Agency Conflicts, Issue Costs, and Debt Maturity

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Existing theoretical research states that firms can mitigate the potential for conflicts between stockholders and bondholders by using various bond provisions, including short maturities and a variety of bond covenants. Some authors have suggested that short-term debt is a less efficient mechanism due to increased issue costs. Prior empirical research seems to support this contention. The results of prior research, however, are confounded by the impact of leverage. This paper removes this confounding effect and presents evidence that the use of short maturities is positively linked to the potential for agency conflicts. This link is strongest for large firms that face low issue costs.

INTRODUCTION

A growing body of literature examines the design of debt contracts as a means of reducing the costs of stockholder-bondholder conflicts.[1] Barnea, Haugen, and Senbet (1980), Myers (1977), and Bodie and Taggart (1978) show that shareholder-bondholder conflicts can be reduced either by shortening the maturity of debt or by including complex provisions, such as bond covenants, security, and call and conversion features.

Shortening debt maturity reduces the agency cost of borrowing in two ways.[2] First, the increase in equity value from increasing the risk of the firm's assets is a decreasing function of debt maturity (Barnea, Haugen, and Senbet, 1980). Second, shortening the maturity of debt reduces the likelihood that a firm will have to exercise an option to invest before outstanding debt matures (Myers, 1977). Use of short maturities, however, necessitates frequent issues and raises issue costs. These higher costs have led some researchers to argue that complex, long-term debt contracts are more efficient than short-term debt.[3] Under this scenario, there will be no relationship between short-term debt usage and the potential for agency conflicts.

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[1] See, for example, Jensen and Meckling (1976); Myers (1977); Bodie and Taggart (1978); Smith and Warner (1979); Barnea, Haugen, and Senbet (1980); Green (1984); Fama (1985); and Berlin and Loeys (1988).

[2] Recent literature has focused on two other determinants of debt maturity. Brick and Ravid (1985) argue that the slope of the term structure may induce a tax preference for maturity. This possibility has no implications for cross-sectional variation in the use of short-term debt. Barnea, Haugen, and Senbet (1980) and Flannery (1986) demonstrate that informational asymmetry also may impact the maturity decision. These papers address the choice of maturity at a point in time for a new bond issue, rather than the optimal maturity structure for all debt. This paper addresses the latter issue. Maturity matching of assets and liabilities also has been cited as a determinant of optimal maturity structure. This issue is discussed later in the paper.

[3] See Myers (1977, p. 159), Bodie and Taggart (1978, p. 1199), and Barnea, Haugen, and Senbet (1980, p. 1233). See also Robbins and Schatzberg (1986).

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The argument for the dominance of complex, long-term contracts ignores the costs of customizing contract provisions to each firm's needs. Complex provisions introduce four types of costs. First, monitoring and enforcing adherence to complex provisions imposes out-of-pocket costs on lenders. Second, the enforceability of contracts that are sufficiently complex to include all contingencies will be limited severely by the unobservability of some states of nature in which conflicts arise. Third, standard provisions could provide less than perfect mitigation of agency conflicts.[4] Fourth, complex provisions (bond covenants, in particular) impose restrictions on a firm's operations and reduce valuable flexibility.

Huberman and Kahn (1987) argue that planned renegotiation of simple contracts can be a less costly means of resolving potential conflicts than complex contracts. Short debt maturities are analogous to Huberman and Kahn's planned renegotiation. If contracting costs increase with the complexity of the provisions, then the marginal contracting costs of additional complex provisions for some firms may equal or exceed the additional issue costs generated by shortening maturities.[5]

The above argument suggests the following testable (null) hypothesis: complex contracts dominate short-term debt as a mechanism for resolving agency problems. The corresponding alternate hypothesis is that for at least some firms, short-term debt is equally or more efficient than complex contracts. Firms facing high agency costs would choose either shorter maturities and/or more complex provisions depending on the associated costs. To the extent that some firms use short debt maturities to resolve agency conflicts, use of short maturities should be related positively to the potential for agency conflicts.[6]

Existing empirical research indicates a role for complex provisions in resolving agency conflicts. Thatcher (1985) documents a positive relationship between the potential for agency problems and the use of two tiered call provisions. Similarly, Malitz (1986) documents a role for certain bond covenants. In contrast, Titman and Wessels (1988), Long and Malitz (1985), and Auerbach (1985) find no evidence of a unique role for short-term debt in resolving agency conflicts. Their measure of short-term debt usage (short-term debt/total assets) mixes the firm's maturity decision (short-term debt/total debt) with its leverage decision (total debt/total assets).[7] The potential for agency conflicts could exert a negative impact on leverage and a positive impact on the proportion of debt which is short-term.[8] This study removes the confounding effects of leverage and provides evi-

[4] For example, interest rate risk could impair the effectiveness of the standard call provision. If interest rates have risen during the life of the bonds, the call price would exceed the market value of the bonds. This event would diminish the firm's incentive to call the bond, and the potential for underinvestment would continue to exist.

[5] Thatcher (1985) finds that debt issues with a one tier call provision have shorter maturities compared to those with two tier provisions. This finding could be interpreted as evidence of firms substituting between complex provisions and maturity.

