Debt Maturity, Investments, and the Choice of Covenants

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Abstract

How do debt agreements allocate control rights over future investment decisions? I study this question in the context of prior theory, which suggests that conflicts of interest between borrowers and lenders increase with debt maturity because it is more likely than an unexpected investment opportunity will arise before the debt is repaid. Consistent with income statement-based (balance sheet-based) covenants being more (less) efficient in allocating control rights over future investment decisions, I find that debt contracts with longer maturities have more (fewer) performance (capital) covenants. Moreover, using a novel dataset with detailed information about the design of capital expenditure covenants, I find that debt contracts with longer maturities mitigate investment inefficiencies by including tailored capital expenditure covenants that (1) allocate control rights over investments contingent on the borrower's performance (e.g., EBITDA or revenues), (2) allow the borrower to carryforward unused capital expenditure amounts to future periods, and/or (3) include dynamic capital expenditure thresholds that are tighter at loan inception but subsequently loosen up. Finally, I find that my results are stronger when the borrower has a higher propensity to face unanticipated investment decisions after loan initiation.

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1. Introduction

How do debt agreements allocate control rights over future investment decisions? I study this question in the context of prior theory which suggests that conflicts of interest between borrowers and lenders increase with debt maturity (Myers 1977; Diamond 1991; Childs, Mauer, and Ott 2005; Diamond and He 2014). As these models suggest, a key reason for this is that the longer the time until maturity, the greater the likelihood that unexpected investment opportunities will arise before the debt is repaid. These opportunities have the potential of generating additional conflicts of interest, as the payoff functions of the contracting parties with respect to these investments may differ. Given that bank financing is ubiquitous (Sufi 2009) and investment decisions are important, it is imperative to have a better understanding about how contracting parties minimize related agency costs. In this study, I investigate whether loan contracts include different accounting-based and capital expenditure covenants at initiation as investment conflicts vary with loan maturity. I focus on maturity because the passage of time is a necessary condition for the arrival of unanticipated investment opportunities.

The optimal contract has to trade off two different costs related to over and under investment. If contracting parties included no covenants restricting investment, managers would have the decision rights and incentives to over-invest in risky projects with a negative net present value (NPV), thereby expropriating wealth from lenders (Jensen and Meckling 1976). If contracting parties included covenants that restrict investments, lenders will have the decision rights if the restriction is binding and potentially not allow positive but risky NPV projects if these increase the likelihood of default, leading to under-investment in good projects (Jensen and Meckling 1976). Although there might be scope for renegotiation, managers will still under-invest given that they will have to share the surplus with lenders, thereby reducing their incentives to pursue profitable investment opportunities (Holmstrom 1982).

One apparently easy way out to minimize these agency costs is to shorten the maturity of the loan. Debt that matures before an investment option is to be exercised does not induce suboptimal investment decisions. This seems to be a good solution, but there are costs of rolling over short maturity debt claims. For instance, Diamond (1991) argues that short-term debt exposes the firm to a liquidity risk if lenders will not allow refinancing, and the firm is liquidated. This is a risk that became evident during the recent 2008 financial crisis when many borrowers were not able to access the credit markets (Ivashina and Scharfstein 2010). As a result, it is plausible that contracting parties look at alternative contractual features such as covenants to deal with investment conflicts associated with longer maturities.

To develop my predictions of how covenant packages vary with loan maturity, I rely on the theoretical model introduced by Aghion and Bolton (1992). They suggest that in long-term debt contracts, the joint surplus of the contracting parties is maximized when control rights over investment projects are allocated to the party that has an incentive to take the most efficient action. Ideally, covenants would allocate control rights to lenders whenever the manager has incentives to invest in a negative NPV project and leave the decision rights over investments with the manager when a positive NPV project is available. However, in practice, it is typically not feasible to delineate contractually all future negative or positive NPV projects *ex ante*, or for a court to enforce *ex post* such a vague contractual provision. Consequently, covenants are instead conditioned on more easily observable accounting variables, such as profitability, that are likely to be imperfectly correlated with the availability of bad or good future projects (Garleanu and Zwiebel 2009; Christensen, Nikolaev, and Wittenberg-Moerman 2016). In particular, it is reasonable to assume that when the borrower is performing poorly (well), there will be fewer (more) good projects.[1] As a result, I expect that at loan initiation, contracts with longer (shorter) maturities will include more (fewer) covenants that allocate control rights to lenders when the borrower is performing poorly but that leave the decision rights with the borrower when it is performing well. This leads me to make the following predictions regarding accounting-based and capital expenditure covenants.[2]

First, I focus on accounting-based covenants, which are widely used in debt contracts and affect the borrower's ability to make investments if a covenant is binding. I expect that contracts with longer maturities will include more performance or income statement (as opposed to capital or balance sheet) covenants because they are timelier in transferring decision rights to lenders when performance is poor and fewer good projects are available (Christensen and Nikolaev 2012; Hollander and Verriest 2016; Dyreng, Vashishtha, and Weber 2017), but also more likely to leave decision rights with the borrower when performance is good, and more positive NPV projects are obtainable (Saavedra 2017). In contrast, capital covenants serve the purpose of making sure that the borrower is sufficiently capitalized (Christensen and Nikolaev 2012) and are less useful in allocating control rights in a state contingent manner (Saavedra 2017).[3]

Second, I focus on the design of the capital expenditure covenant. This covenant is present in about 24 percent of contracts and explicitly lays out the conditions under which the borrower can engage in future capital expenditure investments and offers significant variation in terms of how it is designed. In my sample, 51 percent of the contracts with a restriction could be considered

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[1] Consistent with this argument, Dyreng, Vashishtha, and Weber (2017) find that the earnings measure used in performance covenants predicts future cash flows, which in turn are directly related to the outcomes of investments.
[2] As I detail in the hypothesis section, if there is scope for renegotiation, the covenant choice here suggested also achieves efficient *ex-post* investment outcomes (Aghion, Dewatripont, and Rey 1994).
[3] Consistent with capital covenants being designed to make sure shareholders have sufficient equity at stake, Beatty, Weber and Yu (2008) and Frankel, Seethamraju, and Zach (2008) find that net worth covenants, a primary capital covenant, often include income escalators, which are adjustments to net worth covenant thresholds that reduce the extent to which positive reported income increases covenant slack.

as plain vanilla capital expenditure covenants, as they only stipulate the maximum amount that the borrower can invest during each year of the contract. In contrast, 49 percent of the remaining contracts have a tailored capital expenditure restriction that includes state contingent provisions that allocate control rights over investments contingent on the borrower's performance and/or carryforward provisions that allow the borrower to roll over unused capital expenditure amounts. The state contingent provision reduces over- and under-investment concerns because, similar to performance covenants, it conditions the amount of investments on the performance of the borrower (e.g., EBITDA or revenues). The carryforward provision does not allocate control rights contingent on performance, but it allows the borrower to carry to future periods any amounts not used in the current year. Thus, it incentivizes managers not to over-invest when borrowers are performing poorly so that they will not be forced to under-invest if borrowers are performing well. Given that tailored capital expenditure covenants are more adequate in addressing investment concerns, I predict that contracts with longer maturities are more likely to include a tailored capital expenditure covenant as opposed to a plain vanilla capital expenditure covenant.

A challenge with studying the relationship between loan maturity and covenant choice is that maturity has been shown to be related to specific firm characteristics such as size and growth opportunities (Barclay and Smith 1995), which in turn could affect covenant choice. To mitigate these concerns, in addition to controlling for a large set of firm and contract characteristics, I use a firm-fixed effect specification that addresses concerns related to firm specific, time-invariant omitted variables.

Notably, I find an opposite relationship with loan maturity for capital- and performance-based covenants: As the contract maturity lengthens, performance-based covenants become more common while capital-based covenants become less common. This stark pattern highlights the differing roles of these two types of covenants and is consistent with performance covenants being more adequate in allocating control rights contingent on the availability of good projects. Moreover, exploiting detailed information about how capital expenditure covenants are designed, I find that loan maturity is positively (negatively) related to the inclusion of a tailored (plain vanilla) capital expenditure covenant. These findings suggest that when loan maturity is longer, contracting parties settle ex-ante on performance and tailored capital expenditure covenants that reduce concerns related to over- and under-investment.

A concern with the firm-fixed effects specification used in the main analysis is that I cannot rule out that firm-specific, time-varying omitted variables might be driving my results. To mitigate this concern, I use a within firm-year specification, which allows me to compare the effect of loan maturity on covenant choice for loans issued by the *same firm* in the *same year*. Using a sample of firms issuing multiple loans in a given year, I find that my results are largely robust to using this specification. Because the within firm-year estimation is very demanding and eliminates a substantial amount of variation, I only use it as a sensitivity check.

To further strengthen the argument that contracting parties select covenants with the purpose of reducing future investment conflicts, I conduct cross-sectional tests based on the borrower's propensity to face future unexpected investment decisions. Using a high market-to-book ratio, heavy investment in research and development activities, and high sales growth as proxies for unexpected or uncertain future investment decisions from prior research (e.g., Billet, King, and Mauer 2007), I find that for these borrowers the association between loan maturity and the inclusion of performance and tailored capital expenditure covenants becomes even stronger. This result also mitigates the concern that contracting parties only rely on performance-linked covenants with the goal of making the effective maturity of long-term contracts shorter when a company underperforms, giving lenders the option to continue or abandon *existing* projects (Caskey and Hughes 2012). That said, I cannot fully rule out that this is a complementary investment related explanation for some of my results.[4]

I also explore the role of incentive alignment on the choice of covenants. I find that when firms have a small fraction of debt in their capital structures (i.e., when the incentives of the managers and debtholders are more aligned), contracts rely less on performance or tailored capital expenditure covenants. However, I find that the negative relationship between incentive alignment and these covenants is attenuated as the likelihood of a change in capital structure (i.e., incentive alignment) increases with maturity. Finally, consistent with the prediction in Garleanu and Zwiebel (2009) that in the presence of agency problems, contracts will be tighter at loan inception and subsequently loosen up, I find that contracts with longer maturities have dynamic capital expenditure thresholds that are increasing over time.

