“An Empirical Exploration of Financial Covenants in Large Bank Loans”

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AN EMPIRICAL EXPLORATION OF FINANCIAL COVENANTS IN LARGE BANK LOANS[1]

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Abstract

Financial covenants in large bank loans are used to study how banks use contractual restrictions to reduce potential agency problems and financial distress costs. Using an extensive database developed from bank loan contracts written between 1992 and 1994, we find that financial covenant use and "tightness" are affected by potential agency problems, information asymmetries, incentives to monitor, and growth opportunities. Consistent with previous research, collateral signals higher risk is associated with more covenants. Other factors affecting covenant tightness, which have been elusive in the literature due to a general lack of data, are reported.

Key words: Covenants, Bank Loans, Loan Contracting, Agency Problems, Debt Covenants.
JEL classification: G21

1. Introduction

Borrowing firms pose a variety of information problems to potential lenders. Since these information problems are particular to the borrower, they often are addressed with a unique debt contract that maximizes the value of the borrowing firm and the value of the debt contract itself, *ex ante*. One way a borrower and lender may tailor a debt contract is with the use of covenants -- restrictions placed upon the borrower's behavior. Covenants vary in accordance with firm-specific characteristics (Apilado and Millington, 1992; Berlin and Loeys, 1988; Berlin and Mester, 1992; Carey, 1996; Carey, Prowse, Rea and Udell, 1993; Diamond, 1991; Gompers and Lerner, 1996; Malitz, 1988; Nash Netter and Poulson, 1997; Smith and Warner, 1979; and others).

Smith and Warner's (1979) costly-contracting theory predicts that because contract negotiation and enforcement are costly, covenants will be included only when the benefits of restricting activity are greater than the costs. Because the cost of monitoring and incentives to pursue opportunistic behavior vary, the optimal set of restrictions differs across borrowers and lenders. Covenants appear to be written with the highest level of specificity in commercial loan contracts. Relatively little is known about the specifics of covenant structure and activity in medium-to-large bank loans, however.

Motivations for attaching covenants to a loan include asymmetric information, incentives to monitor, financial distress, and potential agency problems. Existing studies have examined how covenants address the severity of these problems by focusing on whether a particular covenant is attached or whether a package of covenants is attached. One study in the literature (Apilado and Millington, 1992) has examined covenant breadth, but the loan sample is limited to one geographic area. Financial covenants are non-standard, non-boilerplate covenants and are written in accordance with borrower- and contract-specific characteristics. To our knowledge, there exists no research about the factors affecting financial covenant breadth in the private debt market.

Other studies of financial covenants have concentrated on a particular covenant's appearance in a yes/no fashion. However, a covenant's existence alone may be insufficient in controlling potential problems, especially if it is leniently written. The costly-contracting theory predicts that financial covenants will be more restrictive as problems or potential problems become more severe. There is no research in this area, primarily due to a lack of data.

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[1] An earlier version of this paper was presented at Pepperdine University, Temple University, St. Joseph's University, Penn State University at The Behrend College, and The University of Kentucky. The authors would like to thank participants at these presentations for their helpful comments.

We created a database of 238 large bank loans to study these issues. Using the database we identify 6 classes and 28 types of financial covenants in our sample and report on their frequencies. We then examine the factors affecting financial covenant presence, breadth, and restrictiveness.

This paper is in seven sections. The next section briefly reviews the theoretical and empirical literature on covenants. Section 3 describes the methods employed. Section 4 describes the sample, while Section 5 presents some summary statistics. Section 6 presents regression results for financial covenants, and Section 7 offers concluding remarks.

2. Covenants in the Literature

Most debt contracts contain standard provisions known as covenants. Covenants are restrictions that specify minimum standards for a borrower's future conduct and performance and typically accelerate the maturity of the loan in the event of a violation. Violation of covenants gives debtholders an opportunity to intervene either through forced bankruptcy, a renegotiated restructuring, or the imposition of additional constraints on firm behavior. In this context, covenants are serving the *ex post* role of permitting bondholders to intervene after the consequences of the firm's strategies have been revealed. Covenants also play an *ex ante* role by restricting the ability of stockholders to engage in strategies designed to expropriate wealth from bondholders or in actions that are detrimental to debtholders.

The decision to include a covenant or combination of covenants in a debt contract depends on the relative costs and benefits. A covenant's benefit depends on the severity of agency problems within the firm and the ability of the covenant to control those problems. The covenant's costs include the expense of writing and enforcing the covenant plus the expected cost that results when the covenant inappropriately restricts actions that would otherwise maximize firm value (Berlin and Mester, 1992).

Smith and Warner (1979) report that almost all of the covenants they observe in their sample of 87 public debt contracts tend to follow the standard boilerplates set out in *Commentaries*[1]. This standardization is expected to reduce the costs of writing and enforcing the covenants relative to restrictions that are tailor-made for a particular firm[2]. When higher-cost tailor-made covenants are used, there must be some offsetting gain to warrant this additional expense.

Carey et al. (1993) identify the scale and scope of information problems as driving forces that determine the market in which a firm borrows. Diamond's model (1991) suggests that information-problematic firms will have covenants attached to their debt until they build a sufficiently strong "reputation" that helps attenuate moral hazard problems and lets the firm borrow more cheaply.

Rajan and Winton (1995) emphasize the incentive to monitor as a motivating factor for attaching covenants to a loan. When banks lend, other stakeholders free ride on the control and monitoring functions of the bank. These stakeholders are able to generate information, albeit noisy information, about the borrower's financial characteristics. Nonetheless, the information-gathering process of these creditors reduces the bank's incentive to monitor. Covenants therefore give the bank an incentive to monitor, since the bank's payoff can decrease if it does not monitor.

Park (2000) also considers the incentive to monitor as a motivating factor for covenant inclusion. In Park's model, the senior lender's incentive to monitor becomes weaker as more senior debt appears in the capital structure. A bigger contribution from the senior lender increases its share of the firm's going-concern value but decreases its incentive to monitor since the liquidation value is relatively constant and insufficient to pay the senior loan balance. Park suggests that covenant activity will decrease with increases in senior debt.

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[1] *Commentaries* is a publication of the American Bar Foundation containing the standardized provisions included in debt contracts.

[2] For example, use of covenant language with an accepted legal interpretation reduces uncertainty about how the covenants will be interpreted by the courts.

Smith and Warner (1979) and Myers (1977) predict that as a firm has fewer assets in place, its debt contracts will reflect more covenant activity in order to protect the lender in the presence of large agency costs. Berlin and Mester (1992) predict that as a firm has fewer assets in place, its debt contracts will reflect less covenant activity since firms with many growth opportunities find it costly to add growth-limiting covenants. The empirical research to date supports Smith and Warner's costly-contracting hypothesis. Cary et al.'s (1993) hypotheses and Diamond's (1991) life cycle model are supported by evidence on decreasing covenant activity in larger firms.

Consider the special case of covenants that restrict additional borrowing. Gompers and Lerner (1996) analyze the covenant structure of venture capital agreements and find that 96% of the agreements they study contain restrictions on debt. For firms with fewer information problems than those obtaining venture capital financing, Carey (1996) reports that 63% of bank loans have a debt-restricting covenant. In the bond market, where information is relatively transparent, Malitz (1986) reports that 51% of the bond indentures contain a provision restricting debt. In general, as the size of the borrowing firm increases and the scope of information problems decreases, its debt contracts appear to have fewer covenants attached.

Carey (1996) analyzes 11,587 loans made between 1987 and 1995 from the DealScan database compiled by Loan Pricing Corporation. He finds support for the hypothesis posed by Rajan and Winton (1995) that financial covenants provide incentives to monitor in the presence of other claimants. Carey (1996) also reports that borrower size is negatively related to the presence of financial covenants, as predicted. Coefficients on the credit risk variables, especially the leverage and interest coverage variables, are not as hypothesized. Results for control variables are generally consistent with the view that ratio covenants are of varying utility for different firms and pose differing costs.