[6] Firms that face low agency costs would minimize issue and contracting costs by issuing plain, long-term debt. Note that the use of complex provisions also will be related positively to the potential for agency conflicts.

[7] Titman and Wessels (1988) measure short-term debt usage as the ratio of short-term debt to equity value. This measure also combines the leverage and maturity decisions.

[8] Evidence of the negative relationship between leverage and the potential for agency conflicts is presented in Bradley, Jarrell, and Kim (1984) and Long and Malitz (1985).

dence of a positive relationship between the potential for agency conflicts and the use of short-term debt.[9]

Our empirical evidence also suggests that issue costs play an important role in maturity choice. The existence of economies of scale in issue costs implies that the cost of using short maturities decreases with issue size. Thus, large firms, which typically make large issues, are more likely than small firms to employ short-term debt to resolve agency problems. Test results provide confirming evidence.

DATA AND METHODOLOGY

SAMPLE OF FIRMS

The sample consists of all commercial and industrial firms that report at least three years of data for the relevant variables on the Compustat tape from 1980 to 1989. All variables are measured as time-series averages of all the available data for each firm.[10] These averages are used to describe firm target ratios for the financial decision variables (such as debt maturity and leverage) and the proxies for the potential for agency conflicts. This procedure yields a large sample of 746 firms, with firm size ranging from $3.6 million to $73 billion. Requiring complete data for every year would reduce the sample size about 80 percent.

MEASURING MATURITY STRUCTURE

Maturity structure refers to the maturity of all of a firm's outstanding issues of debt, rather than the maturity that a firm selects for a specific new debt issue at a point in time. Maturity structure ideally should be measured by computing a weighted average duration of all outstanding debt. Collection of data on the schedule of payments, however, is impossible for most private debt and difficult for most other debt.

Prior studies examine maturity structure by analyzing the proportion of debt maturing within one year. Accordingly, the first measure of maturity structure used in this study, STD1, is defined as the ratio of debt maturing within one year to total debt. STD1 includes commercial paper, bank loans and other notes payable maturing within one year, and the currently maturing portion of long-term debt.[11] STD2 and STD3 are defined as the ratio of all debt maturing within two and three years to total debt.

The above measures distinguish intermediate maturities from long maturities. For instance, if a firm annually issues a constant amount of debt with a five year maturity, then debt maturing in one year will be 20 percent of total debt. If a firm annually issues a constant amount of debt with a 20 year maturity, then debt maturing within one year would account for only 5 percent of total debt. Thus, the measures used here are sensitive to debt of different original maturities, although they do not fully capture the maturity structure of a firm's debt.

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[9] Morris (1989) also finds inconclusive evidence on the impact of agency costs on debt maturity. His measure of maturity structure is average maturity of a firm's outstanding debt and is not subject to the above criticism. The sample size of his study is one-fifth of the current study.

[10] Averages are utilized to eliminate the noise in individual year figures.

[11] Trade credit is excluded because it is highly seasonal and is related more strongly to industry practices and factors other than the presence of agency costs. Capitalized lease obligations are treated as debt.

In an attempt to describe a firm's maturity structure more adequately, we also employ a new measure of debt maturity. This measure, WATM, approximates each firm's weighted average term-to-maturity and thus more effectively represents the theoretical variable of interest. WATM is calculated as

$$(1)\ WATM = STD1*1 + \sum_{t=2}^{5} [STDt - STD(t-1)] * t + (1 - STD5) * 10.$$

where:

STDt = The ratio of debt maturing within t year(s) to total debt.

Compustat only provides the STD measure to five years. This limitation of the data requires that an assumption be made about the maturity of all debt with more than five years until maturity. The measure employed in the paper assumes that this debt has a maturity of ten years.[12] WATM is related inversely to the STD measures, as a higher proportion of short-term debt implies a shorter average time to maturity. The null hypothesis is that WATM is unrelated to or increases with the potential for agency conflicts; the alternate hypothesis is that WATM is related inversely to the potential for agency conflicts.

MEASURING THE POTENTIAL FOR AGENCY CONFLICTS

The potential for agency conflicts is linked to the characteristics of a firm's production technology. The six variables chosen to proxy the potential for agency conflicts are firm size (S), proportion of assets which are fixed (FA), depreciation rate (DR), research and development expenditures (RD), advertising expenses (AD), and the volatility of earnings before interest and taxes (VE). These proxies are selected to facilitate comparison of our results with those of Auerbach (1985); Bradley, Jarrell, and Kim (1984); Long and Malitz (1985); and Titman and Wessels (1988). The selection of these proxies also is intended to capture the different components of potential agency conflicts such as ease and cost of monitoring, presence of growth opportunities and discretionary investment, and the riskiness of cash flows from the existing asset base.

Pettit and Singer (1985) and Malitz (1986) argue that small firms face greater agency problems than do large firms. Greater levels of public information regarding large firms lower the cost to creditors of monitoring them. Low costs of monitoring should reduce the likelihood that the agency relationship will be exploited. Malitz (1986) documents a strong inverse relationship between firm size and the use of restrictive bond covenants. If the potential for agency costs decreases with firm size and if short-term debt is used in resolving agency conflicts, then short-term debt usage and firm size (S) will be related inversely. Economies of scale may encourage large firms to issue more short-term debt.