My study contributes to the literature by documenting how debt agreements allocate ex-ante control rights over future investment decisions. This is an important topic given that most firms in the U.S. have a bank loan and that investments are a key driver of value creation. I provide evidence that contracting parties select different accounting-based and capital expenditure covenants at contract initiation as investment conflicts vary with loan maturity. I find that for longer maturities, debt contracts have more covenants that are directly linked to the current performance of the borrower and have tailored capital expenditure covenants. As a result, my findings address the call in Skinner (2011) and Christensen et al. (2016) to understand better the channels through which specific covenants facilitate contracting.

[4] Moreover, the fact that contracting parties put a significant effort in the design of capex covenants (e.g., contracting parties need to agree on which accounting metric to use when conditioning future capex investment on performance or what proportion of unused capex amounts can be carried forward) suggests that *future* investment considerations are relevant when structuring loan terms.

This study also adds to prior research that documents that income statement and balance sheet variables are used for different purposes in debt contracts (Demerjian, 2011; Christensen and Nikolaev 2012; Saavedra 2017). In addition, to explore a new research question, I provide detailed evidence that accounting variables are also used in the design of capital expenditure covenants. Prior research on this restriction (e..g, Nini, Smith, and Sufi 2009) did not explore the extent to which accounting metrics are used to customize the capital expenditure covenant. I find that most state contingent provisions in capital expenditure restrictions are conditional on income statement or performance variables. These findings further shed light on ways in which accounting improves contracting efficiency (Watts and Zimmerman 1986; Christensen et. al. 2016).

My paper is most closely related to Billet et al. (2007), who provide evidence that an aggregate measure of covenant protection in public debt contracts is increasing in debt maturity. My findings are different in that I focus on private debt and the specific choice of covenants (e.g., tailored vs. plain vanilla capital expenditure covenant) that minimizes investment inefficiencies. My study is also related to prior work that shows that creditors exercise control over a firm's investment decisions ex post loan initiation, either by the use of capex restrictions (Nini et al. 2009) or through renegotiations of covenants (e.g., Chava and Roberts 2008; Denis and Wang 2014; Nikolaev 2018). My contribution to this literature is in understanding the use of ex ante state-contingent allocations of control over future investments.

The remainder of the paper is organized as follows: Section 2 discusses the theoretical motivation and empirical predictions. Section 3 presents the data and main variables. Section 4 discusses the empirical results. Section 5 presents additional tests including the effect of loan maturity on covenant strictness, and Section 6 concludes.

2. Theoretical motivation and empirical predictions

2.1. Loan maturity and conflicts of interest about future investments

As Jensen and Meckling (1976) and Myers (1977) argue, when the firm has risky debt outstanding and when managers act to maximize equity value rather than total firm value, managers have incentives to deviate from the optimal investment path. The loss in firm value attributable to these suboptimal investment decisions constitutes a significant component of the agency cost of debt. The other component is the cost of contracting mechanisms that the firm uses to mitigate stockholder–lender conflicts (e.g., covenants).

Stockholder–lender conflicts over the exercise of investment options can be mitigated with short-term debt. Myers (1977) observes that if debt matures before investment options are exercised, the manager's incentive to deviate from a firm value-maximizing investment policy is eliminated. More generally, Childs et al. (2005) argue that short-term debt can mitigate both under- and over-investment incentives by making the debt less sensitive to changes in firm value.

Diamond (1991) argues that short-term debt exposes the firm to a liquidity risk if lenders will not allow refinancing, and the firm is liquidated. Further, Childs et al. (2005) argue that although short-term debt can mitigate incentives to under- and over-invest in growth options, this benefit must be balanced against the greater liquidity risk of refunding short-term debt. An alternative solution for the firm is to issue debt with longer maturities but to work with the lenders to adjust the covenant packages to account for the increases in conflicts of interests associated with those longer maturities. In this study, I investigate whether firms employ this solution.

2.2. Optimal allocation of control rights in long-term debt contracts

Aghion and Bolton (1992) develop a model to analyze incomplete long-term financial contracts between a borrower (entrepreneur) and lenders (wealthy investors). The borrower raises funds from lenders to finance an investment project. Future investment decisions regarding this project have to be taken, which due to contractual incompleteness cannot be perfectly determined in the initial contract. Moreover, the contracting parties have potentially conflicting objectives about future investments because the borrower cares about both pecuniary and non-pecuniary returns from the project while the lenders are only concerned about monetary returns. As a result, it is important for lenders to limit the borrower's actions by acquiring some control rights. The authors show that in the case of debt financing, contingent allocation of control maximizes the joint surplus of the contracting parities. Either the lender or the borrower might be in control depending on the realization of a publicly verifiable signal such as the borrower's profitability, which is imperfectly correlated with the state of nature of the project, which is not contractible *ex-ante*. When the firm is profitable, it is likely that more good projects are available and, therefore, optimal that the borrower retains the decision rights. In contrast, when the firm is not profitable (i.e., close to default), fewer good projects will be available and, thus, optimal that lenders obtain the decision rights. In that case, the lenders can decide to liquidate the firm or renegotiate the contract under more favorable terms. Aghion and Bolton suggest that covenants in debt contracts can implement such an optimal governance structure.

2.3. Main predictions

As mentioned earlier, my prediction is that contracts with longer maturities will structure covenant packages in order to minimize related over- and under-investment problems. Following the intuition from the Aghion and Bolton (1992) model, the contracting parties should allocate control rights to lenders when the borrower is close to default, and managers have more incentives to over-invest but leave the decision rights over investments with the borrower when it is performing well and should invest in all positive NPV projects. As a result, contracts with longer maturities should include more performance (as opposed to capital) covenants because they are more likely to have a stronger correlation with the availability of good projects. In contrast, performance covenants are less useful in short-term contracts due to the lower likelihood of investment conflicts that require a state contingent allocation.

For instance, contrast the Interest-coverage ratio (a performance) covenant to the Net-worth (a capital) covenant. The Interest-coverage ratio (i.e., earnings before interest and taxes to interest expense) covenant has an earnings measure in the numerator, which is likely to have a strong correlation with the current performance and the availability of good investment projects. In contrast, the Net-worth (i.e., total assets minus total liabilities) covenant is based on a summary measure that includes current income, retained earnings (including big bath charges, acquisition accounting, and cookie jar "reserves") [5], and dividend and payout decisions. As a result, current income is more indicative of investment opportunities than is net worth. The current performance of the firm (i.e., current net income) is only one of many components of net worth, making the Net-worth covenant less efficient relative to the Interest-coverage ratio covenant in allocating control rights over future investments.

It is important to note that the here described *ex-ante* allocation of control rights is also efficient in terms of monitoring the *ex-post* renegotiation of the debt contract. As described in the model developed by Aghion, Dewatripont, and Rey (1994), efficient *ex-post* investment outcomes are achieved by *ex-ante* allocating the control rights to the contracting party whose efforts contribute more to the joint surplus. For instance, assume a long-term loan contract that could allocate control rights based on either performance or capital covenants. Because capital covenants are a noisier signal of the availability of good projects relative to performance covenants, there is

[5] In contrast, prior research has shown that performance covenants remove transitory items that are not indicative of future performance (e.g., Li 2010).

a higher likelihood that a capital covenant is going to allocate control rights to lenders when the borrower is in a state distant from default and should optimally have the control rights. This would lead to an under-investment problem because the borrower will not capture the full benefits of an increase of its investment due having to share the surplus with lenders (Holmstrom 1982). If, in contrast, the contract includes a performance covenant that is more efficient in allocating control rights to the firm in good states, the manager will have the right incentives to pursue the investment.[6] Based on these arguments, I state my first hypothesis in alternate form:

H1: *Ceteris paribus*, contracts with longer maturities are more (less) likely to include performance (balance) covenants than contracts with shorter maturities.

Next, I predict that contracts with longer maturities are more likely to include a tailored capital expenditure covenant as opposed to a plain vanilla capital expenditure covenant. Tailored capital expenditure restrictions include provisions that (1) allocate control rights over investments contingent on the borrower's performance and/or (2) allow the borrower to carryforward unused capital expenditure amounts. The state contingent provision (similar to performance covenants) reduces over- and under-investment concerns because it explicitly conditions the amount of investments on the current performance of the borrower (e.g., EBITDA or revenues). The carryforward provision allows the borrower to carry to future periods any amounts not used in the current year, therefore, incentivizing managers not to over-invest when they are performing poorly so that they will not be forced to under-invest if performance improves. While the plain vanilla capital expenditure covenant mitigates certain over-investment

[6] The borrower might still have incentives to renegotiate the contract if a good investment opportunity comes along. The borrower could be interested in, for instance, increasing the amount of the borrowings or extending the maturity of the loan in order to finance the new investment. Moreover, as opposed to a contract that includes a capital covenant, the borrower will have more bargaining power to negotiate a more favorable amendment to the contract, which gives it higher incentives to pursue the positive NPV project.

concerns by restricting the maximum amount of expenditures in a given year, tailored capital expenditure covenants are more adequate in addressing investment concerns because they allow the borrower to invest more (less) when the borrower's performance is good (bad) and/or not to overinvest in bad states by carrying forward unused capital expenditure amounts.