Apilado and Millington (1992) use a sample of 204 loan agreements from 23 banks in the Dallas-Fort Worth, Texas, area. Twenty-nine loan covenants were reported and examined. Apilado and Millington find that small firm loans had an average of 18.2 covenants and large firm loans had 10.8.

Nash et al. (1997) studied bond indenture agreements. They find that once high-growth firms have decided to issue debt rather than equity, they are more likely to contract in a manner that preserves the flexibility of the firm with respect to the payment of dividends and the issuance of additional debt.

The majority of the covenant/contracting literature has focused on covenants in the bond market due to the ready availability of data. There are studies at other segments of the information spectrum, but these are limited to certain geographic areas or concentrated lenders.

3. Research Question and Methodology

We focus on midsize-to-large bank loans. This segment is interesting because it is deeply rooted in "relationship" lending, but somewhat overlaps the bond market in terms of size of debt contract.

We investigate a set of questions regarding loan covenants. What types of financial covenants are common in medium-to-large bank loans and how frequently are they attached? How restrictive are these covenants? What factors affect covenant inclusion or exclusion? Do larger firms, exhibiting higher degrees of information transparency, have less covenant activity?

3.1. Estimation Strategy

We separately test hypotheses regarding financial covenant breadth, presence, and tightness. The methods employed are ordinary least squares regression and logit regression. The first dependent variable used to reflect general covenant activity is FINCOV, the number of financial covenants attached to the loan. The second dependent variable used to reflect general covenant activity is the number of financial covenant classes, COVCLASS.

The model takes the general form[1]:

$$ACTIVITY = \beta_0 + \beta_1(LASSETS) + \beta_2(LOAN2DBT) + \beta_3(LEVG) + \beta_4(MVBV) + \beta_5(AGNTPCT) + \beta_{6\text{-}10}(DSIC) + \beta_{11\text{-}13}(DPURP) + \beta_{14}(DSECD) + \beta_{15\text{-}16}(DRATE) + \beta_{17}(DREDUCE) + \beta_{18\text{-}19}(DYEAR) + \varepsilon, \quad (1)$$

where covenant ACTIVITY is measured by FINCOV and COVCLASS.

LASSETS is a measure of the book value of assets of the firm, in natural log form. This variable is a proxy for the scale and scope of the information problems posed by the borrower. We expect that as the firm grows, covenant activity will decrease.

LOAN2DBT is the loan amount as a percentage of all long-term debt outstanding. This ratio is a proxy for incentives to monitor (Park, 2000). Park hypothesizes a negative relationship between this variable and covenant activity, since banks have a larger incentive to monitor when their stake is smaller.

LEVG is defined as the long-term debt-to-asset ratio and is a measure of potential agency problems (asset substitution, dividend payout, underinvestment, claim dilution) associated with debt financing. We expect a positive sign on this coefficient.

MVBV is a proxy for growth opportunities available to the firm and is measured by the ratio of market value of equity and book value of debt to book values of debt and equity. Myers (1977) and Smith and Warner (1979) predict that MVBV will be positively related to ACTIVITY, while Berlin and Mester (1992) predict a negative relationship to covenant activity.

AGNTPCT is a measure of the proportion of the loan that is retained by the lead agent. Rajan and Winton (1995) suggest a negative relationship to covenant activity.

DSIC is a series of dummy control variables identifying the SIC code of the borrower. Dummy categories will be in accordance with Carey (1996) and will include 1000s, 2000-3000s, 4000s, 5000s, 6000s and 7000s-8000s[2]. These dummy variables are expected to control for differences in industry ratio informativeness.

DPURP is a series of dummy control variables identifying the purpose of the loan. Dummy categories will follow Carey (1996) and will include recapitalization, takeover, general corporate purposes, and miscellaneous.

DSECD is a dummy control variable equal to one if a loan is collateralized and zero otherwise. Collateral can mitigate credit risk for a loan, but it can also signal poor creditworthiness (Berger and Udell, 1990). Thus, we are agnostic about the sign.

DRATE is a series of dummy variables identifying Standard and Poor's senior credit rating on the firm's public debt. We expect that as the borrower's credit rating improves, covenant activity will decrease.

DREDUCE is a dummy control variable for loans with scheduled principal-reducing payments over the term. We expect a negative relationship to covenant activity.

DYEAR is a control variable for time-related changes in the lending market.

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[1] Omitted categories include: SIC code 5000s (wholesale/retail trade); Year 1993; Loan purpose: "working capital and general corporate purposes", Debt rating: junk-rated debt (BB and below).

[2] SIC codes 1000s are mining/construction; 2000-3999: manufacturing; 4000s: transportation and public utilities; 5000s: wholesale/retail trade; 6000s: finance, insurance, real estate; 7000-8999: service-related.

3.2. Financial Covenant Presence

Logit regression techniques are used to estimate the second series of models. Two of the most commonly violated financial covenants, according to Beneish and Press (1993), are examined as dependent variables. The first, EQCOV, equals one if a covenant specifying minimum equity is present, and zero otherwise. The other dependent variable, LEVCOV is equal to one if a leverage covenant is present. The exogenous variables in this model are the same as in the previous model.

3.3. Restrictiveness Analysis

The OLS method is used to analyze the "restrictiveness" of a financial covenant. The dependent variable reflecting restrictiveness is a measure of the scaled spread between the covenant value and the firm's current value. These measures are:

$$EQMRGN = \frac{ActualEquity - CovenantSpecifiedEquity}{ActualEquity} \tag{2}$$

given the firm has this covenant and

$$LEVSPRD = \frac{CovenantSpecifiedLeverage - ActualLeverage}{ActualLeverage} \tag{3}$$

given the firm has this covenant.

4. The Sample

We draw our sample of bank loan covenants from TearSheets, a product provided by the Loan Pricing Corporation (LPC). LPC has comprehensive coverage of high-profile bank loans, including detailed covenant information on these. Our sample includes those bank loans from 1992 to 1994 that represent single-facility deals for firms that do not borrow more than once within a 90-day period. Single-facility deals are important to isolate the covenant attachment decision to one particular "deal"[1]. Likewise, the 90-day limitation controls for possible contamination due to multiple loans granted within one Research Insight reporting period.

Loan Pricing Corporation produced a database of 752 TearSheets for loans issued during the period from 1992 to 1994. Of these, 514 were eliminated due to the "single-facility" and "90-day" constraints. We therefore use 238 loans to compile descriptive statistics about covenants before matching these to firm characteristics provided by Research Insight[2]. Of the 238, 75 are to non-public companies. The dataset is further reduced by those firms with missing variables in the Research Insight database. The number of observations used in the regression equations is dependent on the explanatory variables used and their frequency of occurrence in the Research Insight database. Our regression samples thus range from 57 to 136 observations.

All of the Research Insight financial variables are measured as of the end of the quarter following the loan date. This parallels Carey's (1996) approach of using the year-end data following the loan date.

5. Descriptive Statistics

5.1. Features of the TearSheet Sample

We now identify some features of the 238 TearSheet sample representing the years 1992-1994. In Table 1, the average loan size is $431 million and the median size is $200 million. This compares to Carey's (1996) median loan size of $35 million in his comprehensive bank loan study drawn

[1] A "deal" is a package of individual loans. A "facility" is one particular loan within the package.
[2] Research Insight is formerly known as Compustat.

from Loan Pricing Corporation's DealScan database. Nash et al. (1997), examine the covenant activity in the bond market and report a 1996 average bond issue size of $180 million. The average asset size of firms in our sample is $2,322 million compared to their average size of $7,316 million. Given the observed relationship between loan size and asset size, the loans in our study appear to be the primary source of debt financing to the firm. Carey reports a median of $196 million in assets compared to our median asset size of $752 million.

