income statement covenants. The key insight is that relative to balance sheet covenants, income covenants are more directly linked to the performance or changes in the credit risk of the borrower. In other words, the borrower will be able to scale up debt in good states, whereas the lender will quickly gain control rights when the borrower's performance deteriorates. Moreover, these covenants rarely include investment restrictions (Li 2015).[23] The most frequent income statement covenants are the following.

1. *Debt-to-EBITDA* covenants are defined as debt to a measure of cash flows or earnings. The benefit of this covenant is that the denominator is strongly correlated to the borrower's current state. As a result, increases in performance will allow the borrower to issue more debt.
2. The *interest-coverage ratio* is defined as a measure of earnings relative to interest expense. Again, the benefit of this covenant is that the numerator is strongly correlated to the borrower's current state.
3. The *fixed-charge coverage ratio* is defined as a measure of earnings plus fixed charges relative to interest expense. These fixed charges can sometimes include dividends. This covenant is also directly related to the borrower's current performance.[24]

[23] Li (2015) suggests that contracting parties demand a performance measure that is invariant to the firm's investment activities, which can be controlled through other contractual mechanisms like restrictions on capital expenditure.

[24] The calculation of the fixed-charge coverage ratio covenant can sometimes include restrictions that limit capital expenditures and/or dividend payments. I address this in the robustness section.

Example – Leverage versus Debt-to-EBITDA Covenant

The following brief example illustrates the differences between balance sheet and income covenants in assigning control rights in different states of the world. Both the leverage (balance sheet) and debt-to-EBITDA (incomes statement) covenants impose restrictions on the amount of debt that the borrower can have on its balance sheet. While both have debt in the numerator, their denominators react very differently to changes in the performance or credit risk of the borrower. In the case of the debt-to-EBITDA covenant, there is a 1 to 1 relation between the ability to raise more debt and improvements (or deteriorations) in the performance of the borrower. In contrast, in the case of the leverage covenant, there is a less than 1 to 1 relation between the ability to raise more debt and improvements (or deteriorations) in the borrower's performance. This is because, in most cases, changes in performance only partially affect equity or total assets. As a result, I argue that the debt-to-EBITDA covenant gives the borrower more flexibility in good states, and is timelier in transferring decision rights to the lender in bad states.

Two Proxies for Flexibility-Reducing Covenants

Following the above discussion, I consider two different proxies to classify covenant packages as flexibility reducing. First, *Flexibility-Reducing Covenants* is a dummy variable equal to one if the debt contract includes a capital expenditure covenant; zero otherwise. The advantage of focusing on this type of covenant is that it clearly limits borrowers' financial flexibility. A limitation, however, is that investigating only capital expenditure covenants ignores cross-sectional variation in the degree to which other financial covenants can also be restrictive.

To address this last point, I construct an index to measure the extent to which a particular covenant package is flexibility reducing. To empirically construct this *Covenant Index,* I rank covenant packages as more flexibility reducing in the following descending order: the covenant index takes a value of two if the contract includes a capital expenditure covenant, the covenant index takes a value of one if the contract includes a balance sheet covenant but no capital expenditure covenant, and finally the covenant index takes a value of zero if the contract includes an income statement covenant but no capital expenditure or balance sheet covenant. In Appendix A, I provide detailed definitions for each of the most common financial covenants used in private debt agreements.

Renegotiation Costs

As previously discussed, I measure expected future contract renegotiation costs using the number of lenders in a debt contract.[25] Theory suggests that renegotiations are more likely to be costly when the members of the lending syndicate are dispersed, a situation that exacerbates collective action problems (e.g., Smith and Warner 1979; Holmstrom 1982; Bolton and Scharfstein 1996; Asquith et al. 2005). For instance, Bolton and Scharfstein (1996) suggest that borrowers have less bargaining power when they have to renegotiate with a dispersed group of creditors. Holmstrom (1982) points out that multiple lenders' cooperation can only be achieved with an offer that is attractive enough for lenders to choose to collaborate on it. Given that important contract amendments

[25] The number of lenders can change after loan inception if participation is sold in the secondary loan market (e.g., Wittenberg-Moerman 2008; Ivashina and Sun 2011). However, it is reasonable to assume that the number of lenders at loan inception is the best observable proxy for what the number of lenders might be in the future.

usually require a significant majority of all lenders (67 percent to 100 percent), a larger syndicate makes it more difficult for the borrower to propose contract amendments without having to make costly concessions (e.g., having to pay higher interest rates or amendment fees).

The use of the number of lenders as my proxy for renegotiation costs is also consistent with the anecdotal evidence provided by practitioners. In particular, important loan agreements usually have to be approved by different departments inside each bank. First, the borrower has to convince the loan officer of the lead bank that the contract modification is necessary. Second, the lead bank's risk management team also needs to be on board. Finally, the contract amendment needs to be formally approved by the bank's credit committee, which includes the loan officer and members of the risk management team. If the loan has multiple lenders, this process becomes more complicated and coordination problems might arise. First, there is a higher probability of hold-up costs. The more lenders there are on the syndicate, the more likely some of them are to behave opportunistically and demand a higher amendment fee. In contrast, when the syndicate is small, and the relation with the borrower is close, these fees are usually waived. Second, when the syndicate is large, approval of important contract modifications take more time. As a result, some investment opportunities that require quick action (e.g., mergers or acquisitions) might be lost. Finally, when the syndicate is dispersed there is a higher risk that any given number of lenders is simply unwilling to amend the contract. While contracts often include a "yank-a-bank" provision that allows the borrower to replace a lender, there are transaction costs involved, as the borrower is

responsible for finding a replacement lender and for paying any associated fees. As a result, I expect future renegotiation costs to be higher if the number of lenders in a loan syndicate is large.[26]

Controls

The specification also includes a variety of control variables. First, I control for the lead arranger's overall reputation or screening ability (*Lead Bank Reputation*). This variable controls for the fact that lead arrangers who have an established reputation with members of the syndicated loan community could have a differential effect on covenant choice. *Lead Bank Reputation* is measured as the number of loans syndicated by the lead bank over the previous three years. This variable is measured in thousands of deals and calculated using all loans available in Dealscan. The intuition behind *Lead Bank Reputation* is that banks that syndicate more loans have a stronger reputation or a better screening ability.

Next, I include controls for a number of firm characteristics that might affect covenant choice (Demerjian 2011; Christensen and Nikolaev 2012) and/or syndicate structure (Sufi 2007). *Size* is calculated as the natural logarithm of total assets. *Leverage* is defined as long-term debt plus debt in current liabilities divided by book assets. *Market-to-Book* is the ratio of the market value of equity plus the book value of liabilities (measured as book value of assets less the book value of equity) to the book value of

[26] See also the Lexis – Commercial Loan Documentation Guide (§11-19). It indicates: "In connection with the possibility of obtaining consents and waivers, the borrower should additionally consider the number of lenders with which it must deal…if the borrower must convince a majority of a number of lenders in the lending syndicate, then its task may be more difficult."

assets. *Profitability* is measured as a firm's pre-tax cash flow from operations over total assets. *Cash Flow Volatility* is equal to the volatility of cash flows scaled by mean non-cash assets over the previous five years. *Not Rated* is an additional proxy for default risk. It is a dummy equal to one if the borrower has no S&P long-term credit rating, zero otherwise. Furthermore, I include dummies for a borrower's specific credit rating (e.g., AAA, AA+, etc.).[27] Finally, I control for the number of previous deals that the borrower has closed with members of the syndicated loan market in the past. Borrowers that have accessed the syndicated loan market multiple times usually need less monitoring. Sufi (2007) provides evidence that this variable is an important determinant of syndicate dispersion. # *Previous Loans* is calculated at the Dealscan level.

I also include controls for a number of loan characteristics that could affect covenant choice. # *Facilities* is equal to the number of different tranches (e.g., credit line, term loan, etc.) included in a particular loan deal. *Deal Amount* is the size of the loan deal and is measured in millions of USD. *Deal Maturity* is measured in months and is calculated as the weighted maturity of all facilities included in a particular loan deal. Lastly, *Loan Purpose* is a set of controls for loan purpose, including LBO, takeover, working capital, etc.

I also control for macroeconomic conditions, which can affect debt contracting. *Credit Spread* is the difference between the AAA corporate bond yield and the BAA corporate bond yield. *Term Spread* is the difference between the 10-year Treasury yield

[27] In the regressions presented, BBB- is the excluded rating category.

and the 2-year Treasury yield. All variables used in this study are described in Appendix B.

Instrumental Variables Approach

A concern with drawing inferences from investigating the OLS association between the dispersion of the lending syndicate and covenant choice (equation (1) above) is that the number of lenders might be determined endogenously. For instance, Sufi (2007) and Ball, Bushman, and Vasvari (2008) suggest that the level of information asymmetry between the borrower and the lead arranger determines the size of the syndicate. As a result, it could be that firms that need less monitoring not only have more dispersed syndicates but also fewer covenants that restrict the borrower's financial flexibility.