I do not expect a high likelihood of tailored capital expenditure covenants in shorter maturities because they are costly to negotiate at loan inception (e.g., contracting parties have to agree on, for example, the state contingent variable or the percentage of the unused expenditures in a given year that can be carried forward) and less useful due to the lower likelihood of investment conflicts. Based on these arguments, I state my second hypothesis in alternate form:

> **H2: *Ceteris paribus,* contracts with longer maturities are more (less) likely to include tailored (plain vanilla) capital expenditure covenants than contracts with shorter maturities.**

3. *Data*

3.1. Sample

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.[7] This leaves me with 19,855 deal packages issued between 1995 and 2012 that have at least one financial covenant.[8] I also require sufficient data for calculating loan maturity and control variables. Furthermore, I exclude financial (SIC 6000-6999) and regulated firms (4900-4999)

[7] Beatty et al. (2008) and Christensen and Nikolaev (2012) document that Dealscan sometimes underreports the number of covenants in deals and that deals with no reported covenants are potentially data errors. Accordingly, I exclude contracts with no covenant information (rather than set their number to zero).

[8] Loan or deal packages are sets of loan facilities from the same lead lender to the same borrower. For example, a single loan package may include two separate facilities, a revolving line of credit, and a term loan. Because all facilities in a loan package are subject to the same covenants, my analysis is at the package level.

consistent with prior research. This leaves a final sample of 11,046 deal packages of which 2,646 have a capital expenditure covenant. (Due to missing test and control variables, the number of observations reported in the tables differ.) Table 1 provides the details.

3.2. Plain vanilla versus tailored capital expenditure covenants

To determine whether capital expenditure covenants are tailored to deal with over- and under-investment concerns, I manually match each of the 2,646 loan packages in my sample that have a capital expenditure covenant to the corresponding loan contract from Edgar. Loan contracts are usually attached to 8-K, 10-Q, or 10K fillings.[9] I am able to match successfully 86 percent of these contracts leading to a sub-sample of 2,274 loan contracts with detailed information about the design of the capital expenditure covenant.[10]

Next, I read each contract in order to determine how the capital expenditure covenant is designed.[11] I classify capital expenditure covenants into *plain vanilla* and *tailored* capital expenditure covenants. Plain vanilla capital expenditure covenants are those that stipulate the maximum amount that the borrower can invest during each year of the contract without including a state contingent and/or carryforward provision (as detailed below). The capital expenditure restriction contained in the July 15, 1999 credit agreement for Celebrity Inc. illustrates a plain vanilla capital expenditure covenant:

> *Capital Expenditures. Allow Borrowers, in the aggregate, [not] to make capital expenditures in any fiscal year in excess of $2,000,000.*

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[9] On some occasions, contracts are attached to S-1, S-3, or S-4 fillings.

[10] Among the reasons for not being able to find detailed information about the expenditure covenant for 372 contracts are: the contract has been redacted, the contract has a supplemental schedule that was not attached, or I could not find the contract on Edgar.

[11] Most contracts define capital expenditures as the sum of all expenditures capitalized for financial statement purposes in accordance with GAAP (whether payable in cash or other property or accrued as liability), including the capitalized portion of capital leases.

Tailored capital expenditure covenants are those that include a state contingent provision that conditions the amount of allowable investments on the borrower's performance and/or a carryforward provision that allows the borrower to rollover unused capital expenditure amounts.[12,13] The capital expenditure restriction contained in the May 5, 2008 credit agreement for Apac Customer Services Inc. illustrates a state contingent provision:

> <u>Capital Expenditures</u>. *Contract for, purchase or make any expenditure or commitments for Capital Expenditures in any fiscal year in an aggregate amount in excess of (a) $6,800,000 for the fiscal year ending on or about December 31, 2008 and (b) for each fiscal year thereafter an amount not to exceed sixty-five percent (65%) of Borrower's EBITDA for the prior fiscal year.*

In addition, the capital expenditure restriction contained in the November 5, 1999 credit agreement for SLEEPMASTER L.L.C. illustrates a carryforward provision:

> <u>Consolidated Capital Expenditures</u>. *The Parent will not, nor will it permit any Subsidiary to permit Consolidated Capital Expenditures as of the end of any fiscal year of the Parent to exceed $6,000,000 for all such persons in the aggregate during such fiscal year; provided, however, that 50% of any amounts not utilized during any fiscal year may be carried forward to the immediately following fiscal year only.*

Table 2 provides descriptive statistics for this hand-collected sub-sample of 2,274 contracts with detailed information about the design of the capital expenditure covenant. Panel A provides the distribution by type of capital expenditure restriction. Fifty-one percent of the contracts are classified as plain vanilla capital expenditure covenants, whereas 49 percent of the remaining contracts have a tailored capital expenditure restriction. In terms of specific provisions, 11 percent

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[12] On some rare occasions, contracts classified as having a carryforward provision allow the borrower to spend in excess of the maximum allowed amount in a given year by reducing permitted capital expenditures in the immediately following year by the amount of such excess.

[13] Sometimes capital expenditure covenants include other provisions that determine how permitted capital expenditures will change if, for example, a permitted acquisition is consummated or in the event of a loss of PP&E. Given that the link to mitigating investment inefficiencies is less clear, I do not incorporate those provisions when classifying capital expenditure covenants. That said, those provisions are predominantly present in covenants classified as tailored capital expenditure covenants.

have a state contingent provision and 45 percent a carryforward provision. As a result, about seven percent of the contracts contain both provisions.

Panel B provides descriptive statistics for the hand-collected state contingent provisions. I find that 36 percent of the state contingent provisions are written on EBITDA or cash flow numbers, 19 percent are written on the borrower's debt-to-EBITDA ratio, 12 percent on excess availability in the borrower's credit line, and another 12 percent on revenues. Even fewer contracts make investments contingent on the borrower's liquidity, fixed charge ratio or net income. Last, the other category contains variables such as the borrower's credit rating or net worth.

Panel C provides descriptive statistics for the hand-collected carryforward provisions. I find that the mean carryforward length is about one year, and that on average, 70 percent of the unused amounts in a given year can be carried forward.[14]

4. Empirical analysis

4.1. Econometric specification

To investigate the link between maturity and the type of covenants used in debt contracts, I employ the following regression framework:[15]

$$Covenant\ Type = \alpha_f + \alpha_{cr} + \alpha_l + \alpha_y + \beta_1 Deal\ Maturity + \ \beta_2 Controls + \vartheta. \tag{1}$$

Here, the outcome variable of interest is *Covenant Type*, which is equal to the number of performance or income covenants (*P-Covenants*), the number of capital or balance sheet covenants (*C-Covenants*), the ratio of the number of performance covenants to the sum of

[14] In some cases, contracts stipulate the dollar amounts that can be carried forward. In those cases, I calculate percentages relative to first year maximum allowed capital expenditures.

[15] Consistent with the suggestion in Angrist and Pischke (2009), throughout the paper I use a linear probability model as opposed to a non-linear limited dependent variable model. This allows for the easy interpretation of the coefficients as well as the use of fixed effects in the model.

performance and capital covenants (*Covenant Ratio*), a dummy variable for the existence of a capital expenditure covenant without a state contingent or carryforward provision (*Plain Vanilla Capex*), or a dummy variable for capital expenditure covenants with a state contingent and/or carryforward provision (*Tailored Capex*). α_f is a firm fixed effect that controls for the borrower's type and reduces concerns of borrower-specific time-invariant omitted variables driving the results. α_{cr} is a set of dummy variables for the borrower's credit rating (e.g., AAA, AA+, etc.). α_l is a set of controls that account for the purpose of the loan (e.g., LBO, takeover, or working capital) and the types of facilities that are part of the loan (e.g., revolver, term loan). The explanatory variable of interest is *Deal Maturity*, which, consistent with prior research, is equal to the weighted average loan maturity in a loan deal.[16] I also include a set of controls that are described in more detail below.[17] I winsorize all continuous variables at the 1 percent and 99 percent levels to limit the influence of outliers. Finally, I cluster standard errors at the firm level.

4.2. Control variables

I include controls for a number of firm characteristics that might affect covenant choice (e.g., Demerjian 2011; Christensen and Nikolaev 2012). *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 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

[16] For example, if the loan deal includes a $5 million two-year revolver and a $10 million five-year term loan, then Deal Maturity is equal to 4 years (=2 years * 5/15 + 5 years *10/15).

[17] To ensure that I only use accounting information that is publicly available at the time of a loan, I employ the following procedure: for those deal packages made in calendar year *t*, if the deal activation date is four months or more than the fiscal year ending month in calendar year *t*, I use the data of that fiscal year. If the deal activation date is less than four months after the fiscal year ending month, I use the data from the fiscal year ending in calendar year *t*−1.

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. Finally, I control for the number of previous deals that the borrower has closed with members of the syndicated loan market in the past; firms accessing the syndicated loan market multiple times usually need less monitoring (Sufi 2007), which might affect the type of covenants used in the debt contract. *# Previous Loans* is calculated at the Dealscan level.

I also include controls for a number of loan characteristics that could affect covenant choice. *# Lenders* is equal to the number of banks participating in the lending syndicate. *# Facilities* is equal to the number of different tranches (e.g., credit line, term loan, etc.) included in a particular loan deal. *Deal Amount* is the size of the loan deal and is measured in millions of USD. Last, I 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 the Appendix.