Of the 238 TearSheets examined, 163 (68.5%) are from publicly-traded companies and 163 (68.5%) have public debt outstanding. Most of the loans in our sample are syndicated, with the average number of lenders per loan being 12.3. Only 21 loans of the 221 reported (9.5%) are wholly retained by the lead agent or non-syndicated. Sixty-two different banks serve as lead agent in the 238-loan sample. Bank of America has the largest concentration at nine loans. The average maturity of the loan sample is 47.44 months. All of the loans in our sample are senior. The majority of the loans are revolving credits (90.8%). Further, 31.1% of the sample consists of principal-reducing loans (term loans and others with a scheduled principal payment pattern). Four primary purposes for the loans are identified. "General corporate purposes" or working capital, occurs 100 times (42%). Asset purchases or acquisitions occur in 11.3% of the sample. Recapitalization or debt restructuring is the motive for 36.1% of the loans, and the "miscellaneous" category accounted for the final 10.5%.

Collateral is identified in 115 (48.3%) of the loans. Berger and Udell (1990) find evidence that collateral is associated with riskier borrowers, although they find that collateral is generally insufficient to offset the additional risk inherent in these firms.

Table 1

Descriptive Statistics for Sample Selected

Sample consists of 238 bank loans issued during the period of 1/1/92-12/31/94. Percent of sample is number of loans divided by 238. Data source is Loan Pricing Corporation's TearSheets.

	Average	Number	Percent of sample
Sales (Median)	$2,035,114,024 ($944,079,000)	233	.979
Assets (Median)	$2,322,351,890 ($752,000,000)	163	.685
Loan Size (Median)	$431,265,975 ($200,000,000)	238	1.00
Debt/Assets	.4500	183	.769
MVBV	3.41	157	.659
Public		163	.685
Industry Classification			
SIC 1000s		12	.050
SIC 2000s		46	.193
SIC 3000s		54	.227
SIC 4000s		22	.092
SIC 5000s		46	.189
SIC 6000s		32	.134
SIC 7000s		17	.071
SIC 8000s		9	.038
Public Debt		162	.681
AAA		1	.004
AA		7	.029
A		26	.109

Table 1 (continuous)

	Average	Number	Percent of sample
BBB		40	.168
BB		31	.130
B		46	.193
CCC		4	.016
CC		1	.004
C		0	.000
D		6	.025
NR/NA		76	.319
Lenders per loan	12.3	221	.929
One lender		21	.088
2-3 lenders		26	.109
4-9 lenders		66	.277
10+ lenders		108	.454
Year			
1992		87	.366
1993		83	.349
1994		68	.286
Term (months)	47.44	238	1.00
Reducing principal		74	.311
Purpose			
Purpose Gen./WC		100	.420
Purpose Assets/Acq.		27	.113
Purpose Recap.		86	.361
Purpose Misc.		25	.105
Collateral		115	.483

5.2. Financial Covenants

Table 2 reports on the breadth and frequency of financial covenants (Paglia, 2002). Financial covenants are requirements or restrictions related to specific balance sheet, income statement, or cash flow items. This type of covenant is objective in nature and is measurable and verifiable. Financial covenants are non-standard and therefore generally associated with "riskier" borrowers. In our sample 96.2% of the loans contain at least one financial covenant. By contrast, Carey (1996) reports a frequency of 65% in his bank loan sample and Gilson and Warner (1998) report 86% frequency in their bank loan sample.

Six broad financial covenant classes are identified: liquidity covenants, which occur in 31.1% of the sample; equity covenants (69.7%); debt and leverage covenants (74.4%); coverage and cash flow covenants (78.2%); investment covenants (49.2%); and dividend and distribution covenants (38.2%). Each loan contains an average of 3.44 of the possible 6 financial covenant classes and 4.14 of the 28 financial covenants. Only 3.8% of the loans in the sample have no financial covenants.

Table 2

Breadth and Frequency of Financial Covenant Types

Sample consists of 238 bank loans issued during the period of 1/1/92-12/31/94. Number is the frequency of the financial covenant in the sample. Percent of sample is number of loans divided by 238. Data source is Loan Pricing Corporation's TearSheets.

	Number	Percentage of sample with covenant
Liquidity Covenants	74	.3109
Minimum working capital	24	.1008
Working capital ratio	2	.0084
Current ratio	55	.2311
Minimum cash and equivalents	7	.0294
Equity Covenants	166	.6974
Net worth	81	.3403
Tangible net worth	72	.3025
Statutory surplus	6	.0252
Debt and Leverage Covenants	177	.7437
Maximum debt	18	.0756
Maximum leverage ratio	124	.5210
Funded debt to tangible net worth	10	.0420
Liabilities to tangible net worth	15	.0630
Funded debt ratio	11	.0462
Senior funded debt to EBITDA	2	.0084
Total debt to EBITDA	12	.0504
Debt to cash flow	16	.0672
Maximum employee loans	53	.2227
Coverage and Cash Flow Covenants	186	.7815
Debt service coverage	98	.4118
EBIT to interest	12	.0504
Fixed charge coverage	75	.3151
Cash flow to debt service	19	.0798
EBT	4	.0168
EBITDA	27	.1134
Net income	12	.0504
Investment Covenants	117	.4916
Maximum capital expenditures	93	.3908
Maximum investment	36	.1513
Maximum acquisitions	34	.1429
Dividend and Distribution Covenants	91	.3824
Redemption and distributions	17	.0714
Cash dividends	83	.3487

5.2.1. Liquidity Financial Covenants

Liquidity covenants require minimum amounts of assets that can be readily converted to cash at little or no loss in value. Liquidity covenants are found in 31.1% of the sample. Carey (1996) reports that 44% of the loans in his sample contained a current ratio covenant. One interpretation of the difference is that as firms grow, they may be better able to meet cash outflows.

5.2.2. Equity Financial Covenants

Equity covenants are requirements that specify a minimum level of equity. Equity covenants appear in 69.7% of the sample. Carey (1996) reports that equity covenants are found in 3% of his

bank loan sample. This difference could reflect either a lack of recording of these types of covenants by the Loan Pricing Corporation in their DealScan database or that banks, when lending to smaller firms, write covenants largely on other measures.

5.2.3. Debt and Leverage Financial Covenants

Debt and leverage covenants are restrictions placed on the borrower that specify either a maximum threshold of debt relative to equity or a maximum amount of debt relative to cash flow. Carey (1996) reports that 63% of the loans in his bank-loan sample contain a leverage ratio restriction and 9% contain a debt-to-cash flow restriction.

5.2.4. Coverage and Cash Flow Covenants

Coverage and cash flow covenants are requirements placed on the borrower that specify some amount of cash flow or a minimum level of cash flow relative to debt service. Coverage and cash flow financial covenants are found in 78.2% of the loans. Seven different types of cash flow covenants are represented in our sample. This compares to the 62% found in Carey's (1996) sample.

5.2.5. Investment Covenants4

Investment covenants are restrictions placed on the borrower that limit the ability of the firm to invest in other projects. Limitations on investments are found in 49.2% of the loan sample. Three investment covenant types appear.

5.2.6. Dividend and Distribution Covenants

Dividend and distribution covenants are restrictions placed on the borrower that limit the amount of money that a firm can distribute to stockholders through dividends or share repurchases. Dividend and distribution covenants are found in 38.2% of the sample. Smith and Warner (1979) report that 23% of bond issues in their sample contain a restriction on dividends and distributions. Malitz reports a 55% frequency in her sample. Kahan and Tuckman report proportions of 85% or 95% depending on whether the issue is investment grade or non-investment grade in the private placements sample. Lehn and Poulson (1991) report 15% and 92% occurrence rates for investment grade and junk bonds.

Table 3 shows the breadth of financial covenants. Panel A reports the number of financial covenant classes from a set of six classes per loan. The majority of the loans, 66.4%, contain between two and four covenant classes. Panel B reports on the number of financial covenants per loan. Twenty-eight different financial covenants were identified. Approximately 85% of the loans contain between two and seven financial covenants.

