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Use of Debt Covenants in Small Firms[±]

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This paper examines the structure of debt covenants in small firms, with emphasis on privately owned firms. It is based on a survey of a large sample of firms drawn from the S&P Register of Corporations. The findings show that debt covenants imposed on small firms differ according to the firm type (privately owned or publicly owned), debt level, the borrowing cost,

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and the source of financing (bank or other sources). The evidence is generally consistent with the arguments relating to stockholder-bondholder agency cost conflicts and the Costly Contracting Hypothesis of Smith and Warner (1979).

I. Introduction

Debt covenants are widely used in corporate debt issues, primarily as a means to safeguard the interests of lenders. They form a foundation for the monitoring and control relationship between creditors and borrowers. Properly structured debt covenants can mitigate agency problems between stockholders and bondholders, and thus lower the firm's borrowing costs. However, as Smith (1993) points out, covenants that are too restrictive can severely limit the operating and financial activities of the borrowing firm. In their seminal paper, Smith and Warner (1979) have provided a comprehensive analysis of the role of debt covenants in the context of agency costs between stockholders and bondholders. They identify four major sources of bondholder-stockholder conflicts – dividend payment, claim dilution, asset substitution, and under-investment – and explain how debt covenants can be structured to mitigate each of these potential problems. The first problem relates to excessive dividend payments which can erode the firm's cash flows to the detriment of bondholders. In the extreme case, as suggested by Black (1976), a company can easily escape the debt burden by paying out all of its assets as a dividend thereby leaving creditors with an empty shell. The second problem, claim dilution, would result from the issuance of additional debt that can potentially dilute the claims of prior bondholders. The third problem, asset substitution, relates to the possibility of the firm behavior in which riskier projects are undertaken subsequent to the issuance of debt thereby reducing the value of existing debt claims on the firm. The fourth problem, under-investment, can occur if the firm chooses not to undertake investment projects with positive net present value if the benefit by doing so accrues to the firm's bondholders.

The Costly Contracting Hypothesis by Smith and Warner (1979) proposes that control of bondholder-stockholder conflicts through financial contracts can increase the value of the firm. It also argues that even though debt covenants are costly, the net benefit realized would enable the firm value (and stockholder wealth) to be greater than without them. According to Smith and Warner, bond covenants that are intended to lower the stockholder-bondholder agency conflicts fall into these major categories: restrictions on dividend payments, restrictions on the firm's production and investment policy, restrictions on subsequent financial policy, covenants modifying the pattern of payoffs to bondholders, and covenants specifying bonding activities by the firm. There have been several studies examining the debt covenants in relation to agency costs in large, publicly owned corporations. Very little research has been done in examining the use of debt covenants in loan contracts of small firms. This study makes an attempt to fill the void.

The rest of the paper is organized as follows. Section II provides a review of literature on debt covenants and motivation for the study. Section III describes the data and methodology. Section IV presents empirical evidence. Finally, Section V provides concluding remarks.

II. Literature Review

A formal treatment of the role of debt covenants in the context of agency problems between stockholders and bondholders was presented in the seminal work of Smith and Warner

(1979) and their work formed a foundation for subsequent empirical research in the area. Fama (1990) analyzes the lenders' incentives to monitor their borrowers and hypothesized that debt seniority, covenants, and maturity structure are set to maximize the monitoring incentives of the senior lender. Chen et al. (1995) analyze a situation in which banks make 'bridge' loans that are junior to publicly-issued long-term debt. According to their analysis, the bank imposes safety covenants to protect its junior claims and also maintains a close surveillance of the firm's activity. The senior bondholders benefit from the higher safety standards imposed by the bank and also from the bank's monitoring. Further, if the bank sets too high a safety standard, the firm's equity value may decline. As a result, the firm may choose to finance its capital needs through the long-term debt market thereby increasing its maturity structure. Park (2000) explores this issue further and addresses the questions as to why banks make short-term loans, why their claims are senior to other claims, and why banks impose the most restrictive covenants on borrowing firms. His analysis shows that junior lenders do not monitor and senior debt is best held by financial intermediaries with the lowest monitoring costs. In order to maximize the monitoring incentives of the senior lender, the senior claim will have the most restrictive covenants and the shortest possible maturity.

Day and Taylor (1998) argue that debt covenants play a wider role in corporate governance for controlling relationships between lenders and firms and discuss the need for standardization of debt contracts. Any violation of debt covenants results in a technical default and, according to the findings in Beneish and Press (1995) and Fargher, Wilkins, and Holder-Webb (2001), such violations are associated with increases in the firm's risk (systematic and unsystematic) and a decline in stock prices. According to research by Mohrman (1989), Beneish and Press (1993), and Gopalakrishnan and Parkash (1995) debt covenants that are most commonly imposed on the borrowing firm relate to its profitability, liquidity, and leverage, and violating them happens to be associated with the most technical defaults. Using Dealscan database from Loan Pricing Corporation (LPC), Dichev and Skinner (2002) find that the three most frequently imposed debt covenants are the ratios of debt to cash flow, interest coverage, and fixed charge coverage. From a survey of senior bankers, Cotter (1998) finds that the most commonly used covenants in Australia are leverage, interest coverage, current ratio, and prior charges ratio. Day and Taylor (1997) interviewed bank loan officers in UK and found that majority of them saw debt covenants as a means to provide early warning signals of potential problems at the borrower firms and, in the event of deteriorating financial conditions, covenants turn out to be powerful levers to renegotiate the terms with the borrowers. They also found that dividend restrictions are rarely stipulated in bank loan covenants in UK, probably to avoid being a "shadow director" of the companies to which they lend. This evidence contrasts the finding of Healy and Palepu (1990) for US firms which commonly encounter dividend restrictions in their debt contracts.

Studies by Iskandar-Datta and Emery (1994) have found a trade-off between restrictive covenants and interest costs of debt. Their findings also showed an association between indenture provisions and credit ratings indicating that rating agencies may use the information in indentures in their evaluation process. An analysis of L.A. Gear's case by DeAngelo, DeAngelo, and Wruck (2002) suggests that debt covenants can be a stronger disciplinary mechanism than the contractual requirement of making periodic interest payments on debt. The L.A. Gear case also shows that short-term debt enables frequent oversight and renegotiation of

credit agreements by lenders thereby limiting the ability of managers to use liquid assets for circumventing the disciplinary pressures of debt. According to a study by Berger and Udell (1990), provisions relating to collateral requirements are associated with higher credit risk to lenders, i.e., the loan contracts of riskier borrowers had collateral provisions.

Ramsay and Sidhu (1998) examine private debt (bank) agreements of a small sample of 16 contracts. They find prevalence of 'tailored' accounting based constraints as well as non-accounting based restrictions on firms' production and investment policies. Debt covenants also included financing, bonding, and reporting activities of the borrowing firms. The analysis presented in Pashley, Krishnaswamy, and Gilbert (1997) shows that debt covenants restricting the sale of depreciable assets may be positively associated with the amount of debt used by the firm and, as a result, the firm's compliance costs would be higher. Begley and Feltham (1999) examined the relationship between debt covenants (restrictions on dividends and additional borrowing) and management incentives. They hypothesized that a large cash compensation to CEO aligns CEO's interests with debt holders and large equity holdings align CEO's interests with equity holders. Using a sample of 91 senior debt issues by industrial firms, they find that covenants have a significant negative relation to CEO cash compensation and an insignificant relation to the CEO's equity holdings.

