Renegotiation and the Choice of Covenants in Debt Contracts

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Abstract

I investigate whether and how expected future contract renegotiation considerations affect the type of covenants used in ex-ante debt contracts. Using an instrumental variables methodology, 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. 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 her/him to bypass value-enhancing corporate policies (e.g., investments or the rebalancing of the firm's capital structure). 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. Overall, this study contributes to our understanding of how (1) renegotiation considerations affect the design of debt contracts and (2) covenants are chosen to mitigate renegotiation frictions.

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1. Introduction

Incomplete contracting theories have been a central building block for models in economics, finance, and accounting for decades (Klein, Crawford, and Alchian, 1978; Williamson, 1979, 1983; Grossman and Hart, 1986; Hart and Moore, 1988, 1990; Sridhar and Magee, 1996; Gigler, Kanodia, Sapra, and Venugopalan, 2009). These theories build on the idea that, for example, borrowers and lenders cannot write contracts that perfectly anticipate all future scenarios. As a result, transacting parties are left exposed to the risk that they might be held up in a future renegotiation. The expectation of costly renegotiations, in turn, can lead to inefficiencies in terms of investment or other value-enhancing corporate decisions. Despite the widespread use of incomplete contracting theories, few empirical studies, if any, have directly examined the extent to which future renegotiation considerations affect debt contract structures (Roberts, 2014). This paper contributes to the literature by providing initial evidence about how ex-post renegotiation considerations affect the ex-ante choice of covenants in debt agreements.

I predict that the specific covenant package that contracting parties are willing to agree upon varies with the potential costs associated with renegotiating covenants after loan inception. The underlying assumption behind my hypothesis is that borrowers have a preference for retaining financial flexibility, a characteristic that research has shown to be extremely valuable.[1] Covenants are commonly included in debt contracts because they mitigate lenders' concerns that borrowers might engage in opportunistic behavior after a loan has been initiated (i.e., a moral hazard concern). A downside, however, is that covenants can also limit firms' financial flexibility. For example, certain covenants can restrict the borrower's ability to make corporate

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[1] 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. Furthermore, research provides evidence that firms frequently rebalance their capital structure (e.g., Leary and Roberts, 2005) or change their capital structure and payout policy following unexpected changes in information asymmetry and taxes (e.g., Naranjo, Saavedra, Verdi, 2014; Hanlon and Hoopes, 2014).

policy decisions such as investments, debt issuances, or payouts to shareholders, which in turn could result in the borrower forgoing value-enhancing corporate decisions. 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. As a result, by excluding "flexibility-reducing" covenants, costly renegotiations can be prevented ex-ante and firm value can be maximized, in the spirit of Jensen and Meckling (1976) and Smith and Warner (1979).

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 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 majority of all lenders (usually a majority between 67% and 100% is required). Theory suggests that the borrower's costs to renegotiate a contract increase when the number of creditors is large (e.g., Smith and Warner, 1979; Holmstrom, 1982; Bolton and Scharfstein, 1996). If the loan syndicate only comprises one lender or a reduced number of lenders, the costs of renegotiating the contract will be lower. However, if the syndicate is dispersed, the borrower might find it harder to get every lender's approval without making costly concessions (e.g., higher loan amendment fees) and, as a result, valuable investment opportunities might be missed.[2] Therefore, using the number of lenders as my proxy for future renegotiation costs, I hypothesize that when renegotiation is more costly (i.e., when the number

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[2] Holmstrom (1982) points out that multiple lenders' cooperation can only be achieved with an offer that is attractive enough for each and every lender to choose to collaborate. As a result, negotiating with a dispersed group of lenders is perceived as being more costly to the borrower because he/she is in a disadvantaged bargaining position. 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).

of lenders is large), the contracting parties will exclude covenants that restrict investments or other important corporate policies.

However, it is important to note that contracts that give the borrower more financial flexibility also increase the moral hazard risk to which lenders are exposed. For instance, borrowers could engage in riskier projects if no flexibility-reducing covenants are present in the loan agreement. As a result, it is ex-ante unclear whether future renegotiation considerations will affect the choice of covenants in debt contracts. It is the purpose of this study 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 type of covenant is present in approximately 24% of all debt contracts and explicitly limits firms' capital expenditures. 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. 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 an income statement covenant but no capital expenditure or balance sheet covenant. As I elaborate in Section 3, implicit in this classification is the assumption that balance sheet covenants are more restrictive than income statement covenants. For example, balance sheet covenants mechanically restrict borrowers from rebalancing their capital structures or paying out dividends (Beatty, Weber, and Yu, 2008;

Frankel, Seethamraju, and Zach, 2008). In contrast, income statement covenants are usually less restrictive in terms of allowing firms to make investment and/or capital structure decisions.

A challenge with studying the relationship between the dispersion of the lending syndicate and covenant choice 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 affects the structure 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. Thus, the renegotiation effect cannot be identified without an exogenous instrument.

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 *loan-specific* group of syndicate participants. The intuition is that when the lead bank has a lower level of information asymmetry with her/his 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. Following Ivashina, I use *Syndicate Reputation* and *Reciprocal* as instruments in an instrumental variables specification. *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. 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 lead arranger and borrower. In particular, it seems plausible that these instruments satisfy the exclusion restriction, given that it is unlikely

that measures based on past relationships between the lead arranger and loan co-investors are correlated with unobservable borrower characteristics.

Using a sample of 11,957 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 (i.e., *Syndicate Reputation* and *Reciprocal*) are significantly and positively related to the number of lenders. 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). For instance, my findings suggest that a one standard deviation increase in the fitted number of lenders decreases the probability of including a capital expenditure covenant by 15 percentage points. 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. Hold-up 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 be held up in a future renegotiation. Consistent with this prediction, the negative relationship 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.

This study makes two primary contributions. First, I provide initial evidence that future renegotiation considerations are an important determinant of how debt contracts are written.