Table 3

Breadth of financial covenants per loan

Sample consists of 238 bank loans issued during the period of 1/1/92-12/31/94. Number is the frequency in the sample. Percent of sample is number of loans divided by 238. Data source is Loan Pricing Corporation's TearSheets.

Panel A: Number of Financial Covenant Classes*

Financial covenant classes represented per loan	Number	Percentage of Sample
Zero financial covenant classes represented	9	.0378
One financial covenant class represented	14	.0588
Two financial covenant classes represented	44	.1849
Three financial covenant classes represented	54	.2269
Four financial covenant classes represented	60	.2521
Five financial covenant classes represented	36	.1513
Six financial covenant classes represented	21	.0882
Average covenant classes per loan	3.44	

Table 3 (continuous)

Panel B: Number of Financial Covenants*

Total number of financial covenants per loan	Number	Percentage of Sample
Zero financial covenants	9	.0378
One financial covenant	14	.0588
Two financial covenants	40	.1681
Three financial covenants	41	.1723
Four financial covenants	27	.1134
Five financial covenants	45	.1891
Six financial covenants	25	.1050
Seven financial covenants	24	.1008
Eight financial covenants	10	.0420
Nine financial covenants	2	.0084
Ten financial covenants	1	.0042
Average number of financial covenants per loan	4.14	
Loans with at least one financial covenant	229	.9622

* Excludes maximum employee loan covenants.

6. Regression Results Related to the Role of Financial Covenants

Our analysis next examines the breadth of financial covenants on individual loan transactions. We use two dependent variables: number of financial covenant classes and number of financial covenants. The number of financial covenant classes measures the extent to which financial covenants address different broad segments of a firm's operations. Results for the covenant class models are reported in Table 4. Results based on number of financial covenants are reported in Table 5.

Using the ordinary least squares technique (OLS), where the dependent variable is number of financial covenant classes, we find that our model (Equation #1A) is significant at the .01 level and explains 45.2% of the variability in the number of financial covenant classes. LASSETS is statistically significant and negatively related to the number of covenant classes. This supports Carey et al. (1993) and Diamond (1991) and suggests that as information about the borrower becomes more transparent, covenant activity will decrease. The proxy for growth opportunities, MVBV, is negative and significant, which supports Berlin and Mester's (1992) hypothesis that firms with relatively high growth opportunities contract in a way that preserves the flexibility of the firm, and is inconsistent with Myer's (1977) hypothesis that firms with a large amount of "assets in place" will have fewer covenants. AGNTPCT, the measure of the proportion of loan retained by the lead agent is negative and significant at the .05 level, suggesting that broad-based restrictions are written to provide incentives to the lead bank to monitor in the presence of other information-gathering claimants. The collateral variable, DSECD, is positive and significant indicating that covenants and collateral are complements, not substitutes as suggested by Berger and Udell (1990) and Dennis and Mullineaux (2000). Industry variables, purpose variables, and year dummies are insignificant in Equation #1A.

The credit risk variables also are insignificant in Equation #1A. To examine the issue further, we estimate additional regressions in which the debt ratings are excluded in light of potential collinearity problems between the debt ratings and leverage variable. Equation #1B (Table 4) reports the findings from this OLS regression. This model is estimated as an alternative specification for all subsequent cases. Equation #1B is also significant at .01, explains 45% of the variability in number of covenant classes, and largely reproduces the results from Equation #1A. The coefficient of AGNTPCT, which examines the theory that covenants are utilized to provide incentives to monitor within a set of lenders, is positive and significant, which reaffirms our result in the previous equation – covenants are attached to a loan in an effort to control agency problems among a set of lenders. We again find that, for firms exhibiting higher degrees of *ex ante* information problems, more covenants will be attached

to a loan. The proxy for growth opportunities (MVBV) is again significant in Equation #1B. The coefficient on the leverage variable (LEVG) remains insignificant, but is signed as hypothesized.

Table 4

Ordinary least squares regressions of number of financial covenant classes on characteristics of bank loan and borrowing firm

Dependent variable is the number of financial covenant classes. LASSETS is the natural log of firm assets. LOAN2DBT is the amount of the bank loan divided by firm's total long-term debt. LEVG is long-term debt divided by firm assets. MVBV is market value of equity and book value of debt divided by book values of debt plus of equity. AGNTPCT is lead agent's portion retained of total loan amount. DSIC1 is a dummy variable equal to 1 for SIC codes in 1000s, 0 otherwise. DSIC23 is a dummy variable equal to 1 for SIC codes in the 2000-3000s, 0 otherwise. DSIC4 is a dummy variable equal to 1 for SIC codes in the 4000s, 0 otherwise. DSIC6 is a dummy variable equal to 1 for SIC codes in the 6000s, 0 otherwise. DSIC78 is a dummy variable equal to 1 for SIC codes in the 7000-8000s, 0 otherwise. DPRPACQ is a dummy variable equal to 1 for acquisition loans, 0 otherwise. DPRPRCP is a dummy variable equal to 1 for recapitalization loans, 0 otherwise. DPRPMISC is a dummy variable equal to 1 for multiple-purpose or miscellaneous type loans, 0 otherwise. DSECD is a dummy variable equal to 1 for collateral, 0 otherwise. DRATEAS is a dummy variable equal to 1 for A-rated debt, 0 otherwise. DRATEBBB is a dummy variable equal to 1 for BBB-rated debt, 0 otherwise. DREDUCE is a dummy variable equal to 1 for loans with a scheduled principal-reducing component, 0 otherwise. D92 is a dummy variable equal to 1 for loans granted in 1992, 0 otherwise. D94 is a dummy variable equal to 1 for loans granted in 1994, 0 otherwise. a, b, c represent significance at 1%, 5%, 10% level.

Explanatory	Equation #1A	t-statistic*	P-value	Equation #1B	t-statistic*	P-value
INTERCEPT	12.0536	2.910[a]	.0047	12.6985	3.390[a]	.0011
LASSETS	-0.4183	-2.170[b]	.0334	-0.4600	-2.730[a]	.0078
LOAN2DBT	0.0681	0.510	.6125	0.0749	0.550	.5841
LEVG	0.3988	1.140	.2562	0.4337	1.300	.1988
MVBV	-0.0984	-2.050[b]	.0438	-0.0939	-2.000[b]	.0488
AGNTPCT	-0.0132	-2.400[b]	.0188	-0.0128	-2.270[b]	.0258
DSIC1	0.6846	1.410	.1619	0.6944	1.440	.1544
DSIC23	-0.1138	-0.280	.7833	-0.1051	-0.250	.8004
DSIC4	-0.6212	-1.060	.2926	-0.6064	-1.040	.3033
DSIC6	-0.2856	-0.520	.6045	-0.3235	-0.600	.5532
DSIC78	0.3484	0.760	.4498	0.3900	0.860	.3898
DPRPACQ	-0.2844	-0.630	.5308	-0.3270	-0.740	.4641
DPRPRCP	0.1453	0.440	.6623	0.1688	0.530	.5957
DPRPMISC	-0.3811	-0.710	.4783	-0.4075	-0.820	.4146
DSECD	0.7138	1.940[c]	.0560	0.7746	1.980[c]	.0513
DRATEAS	-0.2914	-0.640	.5259			
DRATEBBB	-0.1969	-0.460	.6497			
DREDUCE	-0.1439	-0.040	.9670	0.0516	0.170	.8691
D92	0.5418	1.380	.1706	0.5615	1.430	.1556
D94	-0.0990	-0.290	.7696	-0.0662	-0.200	.8442
N	98			136		
F	3.383[a]			3.841[a]		
R^2	.4518			.4494		
Adjusted R^2	.3182			.3324		

* Newey-West heteroscedastic consistent standard errors were used to calculate t-statistics.