With respect to debt covenants relating to restrictions on dividend payments, John and Kalay (1982) show that debt covenants minimizing dividend payments are necessary to prevent potential wealth transfers from bondholders to stockholders. However, Kalay (1982) notes that the actual dividend payment levels are below the maximum levels allowed by the constraints which suggests that dividend related covenants may be superfluous. Consistent with this notion, Frankfurter and Wood (2002) argue, "although substantial in preemption of agency costs, its (sic) dividend policy is not a major source of bondholder wealth expropriation."

While the above studies addressed various issues relating to debt covenants, none of them have examined issues relating to debt covenants in small firms, especially privately-owned businesses. Our study fills the gap and sheds light on various aspects of debt covenants in small firms, and the motivation for the study stems from the fact that large-public firms and small-private firms differ structurally in several ways. First, in small firms the control of the firm's primarily rests in the hands of major owners who also happen to be the top managers. Outside equity owners, if any, tend to hold minority stakes and possess little control over the managerial behavior. Additionally, illiquidity of stock ownership, small number of investors, and information limitations tend to be more severe in private firms. Lack of discipline from stock market and takeover mechanism further exacerbate the agency problems in small firms. The boards of small firms are typically dominated by managers themselves, major stockholders and their family members and are susceptible to a lack of discipline or monitoring from outsiders. In contrast to the empirical evidence on large firms, for example Bathala and Rao (1995) who have found that outside directors on the board play an important role in mitigating agency conflicts between management and shareholders, Mace (1948) observes that board members of small firms do not play a major role in the formulation of higher level strategies or monitoring of top management.

In regard to information availability, public firms are required to file extensive information and periodic statements to the SEC and security exchanges which is not the case

with private firms. Often, the small firms' financial statements are not even audited and they need not prepare quarterly statements. Analyst following and institutional investors serve as information gatherers as well as monitors of managerial behavior. These mechanisms are not available for private firms.

With respect of debt finance, large-public firms tend to rely more heavily on publicly issued debt and the trustee for the bond issue, bond rating agencies, and investor trading activities provide the much needed monitoring functions. In case of small-private firms, the debt capital is primarily from bank finance, loans from family and friends, and accounts payable. Therefore, the monitoring is primarily by lenders themselves and credit bureaus for credit ratings. The potential default risk also varies between publicly-owned and privately-owned firms because publicly-owned firms tend to have larger management teams, professional managers, larger asset base, and a greater potential to tide over the ups and downs of economic fortunes.

Owing to these major differences between public and private firms, we expect a great deal of divergence in debt covenants between the two groups. For example, there need not be a debt covenant for furnishing audited financial statements if it were a publicly-owned firm but it could be important for a privately-owned firm. Seeking guarantees from owner-managers and collateral for loans may be prominent among the debt covenants of private firms compared to public firms. Specifically, our research will provide answers to the following questions: (1) Which debt covenants are widely used in small firms? (2) Are there any differences in debt covenants in privately-owned and publicly-owned firms? (3) What are the major influencing factors of debt covenants in privately-owned firms? and (4) Can issues relating to agency costs and information asymmetry explain the differences in debt covenants among small firms?

III. Data and Methodology

The data for this research were gathered using a survey instrument. The Standard & Poor's 1997 Directory of Corporations (Vol.1) is the source of names and addresses of the corporations surveyed in this research. The S&P Directory includes corporations (public and private), non-profit firms, charitable institutions, and trusts. From each page of the S&P Directory we chose the first firm in the first column. Next, we removed from the list all types of entities other than private and public corporations from the list (charities, universities, non-profit hospitals, etc.). This procedure resulted in a sample of 2,870 companies – 2,251 private firms (78.4 percent) and 619 public firms (21.6 percent). The survey was anonymous and the questionnaire was not marked in order to ensure anonymity of responding firms. The survey instrument was four pages long and it sought information on ownership/governance issues, shareholder agreements, sale/transfer of ownership, and financial policies.

The survey questionnaires were mailed in the month of August, 1998. A total of 275 firms provided responses for a response rate of 9.6%. An additional 75 envelopes were returned to us as undeliverable. Of the responses received 251 were usable. The response rate, although somewhat low, looks typical of surveys involving small firms. The President or CEO of the company provided as much as 74.5% of the responses, but the proportion of responses provided by them is higher for publicly owned firms (78%) than for privately owned firms (61%). However, from the comparisons presented below, we note that the responding firms are representative of the firms in the population. Further, the final sample size is large enough for

the purpose of the statistical methods (parametric and non-parametric) employed in the paper and making inferences about the data.

Out of the total of 251 responses, 201 (80.1%) are from privately-owned companies and 50 (19.9%) are from publicly-owned companies. This distribution is very close to the distribution of firms in the mailing list (2,870 companies) --- 2,251 private firms (78.4%) and 619 public firms (21.6%). The distribution of sample firms according to their business background is as follows: 130 firms (52%) are in manufacturing sector; 26 firms (10.4%) are in trading sector (wholesale and retail); 25 firms (10%) in agriculture, construction and mining, and 19 firms (7.6%) in service sector. The distribution of sample firms according to sales are as follows: 153 firms (61.7%) have sales revenues of \$25 million or less. Of this, 139 are private firms (90.8%) and 14 (9.2%) are public firms. We find 17 firms (6.8%) with sales over \$500 million, of which 3 are private firms (17.6%) and 14 (82.4%) are public. The major difference between the distributions of private and public firms is that a greater proportion of public firms are larger in size than private firms. In terms of company size measured as the number of employees, a total of 138 firms (55%) have 100 or fewer employees. However, 125 of those firms are private (90.6%) whereas only 13 firms (9.4%) are public. At the other extreme, in the category of firms with employees of 500 or more, there are a total of 41 firms (16.3% of total respondents) of which 13 firms (31.7%) are private and 28 firms (68.3%) are public. Overall, sales and number of employees seem to correlate highly.

The data gathered from our survey are in different forms: (a) use of a Lichert scale (for example, 1 = Least important; ---- 5 = Most important), (b) by a range of values (for example, 1 = Zero% debt ratio; ----- 6 = Debt ratio over 75%), (c) identification by a classification scheme (for example, 1 = Short-term debt; 2 = Medium-term debt, and 3 = Long-term debt), and (d) continuous measurement (for example, the CEO's length of experience at the firm). The classifications or rankings were appropriately used to capture the differences according to the needs of statistical approaches used in the study. The survey instrument was comprehensive and the questionnaire covered various topic areas, ownership and governance, CEO characteristics, financial policies (debt, dividends, and lease financing), and incentive/control mechanisms in firms. In this paper, we use survey responses that are relevant for examining the issues relating to debt covenants.