To address these endogeneity concerns, I employ an instrumental variables specification (in addition to OLS) to identify how contract renegotiation costs affect the choice of covenants. In particular, to implement this empirical strategy, I need an instrument that would affect the number of lenders in the syndicate but that is unrelated to the degree of information asymmetry between the borrower and the syndicate. The instruments I employ are based on Ivashina (2009). She uses two measures that capture variation in the level of information asymmetry between the lead arranger and the *deal-specific* group of syndicate participants.[28] The intuition is that when the lead bank has a lower level of information asymmetry with its loan co-investors, participating lenders

[28] With one endogenous variable and two instruments, the identification is less affected by the weak instruments problem typically raised in the literature (e.g., Bound, Jaeger, and Baker, 1995; Ibens and Wooldridge 2007; Larcker and Rusticus 2010).

will be less concerned about the opportunistic behavior of the lead arranger. This will in turn allow the lead arranger to retain a lower share of the loan and syndicate it to a larger number of participants.

My first instrument, *Syndicate Reputation*, is the maximum number of past deals arranged by the lead bank with at least one of the current participants, measured over a three-year horizon and expressed as a percent of the total deals underwritten during this period.[29] The intuition is that a higher proportion of past deals underwritten with at least one of the current participants reduces within-syndicate information asymmetry, thereby allowing the lead arranger to syndicate a larger fraction of the deal. In my sample, the mean and median of this reputation measure are 24.5 percent and 20 percent, respectively. This suggests that almost a quarter of all previous deals were underwritten together with at least one of the current co-investors.

My second instrument measures the existence of a past relationship in which the participant and lead banks switched roles (Ivashina 2009). The intuition is that the more frequently the lead arranger has participated in loan deals arranged by the participants, the lower the level of information asymmetry in the syndicate. Similar to my first instrument, I calculate *Reciprocal* as the maximum number of deals arranged by one of the participants in which the lead arranger also participated, measured over a three-year horizon and expressed as a percent of the total deals in which the lead arranger

[29] Using the average number of past deals with loan co-investors instead leads to similar results. However, I prefer to use the maximum number as this variable is more likely to be random.

participated during this period.[30] In my sample, the mean and median of this measure are 14.7 percent and 13.7 percent, respectively.

Both instruments are calculated using all loan deals available in Dealscan. Moreover, all financial institutions are aggregated to their parent company. I control for mergers among my lender sample, and acquired firms are aggregated to their acquirers at the effective date of the merger.[31] In addition, acquiring financial firms inherit both previous lead arranger-participant relationships and previous borrowing-firm relationships of the acquired firm.

Higher values of *Syndicate Reputation* and/or *Reciprocal* reflect lower levels of information asymmetry within the syndicate. Consequently, I expect a positive relation between the number of lenders and both measures. Moreover, it is plausible that these instruments satisfy the exclusion restriction, given that it is unlikely that past relationships between the lead arranger and loan co-investors are correlated with unobservable borrower characteristics. Using these two instruments, the effect of contract renegotiation on covenant choice is estimated using an instrumental variables technique. Equations (2) and (3) correspond to the first and second stages, respectively. In the second stage, the fitted value of the number of lenders, computed using the first-stage estimates, replaces the observable number of lenders.[32]

---

[30] Ivashina (2009) suggests using a dummy variable that is equal to one if a past relationship exists in which the lead arranger and a participant had switched roles. However, I do not find that this particular instrument has sufficient explanatory power in my first-stage regressions.

[31] I thank Amir Sufi and Nada Mora for providing merger information from Sufi (2007) and Mora (2014), respectively.

[32] As mentioned in Footnote 16, throughout the paper I follow Angrist and Pischke's (2009) suggestion to use a linear probability model as opposed to a non-linear limited dependent variable model.

$$\#\,Lenders = \alpha_0 + \alpha_1 Controls + \alpha_2 Instruments + \varepsilon. \quad (2)$$

$$Flexibility\ Reducing\ Covenants = \gamma_0 + \gamma_1 \#\,\widehat{Lenders} + \gamma_2 Controls + \in. \quad (3)$$

Before I proceed, I note that one could argue that different banks might have different screening abilities, which in turn might have an effect on covenant choice. To mitigate concerns that my instruments might be capturing the lead arranger's screening abilities and therefore potentially violating the exclusion restriction, I use two different IV specifications. First, as previously discussed, I include *Lead Bank Reputation* as a control to capture the effect of banks that have established a strong reputation and are likely to have different screening abilities. Second, I also include lead bank fixed effects in equations (2) and (3). This allows for a within-lead arranger analysis and mitigates concerns that the choice of certain covenants is bank specific. The downside of this approach is that smaller banks often do not have sufficient observations to conduct this type of within-lead arranger analysis.[33]

Data and Overview of the Main Variables

I start with Dealscan observations that I can link to Compustat using the Roberts Dealscan–Compustat link (August 2012 vintage, see Chava and Roberts 2008). Following previous research, I exclude contracts without covenant information from the analysis.[34] This leaves me with 30,842 deal packages that have at least one covenant. I

[33] Consistent with previous studies (e.g., Sufi 2007; Gopalan et al. 2011; Murfin 2012), I find that large banks (e.g., JPMorgan or Bank of America) syndicate the majority of deals.

[34] Beatty, Weber, and Yu (2008) and Drucker and Puri (2009) document that Dealscan sometimes underreports the number of covenants in deals, and that deals with no reported covenants are potentially data errors. Christensen and Nikolaev (2012) also indicate that it is highly unlikely that credit agreements do not

also require firms to have sufficient data for calculating the number of lenders in a loan syndicate and control variables during the years 1995-2012.[35] Furthermore, I exclude financial (SIC 6000-6999) and regulated firms (4900-4999) consistent with prior research.[36] This leaves 13,129 observations. The next data restriction involves lead arrangers. I eliminate any loan that has a lead arranger that is not one of the top 130 lead arrangers for the full sample period. This restriction makes data collection manageable, but reduces the sample size by another 1,172 observations. Finally, in the event that a loan has multiple lead arrangers (around 20 percent of the loans), I keep a separate observation for each lead arranger (see, e.g., Gopalan et al. 2011; Murfin 2012).[37] This leaves a final sample of 11,956 deal packages. Table 1 provides the details.

Table 2 presents descriptive statistics for the variables in this study. The mean of *Capex Covenant* is 0.24, suggesting that during the sample period, on average, 24 percent of all contracts include capital expenditure covenants. The median of *Covenants Index* is 1, indicating that most firms have at least one balance sheet covenant in their debt contracts. The number of lenders – my proxy for the cost of renegotiation – has a mean of 10, which is close to the values reported in Graham, Li, and Qiu (2008). Other variables have similar values to those reported in previous studies. For instance, the values for *Size, Deal Maturity,* and *Collateral* are similar to the ones reported by Christensen and

employ covenants, given that almost all private credit agreements rely on them. The absence of covenant data is therefore likely to indicate that Dealscan was unable to obtain information on the covenants. Accordingly, I exclude contracts with no covenant information (rather than set their number to zero).

[35] My sample includes loan issuances until March 2012.

[36] Including regulated and financial firms leads to largely similar results.

[37] Excluding observations with multiple lead arrangers leads to similar results.

Nikolaev (2012). Moreover, *Leverage* is in line with the values reported in Costello and Wittenberg Moerman (2011).

Table 3 presents correlations between the different covenant types and the number of lenders. I find that the number of lenders is negatively correlated with capital expenditure covenants and the covenant index. Moreover, the number of lenders also exhibits a negative correlation with both the number of financial covenants and the number of general covenants (i.e., equity issuance sweeps, debt issuance sweeps, asset sales sweeps, insurance proceeds sweeps, or dividend restrictions). However, I do find that the number of lenders is positively correlated with the number of income statement covenants or with contracts that only use income statement variables. This result provides some initial evidence that renegotiation costs might affect what types of covenants are included in loan agreements.

IV. EMPIRICAL RESULTS

Instrumental Variables – First-Stage Results

Recall that the premise underlying my instruments is that the lead bank will be able to syndicate a given loan to a larger syndicate when information asymmetry among syndicate participants is low. As a result, I would expect both instruments to be important determinants of the number of lenders in the loan syndicate.

Table 4 presents the results for the first-stage regression. In particular, the table provides outcomes for four different specifications. Columns 1 and 2 provide results when using *Syndicate Reputation* and *Reciprocal* as the sole instruments, respectively. In both

cases, I find that the instruments are significant in explaining the number of lenders in debt contracts. Specifically, a reduction in within-syndicate information asymmetry is associated with a larger number of lenders. For example, a one standard deviation increase in *Syndicate Reputation* (in column 1) is associated with an increase of 0.65 lenders. In turn, a one standard deviation increase in *Reciprocal* (in column 2) is associated with an increase of 1.18 lenders. However, the evidence from columns 1 and 2 also suggests that *Reciprocal* has a higher incremental explanatory power than *Syndicate Reputation* (Shea's partial R-Squared of 1.96 percent versus 0.88 percent).

Columns 3 and 4 provide evidence when using both instruments to estimate the number of lenders. Column 3 shows that the two instruments, *Syndicate Reputation* and *Reciprocal*, are jointly statistically significant in explaining the number of lenders in private debt agreements. The F-test is equal to 88.6, and Shea's partial R-squared is 2.23 percent. Column 4 shows that the two instruments are also jointly statistically significant in explaining the number of lenders when lead arranger fixed effects are included. The F-test is equal to 99.5, and Shea's partial R-squared is 2.41 percent. These statistics suggests that it is unlikely that my instruments are affected by a weak instruments problem. For instance, the F-statistic of 99.5 is well above the value of 10, which has become a benchmark for whether weak instruments can cause a bias problem in the second-stage estimates (e.g., Stock and Yogo 2005). For parsimony, the rest of the paper will present results based on the models described in columns 3 and 4, respectively.[38]

[38] Using only one instrument at a time leads to largely similar, albeit weaker, results.