In Table 5, we again examine breadth of financial covenant activity. Our dependent variable in this series of OLS regressions is number of financial covenants per loan. Our model (Equation #1C) is significant at .01 and explains 44% of the variability in the number of financial covenants. We find that the coefficients of firm size, LASSETS, and AGNTPCT, the percentage of the loan retained by the lead agent, are negative and significant. Our results again suggest that as information becomes more transparent, a loan will have fewer covenants attached. It also appears that as larger proportions of the loan are syndicated, covenant activity increases presumably as enhanced incentives to monitor. Our collateral dummy's (DSECD) coefficient is again positive and significant, suggesting that secured loans are relatively risky and are therefore associated with broader financial covenant activity. Our proxy for growth opportunities, MVBV, is negative and significant, suggesting that firms with large growth options contract in a way that preserves managerial flexibility. The proxy for companies in the transportation and public utilities industry, DSIC4, is negative and significant. It appears that the regulated nature of these companies continues to act as a substitute for broad-based covenant activity. Our proxies for financial distress, LEVG and DRATE are signed as expected, but statistically insignificant in explaining variability in the number of covenants. Equation #1D, which excludes debt ratings, is also significant at .01 and explains a significant portion of the variability of number of financial covenants (43.8%), and reconfirms the findings in Equation #1C. The leverage variable is insignificant, but again signed as hypothesized.

Table 5

Ordinary least squares regressions of number of financial covenants on characteristics of bank loan and borrowing firm

Dependent variable is the number of financial covenants. LASSETS is the natural log of firm assets. LOAN2DBT is the amount of the bank loan divided by firm's total long-term debt. LEVG is long-term debt divided by firm assets. MVBV is market value of equity and book value of debt divided by book values of debt plus of equity. AGNTPCT is lead agent's portion retained of total loan amount. DSIC1 is a dummy variable equal to 1 for SIC codes in 1000s, 0 otherwise. DSIC23 is a dummy variable equal to 1 for SIC codes in the 2000-3000s, 0 otherwise. DSIC4 is a dummy variable equal to 1 for SIC codes in the 4000s, 0 otherwise. DSIC6 is a dummy variable equal to 1 for SIC codes in the 6000s, 0 otherwise. DSIC78 is a dummy variable equal to 1 for SIC codes in the 7000-8000s, 0 otherwise. DPRPACQ is a dummy variable equal to 1 for acquisition loans, 0 otherwise. DPRPRCP is a dummy variable equal to 1 for recapitalization loans, 0 otherwise. DPRPMISC is a dummy variable equal to 1 for multiple-purpose or miscellaneous type loans, 0 otherwise. DSECD is a dummy variable equal to 1 for collateral, 0 otherwise. DRATEAS is a dummy variable equal to 1 for A-rated debt, 0 otherwise. DRATEBBB is a dummy variable equal to 1 for BBB-rated debt, 0 otherwise. DREDUCE is a dummy variable equal to 1 for loans with a scheduled principal-reducing component, 0 otherwise. D92 is a dummy variable equal to 1 for loans granted in 1992, 0 otherwise. D94 is a dummy variable equal to 1 for loans granted in 1994, 0 otherwise. a, b, c represent significance at 1%, 5%, 10% level.

Explanatory	Equation #1C	t-statistic*	P-value	Equation #1D	t-statistic*	P-value
INTERCEPT	18.7137	3.160[a]	.0023	19.5090	3.670[a]	.0004
LASSETS	-0.6613	-2.450[b]	.0167	-0.7254	-3.110[a]	.0026
LOAN2DBT	0.0382	0.180	.8556	0.0600	0.280	.7833
LEVG	0.5651	1.100	.2746	0.6565	1.320	.1890
MVBV	-0.2019	-3.250[a]	.0017	-0.1905	-3.150[a]	.0023
AGNTPCT	-0.0221	-2.990[a]	.0037	-0.0207	-2.740[a]	.0076
DSIC1	0.4449	0.560	.5791	0.3926	0.490	.6220
DSIC23	-0.3713	-0.580	.5667	-0.3632	-0.550	.5820
DSIC4	-1.6748	-2.130[b]	.0367	-1.6325	-2.140[b]	.0354
DSIC6	-0.6368	-0.800	.4243	-0.6983	-0.880	.3832
DSIC78	0.3431	0.440	.6593	0.4361	0.580	.5634
DPRPACQ	-0.7218	-1.070	.2866	-0.7684	-1.140	.2581

Table 5 (continuous)

Explanatory	Equation #1C	t-statistic*	P-value	Equation #1D	t-statistic*	P-value
DPRPRCP	-0.3576	-0.720	.4763	-0.2594	-0.550	.5847
DPRPMISC	-0.7607	-0.920	.3591	-0.7527	-0.990	.3242
DSECD	1.0862	1.970[c]	.0523	1.2318	2.130[b]	.0360
DRATEAS	-0.5189	-0.780	.4370			
DRATEBBB	-0.6582	-0.980	.3292			
DREDUCE	-0.1571	-0.310	.7584	-0.0121	-0.030	.9791
D92	0.3964	0.700	.4837	0.4489	0.790	.4320
D94	-0.2761	-0.590	.5582	-0.2266	-0.480	.6311
N	98			136		
F	3.291[a]			3.667[a]		
R^2	.4449			.4379		
Adjusted R^2	.3097			.3185		

* Newey-West heteroscedastic consistent standard errors were used to calculate t-statistics.

Several conclusions can be reached about financial covenant breadth based on the results in Equations #1A-#1D. We find strong support for Smith and Warner's hypothesis that covenants are written in accordance with borrower characteristics. We also find strong support for Carey et al.'s hypothesis that information-problematic firms are more likely to have covenants attached, as evidenced by our negative and significant sign on the coefficient of LASSETS. Rajan and Winton's (1995) hypothesis that covenants are employed in an effort to mitigate agency problems among a set of lenders is also strongly supported. As the syndicate increases in number or as the lead agent retains less of the loan, more covenants are attached. Based on covenant breadth alone, we find no support for two of our hypotheses. The coefficient on the variable, LEVG is positive in all equations, but insignificant in determining covenant breadth. Therefore we find no support for the hypothesis that covenants are utilized in an effort to address *ex ante* credit risk. We also find no support, based on covenant breadth, for Park's theory that covenants are used to provide the lender with an incentive to monitor when their stake is smaller.

We next examine the motivations for the presence and "restrictiveness" of two of the most common and fundamental financial covenants – minimum equity and maximum financial leverage. Table 6 reports the result of a logistic regression where the dependent variable is equal to one if a minimum equity financial covenant is present and 0 otherwise. This model (Equation #1E) is significant at the .10 level and yields a percent of correct predictions of 74.5%. We find that two variables are significant in determining the presence of a minimum equity financial covenant. The first is LASSETS; firms with more transparent information are less likely to have an equity covenant attached. We also find that firms with larger portions of their loan syndicated (AGNTPCT) have a higher probability of having an equity covenant present, presumably to address agency problems among lenders. Again, the credit risk and financial distress variables are insignificant. Our variable for lender incentives to monitor, LOAN2DBT, is also insignificant, lending no support for Park's theory. MVBV, our proxy for growth opportunities is also insignificant. Equation #1F (Table 6), which excludes the credit rating dummy variables is significant at .05 and reproduces the results obtained from the previous equation.