In the section about debt financing, we sought information about debt covenants. Specifically, the sample firms were asked to indicate the loan requirements and restrictive covenants relating to bank loans and loans from other sources. The loan requirements/covenants included in the questionnaire were intended to analyze the structure of debt covenants in small firms from the agency costs perspective of Smith and Warner (1979) and the questions sought information relating to both positive and negative covenants. The positive covenants are: (1) reporting covenants (furnishing financial statements and statements of accounts receivable and inventory), (2) bonding covenants (personal guarantees, requirement of life insurance policies of key personnel, and collateral requirements), and (3) ownership and control covenants (seeking stock ownership or representation on the company's board). The negative or restrictive covenants pertain to (1) restrictions on dividend payments (maximum payout ratio), (2) restrictions on salary/other compensation to officers and directors (to contain potential wealth expropriation by managers), (3) restrictions relating to maximum debt ratio and minimum liquidity (to control financial risk), and (4) restrictions on types on investments

or capital expenditures (to control the risk shifting behavior). A priori, we form the following hypotheses:

- H-1: Bank loans entail more covenants than loans from other sources.
- H-2: Privately-owned and publicly-owned firms differ in the debt covenants imposed on them.
- H-3: Within the privately-owned firms, debt covenants differ by (a) ownership and (b) firm size differences.
- H-4: Within the privately-owned firms, debt covenants would be positively related to (a) debt leverage, (b) debt cost, and (c) debt collateral.

Our first hypothesis (H-1) follows Chen, et al. (1995) and Park (2000) who showed that banks tend to be the active monitors of loans and they tend to be more stringent in imposing covenants to safeguard their claims against the firm. Our other hypotheses (H-2, H-3, and H-4) are based on the potential differences in informational asymmetry and agency problems between firms that differ in ownership structure and firm size. The hypothesis H-2 is based on several differences between publicly-owned and privately-owned firms with respect to agency problems, informational asymmetry, and potential bankruptcy costs that were enumerated in the prior section of the paper.

Hypotheses H-3 and H-4 are examined for the debt covenant differences within the privately-owned group. H-3 proposes that debt covenants differ by differences in (a) ownership and (b) firm size. We argue that family owned firms, compared to closely/widely owned firms are likely to be subject to more debt covenants for such reasons as greater credit risks and information limitations. For similar reasons, smaller firms are likely to be subject to more debt covenants. H-4 proposes that debt covenants would be positively associated with (a) debt leverage, (b) cost of debt, and (c) debt collateral. The hypothesis H-4a is intuitive in that the greater the debt leverage the higher the potential bankruptcy risk and thus more debt covenants. Hypotheses H-4b and H-4c, on the other hand, assume that lenders assuming higher risks would not only require higher rates of return on their loans but also attach more debt covenants. Thus, the cost of debt and debt covenants would be positively related. In a similar vein, one can argue that that if lenders assume greater risks they are more likely to require collateral and also impose more debt covenants on those loans.

For empirical analysis, we use Chi-Squared tests and a multiple regression model. The Chi-Squared tests, in univariate setting, enable us to test the null hypothesis that there is no difference between the set of observed cell frequencies and the set of expected cell frequencies in a two-way classification scheme. Our emphasis is on privately-owned firms and therefore, we decompose the analyses further according to ownership differences (family-owned vs. closely- or widely-owned), firm size, and the use of debt leverage. The number of survey responses and the cell sizes are sufficiently large to make such comparisons among private firms using the Chi-Squared approach. Further, more general comparisons with publicly-owned firms are made using the data from the same survey. In our second approach, multiple regression analysis, we examine cross-sectional variations in debt covenants by estimating a

regression equation with a scaled measure of debt covenants as the dependent variable and a set of explanatory variables reflecting dimensions such as debt structure, inside ownership, CEO experience, dividend payout, age of the company, and the firm type (private or public).

While the two empirical approaches employed in the paper are appropriate for the data at hand and the inferences we intend to make, two potential need to be pointed out up-front. First, in Chi-Squared analysis, some frequency tables have expected cell sizes smaller than five but such instances were just a few. Second, in multiple regression analysis, many variables are discrete (for example, responses received on a Lichert scale or using a classification scheme to distinguish the variable of interest by multiple levels). But, from the degree of variation afforded by the classification scheme that we have used, the large number of observations for the regression, and the model's explanatory power, we are confident about the results.

IV. Empirical Evidence

As debt covenants do not apply to those firms which do not use borrowed funds in their capital, we exclude such firms from our analysis of debt covenants. This resulted in a sample of 147 private firms and 39 public firms which employed debt in their capital structure. In this we discuss our findings from the Chi-Squared method and a multiple regression model. In Chi-Square analysis, we examine the differences in debt covenants and loan requirements according to loan type, ownership structure, firm size, debt features, and other firm characteristics. The univariate analysis with Chi-Squared tests enables us to identify the characteristics of firms that differentiate them with respect to the various debt covenants. However, they did not allow us to examine the partial effects of the various influencing factors of debt covenants while controlling for other variables. A multiple regression analysis is a useful technique to overcome this limitation as it enables us to regress the dependent variable on a set of explanatory variables. Using a multiple regression model, we would examine the relationship between the number of debt covenants on a firm and a set of debt related agency and bankruptcy costs, asset substitution, underinvestment, and risk shifting. Our expectation is that the firms with higher agency and bankruptcy costs will have a larger number of debt covenants.

Univariate Analysis

In univariate analysis we examine the frequency distribution of various debt covenants by different firm characteristics: (A) Bank loans versus other loans, (B) Ownership and firm size differences, and (C) Differences in debt features. For statistical testing, we use the Chi-Square approach and verify the null hypothesis that the expected and observed cell sizes are not significantly different from each other.

a. Bank Loans versus Other Loans

In Table I we examine the differences in covenants between bank loans and loans from other loans for privately-owned firms and publicly-owned firms. First, we examine debt covenants imposed in bank loans to firms. The three most widely used covenants in bank loans to privately-owned firms relate to (1) furnishing financial statements (95.2% of firms), (2) collateral of property and equipment (62.6% of firms), and (3) personal guarantees from major stockholders, officers, or directors (53.1% of firms). In case of publicly-owned companies, the three most widely used covenants in bank loans are (1) furnishing financial statements (87.2%

of firms), (2) restrictions on maximum debt level (41.0% of firms), and (3) requiring minimum level of liquidity (41.0% of firms).

According to the Chi-Squared test statistics, private and public firms differ from each other (at a 10% level of statistical significance or better) with respect to debt covenants relating to furnishing of financial statements (p-value = 0.069), personal guarantees from major stockholders, officers, or directors (p-value < 0.0001), collateral of property and equipment (p-value = 0.0004), restrictions on maximum dividend payments (p-value = 0.004), restrictions on maximum debt level (p-value = 0.019), and requirement of minimum liquidity (p-value = 0.094). In the case of private firms, banks' covenants geared more toward reporting and bonding requirements seem to be driven by informational asymmetry and security considerations. Compared to this, banks seem to be more concerned about excessive dividend payments and financial risk considerations in imposing covenants on loans to publicly-owned firms.

Next, we compare debt covenants between bank loans and loans from other sources. In general, firms are subject to far fewer debt covenants when they borrow from sources other than banks. This finding is consistent with our a priori expectations and with the analysis in Chen, et al. (1995) and Park (2000). For private firms the three most widely used covenants in loans from other sources are the same as in the case of bank loans. In case of public firms, the three most popular debt covenants in loans from other sources are furnishing of financial statements, collateral of property and equipment, and restrictions on dividend payments.