Consistent with the intuition provided by theory (e.g., Hart and Moore, 1988; Aghion, Dewatripont, and Rey, 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. While recent studies have investigated whether the terms of the initial contract play an important role in the likelihood of future renegotiations (e.g., Roberts and Sufi, 2009a; 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. As a result, this paper fills a gap in the literature (as suggested by Armstrong, Guay, and Weber, 2010, and Roberts and Sufi, 2009b) by considering the role of renegotiation more closely in the design of debt contracts.

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 2 discusses the prior literature and institutional background and develops my main predictions. Section 3 presents the research design and sample. Section 4 discusses the empirical results. Section 5 provides additional robustness tests, and Section 6 concludes.

2.   Prior Research, Institutional Background, and Hypothesis Development

There are two streams of research that are highly related to my paper. The first consists of research that examines contract renegotiation. The second consists of research that investigates the design of covenant packages.

2.1   Prior Research – Contract Renegotiation

Theoretically, renegotiation is an issue that arises largely as an out-of-equilibrium phenomenon (Maskin and Moore, 1999). When agents design contracts, they are interested in ensuring Pareto optimal outcomes, and so an equilibrium outcome of the contract will be efficient in this sense; that is, there will be no scope for renegotiation. But out of equilibrium, outcomes might deviate from Pareto optimal, leaving open the possibility that the agents will simply tear up their contracts and renegotiate new ones in order to realize contract improvements. Thus, renegotiation can be viewed as a game played by agents when an ex-post surplus under the initial terms of the contract exists.

Such a surplus is most likely to occur when unanticipated or noncontractable states of the world occur. Hart and Moore (1998) show that long-term debt contracts are not renegotiation proof, a result subsequently extended to more than two periods by Gromb (1994). Specifically, when a high–cash flow state is realized in their model, the entrepreneur may be able to negotiate down any possibly onerous or restrictive terms in the initial contract (see also Gorton and Kahn, 2000, and Garleanu and Zwiebel, 2009). Similarly, deteriorations in credit quality can lead to renegotiation when liquidation is ex-post Pareto inefficient because information accrues at an intermediate stage (e.g., von Thadden, 1995).

Whereas the majority of empirical research focuses on renegotiation of debt contracts in financial distress (e.g., Gilson, John, and Lang, 1990; Asquith, Gertner, and Scharfstein, 1994),

Roberts and Sufi (2009a) study all renegotiations of a sample of loan agreements by public firms. They find that renegotiation is extremely likely; more than 90% 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 collateral of the borrower 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 (2009a) suggest that renegotiation is the norm, not the exception, in private debt contracts.[3] When the probability of ex-post renegotiation is 90% 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.

2.2   *Prior Research – 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, 2009b, 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, namely the discretion to make

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[3] See also Roberts (2014) and Denis and Wang (2014).

voluntary accounting changes. 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. More specifically, net worth covenants are more likely to exclude goodwill from covenant calculations after the promulgation of these standards. Li (2010) investigates contractual definitions of net income and net worth in debt contracts. In particular, the study provides evidence that transitory earnings are often removed from the measurement of earnings but not from the measurement of net worth. Demerjian (2011) documents a sharp decline in the use of covenants measured with balance sheet variables (e.g., leverage, net worth, or current ratio), while no trend is apparent for other types of financial covenants (e.g., interest coverage, fixed-charge coverage, and debt-to-earnings). The paper associates these findings with a shift of standard setters towards a balance sheet or 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 covenants (e.g., leverage, net worth, or current ratio) control agency problems by aligning debt holder-shareholder interests, whereas performance covenants (e.g., interest coverage, fixed-charge coverage, and debt-to-earnings) 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.

2.3   Institutional Background - The Process of Negotiating Debt Covenants

The premise underlying my analysis is that contracting parties have a good 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).

Figure 1 details the chronological order of the contracting process. The syndication process usually starts with the lead arranger soliciting informal feedback from potential investors on what their appetite for the deal will be and at what price they are willing to invest. Once this initial information has been collected, the lead arranger will formally market the deal to potential investors. An information memo (IM) is distributed to investors, and it will include *the list of terms and conditions,* which is a preliminary term sheet describing the pricing, structure, collateral, covenants, and other terms of credit.[4] 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).

2.4   Hypothesis Development

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. As shown by previous research, renegotiations can affect important corporate policies such as investments, capital structure, cash management, merger activity, and even personnel (e.g., Beneish and Press, 1993; Chava and Roberts, 2008; Nini, Smith, and Sufi, 2009, 2012; Denis and Wang, 2014). To the extent that borrowers have a preference for retaining financial

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[4] The IM typically will include an executive summary, investment considerations, a list of terms and conditions, an industry overview, and a financial model.

flexibility (Graham and Harvey, 2001), it seems plausible that contracting parties will consider renegotiation costs when writing the original contract.

I hypothesize that when renegotiation costs are high, the following *flexibility-reducing covenants* will be excluded. First, it is likely that contracting parties exclude capital expenditure restrictions from contracts. Nini, Smith, and Sufi (2009) provide evidence that these restrictions significantly influence the borrower's investment policy. Second, I expect that balance sheet covenants (i.e., net worth, leverage, and current ratio) are also less likely to be included in the contract. This is because balance sheet variables are carried at historical cost and because they mechanically restrict firms from, for example, rebalancing their capital structures or paying out dividends (Beatty, Weber, and Yu, 2008; Frankel, Seethamraju, and Zach, 2008). These covenants require the borrower to not exceed (leverage) or fall below (net worth and current ratio) pre-specified thresholds. For instance, it is likely that these covenants need to be renegotiated if management sees a good opportunity to repurchase the company's stock. In contrast, I consider income-based covenants as less flexibility reducing because they usually do not impose restrictions on capital expenditures or payouts.[5]

In summary, *flexibility-reducing covenants* (i.e., capital expenditure restrictions *and* balance sheet variables) can negatively affect equity values because they contractually limit the upside of the firm.[6] These covenant violations can be costly and can reduce the ex-ante value of

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[5] Moreover, income-based covenants better reflect the company's current growth opportunities. In contrast, net assets, the primary variable used in balance sheet covenants, are understated and carried below market value (Watts, 2003). From a lender's perspective, this property is desirable because it provides reliable information about the liquidation value of the firm. However, almost by definition, net assets will not be particularly informative about firms' continuation value and growth opportunities. In addition, balance sheet variables are the result of a variety of decisions that are not necessarily informative about the borrower's ability to repay the loan. 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.