Table 7 reports the results of an ordinary least squares regression where the dependent variable is the "restrictiveness" of the minimum equity covenant. Covenants that are written tightly allow the lender to exert more control rights on the borrower. If a covenant is written more restrictively, according to Rajan and Winton, the borrower's incentives to monitor become greater since the lender has a higher probability of forcing default, conditional on monitoring. Restrictiveness in our model is calculated using the formula provided in Equation #2. The regression model, Equation #1G, is significant at .01 and explains 60.4% of the variability in equity covenant restrictiveness. The LOAN2DBT variable is positive and significant at the .10 level, indicating that as the lenders pro-

vide more of the firm's debt, they write less stringent covenants, which in turn requires reduced monitoring efforts. This supports Park's (2000) theory that banks have more incentives to monitor, in preparation for an efficient liquidation decision, when their stake is smaller. MVBV is positive and significant, again supporting Berlin and Mester's argument that firms with high-growth opportunities contract with lenders in a way that preserves their flexiblilty. AGNTPCT is positive and significant, lending further support to Rajan and Winton's hypothesis that covenants are written to provide incentives to monitor in the presence of other claimants. The D94 dummy is positive and significant reflecting what LPC refers to anecdotally as the looser covenant activity resulting from additional liquidity in the market in 1994. Other significant control variables include DSIC1, DSIC23, DSIC4, DSIC6, DPRPACQ, DPRPMISC, and DREDUCE. It appears that equity covenant restrictiveness is written in accordance with firm- and industry-specific considerations. DREDUCE, our control variable for loans with scheduled principal-reducing payments prior to maturity, is negatively related to equity covenant tightness, as expected. The average loss on an amortizing loan to a firm that defaults is less than one in which all of the principal is due at maturity. The coefficient on LASSETS is signed correctly, but insignificant. This indicates that information-problems are not a factor influencing how tightly a minimum equity covenant is written.

Table 6

Logistic regressions of presence of minimum equity financial covenant on characteristics of bank loan and borrowing firm

Dependent variable is equal to 1 if a minimum equity covenant is present. LASSETS is the natural log of firm assets. LOAN2DBT is the amount of the bank loan divided by firm's total long-term debt. LEVG is long-term debt divided by firm assets. MVBV is market value of equity and book value of debt divided by book values of debt plus of equity. AGNTPCT is lead agent's portion retained of total loan amount. DSIC1 is a dummy variable equal to 1 for SIC codes in 1000s, 0 otherwise. DSIC23 is a dummy variable equal to 1 for SIC codes in the 2000-3000s, 0 otherwise. DSIC4 is a dummy variable equal to 1 for SIC codes in the 4000s, 0 otherwise. DSIC6 is a dummy variable equal to 1 for SIC codes in the 6000s, 0 otherwise. DSIC78 is a dummy variable equal to 1 for SIC codes in the 7000-8000s, 0 otherwise. DPRPACQ is a dummy variable equal to 1 for acquisition loans, 0 otherwise. DPRPRCP is a dummy variable equal to 1 for recapitalization loans, 0 otherwise. DPRPMISC is a dummy variable equal to 1 for multiple-purpose or miscellaneous type loans, 0 otherwise. DSECD is a dummy variable equal to 1 for collateral, 0 otherwise. DRATEAS is a dummy variable equal to 1 for A-rated debt, 0 otherwise. DRATEBBB is a dummy variable equal to 1 for BBB-rated debt, 0 otherwise. DREDUCE is a dummy variable equal to 1 for loans with a scheduled principal-reducing component, 0 otherwise. D92 is a dummy variable equal to 1 for loans granted in 1992, 0 otherwise. D94 is a dummy variable equal to 1 for loans granted in 1994, 0 otherwise. a, b, c represent significance at 1%, 5%, 10% level.

Explanatory	Equation #1E	Wald statistic	P-value	Equation #1F	Wald statistic	P-value
INTERCEPT	13.4787	7.3606[a]	.0067	12.3975	7.4908 [a]	.0062
LASSETS	-0.5139	5.2913[b]	.0214	-0.4539	5.5650 [b]	.0183
LOAN2DBT	-0.1373	0.6029	.4375	-0.1297	0.5553	.4562
LEVG	0.1292	0.0401	.8413	0.1098	0.0303	.8619
MVBV	-0.1294	2.4167	.1200	-0.1307	2.5327	.1115
AGNTPCT	-0.0296	11.2263[a]	.0008	-0.0296	11.6486 [a]	.0006
DSIC1	-0.1755	0.0367	.8481	-0.2077	0.0521	.8194
DSIC23	-0.8733	1.8922	.1690	-0.8826	1.9762	.1598
DSIC4	-1.3190	2.5528	.1101	-1.3178	2.5498	.1103
DSIC6	0.6603	0.7028	.4019	0.6737	0.7536	.3851
DSIC78	-0.8559	1.1451	.2846	-0.8911	1.2548	.2626
DPRPACQ	-0.4384	0.4926	.4828	-0.4180	0.4568	.4991
DPRPRCP	-0.4191	0.9197	.3376	-0.4279	1.0220	.3120

Table 6 (continuous)

Explanatory	Equation #1E	Wald statistic	P-value	Equation #1F	Wald statistic	P-value
DPRPMISC	-0.6544	1.3379	.2474	-0.5884	1.1325	.2872
DSECD	-0.1827	0.1700	.6802	-0.2564	0.4071	.5234
DRATEAS	0.3319	0.2590	.6108			
DRATEBBB	0.1009	0.0292	.8643			
DREDUCE	-0.0160	0.0010	.9752	-0.0414	0.0066	.9351
D92	0.4059	0.7207	.3959	0.3761	0.6412	.4233
D94	-0.5789	1.7582	.1849	-0.6164	2.0774	.1495
N	98			136		
-2 Log Likelihood Statistic	27.797			27.520		
P value	.0874[c]			0.0509[b]		
% correct prediction	74.5%			74.5%		

Table 7

Ordinary least squares regressions of equity covenant restrictiveness on characteristics of bank loan and borrowing firm

Dependent variable is the restrictiveness of the minimum equity covenant and is equal to (firm equity – minimum equity covenant) /firm equity. LASSETS is the natural log of firm assets. LOAN2DBT is the amount of the bank loan divided by firm's total long-term debt. LEVG is long-term debt divided by firm assets. MVBV is market value of equity and book value of debt divided by book values of debt plus of equity. AGNTPCT is lead agent's portion retained of total loan amount. DSIC1 is a dummy variable equal to 1 for SIC codes in 1000s, 0 otherwise. DSIC23 is a dummy variable equal to 1 for SIC codes in the 2000-3000s, 0 otherwise. DSIC4 is a dummy variable equal to 1 for SIC codes in the 4000s, 0 otherwise. DSIC6 is a dummy variable equal to 1 for SIC codes in the 6000s, 0 otherwise. DSIC78 is a dummy variable equal to 1 for SIC codes in the 7000-8000s, 0 otherwise. DPRPACQ is a dummy variable equal to 1 for acquisition loans, 0 otherwise. DPRPRCP is a dummy variable equal to 1 for recapitalization loans, 0 otherwise. DPRPMISC is a dummy variable equal to 1 for multiple-purpose or miscellaneous type loans, 0 otherwise. DSECD is a dummy variable equal to 1 for collateral, 0 otherwise. DRATEAS is a dummy variable equal to 1 for A-rated debt, 0 otherwise. DRATEBBB is a dummy variable equal to 1 for BBB-rated debt, 0 otherwise. DREDUCE is a dummy variable equal to 1 for loans with a scheduled principal-reducing component, 0 otherwise. D92 is a dummy variable equal to 1 for loans granted in 1992, 0 otherwise. D94 is a dummy variable equal to 1 for loans granted in 1994, 0 otherwise. a, b, c represent significance at 1%, 5%, 10% level.