In view of the small number of publicly-owned firms (n=39), it would be difficult to make any further rigorous analysis of debt covenants in those firms. Therefore, we concentrate on privately-owned firms for a more detailed analysis debt covenants. Lenders other than banks are not a homogeneous group and, as noted in Table I, loans from those sources do not contain many debt covenants. For these reasons, our further analysis will focus on debt covenants in bank loans to privately-owned firms.

b. Ownership and Firm Size Differences

In Table II we examine the differences in frequency distributions of covenants in bank loans to private firms. The analysis is conducted by separating the firms according to ownership structure (family owned, n = 98; closely or widely owned, n = 50) and firm size (sales <= \$25 million, n = 103; sales > \$25 million, n = 45). For the most part, ownership or firm size differences do not seem to matter in the imposition of loan covenants by banks. The statistically significant differences as noted on the basis of Chi-Squared statistics relate only to the firm size differences with respect to the following two covenants. As high as 60.2% of smaller private firms (sales <= \$25 m) are subject to covenants requiring personal guarantees from major stockholders, officers, or directors as opposed to only 35.6% of larger private firms (sales > \$25 m). The Chi-Squared statistic of 7.627 is statistically significant with a p-value of 0.006. About 40% of larger private firms (sales > \$25 m) reported have covenants relating to minimum level of liquidity compared to 21.4% of smaller private firms (sales <= \$25 m) having such covenants. The Chi-Squared statistic of 5.513 is statistically significant with a p-value of 0.019.

c. Differences by Debt Features

We now turn our attention to three different debt characteristics (debt level, borrowing, and collateral for debt) which are likely to have a strong bearing on debt covenants. A firm's financial risk and its potential for bankruptcy would increase as the firm increases its debt leverage. As a consequence, lenders are likely to impose more debt covenants on firms with higher debt use. Therefore, we expect debt covenants to be a positive function of debt leverage used by firms. Bank lending to firms are typically linked to the prime rate and the lending rate would primarily depend upon the bank's risk exposure in the loan. In addition to increasing the lending rate to high risk borrowers, banks are likely to impose more debt covenants on them. If this assumption holds, we can expect a positive association between the firm's borrowing cost and debt covenants. If a bank loan is secured (for example, by accounts receivable or inventory), then the bank's risk exposure diminishes relative to lending on unsecured basis. If so, firms with majority of bank loans in the secured form are likely to be subject to fewer debt covenants. Alternatively, if banks require security on the assumption of higher risks associated with the loan, then they may impose more covenants in addition to lending on secured basis. If this assumption holds, we would see a positive association between secured loans and debt covenants.

First, we examine the relationship between debt leverage and debt covenants. Specifically, we examine this relationship by dividing the responding firms into three groups according to their debt levels (Low debt firms: 1-10% debt ratio, $n = 42$; Medium debt firms: 11-25% debt ratio, $n = 41$; and High debt firms: >25% debt ratio, $n = 59$). As discussed previously, we anticipate an increase in the proportion of firms subject to a given covenant as the debt ratio increases from low to high.

The frequency distributions of firms in different debt levels and the covenants to which they are subject are presented in Table III. The Chi-Squared tests are conducted to verify if there are significant differences between the expected and observed cell counts. From the data in Table III, we can first notice that the proportion of firms that are subject to any given covenant increases with the level of debt providing a general confirmation to our hypothesis, H-4. The statistically significant differences, however, relate to covenants involving bonding and collateral requirements, maximum debt levels, minimum liquidity levels, and the type of investments. The Chi-Squared statistics and p-values relating to the expected versus observed frequency distributions of those covenants have statistical significance at the 5% level or better. This evidence clearly points out that banks are concerned with the increasing potential for risks of bankruptcy and asset substitution as the firms they lend to become increasingly levered.

Second, we examine the relationship between the cost of bank loans and bank loan covenants in private firms. For this purpose, we classify borrowing costs into two categories – borrowing at or below the prime rate ($n = 85$) and borrowing above the prime rate ($n = 64$). The data and the Chi-Squared test statistics are presented in Table IV. As can be seen, in every debt covenant the proportion of firms whose borrowing cost is above the prime rate is larger than the proportion of firms whose borrowing cost is below the prime rate and the difference is statistically significant for 7 out of 12 covenants. This evidence supports our contention of a positive linkage between the loan covenants and the borrowing cost, a relationship that is implied in Smith and Warner's Costly Contracting Hypothesis.

Third, we examine the relationship between debt security and debt covenants. In the survey questionnaire, we asked firms to indicate if the majority of debt used by them is unsecured or secured. Table IV contains the frequency distributions of debt covenants in firms that differ in debt security: majority of debt being on secured or unsecured basis. As can be seen, in every debt covenant a larger percentage of firms in the secured debt category are subject to the covenant in question relative to the firms in the unsecured debt category. The Chi-Squared tests suggest that the two groups differ in the imposition of loan covenants upon them, with the exception of the covenants relating to furnishing of financial statements, life insurance of key personnel, and limits on executive salary/compensation. This evidence seems to support the contention that banks not only require security for their loans when their lending risks are high but also impose more covenants on such firms. Conversely, low risk firms seem to receive bank loans on an unsecured basis and are subject to fewer covenants at the same time.

Regression Analysis

The univariate analyses and Chi-Square tests in the previous section have provided insights into the differences in debt covenants by different firm characteristics. Since univariate approaches do not allow us to control for other influencing factors, we conduct multivariate analysis by employing a multiple regression model with a measure of debt covenants as the dependent variable. Through regression analysis we can examine the cross-sectional variations in debt covenants using multiple dimensions of explanatory variables reflecting ownership differences, debt characteristics, dividend payout, company size, age, and the firm's class (private or public).

a. Description of the Regression Model

The dependent variable in our regression model is BANKCOV, the sum of different bank covenants imposed on the firm. We assume that the total number of different covenants imposed on a firm is a function of various influencing factors such as debt related agency and bankruptcy costs, asset substitution, underinvestment, and risk shifting that are enumerated in Smith and Warner (1979). Specifically, we use the sum of the affirmative responses to survey questions relating to the existence or otherwise of the following covenants: (1) Furnishing financial statements, (2) Periodic statements of accounts receivable and inventory, (3) Personal guarantees from major stockholders, officers, or directors of the firm, (4) Collateral of property and/or equipment, (5) Life insurance covering the key personnel or major stockholders of the firm, (6) Requiring representation on the company's board of directors, (7) Seeking equity ownership in the firm, (8) Maximum dividend payout ratio, (9) Maximum salary/other compensation to the company's officers and directors, (10) Maximum debt level, (11) Minimum level of liquidity, and (12) Types of investments or capital expenditures that the company can make. As in the univariate analysis, we have excluded firms that responded indicating no debt financing in their capital. The explanatory variables are those that are conceptually and empirically important from the standpoint of debt covenants imposed on the firm. We specify the following multiple regression equation. The measurement of variables is described in Table V.

| |
|--|
| $\text{BANKCOV} = f(\text{DEBTRAT DEBTMAT DEBTCOLL DEBTCOST TRCREDIT} \\ \text{INSOWN CEOEXP PAYOUT COMPAGE SIZE FIRMTYPE})$ |
|--|

Our first explanatory variable in the regression is DEBTRAT, the debt ratio with numerical values ranging from 2 to 6. The value of 2 is assigned to the responses that checked the debt ratio in the range of 1-10% and the value of 6 is assigned to the responses indicating the debt ratio over 75%. The numerical value of 1 is excluded as it was assigned for responses indicating no debt usage. We expect a positive relationship between DEBTRAT and BANKCOV. The DEBTMAT variable indicates the maturity structure of majority of the firm's debt. The maturity differences are captured by numerical values, 1 = short-term, 2 = medium-term, and 3 = long-term. Typically, long-term debt is riskier from lender's standpoint and they may impose more covenants for assuming higher risks in lending for long term. On the other hand, banks typically lend for short term and they tend to impose more covenants on borrowers than other lenders. As a result, it is hard to make an a priori determination of the sign for the parameter estimate of DEBTMAT. SECDEBT indicates if majority of the firm's debt is unsecured (value = 1) or secured (value = 1). As discussed previously, secured debt may be associated with fewer or more debt covenants. As such, the sign for the coefficient of SECDEBT is indeterminate.