[6] 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.

the firm when the costs of renegotiating the debt agreement are expected to be high. However, while excluding flexibility-reducing covenants can improve the firm's financial flexibility, this situation also increases the risk to lenders. For example, without a minimum net worth or a maximum leverage ratio restriction, 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*, **it is less likely that contracts include flexibility-reducing covenants when future renegotiations are expected to be costly.**

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 hold-up 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 poor or no credit rating will have fewer alternative sources to raise external funds, which in turn will put these firms at a more disadvantageous bargaining situation 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 is going to be stronger. However, ex-ante it is unclear whether this is going to be the case given that borrowers with fewer outside options (e.g., firms with poor or no credit rating) also tend to be subject to larger agency concerns. Based on these arguments, I state my second hypothesis in alternate form:

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

3.   Empirical Framework and Data

3.1   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 employing the following regression framework:[7]

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

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.[8] These variables, together with the set of controls, are described in more detail below.

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 loans made in calendar year *t*, if the loan 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 loan 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. Finally, I winsorize all continuous variables at the 1% and 99% levels to limit the influence of outliers. In

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[7] Consistent with the suggestion by Angrist and Pischke (2009), throughout the paper I use a linear probability model as opposed to a nonlinear limited dependent variable model. This allows for 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.
[8] Using the natural logarithm of the number of lenders leads to similar results.

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.

3.1.1   Flexibility-Reducing Covenants

The key variable of interest in this study is whether debt contracts include covenants that reduce the financial flexibility of the borrower.[9] 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. This type of covenant explicitly limits firms' capital expenditures and often also imposes restrictions on the type of investments that firms can make. 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. The intuition behind this ranking is that capital expenditure covenants are the most restrictive because they clearly impose restrictions on corporate investment policies, as described above. Moreover, I consider balance sheet covenants as less restrictive than capital expenditure covenants but as more restrictive than income statement covenants. In particular, I consider balance sheet covenants as more flexibility

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

reducing than income statement covenants because the former mechanically restrict firms from, for example, rebalancing their capital structures or paying out dividends (Beatty, Weber, and Yu, 2008; Frankel, Seethamraju, and Zach, 2008).

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.

3.1.2   *Renegotiation Costs*

I measure expected future contract renegotiation costs using the number of lenders in a debt contract. 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). For instance, Bolton and Scharfstein (1996) suggest that borrowers have less bargaining power when they have to renegotiate with a dispersed group of creditors. Given that important contract amendments usually require a majority of all lenders (67% to 100%), 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 anecdotal evidence provided by practitioners. For instance, the Lexis − Commercial Loan Documentation Guide 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." As a result, I expect future renegotiation costs to be higher if the number of lenders in a loan syndicate is large.

3.1.3 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 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 the borrowers'

specific credit rating (e.g., AAA, AA+, etc.).[10] 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. *Collateral* is a dummy variable equal to one if the loan

requires the firm to post collateral, zero otherwise. *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. *Deal Spread* is measured in

basis points and is calculated as the weighted spread of all facilities included in a 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 and the 2-year

Treasury yield. All variables used in this study are described in Appendix B.

3.1.4   *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,

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

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. As a result, the renegotiation effect on covenant choices cannot be identified without an exogenous instrument.

To identify how contract renegotiation costs affect the choice of covenants, I need an instrument that would affect the number of lenders in the syndicate but 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 *loan-specific* group of syndicate participants.[11] The intuition is that when the lead bank has a lower level of information asymmetry with her/his 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.

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. 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% and 20%, respectively. This suggests that almost a quarter of all previous deals were underwritten together with at least one of the current co-investors.

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[11] 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).

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 often the lead arranger has participated in loan deals arranged by 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 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.[12] In my sample, the mean and median of this measure are 14.7% and 13.7%, respectively.

Both instruments are calculated using all loans 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.[13] 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. A fitted value of the number of lenders, computed

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

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

using the first-stage estimates, is to replace the observable number of lenders in the second stage.[14]

$$\# \ Lenders = \alpha_0 + \alpha_1 Controls + \ \alpha_2 Instruments + \varepsilon \qquad (2)$$

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

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, therefore potentially violating the exclusion restriction, I use two different IV specifications. First, as discussed in section 3.1.3, I include *Lead Bank Reputation* as a control to capture the effect of banks that have established a strong reputation and likely 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.[15]

3.2   *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.[16] This

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[14] As mentioned in Footnote 7, throughout the paper I follow the Angrist and Pischke (2009) suggestion to use a linear probability model as opposed to a nonlinear limited dependent variable model.

[15] 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 a majority of deals.

[16] 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 covenants reported are potentially data errors. Christensen and Nikolaev (2012) also indicate that it is highly unlikely that credit agreements do not employ covenants given that almost all private credit agreements rely on them. The absence of covenant data is therefore likely to indicate that

leaves me with 30,843 deal packages that have at least one covenant. I also require firms to have sufficient data to calculate the number of lenders in a loan syndicate and control variables during the years 1995-2012.[17] Furthermore, I exclude financial (SIC 6000-6999) and regulated firms (4900-4999) consistent with prior research.[18] 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% of the loans), I keep a separate observation for each lead arranger (see, e.g., Gopalan et al., 2011; Murfin, 2012).[19] This leaves a final sample of 11,957 deal packages. Table 1 provides the details.

Table 2 presents descriptive statistics for the variables in this study. The mean of *Capital Expenditure* is 0.24, suggesting that during the sample period, on average, 24% 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 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

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Dealscan was unable to obtain information on covenants. Accordingly, I exclude contracts with no covenant information (rather than set their number to zero).

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

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

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

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. This result provides some initial evidence that renegotiation costs might affect what types of covenants are included in loan agreements.