The coefficients I obtain on the control variables suggested by Sufi (2007) are all consistent with the model presented in that paper.[39] For example, firms that have a larger number of previous deals with the syndicate community also have more dispersed syndicates. In contrast, firms that are unrated have smaller syndicates. This is in line with the Sufi (2007) argument that information asymmetry between the lead arranger and the borrower plays an important role in the structure of the lending syndicate. However, when analyzing other variables not included in the Sufi paper, I also find that firms with higher cash flow volatility have a larger number of lenders. This result is consistent with recent evidence that lenders diversify their loan holdings by forming larger syndicates when the borrower is more risky (e.g., Ivashina and Sun 2011; Nadauld and Weisbach 2012). As a result, larger syndicates can also be associated with firm characteristics (i.e., higher cash flow volatility) that might be indicative of borrowers with a higher adverse selection/moral hazard risk, which therefore need more monitoring.

Main Results – Second-Stage

Table 5 reports the OLS and IV results for when the dependent variable is *Capex Covenant*. The first column presents results when using the OLS specification. The coefficient on *# Lenders* is negative (-0.002) and statistically significant (t-stat -2.68). This coefficient suggests that a one standard deviation increase in the number of lenders decreases the probability of including a capital expenditure covenant by 1.6 percentage

[39] Because his analysis is conducted at the Dealscan level, Sufi (2007) includes a relatively limited number of firm-specific controls. In particular, his model (Table IV, p. 647) includes firm-specific controls for firm size and for whether the firm is private or unrated. Note that I do not include a control for private firms given that all firms in my sample are public.

points. Column 2 presents the second-stage results of the IV specification. Here the coefficient on # $\widehat{Lenders}$ is also negative (-0.032) and statistically significant (t-stat -5.87). To put this in perspective, a one standard deviation change in *Reciprocal* (one of my instruments) decreases the probability of including a capital expenditure covenant by 3.3 percentage points.[40] Lastly, column 3 provides the results when the IV specification includes lead arranger fixed effects. Here the coefficient on # $\widehat{Lenders}$ is also negative (-0.026) and statistically significant (t-stat -4.91). These findings suggest that when renegotiation costs are high, debt contracts are less likely to include a capital expenditure covenant.

Table 5 also presents the Durbin-Wu-Hausman test. The rejection of the Durbin-Wu-Hausman test (p-value 0.00) suggests that the number of lenders in the OLS specification is not exogenous, consistent with significantly larger IV estimates when compared to those obtained using OLS. In addition, the overidentifying restriction is not rejected, with a p-value equal to 0.73. This result supports the validity of my instruments and alleviates doubt about the appropriateness of the two-stage model.

Table 6 analyzes the impact of renegotiation costs on the covenant index. The first column presents results when using the OLS specification. The coefficient on # *Lenders* is negative (-0.006) and statistically significant (t-stat -3.36). Column 2 presents the second-stage results of the IV specification. Here the coefficient on # $\widehat{Lenders}$ is again larger than in the OLS specification (-0.057; t-stat -5.42). To put this in perspective, a one

[40] = 0.125*8.262*(-0.032) (i.e., one standard deviation of *Reciprocal* *coefficient on *Reciprocal* in model (3) in the first stage Table 4 * coefficient on # $\widehat{Lenders}$ in Table 5).

standard deviation change in *Reciprocal* (one of my instruments) leads to a decrease in *Covenant Index* of 0.058.[41] Column 3 provides the results when the IV specification includes lead arranger fixed effects. Here the coefficient on # $\widehat{Lenders}$ is also negative (-0.049) and statistically significant (t-stat -4.82). These results suggest that when renegotiation costs are high, debt contracts are less likely to include covenants that restrict the firm's financial flexibility (i.e., capital expenditure and/or balance sheet covenants) in good states.

As in Table 5, the rejection of the Durbin-Wu-Hausman test (p-value 0.00) in Table 6 suggests that the number of lenders in the OLS specification is not exogenous. In addition, the overidentifying restriction is not rejected with a p-value equal to 0.81. This result again supports the validity of my instruments and alleviates doubt about the appropriateness of my model.

Taken together, the results from Tables 5 and 6 suggest that contracting parties take into account future renegotiation considerations when designing new contracts. I find that when the loan syndicate is more dispersed, contracting parties are less likely to include flexibility-reducing covenants.[42]

---

[41] = 0.125*8.262*(-0.057) (i.e., one standard deviation of *Reciprocal* *coefficient on *Reciprocal* in model (3) in the first stage Table 4 * coefficient on # $\widehat{Lenders}$ in Table 6). Recall that the values for Covenant Index range between 0 and 2.

[42] However, it is important to note that a drawback of IV estimation is that it is only based on the subset of debt contracts affected by the instruments. If not every contract in my sample responds to the instrument, the results might only be representative of those contracts that are affected by *Syndicate Reputation* or *Reciprocal* (Imbens and Angrist 1994).

Cross-sectional Tests – Outside Options

Next, I present the cross-sectional tests based on variables that proxy for borrowers' outside options at the renegotiation stage. Theory suggests that when firms have fewer outside options and financial flexibility is more valuable, they are more likely to be held up in a renegotiation (Hart and Moore 1988).

I use three proxies to measure firms' outside opportunities to access external sources of funding in the event of a future renegotiation. First, I expect that firms with low asset redeployability have a harder time accessing outside financing (e.g., Benmelech and Bergman 2008). To proxy for this construct, I use the borrower's asset tangibility, measured as property, plant, and equipment to total assets. Borrowers with asset tangibility below the sample median are classified as *Low Redeployability*, zero otherwise. Second, I use the borrower's long-term S&P credit rating. Firms with a higher credit rating usually can more easily access capital. In particular, I partition borrowers into *Below Investment Grade* and *Investment Grade.* Third, I partition firms based on their size (e.g., Almeida, Campello, Weisbach 2004; Farre-Mensa and Ljungqvist 2013). I expect smaller firms to be more likely to be held up in the event of a future renegotiation. More specifically, I classify borrowers as *Small* if they are below the sample median for firm size. To estimate these cross-sectional tests, I employ the following IV specification:

$$\#Lenders = \alpha_0 + \alpha_1 Controls + \alpha_2 Instruments_1 + \varepsilon. \quad (4a)$$

$$\#Lenders \text{ x } Partition = \partial_0 + \partial_1 Controls + \partial_2 Instruments_2 + \vartheta. \quad (4b)$$

$$Flex.R.Cov. = \gamma_0 + \gamma_1 \widehat{\#Lenders} + \gamma_2 \widehat{\#Lenders \text{ x } Partition} + \gamma_3 Controls + \in. \quad (5)$$

In particular, the specification includes two first-stage regressions, (4a) and (4b), to estimate the fitted values of *#Lenders* and *#Lenders* x *Partition*, respectively. To estimate equation (4a), I continue to use *Syndicate Reputation* and *Reciprocal* as the instruments (i.e., $Instruments_1$). Moreover, to estimate equation (4b), I use both of the interactions for *Syndicate Reputation* and *Reciprocal* with the corresponding partitioning variable as the instruments (i.e., $Instruments_2$).[43] The fitted values from those equations are then employed to estimate equation (5), the second stage.

Table 7, Panels A and B, presents the results for the second stage.[44] Consistent with my prediction, I find that the negative relationship between renegotiation costs and flexibility-reducing covenants is stronger when the borrower is more likely to be held up in the event of a future renegotiation. In particular, I find that the fitted interaction term between the number of lenders and each partition (i.e., *Low Redeployability, Below Investment Grade,* and *Small*) is negative and significant.[45] To put this in perspective, a one standard deviation change in *Reciprocal* (one of my instruments) decreases the probability of including a capital expenditure covenant by an additional 2.3 percentage points when the borrower has a credit rating below investment grade (vis a vis a similar increase in *Reciprocal* when the borrower has a credit rating of investment grade or better).[46,47]

---

[43] For example, *Syndicate Reputation x Small* and *Reciprocal x Small* would be the instruments for the interaction term when *Small* is the partitioning variable.

[44] Untabulated first-stage regression results suggest that all instruments are significant.

[45] All results are robust to including lead arranger fixed effects.

[46] = 0.125*8.262*(-0.022).

[47] It is important to note that the results in Table 7 can also be interpreted in the context of the model developed by Garleanu and Zwiebel (2009). They predict that firms with agency problems will have more

Why Do Lenders Agree to Have Fewer Flexibility-Reducing Covenants?

The above discussion has mostly centered on how contracts are modified to the borrower's benefit. In this section, I provide some insights into why lenders might agree to contract on less restrictive covenants when future renegotiation costs are high.[48]

In particular, I test whether lenders, in exchange for giving the borrower more flexibility in good states, demand more covenants that are timelier in transferring decision rights to lenders in bad states. To proxy for this type of covenant, I use income statement covenants. Dechow (1994) provides evidence that income variables are strongly related to firms' current performance. Moreover, Christensen et al. (2015) suggest that indicators based on the firm's accounting performance are natural candidates for writing contracts in an incomplete contracting framework. To test this prediction, I use *# Income Covenants* as the dependent variable in equation (3). Table 8 presents the results. Column 1 provides evidence that contracting parties rely on a larger number of income statement covenants when renegotiation costs are high. Moreover, column 2 provides evidence that contracting parties are more likely to only contract based on income statement covenants when renegotiation costs are high.[49] This type of arrangement would be in line with incomplete contracting theory (e.g., Aghion and Bolton 1992), as this covenant package is more likely

---

restrictive covenant packages, but that this effect decreases with renegotiation costs. Consistent with their predictions, Table 7 suggests that borrowers that are more exposed to agency problems (i.e., *Low Redeployability, Below Investment Grade,* and *Small*) are more likely to have a capex covenant or a more restrictive covenant index. However, this effect decreases when the number of lenders (i.e., the renegotiation cost) increases.