4.3. Descriptive statistics

Table 3 presents descriptive statistics for the full sample. The average loan deal maturity is 44 months. However, there is significant variation as loans in the lower quartile of the *Deal Maturity* distribution have maturities of 31 months or less, whereas those in the highest quartile have maturities of 60 months or more. The values for *P-Covenants*, *C-Covenants*, and *Covenant Ratio* are 1.59, 0.79, and 0.67, respectively. They are similar to the values reported by Christensen and Nikolaev (2012). The mean of *Capex Covenant* is 0.24, suggesting that during the sample period, on average, 24 percent of all contracts include capital expenditure covenants. When I exclude from the sample contracts without detailed capital expenditure information, I find that

11 percent of the contracts have a plain vanilla capital expenditure covenant and about 10 percent a tailored capital expenditure covenant.

To provide a more detailed intuition about how the covenant structure varies with maturity, Table 4 presents mean covenant values per maturity quartile. Contracts in the bottom quartile (*Quartile 1 Maturity*) have an average maturity of about 1.4 years, whereas contracts in the top quartile (*Quartile 4 Maturity*) have an average maturity of about six years. The table shows that the values for *P-Covenants* (*C-Covenants*) monotonically increase (decrease) with maturity. Similarly, the mean values for *Tailored Capex* (*Plain Vanilla Capex*) increase (decrease) with maturity. Overall, Table 4 suggests that there is significant heterogeneity in the composition of covenant packages across maturity quartiles.

4.4. Empirical results – P-Covenants versus C-Covenants

Figure 1a graphically presents the univariate relationship between accounting-based covenants and loan maturity from Table 4. It clearly shows an opposite relationship with loan maturity for capital- and performance-based covenants. As the contract maturity lengthens, performance-based covenants become more common while capital-based covenants become less common. This stark pattern highlights the differing roles of these two types of covenants.

Table 5 reports the multivariate results for how maturity is related to the inclusion of accounting-based covenants. The first column presents results when the number of covenants (*# Covenants*) is the dependent variable. I find no relation between maturity and the number of covenants.[18] However, columns 2 to 4 suggest that the composition of the covenant package significantly varies with maturity. For instance, in column 2, I find that the coefficient on *Deal*

[18] This result contrasts a bit with research in the public bond market. Billett, King, and Mauer (2007) find a positive relation between debt maturity and an aggregate measure of bond-holder covenant protection.

Maturity is positive (0.003) and statistically significant (t-stat 3.76), suggesting that maturity is positively related to the inclusion of *P-Covenants*. In contrast, in column 3, I find that the coefficient on *Deal Maturity* is negative (-0.003) and statistically significant (t-stat -3.99), suggesting that maturity is negatively related to the inclusion of *C-Covenants*. Finally, column 4 further confirms that contracts with longer maturities have a higher *Covenant Ratio*, suggesting that these contracts contain more *P-Covenants* relative to the sum of *P-Covenants* and *C-Covenants*. These findings suggest that as maturity increases and it is more likely that a new investment opportunity comes along, contracting parties settle on performance covenants that allocate decision rights in a state contingent manner, thereby reducing concerns of future over- and under-investment problems.

In this context, it is worth mentioning that the economic effect of maturity on any specific covenant is relatively modest. For example, a one standard deviation increase in loan maturity is associated with an increase in *P-Covenants* of about 4% relative to the sample mean. This is in part explained by the use of a firm-fixed effects specification that eliminates a substantial amount of variation. That said, the effect of loan maturity becomes more material if we consider the effect on the whole covenant package (i.e., P-Covenants, C-Covenants, plain vanilla capex, tailored capex, and dynamic capital expenditure thresholds).

4.5. Empirical results – Plain vanilla versus tailored capital expenditure covenants

Figure 1b graphically presents the univariate relationship between capital expenditure covenant types and loan maturity from Table 4. It clearly illustrates an opposite relationship with loan maturity for plain vanilla and tailored capital expenditure covenants. As the contract maturity lengthens, tailored capital expenditure covenants become more common while plain vanilla capital expenditure covenants become less common. This stark pattern highlights the differing roles of these two types of expenditure covenants.

Table 6 reports the multivariate results for how deal maturity is related to the type of capital expenditure covenant. The first column presents results when *Capex Covenant*, a dummy variable for contracts with a capital expenditure covenant of any type, is the dependent variable. I find that the coefficient on *Deal Maturity* is negative but not statistically significant, suggesting that contracts with longer maturities are (weakly) less likely to have a capital expenditure covenant in general. In columns 2 and 3, I investigate whether maturity is related to the specific design or type of capital expenditure covenant. In column 2, I find that maturity is negatively related to the inclusion of a plain vanilla capital expenditure covenant. The coefficient on *Deal Maturity* is negative (-0.001) and statistically significant (t-stat -3.67). In contrast, in column 3, I find that contracts with longer maturities are more likely to include a tailored capital expenditure covenant. The coefficient on *Deal Maturity* is positive (0.001) and statistically significant (t-stat 2.60).

These findings suggest, that when loan maturity is longer and it is more likely that a new investment opportunity comes along, contracting parties settle on a tailored capital expenditure covenant that reduce concerns of future over- and under-investment problems.

4.6. Within firm-year specification

A concern with the firm-fixed effects specification just presented is that I cannot rule out that firm-specific, time-varying omitted variables might be driving my results. To mitigate this concern, I exploit the fact that some firms issue multiple loans in a given year. For example, TRW Automotive issued two loans in 2003, one in February and the other one in July. This allows me to investigate how loan maturity relates to covenant structure for loans issued by the *same firm* and in the *same year*. For omitted factors to create spurious results in this within firm-year specification, they would have to be correlated with the specific timing of the issuance of the loans during that particular year. Thus, the within firm-year specification should be able to separate covenant structure effects related to maturity from effects that are unrelated to maturity.

To maximize my sample for this test, I conduct it at the Dealscan level without requiring that data be available on Compustat. I only keep firms that issue two or more loans in a given year. Moreover, I hand-collect information about the design of the capital expenditure covenant for the contracts that were not part of my main sample. Unfortunately, however, I can only find contracts with sufficient information for 73 percent of the sample with capital expenditure covenants because many loans are issued by private firms. This somewhat reduces the power of my test. Finally, I rank deal maturity into quartiles and use it as my explanatory variable.[19]

Table 7, Panel A presents the results when *Covenant Ratio* is the dependent variable. Column 1 presents results without controls and suggests a positive relation between loan maturity and *Covenant Ratio*. Column 2 presents a similar relation when including controls for the number of lenders, the number of facilities, and deal amount. Column 3, shows that results hold when also including fixed effects for loan purpose and loan type. This evidence suggests that contracts with the same borrower written in the same year rely relatively more on performance covenants when maturity is longer.

Panel B presents the results when *Plain Vanilla Capex* is the dependent variable. Column 1 presents results without controls and suggests a negative relation between loan maturity and *Plain Vanilla Capex*. Column 2 presents a similar relation when including controls for the number of lenders, the number of facilities, and deal amount. Column 3 shows that results hold

[19] Results using Deal Maturity as a continuous measure are somewhat weaker.

when also including fixed effects for loan purpose and loan type. This evidence suggests that contracts with the same borrower written in the same year rely relatively less on plain vanilla capital expenditures when maturity is longer.

Last, Panel C presents the results when *Tailored Capex* is the dependent variable. Column 1 presents results without controls and suggests a positive relation between loan maturity and *Tailored Capex*. However, in columns 2 and 3, when including additional controls, this relation becomes insignificant. As a result, there is only weak evidence for a positive relation between loan maturity and tailored capital expenditures when using the more demanding within firm-year specification.

5. Additional tests

5.1. Cross-sectional tests based on propensity to face unanticipated investment decisions

To further strengthen the argument that contracting parties select covenants with the purpose of reducing future investment conflicts, I conduct cross-sectional tests based on the borrower's propensity to face unanticipated investment decisions after loan initiation. In particular, I estimate the following model:

$$Covenant\ Type = \alpha_{ind} + \alpha_{cr} + \alpha_l + \alpha_y + \beta_1 Deal\ Maturity + \beta_2 Deal\ Maturity * Unanticipated\ Investment + \beta_3 Unanticipated\ Investment + \beta_4 Controls + \vartheta. \qquad (2)$$

Here, the outcome variable of interest is *Covenant Type*, which is either equal to the ratio of the number of performance covenants to the sum of performance and capital covenants (*Covenant Ratio*) or a dummy variable for capital expenditure covenants with a state contingent and/or carryforward provision (*Tailored Capex*). My prediction is that $\beta_2 > 0$, meaning that for loans issued to borrowers with higher propensity to face unexpected investment decisions, the association between loan maturity and performance or tailored capital expenditure covenants should become stronger. I follow prior research (e.g., Billet, King, and Mauer 2007) and use the market-to-book ratio, investments in research and development activities, and sales growth as proxies for a higher likelihood of future investment considerations (i.e., *Unanticipated Investment*). In particular, I classify borrowers in the following way. First, I expect that firms with higher market-to-book ratios have higher growth opportunities and, therefore, are more likely to face unanticipated investment decisions after loan initiation. Firms with a market-to-book ratio above 2.5 are classified as *High Market-to-Book*, zero otherwise. [20]

Second, I expect that when the borrower engages in research and development activities there is more uncertainty about the profitability and time-horizon of future investments. In those cases, contracting parties are more likely to disagree about the assessment of future investment opportunities, and the state contingent allocation of control rights over investment decisions should be more relevant. Firms with research and development investments above five percent of total assets are classified as *R&D Intensive*, zero otherwise. Finally, I also expect that firms with high sales growth are more likely to face unanticipated investment decisions. Firms with sales growth (relative to the prior year's sales) above 15 percent are classified as *High Sales Growth*, zero otherwise. Fixed effects and control variables are the same as the ones used in equation (1). The exception being that in equation (2), I use industry fixed effects instead of firm fixed effects. This because the use of firm fixed effects renders many of the variables insignificant, essentially purging all the cross-sectional variation.