4.   Results

4.1   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 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 0.61 lenders. In turn, a one standard deviation increase in *Reciprocal* (in column 2) is associated with an increase of 1.13 lenders. Moreover, the corresponding F-tests suggest that the coefficients on each instrument are statistically different from zero. However, the evidence from columns 1 and 2 also suggests that *Reciprocal*

has higher incremental explanatory power than *Syndicate Reputation* (Shea's partial R-Squared of 1.81% versus 0.80%).

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 82.7, and Shea's partial R-squared is 2.05%. 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 95.7, and Shea's partial R-squared is 2.30%. For parsimony, the rest of the paper will present results based on the models described in columns three and four, respectively.[20]

The coefficients I obtain on the control variables suggested by Sufi (2007) are all consistent with the model presented in that paper.[21] 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

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[20] Using only one instrument at a time leads to largely similar, although somewhat weaker, results. In particular, the results are stronger in the case of *Reciprocal*.

[21] Sufi (2007) includes a relatively limited number of firm-specific controls given that his analysis is conducted at the Dealscan level. 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.

characteristics (i.e., higher cash flow volatility) that might be indicative of borrowers that have a

higher adverse selection/moral hazard risk, and therefore need more monitoring.

4.2   Main Results – Second-Stage

Table 5 reports the OLS and IV results for when the dependent variable is *Capital*

Expenditure. The first column presents results when using the OLS specification. The coefficient

on *# Lenders* is negative (-0.001) and statistically significant (t-stat -1.71). This coefficient

suggests that a one standard deviation increase in the fitted number of lenders decreases the

probability of including a capital expenditure covenant by 1 percentage point. In contrast,

column 2 presents the second-stage results of the IV specification. Here the coefficient on

$\widehat{\# Lenders}$ is also negative (-0.023) and statistically significant (t-stat -4.37). This coefficient

suggests that a one standard deviation increase in the number of lenders decreases the probability

of including a capital expenditure covenant by 15 percentage points.[22] Lastly, column 3 provides

the results when the IV specification includes lead arranger fixed effects. Here the coefficient on

$\widehat{\# Lenders}$ is also negative (-0.018) and statistically significant (t-stat -3.55). These findings

suggest that when renegotiation costs are high, debt contracts are less likely to include a capital

expenditure covenant.

The fact that the IV specification results are significantly larger than those obtained using

OLS might point to biases in the OLS estimates. In contrast, the IV specification avoids this

issue given that *#Lenders* is instrumented. Moreover, 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.

In addition, having two instruments enables me to test the overidentifying restrictions.[23]

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[22] $= 6.474 * (-0.023)$

[23] Intuitively, this test is equivalent to construct just-identified IV estimators one at a time (i.e., only using one of the instruments in each specification) and compare them. If each just-identified estimator is consistent, the differences

Accordingly, the overidentifying restriction is not rejected with p-value equal to 0.42. This result confirms the joint validity of my instruments and is further evidence of the appropriateness of my economic 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 (-0.005) and statistically significant (t-stat -2.79). Column 2 presents the second-stage results of the IV specification. Here the coefficient on $\widehat{\text{# Lenders}}$ is again larger than in the OLS specification (-0.047; t-stat -4.43). In particular, a one standard deviation increase in the fitted number of lenders leads to a decrease of *Covenant Index* of 0.30.[24] Column 3 provides the results when the IV specification includes lead arranger fixed effects. Here the coefficient on $\widehat{\text{# Lenders}}$ is also negative (-0.039) and statistically significant (t-stat -3.90). 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).

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 p-value equal to 0.62. This result again confirms the joint validity of my instruments and is further evidence of the efficacy of my economic 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

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between them should be small. Rejection of the overidentification test suggests that both instruments generate similar results. However, it is important to caveat that it assumes that at least one of the instruments is valid (Angrist and Pischke, 2009)

[24] = 6.474 * (-0.047). Recall that the values for Covenant Index range between 0 and 2.

loan syndicate is more dispersed, contracting parties are less likely to include flexibility-reducing covenants. However, it is important to caveat that a drawback of IV estimation is that it is only based on the subset of debt contracts that are 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).

4.3   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 firms that are smaller 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 of firm size. To estimate these cross-sectional tests, I employ the following IV specification:

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

$$\#Lenders \times Partition = \partial_0 + \partial_1 Controls + \partial_2 Instruments_2 + \vartheta \qquad (4b)$$

$$Flex.Red.Cov. = \gamma_0 + \gamma_1 \widehat{\#Lenders} + \gamma_2 \widehat{\#Lenders \times Partition} + \gamma_3 Controls + \in \qquad (5)$$

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 of *Syndicate Reputation* and *Reciprocal* with the corresponding partitioning variable as the instruments (i.e., $Instruments_2$).[25] 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.[26] 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.[27] For example, a one standard deviation increase in the fitted number of lenders decreases the probability of including a capital expenditure covenant by an additional 11 percentage points when the borrower has a credit rating below investment grade (vis a vis a

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

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

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

similar increase in the fitted number of lenders when the borrower has a credit rating of investment grade or better).[28]

5.   Robustness Tests

5.1   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). The lending limit is a simple additional proxy for the lead's loan portfolio diversification. Since banking is a regulated industry, there are regulatory lending restrictions aimed at reducing banks' portfolio credit risk.   In particular, loans to a single lender cannot exceed 15% of a bank's capital for uncollateralized loans or 25% for its collateralized loans (Ivashina, 2009). Regulatory lending limits are rarely binding. But in addition to regulatory lending limits, banks have internal lending limits that reflect their internal structures and are often binding. Because I do not directly observe the lending limit, I use the DealScan sample and measure the lending limit as a 75th percentile of the dollar size of the lead bank's share, calculated over the prior three years. After implementing this specification (untabulated), I continue to find that renegotiation costs negatively affect the inclusion of flexibility-reducing covenants. For example, when estimating the first stage (i.e., equation 2), I find that higher internal lending limits are negatively associated with *# Lenders* (-0.01; t-stat -6.03). Moreover, in the second stage (i.e., equation 3) the coefficient on the fitted number of lenders is equal to -0.22 (t-stat -4.58). Finally, the values for the F-test (60.06) and the test of the overidentification restriction (0.69) suggest that the model is appropriately specified.