[48] As mentioned in the introduction, I also investigated whether lenders get compensated with higher interest rates. However, I found no material results.

[49] This latter result follows immediately from H1. However, I present it for illustration purposes.

to (1) transfer control rights to the lender when the borrower is performing poorly, and (2) leave decision rights with the borrower in good states.

V. ROBUSTNESS TESTS

Alternative IV Specification

To further mitigate endogeneity concerns and/or potential measurement error in the IV specification, I include an additional instrument when estimating equations (2) and (3). In particular, I use the lead bank's internal lending limit, as suggested in Ivashina (2009) and Mora (2014).[50]After implementing this specification (untabulated), I continue to find that renegotiation costs significantly and negatively affect the inclusion of flexibility-reducing covenants.

Propensity Score Matching

Next, I present robustness tests using a propensity score matching methodology. As discussed in Roberts and Whited (2011), this methodology can be helpful in mitigating endogneity concerns. I match deal packages based on the probability that they have a number of lenders above the sample median. The variables that I include in estimating the first stage model are those identified by Sufi as proxies for the level of information asymmetry between lenders and the borrower (i.e., *Size, # Previous Loans, Unrated,* and *Loan Size*).[51] In untabulated tests, I find that the treatment and control firms are similar

[50] The lending limit is a simple additional proxy for the lead's loan portfolio diversification. In particular, because I do not directly observe the lending limit, I use the Dealscan sample and measure the lending limit as the 75th percentile of the dollar size of the lead bank's share, calculated over the prior three years.
[51] I also use alternative matching specifications and find similar results.

across all dimensions. In Table 9, Panel A, I present my regression results. I continue to find that deal packages with a larger number of lenders are more likely to (a) exclude capex covenants, (b) have a lower Covenant Index, and (c) rely more on income statement covenants.[52]

Alternative Covenant Index Specification

In some instances, the calculation of the fixed-charge coverage ratio covenant can include restrictions that limit capital expenditures and/or dividend payments (Taylor and Sansone 2007). As a result, this covenant could also be considered flexibility reducing. To test how sensitive my results are to reclassifying this covenant as flexibility reducing, I re-estimate my tests. In particular, when determining the flexibility index of a particular covenant package, I assume that the fixed-charge coverage ratio covenant is as restrictive as a balance sheet covenant. In untabulated results, I continue to find that future expected renegotiation costs are negatively related to covenants that reduce the financial flexibility of the borrower.

Additional Covenant Analysis

I also conduct additional robustness tests to mitigate concerns that my results might be driven by the specific classification into flexibility-reducing covenants. In particular, I investigate how the absolute number of different covenants (instead of the *Covenant Index*) used in debt contracts varies with renegotiation costs. The different covenants that I test are: (1) *#Financial Covenants,* which is equal to the sum of all financial covenants, and (2)

[52] Using a dummy variable for whether the number of lenders is above the sample median leads to similar results.

 # Flexibility-Reducing Covenants, which is equal to the sum of capital expenditure and balance sheet covenants.

Table 9, Panel B, column 1 presents the results for when *# Financial Covenants* is the dependent variable. The negative coefficient on the fitted number of lenders (t-stat -2.47) suggests that when renegotiation costs are high, contracting parties use a smaller number of financial covenants. Column 2 presents the results from tests about whether renegotiation costs differentially affect the *# Flexibility-Reducing Covenants*. I find that when renegotiation costs are high, the number of capital expenditure and balance sheet covenants (i.e., *# Flexibility-Reducing Covenants*) is significantly lower (t-stat -3.31). These results confirm that contracting parties rely less on flexibility-reducing covenants when renegotiation costs are high.

General Covenants

General covenants such as equity issuance sweeps, debt issuance sweeps, asset sales sweeps, insurance proceeds sweeps, or dividend restrictions could also restrict the borrower's financial flexibility. Christensen and Nikolaev (2012) suggest that these covenants are often used together with income statement covenants, which might raise some concerns regarding the intuition developed in this paper that writing contracts based on income statement covenants gives the borrower more financial flexibility. To address this concern, I investigate the effect of renegotiation costs on *#General Covenants,* which is equal to the sum of equity issuance sweeps, debt issuance sweeps, asset sales sweeps, insurance proceeds sweeps, and dividend restrictions.

The last column of Table 9, Panel B shows the results when # *General Covenants* is the dependent variable. I find that # *General Covenants* is negatively related with renegotiation costs (t-stat -4.45). As a result, when renegotiation costs are high, debt contracts are less likely to include general covenants.

VI. CONCLUSION

I investigate whether and how expected future contract renegotiation considerations affect the type of covenants used in ex-ante debt contracts. I find that when future contract renegotiation costs are expected to be high, debt contracts are less likely to include covenants that restrict the borrower's financial flexibility in good states. This finding suggests that when renegotiation costs are high, borrowers and lenders avoid the use of covenants that are more likely to hold up the borrower and force it to bypass value-enhancing corporate policies (e.g., investments). Consistent with this interpretation, the negative relationship between renegotiation costs and the presence of flexibility-reducing covenants becomes stronger when the borrower has fewer outside options and financial flexibility becomes more valuable. Finally, I find that when future renegotiation costs are expected to be high, debt contracts have more covenants that are directly linked to the current performance of the borrower, which allows for a more efficient allocation of decision rights between the borrower and lenders.

This study makes two primary contributions. First, I provide initial evidence that future renegotiation and incomplete contract considerations are an important determinant of how covenant packages in debt contracts are written. In addition, the findings in my study suggest that contracting parties adjust the contract ex-ante to minimize ex-post

renegotiation costs. As a result, my paper provides a rationale for the findings in Roberts and Sufi (2009b) that syndicated loan contracts are often renegotiated before their maturity. Second, my study contributes to a better understanding of the role of accounting in debt agreements by providing evidence that contract renegotiation considerations are an important explanation for why specific accounting variables are used in debt contracts. Overall, this study provides initial evidence about how renegotiation considerations affect the design of covenant packages in debt contracts.

REFERENCES

Aghion, P., and P. Bolton. 1992. An incomplete contracts approach to financial contracting. *Review of Economic Studies* 59: 473–94.

Aghion, P., M. Dewatripont, and P. Rey. 1994. Renegotiation design with unverifiable information. *Econometrica* 62, 257–282.

Almeida, H., M. Campello, and M. Weisbach. 2004. The cash flow sensitivity of cash. *Journal of Finance* 59, 1777-1804.

Angrist, J.D., and J. Pischke. 2009. *Mostly Harmless Econometrics: An Empiricist's Companion.*
Princeton: Princeton University Press.

Armstrong, C., W. Guay, and J. Weber. 2010. The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics* 50: 179–234.

Asquith, P., A. Beatty, and J. Weber. 2005. Performance Pricing in Bank Debt Contracts. *Journal of Accounting and Economics* 40: 101–28.

Ball, R.T., R.M. Bushman, and F.P. Vasvari. 2008. The debt-contracting value of accounting information and loan syndicate structure. *Journal of Accounting Research* 46: 247–287.

Beatty, A., K. Ramesh, and J. Weber. 2002. The importance of accounting changes in debt contracts: the cost of flexibility in covenant calculations. *Journal of Accounting and Economics* 33: 205–227.

Beatty, A., J. Weber, and J. Yu. 2008. Conservatism and debt. *Journal of Accounting and Economics* 45: 154-174.

Benmelech, E., and N. Bergman. 2008. Liquidation values and the credibility of financial contract renegotiation: Evidence from U.S. airlines. *Quarterly Journal of Economics* (forthcoming).

Bharath, S.T., Sunder, J., Sunder, S., 2008. Accounting quality and debt contracting. The Accounting Review 83, 1–28.

Bolton, P., and D. Scharfstein. 1996. Optimal debt structure and the number of creditors. *Journal of Political Economy* 104: 1–25.

Bound, J., D. Jaeger, and R. Baker. 1995. Problems with instrumental variables: Estimation when the correlation between the instruments and the endogenous explanatory variables is weak. *Journal of the American Statistical Association* 90: 443–450.

Caskey, J., and J. S. Hughes. 2012. Assessing the impact of alternative fair value measures on the efficiency of project selection and continuation. *Accounting Review*: 483–512.

Christensen, H. B., and V. V. Nikolaev. 2012. Capital versus performance covenants in debt contracts. *Journal of Accounting Research* 50 (1): 75-116.

Christensen, H. B., V. V. Nikolaev and R. Wittenberg-Moerman. 2015. Accounting Information in Financial Contracting: An Incomplete Contract Theory Perspective. Working paper, the University of Chicago.

Costello, A. M., and R. Wittenberg-Moerman. 2010. The impact of financial reporting quality on debt contracting: Evidence from internal control weakness reports. *Journal of Accounting Research* 49 (1): 97-136.

Dechow, P., 1994. Accounting Earnings and Cash Flows as Measures of Firm Performance: The Role of Accounting Accruals. *Journal of Accounting and Economics* 18: 3-42.