The borrowing cost of debt, DEBTCOST, is measured on a numerical scale of 1 to 5 (1 = borrowing cost below the prime rate.....5 = borrowing cost more than 5% over the prime rate). The larger the number the higher the borrowing cost. As riskier firms tend to have higher borrowing costs, it would be reasonable to assume that such firms are also subject to more debt covenants. Therefore, we hypothesize positive coefficient for the DEBTCOST variable. Trade credit (TRCREDIT) is a major source of financing for small firms. This variable is measured on a Lichert scale with values ranging from 1 to 5 indicating the importance of trade credit as a source of financing (1 = least important.....5 = most important). It is likely that banks may view firms with heavy reliance on trade credit as riskier because high trade credit balances may induce a potential dilution of the their own claims against the firm. In order to increase the safety of their loans banks may impose more debt covenants on such firms. Therefore, we expect a positive sign for the coefficient of TRCREDIT.

INSOWN and CEOEXP are intended to capture the managerial incentive effects that may impact the risk perception banks for lending as well as determination of debt covenants. INOWN is a measure of insider ownership of common stock, the percentage of firm's stock owned by its officers and directors. It is measured on a numerical scale with the value of 1 indicating no insider ownership and the value of 5 for insider ownership greater than 75%. A high insider stock ownership may lead to increased agency costs between stockholders and bondholders especially those associated with underinvestment and risk shifting. As such, INSOWN is likely to have a positive association with BANKCOV. The CEOEXP is measured as the number of years of CEO's experience in that position with the firm. The CEOs with longer tenures indicate stability of leadership at the firm level and such CEOs are also likely to have long-standing relationships with lenders, especially banks. These positive aspects may reduce lending risks and banks may choose to impose fewer debt covenants of the firm. This possibility suggests a negative association between CEOEXP and BANKCOV.

The potential for excessive dividend payments is a major source of agency conflicts between stockholders and bondholders. In order to prevent this potential agency problem, bondholders are likely to impose more debt covenants on the firm in addition to a restrictive covenant on dividend payments. If this argument holds, we would find a positive relationship between the firm's dividend payout ratio (PAYOUT) and its debt covenants (BANKCOV). This PAYOUT variable is measured on a numerical scale of 1 to 6...the value of 1 with responses for zero payout ratio and 6 with responses for payout ratio greater than 75%.

The next explanatory variable, COMPAGE, is the company's age measured as the number of years of its operation. A firm's longevity is indicative of its stability and its potential to weather the ups and downs in economic conditions. Firms in existence for longer time periods are also more likely to have long-term on-going relationships with their bankers. As a result, banks may view such firms to be less risky and impose fewer covenants on them. If this expectation holds, we may find a negative relationship between COMPAGE and BANKCOV. Firm size (SIZE) is measured as on a numerical scale using company sales: 1 = \$50 m or less; 2 = \$51-100 m; 3 = \$101 - \$500 m; 4 = \$500 m - \$1 b; 5 = > 1 b. The last variable, FIRMTYPE, is a 0-1 dummy variable. It takes the value equals 1 if the firm is publicly-owned and 0 if the firm is privately-owned. Firms that are privately owned are prone to potentially greater problems of information asymmetry and bankruptcy risk than publicly owned firms. On the other hand, publicly owned firms are more far more likely to have stockholder-bondholder agency conflicts than privately owned firms. Given this dichotomy, it is difficult to make an unambiguous prediction for the sign of FIRMTYPE variable.

b. Discussion of Regression Results

The regression results are presented in Table V. In all, 148 firms had responses for all the variables in the regression equation. The estimated equation has an adjusted R-Square of 0.2407, which is quite reasonable considering the cross-sectional nature of the study. The Variable Inflation Factors (VIF) of all explanatory variables are less than 2 which enable us to infer that there is no multicollinearity problem causing confounding of parameter estimates.

The coefficients for DEBTRAT, DEBTCOST, and TRCREDIT variables are statistically significant with positive signs as expected. These findings are supportive of our priors that the greater the risks to the lender the more the debt covenants.

The parameter estimate of the CEOEXP variable is also statistically significant but its positive sign is the opposite of our expectation of a negative sign. While this evidence is somewhat surprising, it is plausible that banks may be viewing the CEO's tenure with the firm as a factor for potential entrenchment problems as well as higher stockholder-debt holder related agency conflict. This is a conjecture that seems to explain the positive association between CEOEXP and BANKCOV. The only other variable that has a statistically significant relationship to BANKCOV is FIRMTYPE which has a positive coefficient. This evidence supports the argument that stockholder-debt holder conflicts are likely to be more in publicly owned firms and as a consequence they encounter more debt covenants than privately owned firms. We ran two regression models, without SIZE (Model 1) and with SIZE (Model 2) specifically to assess the partial effect of firm size on debt covenants. With the addition of SIZE the adjusted R-Square improved to 0.2691, but the parameter estimate for SIZE is not statistically significant. However, the variable for secured debt (SECDEBT) that had a positive

but statistically insignificant coefficient has now turned statistically significant at the 10 percent level.

Next, we modified the dependent variable such that its measurement includes only those covenants that are more directly linked to Smith and Warner's costly contracting arguments. We denote the new dependent variable as BANKCOV1, which is the sum of affirmative responses for the following six debt covenants: (3) Personal guarantees from major stockholders, officers, or directors of the firm, (4) Collateral of property and/or equipment, (8) Maximum dividend payout ratio, (10) Maximum debt level, (11) Minimum level of liquidity, and (12) Types of investments or capital expenditures that the company can make. The results from this regression model (Model 3) are presented in Table V. This model has an adjusted R-Square of 0.2115 (versus 0.2691 for Model 2), indicating loss of some explanatory power owing to fewer number of covenants included in the measurement of the dependent variable. Further, the results are essentially the same except for slight changes in the statistical significance of some of the explanatory variables.

c. Loan Covenants and Cost of Debt: Further Analysis

Both univariate and regression analyses revealed evidence of a positive association between the cost of debt and loan covenants, a result that is consistent with Smith and Warner's Costly Contracting Hypothesis which implies that loan covenants should be priced in the market. However, one reviewer suggested that we can do a more direct test of the observed relationship between the two by regressing the cost of debt on various loan covenants and firm characteristics. Following by the reviewer's suggestion, we regressed the cost of debt (DEBTCOST: 1 = *Below Prime Rate*; 2 = *At Prime Rate*; 3 = *Up to 2% over Prime Rate*; 4 = *Between 2.1 and 5% over Prime Rate*; 5 = *More than 5% over Prime Rate*) on loan covenants variables (two separate regressions for BANKCOV and BANKCOV1) and firm characteristics as in the previous regressions. The findings show that the loan covenants variable, measured as either BANKCOV or BANKCOV1, is positively related to the cost of debt with the coefficient for BANKCOV significant at the one percent level and the coefficient for BANKCOV1 significant at the five percent level. In both regressions the SIZE variable has a negative coefficient that is statistically significant at the one percent level. None of the other variables have coefficients that are statistically significant. Therefore, for the sake of brevity results from these regressions are not reported in a separate table.