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[28] = 6.474 * (-0.017)

5.2   Alternative Covenant Index Specification

In some instances, the fixed-charge coverage ratio covenant can include in its calculation restrictions that limit capital expenditures and/or dividend payments (Taylor and Sansone, 2007). As a result, this covenant could also be considered as 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.

5.3   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, (2) *# Flexibility-Reducing Covenants*, which is equal to the sum of capital expenditure and balance sheet covenants, and (3) *# Income Covenants*, which is equal to the sum of income statement covenants.

Table 8, column 1 presents the results for when *# Financial Covenants* is the dependent variable. The negative coefficient on the fitted number of lenders (t-stat -2.03) suggests that when renegotiation costs are high, contracting parties use a smaller number of financial covenants. Columns 2 and 3 present the results from tests about whether renegotiation costs differentially affect the *# Flexibility-Reducing Covenants* versus the *# Income Covenants*. I find

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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 -3.32), while the number of income-based covenants (i.e., *# Income Covenants*) is higher (t-stat 2.13). These results suggest that contracting parties select different types of covenants depending on how costly it is to renegotiate a contract. Furthermore, this evidence is consistent with a number of recent studies (Li, 2010; Demerjian, 2011; Christensen and Nikolaev, 2012), which suggest that balance sheet and income statement covenants are used for different purposes.

5.4   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 8 shows the results when *# General Covenants* is the dependent variable. I find that *# General Covenants* is negatively related with renegotiation costs (t-stat -1.95). As a result, when renegotiation costs are high, debt contracts are less likely to include general covenants.

6.   Conclusion

I investigate whether and how expected future contract renegotiation considerations affect the type of covenants used in debt contracts. Using an instrumental variables methodology, 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. 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 her/him to bypass value-enhancing corporate policies (e.g., investments or the rebalancing of the firm's capital structure). 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. Overall, this study contributes to our understanding of how (1) renegotiation considerations affect the design of debt contracts and (2) covenants are chosen to mitigate renegotiation frictions.

An open question remains: Why do lenders agree to contract on less restrictive covenants when future renegotiation costs are high? The above discussion has been mostly centered on how contracts are modified to the benefit of the borrower. However, there are a number of possible justifications that could explain the willingness of banks to agree with those modifications. First, if it comes to a future renegotiation, lenders will likely extract higher concessions (e.g., amendment fees) given that they will be in a superior bargaining position. Second, as suggested by Bolton and Scharfstein (1996), a large syndicate protects lenders against strategic default, thereby reducing agency concerns. Finally, a larger syndicate also allows lenders to better diversify their loan portfolios and generate more upfront fees per dollar invested. Future research might provide deeper insights about these alternatives.

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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

<u>Covenants</u>

Capital expenditure: 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.

#Financial Covenants: Sum of all financial covenants.

#Flexibility-Reducing Cov.:   Sum of capital expenditure and balance sheet covenants.

#Income Covenants: Sum of income statement covenants.

#General Covenants: Sum of equity issuance sweeps, debt issuance sweeps, asset sales sweeps, insurance proceeds sweeps, and dividend restrictions.

<u>Renegotiation Costs</u>

#Lenders: Number of banks that participate in the lending syndicate.

#$\widehat{Lenders}$:   The predicted value from the first-stage regression.

<u>Instruments</u>

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.

<u>Controls</u>

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.
Collateral:	A dummy variable equal to one if the loan requires the firm to post collateral, zero otherwise.
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.
Deal Spread:	The weighted spread of all facilities included in a particular loan deal, which is measured in basis points.

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.

Timeline – Negotiation of Debt Covenants in the Initial Loan Agreement
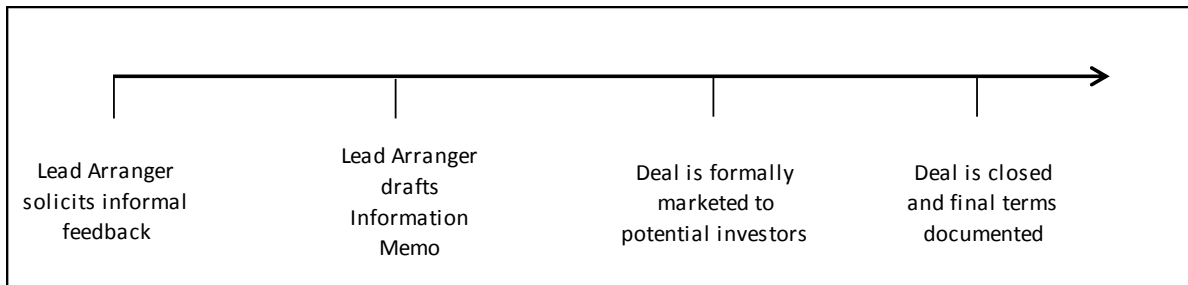
Figure 1. This figure provides the chronological order in which debt covenants are negotiated in the initial loan agreement.

Table 1: Sample Selection

Loan Packages with non-missing covenants	30,843
Excluding loan packages with missing 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 top 130	-1,172
Final Sample	**11,957**