Table 8, Panel A presents the results when using *High Market-to-Book*, my first proxy for borrowers more likely to face unexpected investment decisions. In column 1, the dependent variable is *Covenant Ratio*. I find that the coefficient on the interaction term *Deal Maturity x High*

[20] My results are qualitatively similar if I use alternative thresholds for *High Market-Book*, *R&D Intensive*, or *High Sales Growth* (as defined below).

Market-to-Book is positive (0.001) and significant (t-stat 2.35), suggesting that when contracts have longer maturities and the borrower is more likely to face investment decisions, contracts rely relatively more on performance covenants. In column 2, the dependent variable is *Tailored Capex*. I find that the coefficient on the interaction term *Deal Maturity x High Market-to-Book* is positive (0.001) and significant (t-stat 1.83), suggesting that when contracts have longer maturities and the borrower is more likely to face unexpected investment decisions, contracts rely relatively more on tailored capex covenants that better deal with investment conflicts. In addition, in Table 8, Panels B and C, I find similar results when using *R&D Intensive* and *High Sales Growth* as the proxies for uncertain and/or unexpected investment decisions, respectively. The exception being, Panel C, column 2 where the coefficient on *Deal Maturity x High Sales Growth* is statistically insignificant.

A point worth discussing is that while the coefficient on the interaction term between deal maturity and unexpected investment decisions is positive, the main effect on unexpected investment decisions is negative. One interpretation for this result, is that in the case of borrowers with, for example, growth opportunities, contracting parties see little need for contingent allocation over future investment decisions when maturity is short. For example, in the case of Panel A column 2, the coefficients of 0.001 on *Deal Maturity x High Market-to-Book* and -0.025 on *High Market-to-Book*, suggests that only for maturities in excess of 25 months, high growth firms rely more on tailored capex covenants than non-high growth firms.

5.2. Incentive alignment and loan maturity

Next, I explore the role of incentive alignment on the choice of covenants. In firms that have a small fraction of debt in their capital structures, the incentives of the managers and debtholders are generally aligned and creditors are less concerned about wealth expropriation. On the other hand, shareholders-managers are likely more reluctant to give stronger control rights to creditors; this potentially allows the creditors to extract rents if covenants are tightened. In this instance, the solution would be to use covenants that ensure incentive alignment by requiring a minimum level of capital to be maintained by the firm through the use of capital covenants. To test this prediction, I estimate the following model:

$$Covenant\ Type = \alpha_{ind} + \alpha_{cr} + \alpha_l + \alpha_y + \beta_1 High\ Incentive\ Alignment + \beta_2 Deal\ Maturity * High\ Incentive\ Alignment + \beta_3 Deal\ Maturity + \beta_4 Controls + \vartheta. \quad (3)$$

Here, the outcome variable of interest is *Covenant Type*, which is either equal to *Covenant Ratio* or *Tailored Capex* as defined before. My prediction is that $\beta_1 < 0$, meaning that for loans issued to borrowers with high incentive alignment, there is less need to contract on performance covenants or tailored capital expenditure covenants. However, this relationship should be attenuated as the likelihood of a change in incentive alignment or capital structure increases with maturity (i.e., $\beta_2 > 0$). To deal with a potential deterioration in incentive alignment over time, contracting parties should increasingly rely on performance covenants or tailored capital expenditure covenants. I classify borrowers with a leverage ratio in the bottom quartile of the sample as *High Incentive Alignment*, zero otherwise. Table 9, columns 1 and 2 present the results when *Covenant Ratio* and *Tailored Capex* are the dependent variables, respectively. In both cases, results are consistent with my predictions.

5.3. Robustness tests

5.3.1. Sample restricted to contracts with a capital expenditure covenant

I start by restricting the sample to only those contracts that have a capital expenditure covenant. This sample restriction reduces the concern that my previous results might somehow be driven by the inclusion of contracts that do not have a capital expenditure covenant. Moreover, it allows me to conduct tests related to variation in dynamic capital expenditure thresholds in debt contracts.

Table 10, Panel A presents descriptive statistics for how different covenant values vary by maturity quartile for this subsample. Similar to Table 4, I find that the values for *P-Covenants* (*C-Covenants*) monotonically increase (decrease) as contracts have longer maturities. Similarly, the mean values for *Tailored Capex* (*Plain Vanilla Capex*) increase (decrease) with maturity. For instance, in quartile 1 (short maturity) 76 percent of the contracts have a *Plain Vanilla Capex*, whereas 24 percent of the contracts have a *Tailored Capex*. This contrasts with the values in quartile 4 (long maturity) where only 19 percent of the contracts have a *Plain Vanilla Capex* but 81 percent of the contracts have a *Tailored Capex*. The table also shows that contracts with longer maturities include more frequently a performance pricing provision.

Panel A also provides evidence about whether the thresholds for maximum allowable capital expenditures vary over time. Similar to Li, Vasvari, and Wittenberg Moerman (2016), who document variation in earnings-based covenant thresholds, I find significant variation in expenditure covenant thresholds. In particular, capital expenditure thresholds can be increasing (*Loosening Capex Threshold*), constant (*Fixed Capex Threshold*) or decreasing (*Tightening Capex Threshold*) over time. The capital expenditure restriction contained in the December 9, 2010 credit agreement for Morton's of Chicago Inc. illustrates a capital expenditure covenant with an increasing threshold (*Loosening Capex Threshold*) and a carryforward provision:

> *Maximum Consolidated Capital Expenditures. Holdings shall not, and shall not permit its Subsidiaries to, make or incur Consolidated Capital Expenditures, in any Fiscal Year indicated below … in excess of the corresponding amount set forth below opposite such Fiscal Year; provided, such amount for any Fiscal Year shall be increased by an amount equal to the excess, if any, of such amount for the previous Fiscal Year … over the actual amount of Consolidated Capital Expenditures for such previous Fiscal Year:*

Fiscal Year	*Capital Expenditures*
January 2, 2011	*$9,000,000.00*
January 1, 2012	*$14,000,000.00*
December 30, 2012	*$19,000,000.00*
December 29, 2013	*$24,000,000.00*
December 28, 2014	*$29,000,000.00*
December 27, 2015	*$31,000,000.00*

I find that loosening capital expenditure thresholds are more frequent in contracts with longer maturities although there is also some weaker evidence that this might be true for tightening capital expenditure thresholds.[21] In contrast, I find that constant capital expenditure thresholds are more prevalent in contracts with shorter maturities. Overall, Panel A suggests that even in the subsample restricted to contracts with a capital expenditure restriction, there is significant heterogeneity in the composition of covenant packages across maturity quartiles.

In Panels B and C, I present multivariate regression results. Because the sample is relatively small and there are fewer observations per firm (relative to the full sample), in Panel B, I start by presenting results using equation 1 but by excluding firm-fixed effects (and including industry fixed effects). Consistent with my previous results, I find that contracts with longer maturities are positively related to *Covenant Ratio* and *Tailored Capex* but negatively related to *Plain Vanilla Capex*. In addition, columns 4 and 5 suggest that both *Capex State Contingent Provision* and *Capex Carryforward Provision* are more prevalent in contracts with longer maturities. Finally, in column 6, I find that maturity is positively related to *Loosening Capex Threshold*. This result is consistent with the prediction in Garleanu and Zwiebel (2009) that in the presence of greater agency concerns (as in the case of longer maturities), contracts will be tighter at loan inception and subsequently loosen up.

[21] For the purpose of the threshold analysis, I exclude contracts with a state contingent provision or when the trend is unclear. In the case of the state contingent provision, the trend depends on the borrower's future performance or financial condition.

In Panel C, I present results using the same firm-fixed effects specification described in equation 1. The results are similar to Panel B except that the coefficients in columns 1 (*Covenant Ratio*), 4 (*Capex State Contingent Provision*) and 6 (*Loosening Capex Threshold*) are no longer statistically significant. Collectively, Table 8 further supports the notion that variation in loan maturity affects the choice of covenants.

5.3.2. Excluding contracts with shorter maturities

One concern with the analysis is that for short-term contracts (contracts maturing in a year or less), there is little scope to tailor capital expenditure covenants and make them contingent on cumulative performance. Short maturity means that there is little or no room to use performance carryforward provisions. Similarly, for short-term debt, there is little value in control allocations contingent on performance because creditors gain unconditional control once the loan is due. To rule out a potentially mechanical aspect to some of the results, in untabulated tests, I show that the results are not sensitive to the exclusion of short-term debt.

5.3.3. Covenant strictness

My analysis implicitly assumes that covenants are set with a similar degree of strictness at loan initiation. However, contracting parties could set covenants tighter giving lenders more control rights or looser giving borrowers more flexibility. To measure the link between loan maturity and the covenant strictness of accounting-based covenants, I use the measures developed by Demerjian and Owens (2016).[22] Table 11, column 1 presents the results. I find virtually no relation between maturity and covenant strictness. Moreover, in columns 2 and 3, I use the covenant strictness of P-Covenants (*P-Covenant Strictness)* and C-Covenants (*C-Covenant*

[22] I downloaded the covenant strictness estimates from Peter Demerjian's website (faculty.washington.edu/pdemerj).