V. Concluding Remarks

Our study of an examination of debt covenants in small firms is based on a survey of a large sample of firms drawn from the S&P Directory of Corporations. The responses received from the firms participating in the survey formed the data base for the empirical analysis in the study. For data analysis we have used Chi-Squared tests and a multiple regression analysis.

The study has provided interesting insights into the debt covenants in small firms and the findings are unique in many ways. First, no other study known to us has made a comprehensive examination of debt covenants in small firms, especially privately owned firms. Second, in addition to providing a comparison of debt covenants between privately-owned and publicly-owned firms, the study explains the differences in debt covenants in privately-owned firms on the basis of firm characteristics relating to ownership and debt leverage.

The major findings from the study are as follows. First, debt covenants imposed on most small firms relate to bank loans than loans from other sources. Second, a larger proportion of private firms compared to public firms are subject to positive covenants or loan requirements that are of reporting and bonding nature (e.g., furnishing financial statements, offering guarantees, collateral, or life insurance policies to secure loans. A higher percentage of public firms, on the other hand, are subject to covenants primarily relating to excessive dividend payments, excessive use of debt, restrictions on the type of investments or capital expenditures; perhaps, to prevent asset substitution, and maintenance of minimum liquidity. The restrictive covenants relating to dividends could be because the average size of these public firms is larger, indicating they are more mature firms. More mature firms tend to pay higher dividends. Thus excessive dividend can become more of a problem. Less established smaller firms tend to be short of cash, hence having less incentive to pay dividend. Second, public firms are known to have shareholders. Third, among private firms, we do not find significant differences in most of the covenants imposed by banks on the basis of differences in ownership (family owned or closely/widely owned) or firm size. Fourth, among private firms, the proportion of firms subject to bank loan covenants increases with the debt level, the cost of borrowing, and if the debt is on secured basis. In general, the findings from regression analysis are consistent with the findings from the Chi-Squared tests, and it strengthens our findings by controlling for the various factors that have a bearing on debt covenants. Overall, the findings are consistent with the arguments relating to agency cost conflicts between stockholders and bondholders. More importantly, the sustained positive relationship between loan covenants and the cost of debt observed in both univariate and multiple regression analysis supports the implication of Smith and Warner's Costly Contracting Hypothesis that loan covenants should be priced in the market.

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| Table I | | | | | | |
|---|-----------------------|---------------------|------------------|-----------------------|---------------------|------------------|
| Loan Requirements and Restrictive Covenants – Private vs. Public Firms | | | | | | |
| Question: Banks and creditors typically require protection for their loans in several ways. Please indicate (with “X”) the conditions/restrictions relating to bank loans and loans from other sources that the firm has utilized. | | | | | | |
| Cell values are the Number (Percentage) of firms within the respective class (Private or Public) indicating the existence of the covenant in question. | Bank Loans | | | Other Loans | | |
| | Private Firms (n=147) | Public Firms (n=39) | Chi-Sq. (p-val.) | Private Firms (n=147) | Public Firms (n=39) | Chi-Sq. (p-val.) |
| Loan Requirements (Positive Covenants) | | | | | | |
| <i>Furnishing financial statements: inc. statement, bal. sheet, and cash flows.</i> | 140 (95.2) | 34 (87.2) | 3.316 (0.069) | 18 (12.2) | 12 (30.8) | 7.819 (0.005) |
| <i>Periodic statements of accounts receivable and inventory.</i> | 58 (39.5) | 13 (33.3) | 0.489 (0.484) | 8 (5.5) | 2 (5.1) | 0.007 (0.931)@ |
| <i>Personal guarantees from major stockholders, officers, or directors.</i> | 78 (53.1) | 6 (15.4) | 17.667 (< .0001) | 12 (8.1) | 0 (0.0) | 3.403 (0.065) |
| <i>Collateral of property and/or equipment.</i> | 92 (62.6) | 12 (30.8) | 12.657 (0.0004) | 16 (10.9) | 6 (15.4) | 0.599 (0.439) |
| <i>Life insurance covering the firm’s key personnel or major stockholders.</i> | 31 (21.1) | 5 (12.8) | 1.350 (0.245) | 8 (5.5) | 1 (2.6) | 0.565 (0.452)@ |
| <i>Requiring representation on the company’s board of directors.</i> | 0 (0.0) | 0 (0.0) | N/A | 1 (0.7) | 2 (5.3) | 3.975 (0.046)@ |
| <i>Seeking equity ownership in the firm.</i> | 0 (0.0) | 0 (0.0) | N/A | 2 (1.4) | 2 (5.1) | 2.079 (0.149) |
| Loan Restrictions (Negative Covenants) | | | | | | |
| <i>Maximum dividend payments (e.g., max. payout ratio) to stockholders.</i> | 20 (13.6) | 13 (33.3) | 8.220 (0.004) | 2 (1.4) | 6 (15.4) | 14.728 (0.0001)@ |
| <i>Max. salary/other compensation to the company’s officers & directors..</i> | 9 (6.1) | 1 (2.6) | 0.767 (0.381)@ | 6 (4.1) | 0 (0.0) | 1.645 (0.200)@ |
| <i>Max. debt level (e.g., maximum debt level as a percentage of total capital).</i> | 33 (22.4) | 16 (41.0) | 5.482 (0.019) | 6 (4.1) | 5 (12.8) | 4.230 (0.040)@ |
| <i>Min. level of liquidity (e.g., min. current ratio, coverage ratio, or working capital).</i> | 40 (27.2) | 16 (41.0) | 2.795 (0.094) | 4 (2.7) | 5 (12.8) | 6.828 (0.009)@ |
| <i>Types of investments or capital expenditures the firm can make.</i> | 22 (15.0) | 9 (23.1) | 1.460 (0.227) | 5 (3.4) | 2 (5.1) | 0.254 (0.614)@ |

Note: Chi-Square tests are based on the 2 x 2 contingency tables, with two classes of firms (Private and Public) and two responses (a check mark or no check mark) for the existence of respective covenant. For brevity, only the cell counts (percentages) of firms responding with a check mark or “yes” are furnished in the table.