Table 2: Descriptive Statistics

Variable	N	Mean	Median	Std Dev	25th Pctl	75th Pctl
Capital Expenditure	11,957	0.237	0.000	0.425	0.000	0.000
Covenant Index	11,957	0.867	1.000	0.767	0.000	1.000
# Financial Covenants	11,957	2.499	2.000	1.089	2.000	3.000
# Flexibility-Reducing Covenants	11,957	0.858	1.000	0.822	0.000	1.000
# Income Covenants	11,957	1.564	2.000	0.916	1.000	2.000
# General Covenants	11,957	1.957	1.000	1.929	1.000	4.000
# Lenders	11,957	10.118	8.000	8.798	3.000	14.000
# $\widehat{Lenders}$	11,957	10.111	10.398	6.474	5.849	14.629
Syndicate Reputation	11,957	0.235	0.193	0.223	0.084	0.319
Reciprocal	11,957	0.147	0.137	0.125	0.023	0.246
Lead Bank Reputation (# deals)	11,957	1.437	1.111	1.163	0.335	2.568
Size	11,957	6.971	6.997	1.749	5.808	8.145
Leverage	11,957	0.290	0.269	0.203	0.147	0.401
Market-to-book	11,957	1.693	1.418	0.912	1.131	1.919
Profitability	11,957	0.113	0.107	0.090	0.057	0.162
Cash Flow Volatility	11,957	0.058	0.035	0.075	0.019	0.065
Not Rated	11,957	0.482	0.000	0.500	0.000	1.000
# Previous Deals	11,957	7.443	6.000	5.772	3.000	10.000
# Facilities	11,957	1.571	1.000	0.877	1.000	2.000
Collateral	11,957	0.574	1.000	0.495	0.000	1.000
Deal Amount (millions)	11,957	649	300	1,054	100	700
Deal Maturity (months)	11,957	47.390	51.000	19.510	36.000	60.000
Deal Spread (bps)	11,957	185.607	170.135	125.593	87.500	255.000

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 all control variables. *Capital expenditure* 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. *#Financial Covenants* is the sum of all financial covenants. *# Flexibility-Reducing Covenants* is the sum of capital expenditure and balance sheet covenants. *# Income Covenants* is the sum of income statement 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 that participate in the lending syndicate. *# $\widehat{Lenders}$* is the predicted value from the first-stage regression. *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. *Collateral* is a dummy variable equal to one if the loan requires the firm to post collateral, zero otherwise. I measure *Loan 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. *Deal Spread* is measured in basis points and is calculated as the weighted spread of all facilities included in a particular loan deal. All variables are winsorized at the 1% level.

Table 3: Pearson Correlations

		A	B	C	D	E	F	G
Capital Expenditure	A	1.000	0.822 (0.00)	0.462 (0.00)	0.367 (0.00)	0.140 (0.00)	0.424 (0.00)	-0.148 (0.00)
Covenant Index	B		1.000	0.530 (0.00)	0.707 (0.00)	-0.065 (0.00)	0.279 (0.00)	-0.190 (0.00)
# Financial Covenants	C			1.000	0.566 (0.00)	0.631 (0.00)	0.349 (0.00)	-0.159 (0.00)
# Flexibility-Reducing Covenants	D				1.000	-0.232 (0.00)	-0.007 (0.45)	-0.215 (0.00)
# Income Covenants	E					1.000	0.380 (0.00)	0.044 (0.00)
# General Covenants	F						1.000	-0.031 (0.00)
# Lenders	G							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 all control variables. *Capital expenditure* 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. *#Financial Covenants* is the sum of all financial covenants. *# Flexibility-Reducing Covenants* is the sum of capital expenditure and balance sheet covenants. *# Income Covenants* is the sum of income statement 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 that participate in the lending syndicate. All variables are winsorized at the 1% level.

Table 4: First-Stage – Instrumental Variables Specification

Dependent Variable = # Lenders

Syndicate Reputation	**2.758*****		**1.610*****	**2.619*****
	(7.53)		**(4.12)**	**(5.96)**
Reciprocal		**9.056*****	**7.940*****	**8.982*****
		(12.12)	**(9.87)**	**(10.57)**
Lead Bank Reputation	0.244***	0.366***	0.331***	-0.323
	(3.62)	(5.22)	(4.72)	(-1.55)
Size	0.160	0.168	0.155	0.056
	(1.11)	(1.15)	(1.07)	(0.40)
Leverage	0.526	0.646	0.632	0.556
	(0.86)	(1.05)	(1.04)	(0.96)
Market-to-book	-0.146	-0.136	-0.139	-0.111
	(-1.11)	(-1.02)	(-1.04)	(-0.90)
Profitability	-0.839	-0.874	-0.989	-1.175
	(-0.69)	(-0.71)	(-0.81)	(-1.06)
Cash Flow Volatility	2.586***	2.612***	2.697***	1.999**
	(2.59)	(2.60)	(2.69)	(2.04)
Not Rated	-1.423***	-1.245**	-1.268**	-1.401***
	(-2.82)	(-2.48)	(-2.53)	(-2.93)
Log (1+ # Previous Deals)	0.904***	0.896***	0.892***	0.806***
	(5.80)	(5.74)	(5.75)	(5.31)
Log (1+ # Facilities)	2.670***	2.797***	2.787***	2.584***
	(6.02)	(6.32)	(6.30)	(5.85)
Collateral	0.494*	0.568**	0.551**	0.526**
	(1.95)	(2.19)	(2.15)	(2.21)
Log (Deal Amount)	3.444***	3.230***	3.211***	3.303***
	(23.57)	(21.87)	(21.66)	(22.09)
Deal Maturity	0.024***	0.023***	0.023***	0.022***
	(4.12)	(4.01)	(3.94)	(3.86)
Deal Spread	-0.006***	-0.006***	-0.006***	-0.004***
	(-5.50)	(-4.92)	(-4.90)	(-4.19)
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
N	11,957	11,957	11,957	11,957
R-Squared	0.535	0.540	0.541	0.554
Instruments				
F-test (Syndicate Reputation=0)	56.7***			
F-test (Reciprocal=0)		146.9***		
F-test (Syndicate Reputation=Reciprocal=0)			82.7***	95.7***
Shea's partial R-squared	0.80%	1.81%	2.05%	2.30%

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 all control variables. *Capital expenditure* 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. *Number of Financial Covenants* is the sum of all financial covenants. *Number of Flexibility-Reducing Covenants* is the sum of capital expenditure and balance sheet covenants. *Number of Income Covenants* is the sum of income statement covenants. *# Lenders* is measured as the total number of banks that participate in the lending syndicate. *# $\widehat{Lenders}$* is the predicted value from the first-stage regression. *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. *Collateral* is a dummy variable equal to one if the loan requires the firm to post collateral, zero otherwise. I measure *Loan 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. *Deal Spread* is measured in basis points and is calculated as the weighted spread of all facilities included in a particular loan deal. 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 Restrictions