Strictness), respectively. Again, I find no significant relationship. Overall, this result suggests that contracting parties primarily rely on the choice of covenants to allocate control rights in contracts with longer maturities.

6. Conclusion

I study how debt agreements allocate control rights over future investment decisions in the context of prior theory, which suggests that conflicts of interest between borrowers and lenders increase with debt maturity because it is more likely than an investment opportunity will arise before the debt is repaid. Consistent with income statement-based (balance sheet-based) covenants being more (less) efficient in allocating control rights over future investment decisions, I find that debt contracts with longer maturities have more (fewer) performance (capital) covenants. Moreover, using a novel dataset with detailed information about the design of capital expenditure covenants, I find that debt contracts with longer maturities mitigate investment inefficiencies by including tailored capital expenditure covenants that (1) allocate control rights over investments contingent on the borrower's performance (e.g., EBITDA or revenues), (2) allow the borrower to carryforward unused capital expenditure amounts to future periods, and/or (3) include dynamic capital expenditure thresholds that are tighter at loan inception but subsequently loosen up. Additionally, I find that the association between loan maturity and the inclusion of performance and tailored capital expenditure covenants becomes stronger when the borrower has a higher propensity to face unexpected investment decisions. Collectively, these results imply that contracting parties select different accounting-based and capital expenditure covenants at contract initiation as investment conflicts vary with loan maturity.

This study makes two primary contributions. First, this study contributes to the literature by documenting how debt agreements allocate control rights over future investment decisions. I provide evidence that contracting parties select different accounting-based and capital expenditure covenants at contract initiation as investment conflicts vary with loan maturity. I find that for longer maturities, debt contracts have more covenants that are directly linked to the current performance of the borrower and have tailored capital expenditure covenants. As a result, my findings address the call in Skinner (2011) and Christensen, Nikolaev, and Wittenberg-Moerman (2016) to understand better the channels through which covenants facilitate contracting.

Second, this study also adds to prior research that documents that income statement and balance sheet variables are used for different purposes in debt contracts (Demerjian, 2011; Christensen and Nikolaev 2012; Saavedra 2017). In addition, to explore a new research question, I provide detailed evidence that accounting variables are also used in the design of capital expenditure covenants. Prior research on this restriction did not explore the extent to which accounting metrics are used to customize the capital expenditure covenant (Nini, Smith, and Sufi 2009). I find that most state contingent provisions in capital expenditure restrictions are conditional on income statement or performance variables. These findings further shed light on ways in which accounting improves contracting efficiency (Watts and Zimmerman 1986; Christensen et. al. 2016).

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Appendix: Variable Definitions

<u>Covenants and Other Terms</u>

# Covenants	The total number of covenants in a loan contract.
P-Covenants	Number of performance-based covenants is defined as the sum of (1) the cash interest coverage ratio, (2) the debt service coverage ratio, (3) the level of EBITDA, (4) the fixed-charge coverage ratio, (5) the interest coverage ratio, (6) the ratio of debt to EBITDA, and (7) the ratio of senior debt to EBITDA.
C-Covenants	Number of capital-based covenants is defined as the sum of (1) the quick ratio, (2) the current ratio, (3) the debt-to-equity ratio, (4) the loan-to-value ratio, (5) the ratio of debt to tangible net worth ratio, (6) the leverage ratio, (7) the senior leverage ratio, and (8) the net worth requirement.
Covenant Ratio	The fraction of covenants that are P-Covenants calculated as P-Covenants / (P-Covenants + C-Covenants).
Capex Covenant:	Dummy variable equal to one if the contract includes a capital expenditure covenant, zero otherwise.
Plain Vanilla Capex:	Dummy variable equal to one if the capex covenant has no carry forward provision and/or state contingent provision, zero otherwise.
Tailored Capex:	Dummy variable equal to one if the capex covenant has a carry forward provision and/or a state contingent provision, zero otherwise.
State Contingent Capex:	Dummy variable equal to one if the capital expenditures are linked to the current performance or financial condition of the borrower, zero otherwise.
Capex Carryfor. Provision:	Dummy variable equal to one if the capital expenditures can be carried forward, zero otherwise.
Loosening Capex Thresh.	Dummy variable equal to one if capital expenditure thresholds are increasing over time, zero otherwise.
Fixed Capex Thresh.	Dummy variable equal to one if capital expenditure thresholds are constant over time, zero otherwise.
Tightening Capex Thresh.	Dummy variable equal to one if capital expenditure thresholds are decreasing over time, zero otherwise.

Loan Maturity

Deal Maturity:	The weighted maturity of all facilities in the loan, which is measured in months.

Controls

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.
#Lenders:	Number of banks participating in the lending syndicate.
#Previous Deals:	Equal to the number of previous loans issued by the borrower.
#Facilities:	The number of different facilities included in the loan deal.
Deal Amount:	The deal amount measured in millions of dollars.

Cross-sectional Variables

High Market-to-Book:	Dummy equal to one if the borrower has a market-to-book ratio above 2.5, zero otherwise.
R&D Intensive:	Dummy equal to one if the borrower has research and development investments above five percent of total assets, zero otherwise.
High Sales Growth:	Dummy equal to one if the borrower has sales growth (relative to the prior year's sales) above 15 percent, zero otherwise.
High Incentive Alignment:	Dummy equal to one if the borrower has a leverage ratio in the bottom quartile of the sample, zero otherwise.

Figure 1
Covenant Types by Maturity Quartiles

Figure 1A: Mean Values for Accounting-based Covenants

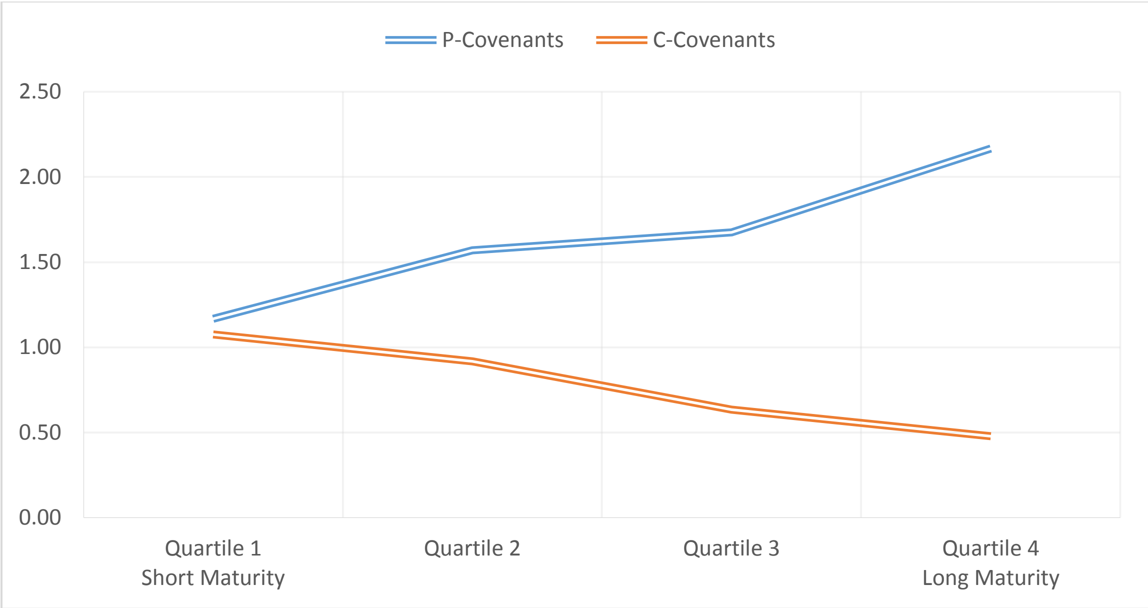

Figure 1B: Mean Values for Capital Expenditure Covenant Types

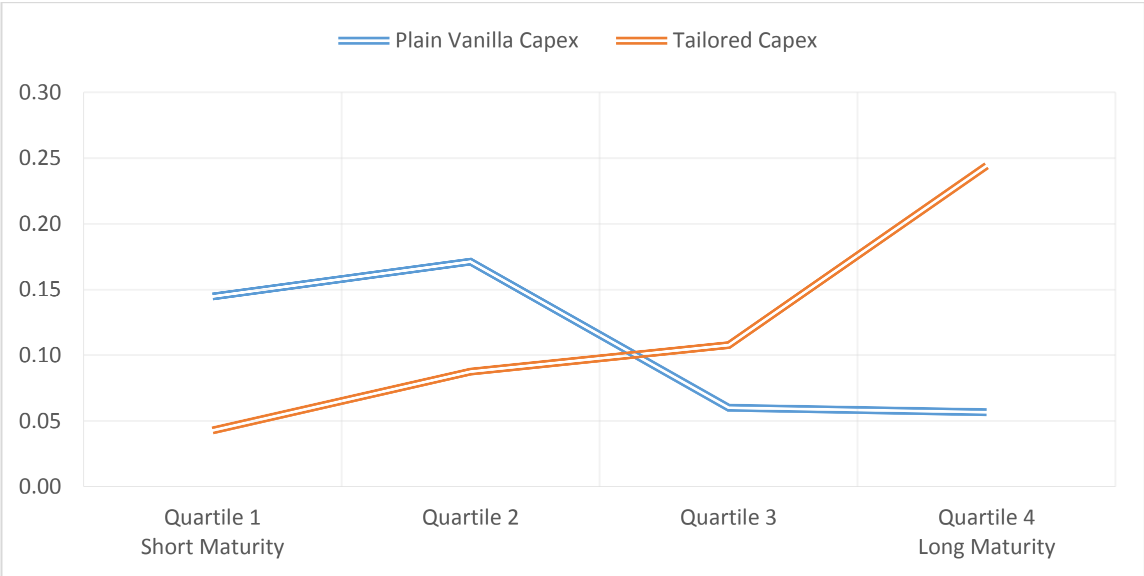

Figure 1. The table presents graphical evidence about how accounting-based and capital expenditure covenant types vary across deal maturity quartiles. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. All variables are described in the appendix.