Demerjian, P. 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: 178-202.

Denis, D.J., and J. Wang. 2014. Debt covenant renegotiations and creditor control rights. *Journal of Financial Economics* (forthcoming).

Dichev, I., and D. Skinner. 2002. Large-sample evidence on the debt covenant hypothesis. *Journal of Accounting Research* 40: 1091–1123.

Dou, Y. 2014. *The Debt-Contracting Value of Accounting Numbers, Renegotiation, and Investment Efficiency*. Working paper, New York University.

Drucker, S., and M. Puri. 2009. On loan sales, loan contracting, and lending relationships. *Review of Financial Studies* 22 (7): 2835–2872.

Fang, S. 2011. *State Independent Contractual Adjustments in Financial Covenants*. Working paper, University of Rochester.

Farre-Mensa, J., and A. Ljungqvist. 2013. *Do Measures of Financial Constraints Measure Financial Constraints?* NBER working paper series.

Frankel, R., C. Seethamraju, and T. Zach. 2008. GAAP goodwill and debt contracting efficiency: Evidence from net worth covenants. *Review of Accounting Studies* 13: 87–118.

Garleanu, N., and J. Zwiebel. 2009. Design and renegotiation of debt covenants. *Review of Financial Studies* 22: 749–781.

Gigler, F., C. Kanodia, H. Sapra, and R. Venugopalan. 2009. Accounting conservatism and the efficiency of debt contracts. *Journal of Accounting Research* 47: 767–797.

Gopalan, R., V. Nanda, and V. Yerramilli. 2011. Does poor performance damage the reputation of financial intermediaries? Evidence from the loan syndication market. *Journal of Finance* 66: 2083–2120.

Graham, J. R., 1996. Debt and the Marginal Tax Rate. *Journal of Financial Economics* 41: 41-74.

Graham, J. R., and H. Campbell. 2001. The theory and practice of corporate finance: evidence from the field. *Journal of Financial Economics* 60: 187–243.

Graham, J. R., S. Li, and J. Qiu. 2008. Corporate misreporting and bank loan contracting. *Journal of Financial Economics* 89: 4–61.

Grossman, S., and O. Hart. 1986. The costs and benefits of ownership: A theory of vertical and lateral integration. *Journal of Political Economy* 94: 691-719.

Hanlon, M., and J. L. Hoopes. 2014. What do firms do when dividend tax rates change? An examination of alternative payout responses to dividend tax rate changes. *Journal of Financial Economics* (forthcoming).

Hart, O. 2001. Financial Contracting. *Journal of Economic Literature* 34: 1079–100.

Hart, O. and J. Moore. 1988. Incomplete contracts and renegotiation. *Econometrica* 56: 755-785.

Hart, O. and J. Moore. 1990. Property rights and the nature of the firm. *Journal of Political Economy* 98: 1119-1158.

Holmstrom, B. R. 1982. Moral hazard in teams. *The Bell Journals of Economics* 13: 324–340.

Ibens, G., and J. Wooldridge. 2007. *What's New in Econometrics*? National Bureau of Economic Research, Summer Institute.

Ip, G. 2002. Credit report: Suddenly, banks are acting a lot like bond markets. *Wall Street Journal* (September 17): A1.

Ivashina, V. 2009. Asymmetric information effects on loan spreads. *Journal of Financial Economics* 92: 300–319.

Ivashina, V., and Z. Sun. 2011. Institutional demand pressure and the cost of corporate loans. *Journal of Financial Economics* 99: 500-522.

Jensen, M. C., and W. H. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics* 3: 305–360.

Klein, B., R. G. Crawford, and A. A. Alchian. 1978. Vertical integration, appropriable rents, and the competitive contracting process. *Journal of Law and Economics* 21: 297-326.

Larcker, D. F., and T. O. Rusticus. 2010. On the use of instrumental variables in accounting research. *Journal of Accounting and Economics* 49: 186–205.

Leftwich, R. 1983. Accounting information in private markets: Evidence from private lending agreements. *The Accounting Review* 58 (1): 23-42.

Lexis Nexis. 2000. *Commercial Loan Documentation Guide.* Matthew Bender & Co., Inc.

Li, N. 2010. Negotiated measurement rules in debt contracts. *Journal of Accounting Research* 48 (5): 1103-1144.

Li, N. 2015. *Performance Measures in Earnings-Based Financial Covenants in Debt Contracts*. Working paper, University of Texas at Dallas.

Li, N. Vasvari, F. Vasvari, and R. Wittenberg-Moerman. 2014. *Dynamic Threshold Values in Earnings-Based Covenants*. Working paper, the University of Chicago.

Maskin, E., and J. Moore. 1999. Implementation and renegotiation. *Review of Economic Studies* 66: 39–56.

Merton, R. C. 1974. On the pricing of corporate debt: The structure of interest rates. *Journal of Finance* 29: 449–470.

Mora, N. 2014. Lender exposure and effort in the syndicated loan market. *The Journal of Risk and Insurance* 20 9999: 1–48.

Murfin, J. 2012. The supply-side determinants of loan contract strictness. *Journal of Finance* 67 (5): 1565-1601.

Nadauld, T., and M. Weisbach. 2012. Did securitization affect the cost of corporate debt? *Journal of Financial Economics* 105: 332-352.

Naranjo, P., D. Saavedra, and R. Verdi. 2014. *Financial Reporting Regulation and Financing Decisions*. Working paper, Massachusetts Institute of Technology.

Nikolaev, V. 2013. *Scope for Renegotiation in Private Debt Contracts*. Working paper, the University of Chicago.

Nini, G., D. Smith, and A. Sufi. 2009. Creditor control rights and firm investment policy. *Journal of Financial Economics* 92: 400–420.

Roberts, M. R., and A. Sufi. 2009a. Financial contracting: A survey of empirical research and future directions. *Annual Review of Financial Economics* 1: 207–226.

Roberts, M. R., and A. Sufi. 2009b. Renegotiation of financial contracts: Evidence from private credit agreements. *Journal of Financial Economics* 93 (2): 159-184.

Roberts, Michael R., and Toni Whited. 2011. Endogeneity in empirical corporate finance. *Handbook of the Economics of Finance II*, edited by George Constantinides, Rene Stulz, and Milton Harris, Amsterdam: Elsevier.

Roberts, M. R. 2014. The role of dynamic renegotiation and asymmetric information in financial contracting. *Journal of Financial Economics* (forthcoming).

Skinner, D. 2011. Discussion of "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: 203-208.

Smith, C. W., and J. Warner. 1979. On financial contracting — an analysis of bond covenants. *Journal of Financial Economics* 7: 117–161.

Sridhar, S., and R. Magee. 1996. Financial contracts, opportunism, and disclosure management. *Review of Accounting Studies* 1: 225–258.

Standard & Poors. 2014. A Guide to the Loan Market.

Stock, J., and M. Yogo. 2005. Testing for weak instruments in Linear IV regression. In *Identification and Inference for Econometric Models: Essays in Honor of Thomas Rothenberg*, edited by D. Andrews and J. Stock, 80-108. Cambridge: Cambridge University Press.

Sufi, A. 2007. Information asymmetry and financial arrangements: Evidence from syndicated loans. Journal of Finance 92: 629–668.

Sufi A. 2009. Bank lines of credit in corporate finance: an empirical analysis. Rev. Financ. Stud. 22:1057–88

Taylor, A., and A. Sansone. 2007. *The Handbook of Loan Syndications and Trading*. McGraw-Hill: New York.

Tirole, J. 1999. Incomplete contracts: Where do we stand? *Econometrica* 67 (4): 741-781.

Watts, R. 2003. Conservatism in accounting part 1: Explanations and implications. *Accounting*
Horizons 17: 207–223.

Watts, R., and J. Zimmerman. 1986. *Positive Accounting Theory*. Upper Saddle River, NJ: Prentice Hall.

Williamson, O. 1979. Transaction cost economics: The governance of contractual relations. *Journal of Law and Economics* 22. 233-261.

Williamson, O. 1983. Credible commitments: Using hostages to support exchange. *American Economic Review* 73: 519-540.

Appendix A: Financial Covenant Definitions

Flexibility-Reducing Covenants

I. Capital Expenditure Covenant

Capital Expenditure:	Maximum Capital Expenditures

II. Balance Sheet Covenants

Leverage:	Debt / Equity
Net Worth:	Total Assets - Liabilities (-Intangible Assets)
Current Ratio:	Current Assets/Current Liabilities

Income Statement Covenants

Interest Coverage Ratio:	EBIT / Interest Expense
Fixed-Charge Coverage Ratio:	(EBIT + Fixed-Charge) / Interest Expense
Debt to EBITDA:	Debt / EBITDA

Appendix B: Variable Definitions

Covenants

Capex Covenant:	Dummy variable equal to one if the contract includes a capital expenditure covenant, zero otherwise.
Covenant Index:	Equals two if the contract includes a capital expenditure covenant, one if the contract includes a balance sheet covenant but no capital expenditure covenant, and zero if the contract includes an income statement covenant but no capital expenditure or balance sheet covenant.
#Income Covenants:	Sum of income statement covenants.
Only Income Cov.:	Dummy variable for contracts that only include income statement covenants.
#Financial Covenants:	Sum of all financial covenants.
#Flexibility-Reducing Cov.:	Sum of capital expenditure and balance sheet covenants.
#General Covenants:	Sum of equity issuance sweeps, debt issuance sweeps, asset sales sweeps, insurance proceeds sweeps, and dividend restrictions.