Dependent Variable = Capital Expenditure

	OLS	IV (2nd Stage)	IV (2nd Stage)
# Lenders	**-0.001***		
	(-1.71)		
# $\widehat{\text{Lenders}}$		**-0.023****	**-0.018****
		(-4.37)	**(-3.55)**
Lead Bank Reputation	-0.004	0.002	-0.029**
	(-0.91)	(0.52)	(-2.44)
Size	-0.012	-0.008	-0.009
	(-1.55)	(-0.96)	(-1.11)
Leverage	0.016	0.028	0.023
	(0.45)	(0.73)	(0.65)
Market-to-book	-0.008	-0.011	-0.013*
	(-1.21)	(-1.64)	(-1.92)
Profitability	-0.145**	-0.157**	-0.143**
	(-2.20)	(-2.26)	(-2.15)
Cash Flow Volatility	-0.063	-0.010	-0.006
	(-0.86)	(-0.13)	(-0.09)
Not Rated	-0.009	-0.040	-0.029
	(-0.35)	(-1.35)	(-0.99)
Log (1+ # Previous Deals)	0.003	0.023**	0.015
	(0.34)	(2.08)	(1.45)
Log (1+ # Facilities)	0.108***	0.166***	0.150***
	(4.63)	(5.80)	(5.46)
Collateral	0.122***	0.134***	0.128***
	(8.55)	(8.72)	(8.63)
Log (Deal Amount)	-0.006	0.071***	0.051**
	(-0.76)	(3.42)	(2.46)
Deal Maturity	0.001**	0.001***	0.001***
	(2.57)	(3.74)	(3.33)
Deal Spread	0.001***	0.001***	0.001***
	(12.37)	(8.81)	(9.25)
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
N	11,957	11,957	11,957
R-Squared	0.293	0.198	0.257

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 = 0.42)	(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 all control variables. *Capital expenditure* 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 that participate in the lending syndicate. *# $\widehat{Lenders}$* is the predicted value from the first-stage regression. *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. *Collateral* is a dummy variable equal to one if the loan requires the firm to post collateral, zero otherwise. I measure *Loan 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. *Deal Spread* is measured in basis points and is calculated as the weighted spread of all facilities included in a particular loan deal. 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	**-0.005*****		
	(-2.79)		
# L͡enders		**-0.047*****	**-0.039*****
		(-4.43)	**(-3.90)**
Lead Bank Reputation	-0.026***	-0.014	-0.047**
	(-3.17)	(-1.59)	(-1.96)
Size	0.002	0.010	0.001
	(0.12)	(0.57)	(0.07)
Leverage	-0.027	-0.005	-0.026
	(-0.38)	(-0.06)	(-0.37)
Market-to-book	-0.040***	-0.046***	-0.043***
	(-3.11)	(-3.43)	(-3.39)
Profitability	-0.227*	-0.252*	-0.294**
	(-1.79)	(-1.84)	(-2.31)
Cash Flow Volatility	0.083	0.184	0.135
	(0.61)	(1.26)	(0.97)
Not Rated	0.069	0.009	0.010
	(1.19)	(0.15)	(0.16)
Log (1+ # Previous Deals)	0.008	0.046**	0.032
	(0.42)	(2.09)	(1.54)
Log (1+ # Facilities)	0.193***	0.305***	0.269***
	(4.27)	(5.46)	(5.06)
Collateral	0.170***	0.191***	0.185***
	(5.96)	(6.16)	(6.42)
Log (Deal Amount)	-0.043***	0.106***	0.087**
	(-2.77)	(2.59)	(2.16)
Deal Maturity	-0.000	0.001	0.001
	(-0.14)	(1.42)	(0.83)
Deal Spread	0.001***	0.001***	0.001***
	(7.78)	(4.68)	(5.92)
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
N	11,957	11,957	11,957
R-Squared	0.232	0.125	0.179

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 = 0.62)	(p = 0.99)

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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 all control variables. *Capital expenditure* 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 that participate in the lending syndicate. *# $\widehat{Lenders}$* is the predicted value from the first-stage regression. *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. *Collateral* is a dummy variable equal to one if the loan requires the firm to post collateral, zero otherwise. I measure *Loan 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. *Deal Spread* is measured in basis points and is calculated as the weighted spread of all facilities included in a particular loan deal. 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 = Capital Expenditure

Partition=	Low Redeployability	Below Investment Grade	Small Firm
	IV (2nd Stage)	IV (2nd Stage)	IV (2nd Stage)
# $\widehat{Lenders}$	**-0.020*****	**-0.010****	**-0.016*****
	(-3.94)	**(-2.39)**	**(-3.59)**
# $\widehat{Lenders}$ x Partition	**-0.006****	**-0.017*****	**-0.014****
	(-2.33)	**(-3.30)**	**(-2.52)**
Partition	**0.062****	**0.343****	**0.147*****
	(2.28)	**(2.47)**	**(3.04)**
Lead Bank Reputation	0.002	0.000	0.002
	(0.48)	(0.07)	(0.41)
Size	-0.008	-0.007	
	(-0.97)	(-0.79)	
Leverage	0.025	0.021	0.034
	(0.68)	(0.57)	(0.91)
Market-to-book	-0.012*	-0.008	-0.008
	(-1.69)	(-1.17)	(-1.22)
Profitability	-0.148**	-0.131*	-0.118*
	(-2.09)	(-1.90)	(-1.68)
Cash Flow Volatility	-0.040	-0.052	-0.053
	(-0.52)	(-0.69)	(-0.69)
Not Rated	-0.041	-0.174	-0.038
	(-1.36)	(-1.38)	(-1.30)
Log (1+ # Previous Deals)	0.023**	0.020*	0.018*
	(2.03)	(1.83)	(1.70)
Log (1+ # Facilities)	0.157***	0.123***	0.132***
	(5.49)	(4.49)	(4.78)
Collateral	0.132***	0.131***	0.132***
	(8.64)	(8.64)	(8.98)
Log (Deal Amount)	0.071***	0.064***	0.066***
	(3.45)	(3.34)	(3.49)
Deal Maturity	0.001***	0.001***	0.001***
	(3.87)	(3.95)	(4.22)
Deal Spread	0.001***	0.001***	0.001***
	(8.93)	(8.35)	(9.49)
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
N	11,957	11,957	11,957
R-Squared	0.202	0.220	0.227