Explanatory	Equation #1G	t-statistic*	P-value	Equation #1H	t-statistic*	P-value
INTERCEPT	-86.8794	-1.310	.1967	-98.3130	-1.590	.1201
LASSETS	3.2359	1.100	.2770	4.0775	1.500	.1402
LOAN2DBT	5.7110	1.940[c]	.0589	4.9727	1.730[c]	.0904
LEVG	-5.1730	-0.360	.7195	-7.8351	-0.560	.5786
MVBV	5.2490	2.410[b]	.0203	5.1045	2.320[b]	.0251
AGNTPCT	0.2458	2.280[b]	.0279	0.2440	2.260[b]	.0292
DSIC1	15.2903	1.780[c]	.0824	14.4032	1.710[c]	.0948
DSIC23	18.2141	2.960[a]	.0051	18.1037	2.810[a]	.0073
DSIC4	25.5976	3.670[a]	.0007	25.8229	3.840[a]	.0004
DSIC6	13.6976	1.690[c]	.0975	15.6945	1.920[c]	.0611
DSIC78	3.4767	0.390	.6996	1.8455	0.210	.8360
DPRPACQ	13.7741	1.730[c]	.0912	16.0371	2.070[b]	.0441
DPRPRCP	-2.3461	-0.450	.6525	-1.7651	-0.360	.7173
DPRPMISC	24.7110	2.800[a]	.0076	26.6682	3.390[a]	.0015
DSECD	6.0562	0.950	.3481	4.5467	0.770	.4458

Table 6 (continuous)

Explanatory	Equation #1G	t-statistic*	P-value	Equation #1H	t-statistic*	P-value
DRATEAS	7.5475	0.920	.3624			
DRATEBBB	2.3963	0.310	.7558			
DREDUCE	12.3109	1.800[c]	.0797	10.8523	1.840[c]	.0723
D92	0.6715	0.100	.9200	-0.3413	-0.060	.9555
D94	14.7449	2.380[b]	.0220	13.4126	2.230[b]	.0310
N	62			80		
F	3.375[a]			3.799[a]		
R^2	.6042			.5948		
Adjusted R^2	.4252			.4382		

* Newey-West heteroscedastic consistent standard errors were used to calculate t-statistics.

Equation #1H (Table 7), which excludes the credit rating variables, is also significant at .01 and explains a large proportion of the variability (R^2 = 59.5%). The results are consistent with the conclusions from the previous regression. Once again, the credit risk variables are insignificant, but the signs are as hypothesized.

We reach several conclusions about the minimum equity covenant after examining Equations #1E - #1H. We find that the presence of a minimum equity covenant is negatively related to the size of the firm. This result supports Carey et al's argument that firms with more severe information problems have more covenants attached to their loans. We also find that our proxy for growth opportunities is negatively related to both minimum equity covenant presence and restrictiveness, which supports Berlin and Mester's hypothesis that high-growth opportunity firms will contract in a way that preserves managerial flexibility. Rajan and Winton's hypothesis that covenants are a mechanism that induces monitoring efforts in the presence of other claimants is strongly supported by evidence contained in these equations. Since the lender receives more conditional on their monitoring efforts, binding covenants are attached to the loan. Park's hypothesis that covenants provide incentives for the bank to monitor when their stake is relatively small, is weakly supported. Our proxy, LOAN2DBT is significant in only one equation. Leverage appears not to be a determinant in attaching an equity covenant or in writing a more restrictive equity covenant. Our proxy, LEVG, is generally signed as hypothesized, but insignificant in all equations.

Table 8 reports the results of a logistic regression where the dependent variable is equal to 1 if a financial covenant addressing leverage is present, and zero otherwise. Both of these models (Equations #1I and #1J) are statistically significant at the .05 level. In equation #1I, LASSETS is negative and significant, suggesting that transparency of information reduces the likelihood of attaching a leverage covenant. AGNTPCT is negative and significant, indicating that as a syndicate consumes larger proportions of a loan, the likelihood of a covenant based on leverage increases. LOAN2DBT is insignificant in determining whether a leverage covenant is attached. LEVG, our proxy for credit risk is also insignificant. Our proxy for growth opportunities, MVBV is also insignificant in determining whether or not a leverage covenant is attached. Equation #1J, which excludes the debt rating variables, produces one additional significant variable. The coefficient on DSIC1 is negative and significant at .01.

Table 9 reports on the tightness of the leverage financial covenant as measured according to Equation #3. We find that our model from Equation #1K is significant and explains 50.4% of the variability in leverage covenant restrictiveness. We find that LASSETS is positive and significant, suggesting that larger firms have looser leverage covenants written. We also observe that LOAN2DBT is positive and significant suggesting that restrictive leverage covenants can be used to provide incentives to monitor. This result supports Park's theory that banks attach covenants to provide incentives to monitor when their stake is smaller. AGNTPCT is positive and significant, suggesting that tighter leverage covenants are used to provide additional incentives to monitor in

the presence of other claimants, providing additional support to Rajan and Winton's (1995) hypothesis. The sign on LEVG is as predicted, but insignificant in determining how "tightly" a leverage covenant is written. Our proxy for growth opportunities, MVBV is also insignificant in determining leverage covenant restrictiveness.

Table 8

Logistic regressions of presence of maximum leverage covenant on characteristics of bank loan and borrowing firm

Dependent variable is equal to 1 if a maximum leverage covenant is present. LASSETS is the natural log of firm assets. LOAN2DBT is the amount of the bank loan divided by firm's total long-term debt. LEVG is long-term debt divided by firm assets. MVBV is market value of equity and book value of debt divided by book values of debt plus of equity. AGNTPCT is lead agent's portion retained of total loan amount. DSIC1 is a dummy variable equal to 1 for SIC codes in 1000s, 0 otherwise. DSIC23 is a dummy variable equal to 1 for SIC codes in the 2000-3000s, 0 otherwise. DSIC4 is a dummy variable equal to 1 for SIC codes in the 4000s, 0 otherwise. DSIC6 is a dummy variable equal to 1 for SIC codes in the 6000s, 0 otherwise. DSIC78 is a dummy variable equal to 1 for SIC codes in the 7000-8000s, 0 otherwise. DPRPACQ is a dummy variable equal to 1 for acquisition loans, 0 otherwise. DPRPRCP is a dummy variable equal to 1 for recapitalization loans, 0 otherwise. DPRPMISC is a dummy variable equal to 1 for multiple-purpose or miscellaneous type loans, 0 otherwise. DSECD is a dummy variable equal to 1 for collateral, 0 otherwise. DRATEAS is a dummy variable equal to 1 for A-rated debt, 0 otherwise. DRATEBBB is a dummy variable equal to 1 for BBB-rated debt, 0 otherwise. DREDUCE is a dummy variable equal to 1 for loans with a scheduled principal-reducing component, 0 otherwise. D92 is a dummy variable equal to 1 for loans granted in 1992, 0 otherwise. D94 is a dummy variable equal to 1 for loans granted in 1994, 0 otherwise. a, b, c represent significance at 1%, 5%, 10% level.

Explanatory	Equation #1I	Wald statistic	P-value	Equation #1J	Wald statistic	P-value
INTERCEPT	10.4504	6.6471[a]	.0099	9.8973	7.0100[a]	.0081
LASSETS	-0.4128	4.7560[b]	.0292	-0.3804	5.3002[b]	.0213
LOAN2DBT	-0.1090	0.4056	.5242	-0.1139	0.4464	.5041
LEVG	-0.9254	1.1744	.2785	-0.9800	1.2916	.2558
MVBV	-0.1440	2.5309	.1116	-0.1448	2.6137	.1059
AGNTPCT	-0.0177	6.3331[b]	.0119	-0.0178	6.6153[b]	.0101
DSIC1	-1.1690	2.5984	.1070	-1.1859	2.7310[c]	.0984
DSIC23	-0.3913	0.6728	.4121	-0.3913	0.6799	.4096
DSIC4	-0.4310	0.4082	.5229	-0.4268	0.4011	.5265
DSIC6	-1.1021	3.4931[c]	.0616	-1.0644	3.3463[c]	.0674
DSIC78	-0.4595	0.4476	.5035	-0.4819	0.5031	.4782
DPRPACQ	-0.0943	0.0278	.8675	-0.0604	0.0117	.9139
DPRPRCP	-0.2968	0.6342	.4258	-0.2911	0.6379	.4245
DPRPMISC	-0.3536	0.5325	.4656	-0.3151	0.4449	.5048
DSECD	0.3988	1.0767	.2994	0.3662	0.9812	.3219
DRATEAS	0.1962	0.1204	.7286			
DRATEBBB	0.0533	0.0107	.9175			
DREDUCE	-.0.5914	2.0102	.1562	-0.6267	2.4679	.1162
D92	-0.4509	1.4180	.2337	-0.4650	1.5348	.2154
D94	0.6270	2.5014	.1137	0.6119	2.4300	.1190
N	98			136		
-2 Log Likelihood Statistic	31.110[b]			30.971[b]		
P value	.0393			.0201		
% correct prediction	64.3%			65.3%		