Table 1: Sample Selection

Loan Packages with non-missing covenants between 1995 and 2012	19,855
Excluding loan packages with missing deal maturity and control variables	-7,051
Excluding financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999)	-1,758
Full Sample	**11,046**
Contracts with Capex Covenant	**2,646**
Contracts with Info about design of Capex Covenant	**2,274**

Table 1. The table presents the sample selection.

Table 2: Descriptive Statistics Design of Capital Expenditure Covenant

Panel A: Distribution by Capital Expenditure Covenant Type

Variable	N	Mean
Plain Vanilla Capex	2,274	0.51
Tailored Capex	2,274	0.49
Capex State Contingent Provision	2,274	0.11
Capex Carryforward Provision	2,274	0.45

Panel B: Variables used in State Contingent Provision

State Contingent Variable	**N**	**Percentage**
EBITDA/Cash Flows	250	36%
Debt-to-EBITDA	250	19%
Excess Availability	250	12%
Revenues	250	12%
Liquidity	250	4%
Fixed Charge Ratio	250	4%
Net Income	250	3%
Other	250	9%

Panel C: Features Carryforward Provision

Feature	**N**	**Mean**
Length of Carryforward (in years)	1,017	1.07
Max. % of unused capex that can be carried forward	1,017	0.70

Table 2. The table presents descriptive statistics for the hand-collected subsample of 2,274 contracts with detailed information about the design of the capital expenditure covenant. Panel A presents the distribution by capital expenditure covenant type. Panel B describes the variables used in the state contingent capital expenditure provision. Panel C provides details about the structure of the carryforward provision in capital expenditure covenants.

Table 3: Descriptive Statistics

Variable	N	Mean	Median	Std Dev	25th Pctl	75th Pctl
Deal Maturity (in months)	11,046	44.09	44.39	20.12	31.00	60.00
# Covenants	11,046	2.63	3.00	1.13	2.00	3.00
P-Covenants	11,046	1.59	2.00	0.96	1.00	2.00
C-Covenants	11,046	0.79	1.00	0.85	0.00	1.00
Covenant Ratio	10,933	0.67	0.67	0.35	0.50	1.00
Capex Covenant	11,048	0.24	0.00	0.43	0.00	0.00
Plain Vanilla Capex	10,674	0.11	0.00	0.31	0.00	0.00
Tailored Capex	10,674	0.10	0.00	0.31	0.00	0.00
Capex State Contingent Provision	10,674	0.02	0.00	0.15	0.00	0.00
Capex Carryforward Provision	10,674	0.10	0.00	0.29	0.00	0.00
Leverage	11,046	0.28	0.26	0.21	0.12	0.40
Size	11,046	6.42	6.41	1.76	5.18	7.61
Market to Book	11,046	1.71	1.42	0.97	1.11	1.95
Profitability	11,046	0.10	0.10	0.10	0.05	0.16
Cash Flow Volatility	11,046	0.07	0.04	0.09	0.02	0.08
Not Rated	11,046	0.58	1.00	0.49	0.00	1.00
# Lenders	11,046	8.15	6.00	8.31	2.00	11.00
# Previous Deals	11,046	4.91	4.00	4.35	2.00	7.00
# Facilities	11,046	2.79	1.00	3.29	1.00	4.00
Deal Amount (in millions)	11,046	404.61	160.00	664.42	50.00	450.00

Table 3. The table reports descriptive statistics for the variables used in the sample. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. All variables are described in the appendix. All continuous variables are winsorized at the 1% level.

Table 4: Distribution of Covenants by Maturity Quartiles

	Quartile 1 Maturity	Quartile 2 Maturity	Quartile 3 Maturity	Quartile 4 Maturity
	Mean	**Mean**	**Mean**	**Mean**
Deal Maturity (months)	17.15	36.74	56.70	73.38
# Covenants	2.46	2.77	2.50	3.01
P-Covenants	1.17	1.57	1.67	2.17
C-Covenants	1.08	0.92	0.63	0.48
Covenant Ratio	0.52	0.64	0.74	0.83
Capex Covenant	0.22	0.28	0.19	0.35
Plain Vanilla Capex	0.14	0.17	0.06	0.06
Tailored Capex	0.04	0.09	0.11	0.24
Capex State Contingent Provision	0.01	0.02	0.03	0.06
Capex Carryforward Provision	0.04	0.08	0.10	0.23

Table 4. The table presents descriptive statistics about covenant structure across deal maturity quartiles. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. All variables are described in the appendix. All continuous variables are winsorized at the 1% level.

Table 5: Maturity and Accounting-Based Covenants

Dependent Variable =	*# Covenants*	*P-Covenants*	*C-Covenants*	*Covenant Ratio*
	(1)	(2)	(3)	(4)
Deal Maturity	**0.000**	**0.003*** **	**-0.003*** **	**0.001*** **
	(0.26)	(3.76)	(-3.99)	(3.70)
Leverage	0.114	0.260**	-0.313***	0.140***
	(0.85)	(2.35)	(-3.87)	(4.26)
Size	-0.034	-0.007	0.009	-0.029***
	(-0.79)	(-0.19)	(0.36)	(-2.67)
Market-to-book	-0.040	-0.029	0.020	-0.008
	(-1.57)	(-1.44)	(1.24)	(-1.27)
Profitability	0.039	0.263	-0.013	0.024
	(0.16)	(1.47)	(-0.09)	(0.43)
Cash Flow Volatility	-0.204	-0.042	-0.123	0.030
	(-0.85)	(-0.21)	(-0.80)	(0.51)
Not Rated	0.086	0.055	-0.021	-0.005
	(0.86)	(0.70)	(-0.33)	(-0.21)
# Lenders	0.002	0.004**	-0.002	0.001
	(0.80)	(2.21)	(-1.15)	(1.33)
# Previous Deals	0.001	-0.013	0.019**	-0.004
	(0.08)	(-1.24)	(2.31)	(-1.08)
# Facilities	0.009	0.005	0.004	-0.001
	(1.44)	(1.04)	(1.11)	(-0.54)
Log (Deal Amount)	0.018	0.085***	-0.060***	0.034***
	(0.65)	(3.46)	(-3.10)	(4.48)
Fixed Effects				
Firm	Yes	Yes	Yes	Yes
Credit Rating	Yes	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes	Yes
Loan Type	Yes	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
N	11,046	11,046	11,046	10,933
R-Squared	0.674	0.731	0.763	0.794

Table 5. The table investigates whether deal maturity affects the inclusion of accounting-based covenants in debt contracts. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. All variables are described in the appendix. All continuous variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 6: Maturity and Capital Expenditure Covenant Types

Dependent Variable =	***Capex Covenant***	***Plain Vanilla Capex***	***Tailored Capex***
	(1)	(2)	(3)
Deal Maturity	**-0.001**	**-0.001*****	**0.001*****
	(-1.62)	(-3.67)	(2.60)
Leverage	0.162***	0.098**	0.060
	(2.93)	(2.23)	(1.27)
Size	-0.040**	-0.020*	-0.022*
	(-2.51)	(-1.65)	(-1.79)
Market-to-book	-0.030***	-0.021***	-0.008
	(-3.11)	(-2.59)	(-1.13)
Profitability	-0.192**	0.036	-0.196***
	(-2.03)	(0.44)	(-2.65)
Cash Flow Volatility	-0.033	-0.009	-0.004
	(-0.34)	(-0.11)	(-0.06)
Not Rated	0.054	0.017	0.036
	(1.41)	(0.66)	(1.07)
# Lenders	-0.001	-0.000	-0.000
	(-0.59)	(-0.26)	(-0.06)
# Previous Deals	-0.004	-0.004	-0.001
	(-0.92)	(-1.33)	(-0.33)
# Facilities	-0.002	-0.001	0.000
	(-0.72)	(-0.30)	(0.18)
Log (Deal Amount)	-0.005	-0.020**	0.016*
	(-0.46)	(-2.44)	(1.84)
Fixed Effects			
Firm	Yes	Yes	Yes
Credit Rating	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes
Loan Type	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes
Year	Yes	Yes	Yes
N	11,046	10,674	10,674
R-Squared	0.652	0.609	0.570

Table 6. The table investigates whether deal maturity affects the type of capital expenditure covenant included in debt contracts. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. All variables are described in the appendix. All continuous variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 7: Within Firm-Year Specification