Dependent Variable = Covenant Index

Partition=	Low Redeployability	Below Investment Grade	Small Firm
	IV (2nd Stage)	IV (2nd Stage)	IV (2nd Stage)
# $\widehat{\text{Lenders}}$	**-0.037***	**-0.007**	**-0.030***
	(-3.61)	**(-0.70)**	**(-3.24)**
# $\widehat{\text{Lenders x Partition}}$	**-0.020***	**-0.052***	**-0.034***
	(-3.65)	**(-4.77)**	**(-3.04)**
Partition	**0.155***	**0.771**	**0.329***
	(3.05)	**(2.57)**	**(3.52)**
Lead Bank Reputation	-0.014	-0.020**	-0.015*
	(-1.60)	(-2.32)	(-1.78)
Size	0.008	0.015	
	(0.47)	(0.87)	
Leverage	-0.022	-0.024	0.003
	(-0.31)	(-0.32)	(0.04)
Market-to-book	-0.046***	-0.035***	-0.041***
	(-3.41)	(-2.63)	(-3.13)
Profitability	-0.257*	-0.176	-0.182
	(-1.90)	(-1.28)	(-1.33)
Cash Flow Volatility	0.086	0.052	0.051
	(0.60)	(0.36)	(0.35)
Not Rated	0.006	-0.127	0.003
	(0.10)	(-0.47)	(0.04)
Log (1+ # Previous Deals)	0.044**	0.037*	0.042*
	(2.00)	(1.65)	(1.95)
Log (1+ # Facilities)	0.273***	0.173***	0.207***
	(4.90)	(3.18)	(3.83)
Collateral	0.187***	0.185***	0.180***
	(6.12)	(5.81)	(6.08)
Log (Deal Amount)	0.106***	0.085**	0.109***
	(2.63)	(2.23)	(2.96)
Deal Maturity	0.001	0.001*	0.001*
	(1.60)	(1.68)	(1.70)
Deal Spread	0.001***	0.001***	0.001***
	(4.97)	(4.09)	(5.32)
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
N	11,957	11,957	11,957
R-Squared	0.130	0.133	0.163

Table 7 (continued)

Table 7. 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 all control variables. *Capital expenditure* 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 of firm size. *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. *Collateral* is a dummy variable equal to one if the loan requires the firm to post collateral, zero otherwise. I measure *Loan 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. *Deal Spread* is measured in basis points and is calculated as the weighted spread of all facilities included in a particular loan deal. All variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 8: Covenant Analysis

Dependent Variable =	# Financial Covenants	# Flexibility Red. Covenants	# Income Covenants	# General Covenants
	IV (2nd Stage)	IV (2nd Stage)	IV (2nd Stage)	IV (2nd Stage)
# $\widehat{\text{Lenders}}$	**-0.023****	**-0.032*****	**0.021****	**-0.038***
	(-2.03)	**(-3.32)**	**(2.13)**	**(-1.95)**
Lead Bank Reputation	-0.012	-0.031***	0.014	-0.032**
	(-1.06)	(-3.09)	(1.55)	(-1.98)
Size	-0.127***	0.019	-0.151***	-0.162***
	(-5.75)	(1.08)	(-7.65)	(-4.73)
Leverage	0.196**	-0.120	0.289***	0.235*
	(2.06)	(-1.49)	(3.58)	(1.65)
Market-to-book	-0.086***	-0.076***	-0.020	-0.037
	(-5.25)	(-4.90)	(-1.40)	(-1.12)
Profitability	0.285*	-0.159	0.633***	-0.103
	(1.65)	(-0.91)	(4.50)	(-0.36)
Cash Flow Volatility	-0.535***	0.306**	-0.953***	-0.858***
	(-2.91)	(2.07)	(-5.78)	(-3.19)
Not Rated	0.057	0.116*	-0.043	0.101
	(0.83)	(1.83)	(-0.72)	(1.00)
Log (1+ # Previous Deals)	0.093***	0.061***	0.012	0.105**
	(3.46)	(2.66)	(0.51)	(2.36)
Log (1+ # Facilities)	0.396***	0.245***	0.078	0.989***
	(6.31)	(4.94)	(1.49)	(8.51)
Collateral	0.172***	0.095***	0.046	0.813***
	(4.43)	(2.67)	(1.49)	(12.36)
Log (Deal Amount)	0.072	-0.020	0.061	0.430***
	(1.61)	(-0.53)	(1.53)	(5.63)
Deal Maturity	0.006***	-0.002**	0.009***	0.012***
	(6.88)	(-2.39)	(12.21)	(8.34)
Deal Spread	0.000	-0.000**	0.000	0.004***
	(0.72)	(-1.97)	(0.58)	(11.46)
Fixed Effects				
Lead Arranger	No	No	No	No
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
N	11,957	11,957	11,957	11,957
R-Squared	0.314	0.347	0.303	0.451

Table 8 (continued)

Table 8. The table investigates whether higher renegotiation costs affect the number of covenants used in debt agreements. 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 all control variables. *# Financial Covenants* is the sum of all financial covenants. *# Flexibility-Reducing Covenants* is the sum of capital expenditure and balance sheet covenants. *# Income Covenants* is the sum of income statement 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 that participate in the lending syndicate. $\widehat{\# Lenders}$ is the predicted value from the first-stage regression. *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. *Collateral* is a dummy variable equal to one if the loan requires the firm to post collateral, zero otherwise. I measure *Loan 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. *Deal Spread* is measured in basis points and is calculated as the weighted spread of all facilities included in a particular loan deal. All variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.