Table 9

Ordinary least squares regressions of leverage covenant restrictiveness on characteristics of bank loan and borrowing firm

Dependent variable is the restrictiveness of leverage covenant and is measured by the difference between maximum leverage covenant and firm's leverage ratio, divided by the firm's leverage ratio. LASSETS is the natural log of firm assets. LOAN2DBT is the amount of the bank loan divided by firm's total long-term debt. LEVG is long-term debt divided by firm assets. MVBV is market value of equity and book value of debt divided by book values of debt plus of equity. AGNTPCT is lead agent's portion retained of total loan amount. DSIC1 is a dummy variable equal to 1 for SIC codes in 1000s, 0 otherwise. DSIC23 is a dummy variable equal to 1 for SIC codes in the 2000-3000s, 0 otherwise. DSIC4 is a dummy variable equal to 1 for SIC codes in the 4000s, 0 otherwise. DSIC6 is a dummy variable equal to 1 for SIC codes in the 6000s, 0 otherwise. DSIC78 is a dummy variable equal to 1 for SIC codes in the 7000-8000s, 0 otherwise. DPRPACQ is a dummy variable equal to 1 for acquisition loans, 0 otherwise. DPRPRCP is a dummy variable equal to 1 for recapitalization loans, 0 otherwise. DPRPMISC is a dummy variable equal to 1 for multiple-purpose or miscellaneous type loans, 0 otherwise. DSECD is a dummy variable equal to 1 for collateral, 0 otherwise. DRATEAS is a dummy variable equal to 1 for A-rated debt, 0 otherwise. DRATEBBB is a dummy variable equal to 1 for BBB-rated debt, 0 otherwise. DREDUCE is a dummy variable equal to 1 for loans with a scheduled principal-reducing component, 0 otherwise. D92 is a dummy variable equal to 1 for loans granted in 1992, 0 otherwise. D94 is a dummy variable equal to 1 for loans granted in 1994, 0 otherwise. a, b, c represent significance at 1%, 5%, 10% level.

Explanatory	Equation #1K	t-statistic*	P-value	Equation #1L	t-statistic*	P-value
INTERCEPT	-27.7873	-1.630	.1121	-11.0615	-0.770	.4438
LASSETS	1.4286	1.680[c]	.0996	0.4878	0.750	.4555
LOAN2DBT	1.5988	2.020[b]	.0495	1.5253	1.820[c]	.0758
LEVG	-1.2101	-0.870	.3890	-0.7978	-0.680	.5033
MVBV	-0.1437	-0.300	.7667	0.0792	0.170	.8674
AGNTPCT	0.0431	1.670[c]	.1064	0.0363	1.490	.1438
DSIC1	-0.3449	-0.140	.8863	0.6476	0.310	.7553
DSIC23	1.2711	0.790	.4365	1.9252	1.310	.1978
DSIC4	0.0753	0.050	.9621	0.6031	0.420	.6784
DSIC6	1.2897	0.080	.4284	0.9979	0.670	.5082
DSIC78	8.0985	1.370	.1785	7.6801	1.310	.1979
DPRPACQ	3.9166	1.350	.1838	2.7848	1.150	.2552
DPRPRCP	-0.0871	-0.080	.9360	-0.4703	-0.500	.6169
DPRPMISC	-1.9189	-0.810	.4244	-2.8896	-1.450	.1560
DSECD	-0.3874	-0.230	.8187	0.8648	0.650	.5183
DRATEAS	-4.0031	-1.290	.2049			
DRATEBBB	-2.2371	-1.020	.3162			
DREDUCE	-1.2733	-1.130	.2642	-0.8481	-0.830	.4092
D92	-1.2381	-1.140	.2626	-1.2107	-1.180	.2462
D94	-1.4765	-1.120	.2717	-1.2555	-1.020	.3136
N	57			76		
F	1.978[b]			2.080[b]		
R^2	.5039			.4755		
Adjusted R^2	.2492			.2469		

* Newey-West heteroscedastic consistent standard errors were used to calculate t-statistics.

Equation #1L explains 47.6% of the variability in leverage covenant restrictiveness and largely confirms the conclusions based on the previous equation. LOAN2DBT remains significant. The coefficients on LASSETS and AGNTPCT, weakly significant in the previous equation, are insignificant.

Our results, based on the leverage covenant equations (#1I- #1L), lead to several conclusions. Large firms are less likely to have a leverage covenant attached to their loans. Large firms also are more likely to have a "looser" leverage covenant attached. This result again offers support to Carey et al.'s hypothesis that firms exhibiting more severe information problems are more likely to have a covenant, or a more restrictive covenant, attached.

We find weak support for Berlin and Mester's hypothesis that high-growth opportunity firms are able to contract in a manner that preserves their managerial flexibility, since the leverage covenant is used less frequently and restrictively in firms with high growth options. Support is again offered for Rajan and Winton's hypothesis that covenants are utilized in an effort to induce incentives to monitor. Some support is also offered for Park's theory, but we find no support for Smith and Warner's theory that as credit risk becomes more severe, the presence and restrictiveness of a leverage covenant becomes more likely.

7. Concluding Comments

This paper explores the relevance of covenants in large bank loans. We identify 28 different financial covenants and provide evidence on the use of covenants in bank loan contracting in a model that specifies potential agency problems, information problems, incentives to monitor, and credit risk as explanatory variables. There are many types of financial covenants that can be attached to a loan. Each type plays a specific role in the risk-reduction process and allows the lender to exert some control over the borrower, thereby reducing the default risk of the loan. Covenants play an important role in creating an optimal debt contract that balances the costs and benefits of borrowing to the firm. Our results provide evidence on when and why borrowers and lenders decide to write covenants.

We find that financial covenant breadth, measured by both the number of covenant classes and the number of financial covenants attached to a loan, is positively related to information problems and the presence of collateral, and negatively related to growth opportunities and the percent of loan retained by lead agent. Firms that pledge collateral appear to be "riskier," which is consistent with Berger and Udell (1990) and Dennis and Mullineaux (2000). Additionally, we find that as the number of lenders increases on the loan or the lead agent retains less, covenant breadth, presence, and restrictiveness increase. This robust result lends strong support to the hypothesis that covenants are used to provide incentives to monitor in the presence of other claimants (Rajan and Winton, 1995).

We also offer some support for Park's (2000) theory that covenants are used as incentives to monitor. In Park's model, as more senior debt is used, the senior lender's incentive to monitor gets weaker. This is the case since a bigger contribution from the senior lender would increase the size of his claim and therefore his share of the going concern value of the project. Since what he gets from liquidation does not change, the senior lender will thus be more reluctant to liquidate the project and less likely to monitor.

We also provide evidence on factors that influence the restrictiveness of equity and leverage covenants. We find support that the restrictiveness of covenants is positively related to proxies for agency problems among sets of creditors, and positively related to the level of syndication and to information problems. Collateral is negatively related to equity covenant restrictiveness, suggesting that a firm can maintain some degree of flexibility by pledging collateral.

Finally, our results lend general support to Smith and Warner's costly contracting hypothesis. We also find evidence in favor of the hypotheses that covenants provide incentives to monitor, are less likely to be used in firms with high growth opportunities, and are less likely to be found in loan contracts to firms with large degrees of information transparency.

The preponderance of our evidence suggests that covenant attachment decisions are not related to a firm's *ex ante* credit risk. Lack of significance on the credit risk variables is somewhat surprising, but is consistent with the results of Carey (1995) and Nash, Netter, and Poulson (1997). This puzzle remains to be solved and appears to be a fruitful topic for future research.

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