@ indicates that 25 percent or more of expected counts have values less than 5.

| Table II | | | | | | |
|---|---------------------------------|---|----------------------------|--|--------------------------------------|----------------------------|
| Banks' Loan Requirements and Restrictive Covenants – Private Firms | | | | | | |
| <i>Question: Banks and creditors typically require protection for their loans in several ways. Please indicate (with "X") the conditions/restrictions relating to bank loans and loans from other sources that the firm has utilized.</i> | | | | | | |
| <i>Cell values are the Number (Percentage) of firms within the respective class (By Ownership or By Firm Size) indicating the existence of the covenant in question.</i> | By Ownership | | | By Firm Size | | |
| | Family Owned (n = 98) | Closely/Widely Owned (n = 50) | Chi-Sq. (p-val.) | Sales <= \$25 m (n = 103) | Sales > \$25 m (n = 45) | Chi-Sq. (p-val.) |
| Loan Requirements (Positive Covenants) | | | | | | |
| <i>Furnishing financial statements: inc. statement, bal. sheet, and cash flows.</i> | 93 (94.9) | 49 (98.0) | 0.819 (0.366) | 97 (94.1) | 44 (97.8) | 0.902 (0.342) |
| <i>Periodic statements of accounts receivable and inventory.</i> | 36 (36.7) | 22 (44.0) | 0.733 (0.392) | 40 (38.8) | 18 (40.0) | 0.018 (0.894) |
| <i>Personal guarantees from major stockholders, officers, or directors.</i> | 53 (54.1) | 25 (50.0) | 0.221 (0.638) | 62 (60.2) | 16 (35.6) | 7.627 (0.006) |
| <i>Collateral of property and/or equipment.</i> | 60 (61.2) | 33 (66.0) | 0.323 (0.570) | 68 (66.0) | 25 (55.6) | 1.468 (0.226) |
| <i>Life insurance covering the firm's key personnel or major stockholders.</i> | 23 (23.5) | 8 (16.0) | 1.116 (0.291) | 22 (21.4) | 9 (20.0) | 0.035 (0.852) |
| <i>Requiring representation on the company's board of directors.</i> | 0 (0.0) | 0 (0.0) | N/A | 0 (0.0) | 0 (0.0) | N/A |
| <i>Seeking equity ownership in the firm.</i> | 0 (0.0) | 0 (0.0) | N/A | 0 (0.0) | 0 (0.0) | N/A |
| Loan Restrictions (Negative Covenants) | | | | | | |
| <i>Max. dividend payments (e.g., max. payout ratio) to stockholders.</i> | 12 (12.2) | 8 (16.0) | 0.399 (0.527) | 11 (10.7) | 9 (20.0) | 2.328 (0.127) |
| <i>Max. salary/other compensation to the officers and directors..</i> | 6 (6.1) | 3 (6.0) | 0.009 (0.977) | 6 (5.8) | 3 (6.7) | 0.039 (0.844) |
| <i>Max. debt level (e.g., maximum debt level as a percentage of total capital).</i> | 19 (19.4) | 14 (28.0) | 1.417 (0.234) | 22 (21.4) | 11 (24.4) | 0.172 (0.678) |
| <i>Min. level of liquidity (e.g., min. current ratio, coverage ratio, or working capital).</i> | 24 (24.5) | 16 (32.0) | 0.947 (0.330) | 22 (21.4) | 18 (40.0) | 5.513 (0.019) |
| <i>Types of investments or capital expenditures the firm can make.</i> | 16 (16.3) | 6 (12.0) | 0.490 (0.484) | 14 (13.5) | 8 (17.8) | 0.434 (0.510) |

Note: Chi-Square tests are based on the 2 x 2 contingency tables, with two classes of firms in each case (By Ownership or By Firm Size) and two responses (a check or no check mark) for the existence of respective covenant. For brevity, only the cell counts (percentages) of firms responding with a check mark or "yes" are furnished in the table. @ indicates that 25 percent or more of expected counts have values less than 5.

| Table III | | | | |
|---|--|--|--|-----------------------------|
| Banks' Loan Requirements and Restrictive Covenants – Private Firms | | | | |
| <i>Question: Banks and creditors typically require protection for their loans in several ways. Please indicate (with "X") the conditions/restrictions relating to bank loans and loans from other sources that the firm has utilized.</i> | | | | |
| <i>Cell values are the Number (Percentage) of firms within the respective class (By Debt Leverage) indicating the existence of the covenant in question.</i> | By Debt Leverage | | | |
| | Debt Ratio 1 -10 % (n=42) | Debt Ratio 11 - 25 % (n=41) | Debt Ratio > 25 % (n=59) | Chi-Sq (p-value) |
| Loan Requirements | <i>Cell values are the number (percentage) of firms.</i> | | | |
| <i>Furnishing financial statements: income statement, balance sheet, and cash flows.</i> | 39 (92.9) | 39 (95.1) | 57 (96.6) | 0.738 (0.691) |
| <i>Periodic statements of accounts receivable and inventory.</i> | 12 (28.6) | 17 (41.5) | 28 (47.5) | 3.684 (0.159) |
| <i>Personal guarantees from the firm's major stockholders, officers, or directors.</i> | 16 (38.1) | 20 (48.8) | 37 (62.7) | 6.111 (0.047) |
| <i>Collateral of property and/or equipment.</i> | 21 (50.0) | 24 (58.5) | 45 (76.3) | 7.878 (0.019) |
| <i>Life insurance covering the key personnel or major stockholders of the firm.</i> | 4 (9.5) | 10 (24.4) | 15 (25.4) | 4.378 (0.112) |
| <i>Requiring representation on the company's board of directors.</i> | 0 (0.0) | 0 (0.0) | 0 (0.0) | N.A. |
| <i>Seeking equity ownership in the firm.</i> | 0 (0.0) | 0 (0.0) | 0 (0.0) | N.A. |
| Loan Restrictions / Covenants | <i>Cell values are the number (percentage) of firms.</i> | | | |
| <i>Maximum dividend payments (e.g., max. payout ratio) to common stockholders.</i> | 4 (9.5) | 4 (9.8) | 11 (18.6) | 2.414 (0.299) |
| <i>Maximum salary/other compensation to the company's officers and directors..</i> | 0 (0.00) | 3 (7.3) | 5 (8.5) | 3.622 (0.164) |
| <i>Maximum debt level (e.g., maximum debt level as a percentage of total capital).</i> | 3 (7.1) | 9 (21.9) | 20 (33.9) | 10.072 (0.006) |
| <i>Min. level of liquidity (e.g., min. current ratio, coverage ratio, or working capital).</i> | 5 (11.9) | 10 (24.4) | 24 (40.7) | 10.469 (0.005) |
| <i>Types of investments or capital expenditures that the company can make.</i> | 2 (4.8) | 4 (9.8) | 15 (25.4) | 9.470 (0.009) |

Note: Chi-Square tests are based on the 3 x 2 contingency tables, with three classes of firms (By Debt Leverage) and two responses (a check or no check mark) for the existence of respective covenant. For brevity, only the cell counts (percentages) of firms responding with a check mark or "yes" are furnished in the table. @ indicates that 25 percent or more of expected counts have values less than 5.