Renegotiation Costs

#Lenders:	Number of banks participating in the lending. syndicate.
$\#\widehat{Lenders}$:	The predicted value from the first-stage regression.

Instruments

Syndicate Reputation:	The maximum number of deals arranged by the lead bank with at least one of the current participants, measured over a three-year horizon and expressed as a percent of the total deals underwritten during this period.
Reciprocal:	The maximum number of deals arranged by one of the participants in which the lead arranger participated, measured over a three-year horizon and expressed as a percent of the total deals in which the lead arranger participated during this period.

Controls

Lead Bank Reputation:	The number of deals underwritten by the lead bank over the previous three years. It is measured in thousands of deals.
Size:	The natural logarithm of total assets.
Leverage:	Measured as long-term debt plus debt in current liabilities divided by book assets.
Market-to-book:	The book value of total assets minus the book value of equity plus the market value of equity as the numerator of the ratio and the book value of assets as the denominator.
Profitability:	The firm's pre-tax cash flow from operations over total assets.
Cash Flow Volatility:	The volatility of pre-tax cash flows scaled by mean non-cash assets over the previous five years.
Not Rated:	Dummy equal to one if the borrower has no long-term S&P credit rating, zero otherwise.
#Previous Deals:	Equal to the number of previous loans issued by the borrower.
#Facilities:	The number of different facilities included in the loan deal.
Deal Amount:	The deal amount measured in millions of dollars.
Deal Maturity:	The weighted maturity of all facilities in the loan, which is measured in months.

Partitions

Low Redeployability:	A dummy variable equal to one if the borrower has asset tangibility below the sample median, zero otherwise.
Below Investment Grade:	A dummy variable equal to one if the borrower has no credit rating or an S&P rating below BBB-, zero otherwise.
Small:	A dummy variable equal to one if the borrower has total assets below the sample median, zero otherwise.

Table 1: Sample Selection

Loan Packages with non-missing covenants	30,842
Excluding loan packages missing the number of lenders and control variables	-16,138
Excluding financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999)	-1,576
Excluding lead arrangers not among the top 130	-1,172
Final Sample	**11,956**

Table 2: Descriptive Statistics

Variable	N	Mean	Median	Std Dev	25th Pctl	75th Pctl
Capex Covenant	11,956	0.237	0.000	0.425	0.000	0.000
Covenant Index	11,956	0.867	1.000	0.767	0.000	1.000
# Income Covenants	11,956	1.564	2.000	0.916	1.000	2.000
Only Income Covenants	11,956	0.353	0.000	0.478	0.000	1.000
# Financial Covenants	11,956	2.499	2.000	1.089	2.000	3.000
# Flexibility Reducing Covenants	11,956	0.858	1.000	0.822	0.000	1.000
# General Covenants	11,956	1.957	1.000	1.929	1.000	4.000
# Lenders	11,956	10.118	8.000	8.798	3.000	14.000
# $\widehat{Lenders}$	11,956	10.111	10.398	6.474	5.849	14.629
Syndicate Reputation	11,956	0.235	0.193	0.223	0.084	0.319
Reciprocal	11,956	0.147	0.137	0.125	0.023	0.246
Lead Bank Reputation (# deals)	11,956	1.437	1.111	1.163	0.335	2.568
Size	11,956	6.971	6.997	1.749	5.808	8.145
Leverage	11,956	0.290	0.269	0.203	0.147	0.401
Market-to-book	11,956	1.693	1.418	0.912	1.131	1.919
Profitability	11,956	0.113	0.107	0.090	0.057	0.162
Volatility Cash Flows	11,956	0.058	0.035	0.075	0.019	0.065
Not Rated	11,956	0.482	0.000	0.500	0.000	1.000
# Previous Deals	11,956	7.443	6.000	5.772	3.000	10.000
# Facilities	11,956	1.571	1.000	0.877	1.000	2.000
Deal Amount (millions)	11,956	649	300	1,054	100	700
Deal Maturity (months)	11,956	47.390	51.000	19.510	36.000	60.000

Table 2. The table reports descriptive statistics for the variables used in the sample. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. All variables are described in the appendix. All continuous variables are winsorized at the 1% level.

Table 3: Pearson Correlations

		A	*B*	*C*	*D*	*E*	*F*	*G*	*H*
Capex Covenant	***A***	1.000	0.822	0.141	-0.410	0.462	0.367	0.424	-0.148
			(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Covenant Index	***B***		1.000	-0.065	-0.836	0.531	0.707	0.279	-0.190
				(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
# Income Covenants	***C***			1.000	0.241	0.631	-0.232	0.380	0.044
					(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Only Income Covenants	***D***				1.000	-0.432	-0.773	-0.084	0.191
						(0.00)	(0.00)	(0.00)	(0.00)
# Financial Covenants	***E***					1.000	0.566	0.349	-0.159
							(0.00)	(0.00)	(0.00)
# Flexibility Reducing Covenants	***F***						1.000	-0.007	-0.215
								(0.46)	(0.00)
# General Covenants	***G***							1.000	-0.031
									(0.00)
# Lenders	***H***								1.000

Table 3. The table reports correlations for the variables used in the sample. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. *Capex Covenant* is a dummy variable equal to one if the contract includes a capital expenditure covenant, zero otherwise. *Covenant Index* equals two if the contract includes a capital expenditure covenant, one if the contract includes a balance sheet covenant but no capital expenditure covenant, and zero if the contract includes an income statement covenant but no capital expenditure or balance sheet covenant. *# Income Covenants* is the sum of income statement covenants. *Only Income Covenants* is a dummy variable for contracts that only use income based covenants. *#Financial Covenants* is the sum of all financial covenants. *# Flexibility-Reducing Covenants* is the sum of capital expenditure and balance sheet covenants. *# General Covenants* is the sum of equity issuance sweeps, debt issuance sweeps, asset sales sweeps, insurance proceeds sweeps, and dividend restrictions. *# Lenders* is measured as the total number of banks participating in the lending syndicate. All variables are winsorized at the 1% level.

Table 4: First-Stage – Instrumental Variables Specification

	Dependent Variable = # Lenders			
Syndicate Reputation	**2.899*** **		**1.688*** **	**2.603*** **
	(7.68)		(4.21)	(5.91)
Reciprocal		**9.440*** **	**8.262*** **	**9.258*** **
		(12.69)	(10.35)	(10.98)
Lead Bank Reputation	0.268***	0.392***	0.355***	-0.337
	(3.99)	(5.64)	(5.09)	(-1.61)
Size	0.171	0.166	0.153	0.036
	(1.18)	(1.13)	(1.05)	(0.26)
Leverage	0.213	0.378	0.368	0.357
	(0.35)	(0.62)	(0.61)	(0.62)
Market-to-book	-0.108	-0.104	-0.108	-0.083
	(-0.83)	(-0.79)	(-0.82)	(-0.69)
Profitability	0.014	-0.172	-0.305	-0.852
	(0.01)	(-0.14)	(-0.24)	(-0.78)
Cash Flow Volatility	1.981**	2.107**	2.203**	1.631*
	(2.01)	(2.13)	(2.23)	(1.69)
Not Rated	-1.416***	-1.219**	-1.244**	-1.392***
	(-2.77)	(-2.39)	(-2.45)	(-2.90)
Log (1+ # Previous Deals)	0.898***	0.895***	0.891***	0.803***
	(5.72)	(5.69)	(5.70)	(5.28)
Log (1+ # Facilities)	2.344***	2.529***	2.523***	2.411***
	(5.23)	(5.66)	(5.64)	(5.43)
Log (Deal Amount)	3.519***	3.290***	3.269***	3.362***
	(23.55)	(21.85)	(21.64)	(22.18)
Deal Maturity	0.026***	0.026***	0.025***	0.024***
	(4.51)	(4.39)	(4.31)	(4.15)
Fixed Effects				
Lead Arranger	No	No	No	Yes
Credit Rating	Yes	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes	Yes
Industry and Year	Yes	Yes	Yes	Yes
Clustering	Firm	Firm	Firm	Firm
N	11,956	11,956	11,956	11,956
R-Squared	0.532	0.537	0.538	0.552
Instruments				
F-test (Syndicate Reputation=0)	58.9***			
F-test (Reciprocal=0)		161***		
F-test (Syndicate Reputation=Reciprocal=0)			88.6***	99.5***
Shea's partial R-squared	0.88%	1.96%	2.23%	2.41%

Table 4 (continued)

Table 4. The table presents the first-stage regression results. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. # *Lenders* is measured as the total number of banks participating in the lending syndicate. *Syndicate Reputation* is the maximum number of deals arranged by the lead bank with at least one of the current participants, measured over a three-year horizon and expressed as a percent of the total deals underwritten during this period. *Reciprocal* is the maximum number of deals arranged by one of the participants in which the lead arranger participated, measured over a three-year horizon and expressed as a percent of the total deals in which the lead arranger participated during this period. *Lead Bank Reputation* is the number of deals (in thousands) underwritten by the lead bank over the previous three years. *Size* is calculated as the natural logarithm of total assets. *Leverage* is measured as long-term debt plus debt in current liabilities divided by book assets. To calculate *Market-to-book,* I use the book value of total assets minus the book value of equity plus the market value of equity as the numerator of the ratio and the book value of assets as the denominator. *Profitability* is the firm's pre-tax cash flow from operations over total assets. *Cash Flow Volatility* is equal to the volatility of pre-tax cash flows scaled by mean non-cash assets over the previous five years. *Not Rated* is a dummy equal to one if the borrower has no long-term S&P credit rating, zero otherwise. # *Previous Deals* is equal to the number of previous loans issued by the borrower. # *Facilities* is the number of different facilities included in the loan deal. I measure *Deal Amount* as the deal amount. Loan amount is measured in millions of dollars. *Deal Maturity* is the weighted maturity of all facilities in the loan, which is measured in months. All variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 5: Capital Expenditure Covenant