Panel A: Covenant Ratio

Dependent Variable =	***Covenant Ratio***	***Covenant Ratio***	***Covenant Ratio***
	(1)	(2)	(3)
Deal Maturity (Quartiles)	**0.018****	**0.015***	**0.014***
	(2.39)	(1.91)	(1.77)
# Lenders		0.000	0.001
		(0.49)	(0.98)
# Facilities		-0.001	-0.002
		(-0.35)	(-1.12)
Log (Deal Amount)		0.011	0.009
		(1.26)	(1.03)
Fixed Effects			
Firm-Year	Yes	Yes	Yes
Loan Purpose	No	No	Yes
Loan Type	No	No	Yes
N	3,429	3,429	3,429
R-Squared	0.915	0.916	0.917

Panel B: Plain Vanilla Capex

Dependent Variable =	***Plain Vanilla Capex***	***Plain Vanilla Capex***	***Plain Vanilla Capex***
	(1)	(2)	(3)
Deal Maturity (Quartiles)	**-0.013***	**-0.013***	**-0.017***
	(-1.94)	(-1.73)	(-1.79)
# Lenders		0.000	-0.000
		(0.14)	(-0.03)
# Facilities		0.000	-0.000
		(0.20)	(-0.22)
Log (Deal Amount)		-0.003	-0.004
		(-0.37)	(-0.57)
Fixed Effects			
Firm-Year	Yes	Yes	Yes
Loan Purpose	No	No	Yes
Loan Type	No	No	Yes
N	3,258	3,258	3,258
R-Squared	0.828	0.828	0.831

Panel C: Tailored Capex

Dependent Variable =	***Tailored Capex***	***Tailored Capex***	***Tailored Capex***
	(1)	(2)	(3)
Deal Maturity (Quartiles)	**0.018****	**0.011**	**0.003**
	(2.06)	(1.11)	(0.30)
# Lenders		-0.001	-0.001
		(-0.59)	(-0.45)
# Facilities		0.002	-0.002
		(0.89)	(-0.57)
Log (Deal Amount)		0.028***	0.023**
		(2.88)	(2.28)
Fixed Effects			
Firm-Year	Yes	Yes	Yes
Loan Purpose	No	No	Yes
Loan Type	No	No	Yes
N	3,258	3,258	3,258
R-Squared	0.834	0.837	0.844

Table 7. The table investigates whether deal maturity affects the types of accounting-based and capital expenditure covenants in debt contracts using a within firm-year specification. This analysis is conducted at the Dealscan level. I exclude observations with missing values for control variables. All variables are described in the appendix. All continuous variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 8: Tests based on propensity to face unanticipated investment decisions

Panel A: High Market-to-Book

Dependent Variable =	***Covenant Ratio***	***Tailored Capex***
	(1)	(2)
Deal Maturity	0.002***	0.001***
	(7.09)	(4.83)
Deal Maturity x High Market-to-Book	**0.001****	**0.001***
	(2.35)	(1.83)
High Market-to-Book	-0.036	-0.025*
	(-1.38)	(-1.79)
All Controls	Yes	Yes
Fixed Effects		
Industry	Yes	Yes
Credit Rating	Yes	Yes
Loan Purpose	Yes	Yes
Loan Type	Yes	Yes
Macro Interest Rates	Yes	Yes
Year	Yes	Yes
N	10,933	10,674
R-Squared	0.356	0.169

Panel B: R&D Intensity

Dependent Variable =	***Covenant Ratio***	***Tailored Capex***
	(1)	(2)
Deal Maturity	0.001***	0.001***
	(5.96)	(4.78)
Deal Maturity x R&D Intensive	**0.004*****	**0.001****
	(7.12)	(2.34)
R&D Intensive	-0.182***	-0.027*
	(-6.69)	(-1.74)
All Controls	Yes	Yes
Fixed Effects		
Industry	Yes	Yes
Credit Rating	Yes	Yes
Loan Purpose	Yes	Yes
Loan Type	Yes	Yes
Macro Interest Rates	Yes	Yes
Year	Yes	Yes
N	10,933	10,674
R-Squared	0.361	0.169

Panel C: High Sales Growth

Dependent Variable =	***Covenant Ratio***	***Tailored Capex***
	(1)	(2)
Deal Maturity	0.001***	0.001***
	(5.96)	(4.98)
Deal Maturity x High Sales Growth	**0.001****	**-0.000**
	(1.99)	(-0.86)
High Sales Growth	-0.043***	-0.004
	(-2.59)	(-0.34)
All Controls	Yes	Yes
Fixed Effects		
Industry	Yes	Yes
Credit Rating	Yes	Yes
Loan Purpose	Yes	Yes
Loan Type	Yes	Yes
Macro Interest Rates	Yes	Yes
Year	Yes	Yes
N	10,914	10,657
R-Squared	0.357	0.169

Table 8. The table investigates whether the relation between deal maturity and covenant design becomes stronger for borrowers with more complex investments. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. *R&D Intensive* is a dummy variable equal to one for borrowers with a ratio of R&D to total assets greater or equal to ten percent, zero otherwise. All variables are described in the appendix. All continuous variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 9: Incentive Alignment and Maturity

Dependent Variable =	***Covenant Ratio***	***Tailored Capex***
	(1)	(2)
High Incentive Alignment	**-0.173*** **	**-0.034*** **
	(-8.86)	(-2.64)
Deal Maturity x High Incentive Alignment	**0.003*** **	**0.001** **
	(7.67)	(2.09)
Deal Maturity	0.001***	0.001***
	(4.58)	(4.29)
All Controls	Yes	Yes
Fixed Effects		
Industry	Yes	Yes
Credit Rating	Yes	Yes
Loan Purpose	Yes	Yes
Loan Type	Yes	Yes
Macro Interest Rates	Yes	Yes
Year	Yes	Yes
N	10,933	10,674
R-Squared	0.356	0.168

Table 9. The table investigates the effect of incentive alignment and maturity on covenant choice. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. All variables are described in the appendix. All continuous variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 10: Sample Restricted to Contracts with a Capital Expenditure Covenant

Panel A: Descriptive Statistics

	Quartile 1 Maturity	Quartile 2 Maturity	Quartile 3 Maturity	Quartile 4 Maturity
	Mean	**Mean**	**Mean**	**Mean**
Maturity (months)	19.97	36.55	54.95	72.58
# Covenants	3.34	3.35	3.46	3.71
P-Covenants	1.58	1.71	2.07	2.46
C-Covenants	0.76	0.64	0.38	0.23
Covenant Ratio	0.70	0.75	0.87	0.93
Plain Vanilla Capex	0.76	0.67	0.37	0.19
Tailored Capex	0.24	0.33	0.63	0.81
Capex State Contingent Provision	0.06	0.05	0.16	0.18
Capex Carryforward Provision	0.20	0.30	0.57	0.78
Loosening Capex Threshold	0.16	0.26	0.26	0.38
Fixed Capex Threshold	0.73	0.62	0.61	0.47
Tightening Capex Threshold	0.11	0.12	0.14	0.17

Panel B: Cross-sectional Tests

Dependent Variable =	***Covenant Ratio***	***Plain Vanilla Capex***	***Tailored Capex***	***Capex State Contingent Provision***	***Capex Carryforward Provision***	***Loosening Capex Threshold***
	(1)	(2)	(3)	(4)	(5)	(6)
Deal Maturity	**0.002*** **	**-0.006*** **	**0.006*** **	**0.001*** **	**0.006*** **	**0.002*** **
	(5.69)	(-9.32)	(9.32)	(2.65)	(9.12)	(3.04)
All Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects						
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating	Yes	Yes	Yes	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type	Yes	Yes	Yes	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	2,533	2,274	2,274	2,274	2,274	1,722
R-Squared	0.335	0.372	0.372	0.133	0.354	0.130

Panel C: Within-firm Tests

Dependent Variable =	***Covenant Ratio***	***Plain Vanilla Capex***	***Tailored Capex***	***Capex State Contingent Provision***	***Capex Carryforward Provision***	***Loosening Capex Threshold***
	(1)	(2)	(3)	(4)	(5)	(6)
Deal Maturity	**0.001**	**-0.003****	**0.003****	**0.001**	**0.003****	**0.001**
	(1.61)	(-2.19)	(2.19)	(0.84)	(2.20)	(0.24)
All Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects						
Firm	Yes	Yes	Yes	Yes	Yes	Yes
Credit Rating	Yes	Yes	Yes	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type	Yes	Yes	Yes	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	2,533	2,274	2,274	2,274	2,274	1,722
R-Squared	0.869	0.838	0.838	0.754	0.842	0.798

Table 10. The table investigates whether deal maturity affects covenant choice when the sample is restricted to only contracts that have a capital expenditure covenant. Panel A presents descriptive statistics by maturity quartile. Panel B presents regression results when including industry fixed effects. Panel C presents regression results when including firm fixed effects. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. All variables are described in the appendix. All continuous variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.

Table 11: Covenant Strictness

Dependent Variable =	***Covenant Strictness***	***P-Covenant Strictness***	***C-Covenant Strictness***
	(1)	(2)	(3)
Deal Maturity	**0.000**	**0.000**	**-0.000**
	(0.23)	(0.03)	(-0.69)
All Controls	Yes	Yes	Yes
Fixed Effects			
Firm	Yes	Yes	Yes
Credit Rating	Yes	Yes	Yes
Loan Purpose	Yes	Yes	Yes
Loan Type	Yes	Yes	Yes
Macro Interest Rates	Yes	Yes	Yes
Year	Yes	Yes	Yes
N	9,470	9,470	9,470
R-Squared	0.636	0.642	0.598

Table 11. The table investigates whether deal maturity affects covenant strictness. Following previous research, I exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999). I exclude firm-years with missing values for control variables. All variables are described in the appendix. All continuous variables are winsorized at the 1% level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, two-tailed, respectively.