Table IV
Banks' Loan Requirements and Restrictive Covenants – Private Firms

| <i>Question: Banks and creditors typically require protection for their loans in several ways. Please indicate (with "X") the conditions/restrictions relating to bank loans and loans from other sources that the firm has utilized.</i> | | | | | | |
|---|----------------------------------|---------------------------------|-------------------------|--------------------------------|------------------------------|-------------------------|
| <i>Cell values are the Number (Percentage) of firms within the respective class (By Debt Cost or By Debt Security) indicating the existence of the covenant in question.</i> | <i>By Debt Cost</i> | | | <i>By Debt Security</i> | | |
| | <i><= Prime Rate (n = 85)</i> | <i>> Prime Rate (n = 64)</i> | <i>Chi-Sq. (p-val.)</i> | <i>Unsecured Debt (n = 45)</i> | <i>Secured Debt (n = 94)</i> | <i>Chi-Sq. (p-val.)</i> |
| Loan Requirements (Positive Covenants) | | | | | | |
| <i>Furnishing financial statements: inc. statement, bal. sheet, and cash flows.</i> | 79 (92.9) | 63 (98.4) | 2.463 (0.117) | 42 (93.3) | 90 (95.7) | 0.370 (0.543) |
| <i>Periodic statements of accounts receivable and inventory.</i> | 30 (35.3) | 28 (43.8) | 1.098 (0.295) | 10 (22.2) | 47 (50.0) | 9.707 (0.002) |
| <i>Personal guarantees from major stockholders, officers, or directors.</i> | 25 (29.4) | 53 (82.8) | 41.738 (<.0001) | 13 (28.9) | 64 (68.1) | 18.922 (<.0001) |
| <i>Collateral of property and/or equipment.</i> | 43 (50.6) | 50 (78.1) | 11.802 (0.0006) | 16 (35.6) | 74 (78.7) | 24.845 (<.0001) |
| <i>Life insurance covering the firm's key personnel or major stockholders.</i> | 13 (15.3) | 18 (28.1) | 3.648 (0.056) | 9 (20.0) | 21 (22.3) | 0.098 (0.754) |
| <i>Requiring representation on the company's board of directors.</i> | 0 (0.0) | 0 (0.0) | N/A | 0 (0.0) | 0 (0.0) | N/A |
| <i>Seeking equity ownership in the firm.</i> | 0 (0.0) | 0 (0.0) | N/A | 0 (0.0) | 0 (0.0) | N/A |
| Loan Restrictions (Negative Covenants) | | | | | | |
| <i>Max. dividend payments (e.g., max. payout ratio) to stockholders.</i> | 7 (8.2) | 13 (20.3) | 4.583 (0.032) | 2 (4.4) | 17 (18.1) | 4.798 (0.029) |
| <i>Max. salary/other compensation to the officers and directors..</i> | 2 (2.4) | 7 (10.9) | 4.741 (0.030)@ | 2 (4.4) | 7 (7.4) | 0.453 (0.501)@ |
| <i>Max. debt level (e.g., maximum debt level as a percentage of total capital).</i> | 14 (16.5) | 19 (29.7) | 3.699 (0.054) | 6 (13.3) | 27 (28.7) | 3.981 (0.046) |
| <i>Min. level of liquidity (e.g., min. current ratio, coverage ratio, or working capital).</i> | 22 (25.9) | 18 (28.1) | 0.094 (0.760) | 8 (17.8) | 32 (34.0) | 3.928 (0.048) |
| <i>Types of investments or capital expenditures the firm can make.</i> | 8 (9.4) | 14 (21.9) | 4.506 (0.034) | 3 (6.7) | 19 (20.2) | 4.192 (0.041) |

Note: Chi-Square tests are based on the 2 x 2 contingency tables, with two classes of firms in each case (By Cost or By Debt Security) and two responses (a check or no check mark) for the existence of respective covenant. For brevity, only the cell counts (percentages) of firms responding with a check mark or "yes" are furnished in the table. @ indicates that 25 percent or more of expected counts have values less than 5.

Table V
Regression Analysis : Cross-sectional Variation in Debt Covenants

| Model | Model 1 | | Model 2 | | Model 3 | |
|---|--|-----------------------|---------------------------|-----------------------|---------------------------|-----------------------|
| Dep. Variable | BANKCOV | | BANKCOV | | BANKCOV1 | |
| <i>Explanatory Variables</i> | <i>Parameter Estimate</i> | <i>Standard Error</i> | <i>Parameter Estimate</i> | <i>Standard Error</i> | <i>Parameter Estimate</i> | <i>Standard Error</i> |
| <i>INTERCEPT</i> | -3.086 | 1.365** | -4.084 | 1.482*** | -3.463 | 1.163*** |
| <i>DEBTRAT</i> | 0.505 | 0.124*** | 0.652 | 0.146*** | 0.452 | 0.115*** |
| <i>DEBTMAT</i> | 0.128 | 0.205 | 0.126 | 0.215 | 0.139 | 0.168 |
| <i>SECDEBT</i> | 0.532 | 0.348 | 0.643 | 0.370* | 0.538 | 0.291* |
| <i>DEBTCOST</i> | 0.500 | 0.199** | 0.568 | 0.220*** | 0.328 | 0.173* |
| <i>TRCREDIT</i> | 0.218 | 0.105** | 0.188 | 0.112* | 0.147 | 0.088* |
| <i>INSOWN</i> | 0.153 | 0.103 | 0.151 | 0.109 | 0.087 | 0.086 |
| <i>CEOEXP</i> | 0.314 | 0.159** | 0.302 | 0.173* | 0.233 | 0.136* |
| <i>PAYOUT</i> | -0.101 | 0.119 | -0.093 | 0.131 | -0.018 | 0.103 |
| <i>COMPAGE</i> | 0.129 | 0.149 | 0.151 | 0.157 | 0.093 | 0.123 |
| <i>SIZE</i> | --- | --- | 0.057 | 0.195 | 0.004 | 0.153 |
| <i>FIRMTYPE</i> | 1.177 | 0.478** | 1.117 | 0.557** | 0.875 | 0.4377** |
| Statistical Significance: *** 1 percent; ** 5 percent; * 10 percent | | | | | | |
| # of Observations | 148 | | 136 | | 136 | |
| Adj. R-Square | 0.2407 | | 0.2691 | | 0.2115 | |
| Var. Infl. Factors | All < 2 | | All <= 2 | | All <= 2 | |
| <i>Variable</i> | <i>Measurement</i> | | | | | |
| <i>DEBTRAT</i> | 2 = 1-10%; 3 = 11-25%; 4 = 26-50%; 5 = 51-75%; 6 = >75% | | | | | |
| <i>DEBTMAT</i> | Debt Maturity: 1 = Short-term; 2 = Medium-term; 3 = Long-term. | | | | | |
| <i>SECDEBT</i> | Whether majority of the firm's debt is Unsecured (= 1) or Secured (= 2). | | | | | |
| <i>DEBTCOST</i> | 1 = Below Prime Rate; 2 = At Prime Rate; 3 = Up to 2% over Prime Rate; 4 = Between 2.1 and 5% over Prime Rate; 5 = More than 5% over Prime Rate. | | | | | |
| <i>TRCREDIT</i> | Trade credit as a source of finance: 1 = Least important; 5 = Most important. | | | | | |
| <i>INSOWN</i> | Stock ownership by insiders: 1 = 0%; 2 = 1-10%; 3 = 11-25%; 4 = 26-50%; 5 = 51-75%; 6 = >75% | | | | | |
| <i>CEOEXP</i> | CEO's tenure (number of years) in that position. | | | | | |
| <i>PAYOUT</i> | Dividend payout ratio: 1 = 0%; 2 = 1-10%; 3 = 11-25%; 4 = 26-50%; 5 = 51-75%; 6 = >75% | | | | | |
| <i>COMPAGE</i> | Age of the company – the number of years of operation: 1 = 1-5 yrs; 2 = 6-10 yrs; 3 = 11-25 yrs; 4 = 26-50 yrs; 5 = 51-75 yrs; 6 = > 75 yrs. | | | | | |
| <i>SIZE</i> | Company Sales: 1 = \$50 m or less; 2 = \$51-100 m; 3 = \$101 - \$500 m; 4 = \$500 m - \$1 b; 5 = > 1 b. | | | | | |
| <i>FIRMTYPE</i> | Dummy variable; 1 = If the company is publicly-owned; 0 otherwise. | | | | | |