	Dependent Variable = Capex Covenant		
	OLS	IV (2nd Stage)	IV (2nd Stage)
# Lenders	**-0.002*** **		
	(-2.68)		
# $\widehat{\text{Lenders}}$		**-0.032*** **	**-0.026*** **
		(-5.87)	(-4.91)
Lead Bank Reputation	-0.009**	-0.000	-0.032**
	(-2.04)	(-0.01)	(-2.51)
Size	-0.033***	-0.027***	-0.027***
	(-4.14)	(-3.09)	(-3.18)
Leverage	0.079**	0.085**	0.079**
	(2.12)	(2.16)	(2.10)
Market-to-book	-0.020***	-0.023***	-0.025***
	(-2.91)	(-3.16)	(-3.67)
Profitability	-0.417***	-0.410***	-0.364***
	(-6.29)	(-5.72)	(-5.34)
Cash Flow Volatility	0.110	0.162**	0.154**
	(1.43)	(2.00)	(1.97)
Not Rated	0.009	-0.031	-0.016
	(0.34)	(-0.96)	(-0.52)
Log (1+ # Previous Deals)	0.012	0.040***	0.031***
	(1.27)	(3.45)	(2.83)
Log (1+ # Facilities)	0.207***	0.275***	0.253***
	(8.39)	(9.27)	(8.95)
Log (Deal Amount)	-0.014*	0.093***	0.067***
	(-1.67)	(4.25)	(3.08)
Deal Maturity	0.001**	0.002***	0.001***
	(2.50)	(4.20)	(3.92)
Fixed Effects			
Lead Arranger	No	No	Yes
Credit Rating	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes
Industry and Year	Yes	Yes	Yes
Clustering	Firm	Firm	Firm
N	11,956	11,956	11,956
R-Squared	0.243	0.066	0.157
Robust Durbin-Wu-Hausman Test			
Ho: variables are exogenous		(p = 0.00)	(p = 0.00)
Test of overidentifying restriction			
Hansen's J chi2(1)		(p = 0.73)	(p = 0.99)

Table 5 (continued)

Table 5. The table investigates whether higher renegotiation costs affect the inclusion of a capital expenditure covenant in debt contracts. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. *Capex Covenant* is a dummy variable equal to one if the contract includes a capital expenditure covenant, zero otherwise. *Covenant Index* equals two if the contract includes a capital expenditure covenant, one if the contract includes a balance sheet covenant but no capital expenditure covenant, and zero if the contract includes an income statement covenant but no capital expenditure or balance sheet covenant. *# Lenders* is measured as the total number of banks participating in the lending syndicate. $\widehat{\#\ Lenders}$ is the predicted value from the first-stage regression. *Lead Bank Reputation* is the number of deals (in thousands) underwritten by the lead bank over the previous three years. *Size* is calculated as the natural logarithm of total assets. *Leverage* is measured as long-term debt plus debt in current liabilities divided by book assets. To calculate *Market-to-book,* I use the book value of total assets minus the book value of equity plus the market value of equity as the numerator of the ratio and the book value of assets as the denominator. *Profitability* is the firm's pre-tax cash flow from operations over total assets. *Cash Flow Volatility* is equal to the volatility of pre-tax cash flows scaled by mean non-cash assets over the previous five years. *Not Rated* is a dummy equal to one if the borrower has no long-term S&P credit rating, zero otherwise. *# Previous Deals* is equal to the number of previous loans issued by the borrower. *# Facilities* is the number of different facilities included in the loan deal. I measure *Deal Amount* as the deal amount. Loan amount is measured in millions of dollars. *Deal Maturity* is the weighted maturity of all facilities in the loan, which is measured in months. All variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 6: Covenant Index

	Dependent Variable = Covenant Index		
	OLS	IV (2nd Stage)	IV (2nd Stage)
# Lenders	**-0.006*** **		
	(-3.36)		
# $\widehat{\text{Lenders}}$		**-0.057*** **	**-0.049*** **
		(-5.42)	(-4.82)
Lead Bank Reputation	-0.032***	-0.017*	-0.051**
	(-3.97)	(-1.87)	(-2.06)
Size	-0.025*	-0.015	-0.023
	(-1.69)	(-0.89)	(-1.44)
Leverage	0.051	0.062	0.044
	(0.72)	(0.83)	(0.62)
Market-to-book	-0.055***	-0.060***	-0.058***
	(-4.27)	(-4.42)	(-4.56)
Profitability	-0.565***	-0.554***	-0.581***
	(-4.57)	(-3.96)	(-4.51)
Cash Flow Volatility	0.299**	0.388***	0.341**
	(2.14)	(2.61)	(2.36)
Not Rated	0.096*	0.023	0.027
	(1.65)	(0.35)	(0.43)
Log (1+ # Previous Deals)	0.020	0.067***	0.053**
	(1.05)	(3.00)	(2.48)
Log (1+ # Facilities)	0.316***	0.433***	0.401***
	(6.85)	(7.76)	(7.50)
Log (Deal Amount)	-0.052***	0.132***	0.108***
	(-3.44)	(3.19)	(2.62)
Deal Maturity	-0.000	0.001**	0.001
	(-0.02)	(1.97)	(1.42)
Fixed Effects			
Lead Arranger	No	No	Yes
Credit Rating	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes
Industry and Year	Yes	Yes	Yes
Clustering	Firm	Firm	Firm
N	11,956	11,956	11,956
R-Squared	0.232	0.049	0.114
Robust Durbin-Wu-Hausman Test			
Ho: variables are exogenous		(p = 0.00)	(p = 0.00)
Test of overidentifying restriction:			
Hansen's J chi2(1)		(p = 0.81)	(p = 0.99)

Table 6 (continued)

Table 6. The table investigates whether higher renegotiation costs affect debt covenant packages. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. *Capex Covenant* is a dummy variable equal to one if the contract includes a capital expenditure covenant, zero otherwise. *Covenant Index* equals two if the contract includes a capital expenditure covenant, one if the contract includes a balance sheet covenant but no capital expenditure covenant, and zero if the contract includes an income statement covenant but no capital expenditure or balance sheet covenant. # *Lenders* is measured as the total number of banks participating in the lending syndicate. # $\widehat{Lenders}$ is the predicted value from the first-stage regression. *Lead Bank Reputation* is the number of deals (in thousands) underwritten by the lead bank over the previous three years. *Size* is calculated as the natural logarithm of total assets. *Leverage* is measured as long-term debt plus debt in current liabilities divided by book assets. To calculate *Market-to-book,* I use the book value of total assets minus the book value of equity plus the market value of equity as the numerator of the ratio and the book value of assets as the denominator. *Profitability* is the firm's pre-tax cash flow from operations over total assets. *Cash Flow Volatility* is equal to the volatility of pre-tax cash flows scaled by mean non-cash assets over the previous five years. *Not Rated* is a dummy equal to one if the borrower has no long-term S&P credit rating, zero otherwise. # *Previous Deals* is equal to the number of previous loans issued by the borrower. # *Facilities* is the number of different facilities included in the loan deal. I measure *Deal Amount* as the deal amount. Loan amount is measured in millions of dollars. *Deal Maturity* is the weighted maturity of all facilities in the loan, which is measured in months. All variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 7: Cross-sectional Tests

Panel A – Capital Expenditure Covenant

	Dependent Variable = Capex Covenant		
Partition=	**Low Redeployability**	**Below Investment Grade**	**Small Firm**
	IV (2nd Stage)	IV (2nd Stage)	IV (2nd Stage)
# Lenders	**-0.029*****	**-0.013*****	**-0.022*****
	(-5.52)	(-2.84)	(-4.74)
# Lenders x Partition	**-0.006****	**-0.022*****	**-0.019*****
	(-2.07)	(-4.54)	(-3.43)
Partition	**0.063****	**0.570*****	**0.220*****
	(2.11)	(3.73)	(4.30)
Lead Bank Reputation	-0.000	-0.002	-0.001
	(-0.04)	(-0.46)	(-0.20)
Size	-0.027***	-0.024***	
	(-3.08)	(-2.73)	
Leverage	0.087**	0.087**	0.113***
	(2.19)	(2.20)	(2.84)
Market-to-book	-0.023***	-0.018**	-0.017**
	(-3.19)	(-2.54)	(-2.33)
Profitability	-0.398***	-0.361***	-0.350***
	(-5.42)	(-4.99)	(-4.80)
Cash Flow Volatility	0.135*	0.108	0.124
	(1.65)	(1.36)	(1.49)
Not Rated	-0.031	-0.304**	-0.022
	(-0.95)	(-2.17)	(-0.70)
Log (1+ # Previous Deals)	0.040***	0.036***	0.030***
	(3.42)	(3.21)	(2.69)
Log (1+ # Facilities)	0.276***	0.270***	0.266***
	(9.23)	(9.38)	(9.73)
Log (Deal Amount)	0.094***	0.082***	0.075***
	(4.28)	(4.11)	(3.77)
Deal Maturity	0.002***	0.002***	0.002***
	(4.31)	(4.50)	(5.21)
Fixed Effects			
Lead Arranger	No	No	No
Credit Rating	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes
Industry and Year	Yes	Yes	Yes
Clustering	Firm	Firm	Firm
N	11,956	11,956	11,956
R-Squared	0.066	0.094	0.100

Panel B – Covenant Index

	Dependent Variable = Covenant Index		
Partition=	**Low Redeployability**	**Below Investment Grade**	**Small Firm**
	IV (2nd Stage)	IV (2nd Stage)	IV (2nd Stage)
# $\widehat{\text{Lenders}}$	**-0.047*** **	**-0.009**	**-0.036*** **
	(-4.60)	(-0.94)	(-3.93)
# $\widehat{\text{Lenders x Partition}}$	**-0.019*** **	**-0.055*** **	**-0.038*** **
	(-3.48)	(-5.45)	(-3.64)
Partition	**0.160*** **	**1.050*** **	**0.423*** **
	(2.97)	(3.36)	(4.40)
Lead Bank Reputation	-0.017*	-0.022**	-0.018**
	(-1.86)	(-2.50)	(-2.09)
Size	-0.017	-0.006	
	(-1.01)	(-0.38)	
Leverage	0.054	0.066	0.106
	(0.73)	(0.86)	(1.40)
Market-to-book	-0.059***	-0.047***	-0.051***
	(-4.33)	(-3.47)	(-3.72)
Profitability	-0.555***	-0.438***	-0.457***
	(-3.98)	(-3.08)	(-3.28)
Cash Flow Volatility	0.293**	0.249*	0.260*
	(1.98)	(1.71)	(1.73)
Not Rated	0.021	-0.292	0.021
	(0.33)	(-1.03)	(0.34)
Log (1+ # Previous Deals)	0.065***	0.058***	0.056***
	(2.93)	(2.64)	(2.61)
Log (1+ # Facilities)	0.432***	0.423***	0.385***
	(7.66)	(7.75)	(7.48)
Log (Deal Amount)	0.132***	0.105***	0.118***
	(3.22)	(2.74)	(3.17)
Deal Maturity	0.002**	0.002**	0.002***
	(2.16)	(2.29)	(2.71)
Fixed Effects			
Lead Arranger	No	No	No
Credit Rating	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes
Industry and Year	Yes	Yes	Yes
Clustering	Firm	Firm	Firm
N	11,956	11,956	11,956
R-Squared	0.049	0.059	0.085

Table 7 (continued)

Table 7. The table investigates whether the existence of outside options affects debt covenant packages. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. *Capex Covenant* is a dummy variable equal to one if the contract includes a capital expenditure covenant, zero otherwise. *Covenant Index* equals two if the contract includes a capital expenditure covenant, one if the contract includes a balance sheet covenant but no capital expenditure covenant, and zero if the contract includes an income statement covenant but no capital expenditure or balance sheet covenant. $\#\widehat{Lenders}$ is the predicted value from the first-stage regression. *Low Redeployability* is a dummy variable equal to one if the borrower is below the sample median of property, plant, and equipment to total assets, zero otherwise. *Below Investment Grade* is a dummy variable equal to one if the borrower has a credit rating below investment grade, zero otherwise. *Small* is a dummy variable equal to one if the borrower is below the sample median for firm size. *Lead Bank Reputation* is the number of deals (in thousands) underwritten by the lead bank over the previous three years. *Size* is calculated as the natural logarithm of total assets. *Leverage* is measured as long-term debt plus debt in current liabilities divided by book assets. To calculate *Market-to-book,* I use the book value of total assets minus the book value of equity plus the market value of equity as the numerator of the ratio and the book value of assets as the denominator. *Profitability* is the firm's pre-tax cash flow from operations over total assets. *Cash Flow Volatility* is equal to the volatility of pre-tax cash flows scaled by mean non-cash assets over the previous five years. *Not Rated* is a dummy equal to one if the borrower has no long-term S&P credit rating, zero otherwise. # *Previous Deals* is equal to the number of previous loans issued by the borrower. # *Facilities* is the number of different facilities included in the loan deal. I measure *Deal Amount* as the deal amount. Loan amount is measured in millions of dollars. *Deal Maturity* is the weighted maturity of all facilities in the loan, which is measured in months. All variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 8: Income Statement Covenants

	Dependent Variable	
	# Income Covenants	***Only Income Covenants***
	IV (2nd Stage)	IV (2nd Stage)
# $\widehat{\text{Lenders}}$	**0.020****	**0.027*****
	(2.07)	(4.24)
Lead Bank Reputation	0.014	0.016***
	(1.53)	(2.91)
Size	-0.157***	-0.011
	(-7.88)	(-1.00)
Leverage	0.298***	0.033
	(3.79)	(0.74)
Market-to-book	-0.022	0.037***
	(-1.60)	(4.34)
Profitability	0.573***	0.202**
	(3.93)	(2.34)
Cash Flow Volatility	-0.921***	-0.273***
	(-5.72)	(-3.19)
Not Rated	-0.039	-0.052
	(-0.65)	(-1.25)
Log (1+ # Previous Deals)	0.016	-0.031**
	(0.68)	(-2.18)
Log (1+ # Facilities)	0.102**	-0.170***
	(1.96)	(-5.24)
Log (Deal Amount)	0.066*	-0.041*
	(1.66)	(-1.65)
Deal Maturity	0.009***	0.000
	(12.31)	(0.98)
Fixed Effects		
Credit Rating	Yes	Yes
Loan Purpose	Yes	Yes
Macro Interest Rates	Yes	Yes
Industry and Year	Yes	Yes
Clustering	Firm	Firm
N	11,956	11,956
R-Squared	0.305	0.154

Table 8 (continued)

Table 8. The table investigates whether higher renegotiation costs affect the number of income statement covenants. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. # *Income Covenants* is the sum of income statement covenants. *Only Income Covenants* is a dummy variable for contracts that only use income based covenants. $\#\widehat{Lenders}$ is the predicted value from the first-stage regression. *Lead Bank Reputation* is the number of deals (in thousands) underwritten by the lead bank over the previous three years. *Size* is calculated as the natural logarithm of total assets. *Leverage* is measured as long-term debt plus debt in current liabilities divided by book assets. To calculate *Market-to-book,* I use the book value of total assets minus the book value of equity plus the market value of equity as the numerator of the ratio and the book value of assets as the denominator. *Profitability* is the firm's pre-tax cash flow from operations over total assets. *Cash Flow Volatility* is equal to the volatility of pre-tax cash flows scaled by mean non-cash assets over the previous five years. *Not Rated* is a dummy equal to one if the borrower has no long-term S&P credit rating, zero otherwise. # *Previous Deals* is equal to the number of previous loans issued by the borrower. # *Facilities* is the number of different facilities included in the loan deal. I measure *Deal Amount* as the deal amount. Loan amount is measured in millions of dollars. *Deal Maturity* is the weighted maturity of all facilities in the loan, which is measured in months. All variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 9: Robustness Tests

Panel A: Propensity Score Matching

	Dependent Variable		
	Capex Covenant	***Covenant Index***	***# Income Covenants***
	OLS	OLS	OLS
# Lenders	**-0.002***	**-0.007*****	**0.008*****
	(-1.93)	(-3.06)	(3.27)
All Controls	Yes	Yes	Yes
Fixed Effects			
Credit Rating	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes
Industry and Year	Yes	Yes	Yes
Clustering	Firm	Firm	Firm
N	4,680	4,680	4,680
R-Squared	0.259	0.208	0.346

Panel B: Additional Covenant Tests

	Dependent Variable		
	# Financial Covenants	***# Flexibility Red. Covenants***	***# General Covenants***
	IV (2nd Stage)	IV (2nd Stage)	IV (2nd Stage)
# $\widehat{\text{Lenders}}$	**-0.027****	**-0.030*****	**-0.090*****
	(-2.47)	(-3.31)	(-4.45)
All Controls	Yes	Yes	Yes
Fixed Effects			
Credit Rating	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes
Industry and Year	Yes	Yes	Yes
Clustering	Firm	Firm	Firm
N	11,956	11,956	11,956
R-Squared	0.304	0.240	0.335

Table 9 (continued)

Table 9. The table presents robustness tests. Panel A presents results using a propensity score matched sample. Firms are matched based on *Size*, *Not Rated*, *# Previous Deals*, and *Deal Amount*. Panel B presents IV results for alternative covenant specifications. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. *Capex Covenant* is a dummy variable equal to one if the contract includes a capital expenditure covenant, zero otherwise. *Covenant Index* equals two if the contract includes a capital expenditure covenant, one if the contract includes a balance sheet covenant but no capital expenditure covenant, and zero if the contract includes an income statement covenant but no capital expenditure or balance sheet covenant. *# Income Covenants* is the sum of income statement covenants. *#Financial Covenants* is the sum of all financial covenants. *# Flexibility-Reducing Covenants* is the sum of capital expenditure and balance sheet covenants. *# General Covenants* is the sum of equity issuance sweeps, debt issuance sweeps, asset sales sweeps, insurance proceeds sweeps, and dividend restrictions. *# Lenders* is measured as the total number of banks participating in the lending syndicate. $\widehat{\#Lenders}$ is the predicted value from the first-stage regression. Control variables are as defined in previous tables. All continuous variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.