[12] The validity of this assumption can differ across firms and generate noise in cross-sectional tests. Thus, the analysis presented below is repeated substituting assumed maturities of six and 15 years. Results are qualitatively the same.

however; this impact is discussed later. Firm size is defined as the log of the sum of the market value of equity, and the book value of debt and is measured in hundreds of millions of dollars.

Fama (1985) suggests that bondholders can monitor more cheaply firms with high fixed asset proportions for changes in investment policy. In contrast, a higher proportion of current or intangible assets increases management's flexibility with respect to investment decisions and thus, monitoring costs. If short-term debt is efficient for some firms, then the average proportion of total assets that are classified as fixed, FA, should be related negatively to use of short-term debt.

Another characteristic that indicates the potential for asset substitution is the economic life of assets. The possibility of wealth transfer through asset substitution is greater, *ceteris paribus*, if a firm's assets are short rather than long-lived. This greater possibility of risk-shifting implies larger monitoring costs for bondholders. The depreciation rate (depreciation divided by net fixed assets or DR) is a proxy for the reciprocal of a firm's average asset life and should be related positively to the firm's use of short-term debt under the alternate hypothesis.[13]

Advertising is an investment in the firm's reputation in product markets, which is an intangible asset. Intangible assets are more costly to monitor than physical assets. In order to sustain reputation, a firm must continue to make recurring investments in advertising. According to the alternate hypothesis, use of short-term debt reduces the firm's incentives to avoid these discretionary investments. AD denotes the firm's average ratio of advertising expense to sales and should be related positively to the use of short-term debt.

The firm's average ratio of research and development expenses to sales, (RD), is a proxy for a firm's future investment or growth opportunities. Managers of firms with high levels of research and development expenses should encounter relatively more future investment opportunities and have greater potential for the underinvestment problem. If short-term debt is an efficient mechanism for some firms in resolving conflicts, then a positive relationship is expected between short-term debt and this proxy for future investment opportunities.

Agency conflicts arise primarily when a firm is in financial distress. Firms with more volatile earnings face a higher probability of financial distress. Thus, agency problems are more severe for those firms with more volatile earnings. The volatility of earnings (VE) is computed as the standard deviation of the first difference in earnings before interest and taxes divided by total assets. The alternate hypothesis suggests that short-term debt and the volatility of earnings should be related positively.

TEST RESULTS

EVIDENCE OF THE RELATIONSHIP BETWEEN DEBT MATURITY AND AGENCY CONFLICTS

Following the methodology of the prior studies, the importance of short-term debt in resolving stockholder-bondholder conflicts is determined by estimating the coefficients in the following cross-sectional regression:

[13] Inclusion of this variable also controls for strategies that match asset and liability maturities because of interest rate uncertainty or considerations other than agency conflicts.

$$(2)\ Y_j = \beta_0 + \beta_1 S_j + \beta_2 FA_j + \beta_3 DRj + \beta_4 AD_j + \beta_5 RD_j + \beta_6 VE_j + \varepsilon_j$$

where:

Y = A measure of maturity structure;
j = A subscript that indexes firms;
βs = Regression parameters; and
ε_j = Error term.

Equation (2) is estimated using all three short-term/total debt measures (STDs) and the weighted average term-to-maturity, WATM. If long-term complex contracts dominate short maturities in resolving agency conflicts, then the null hypotheses for the coefficients in equation (2) using STDs are:

H_0: $\beta_1, \beta_2 \geq 0$ and $\beta_3, \beta_4, \beta_5, \beta_6 \leq 0$.

If short maturities are at least as effective as long-term complex contracts for some firms, then a set of alternate hypotheses is:

H_a: $\beta_1, \beta_2 < 0$ and $\beta_3, \beta_4, \beta_5, \beta_6 > 0$.

The signs for the hypotheses are reversed when the weighted average term to maturity is the dependent variable in equation (2).

The results from these regressions are presented in the top four rows of Table 1. The regression coefficients in these rows are consistent with the alternate hypothesis and the explanatory power of the model is close to 20 percent.[14] The only two insignificant coefficients are for size and the depreciation rate in the regression for STD1; however, size has a significant coefficient in the regressions for STD2, STD3, and WATM.[15] The results in Table 1 strongly support the hypothesis that some firms use short-term debt to mitigate the agency conflicts associated with debt.

Cross-sectional regression studies are always subject to alternative interpretations of the results. For instance, it could be argued that the regression measures the use of private debt rather than maturity, as bank debt is largely short-term.[16] Two other interpretations for this study are that maturity structure is determined by maturity-matching considerations for non-agency reasons or structure is simply a matter of industry practice.

[14] Tests reveal that the reported results are not generated by multicollinearity of explanatory variables. FA and DR have the highest correlation of all pairs. Omission of DR has little impact on the rest of the model.

[15] The coefficient for size varies across firm size groups (Table 2).

[16] In a sample of Fortune 500 companies for which relevant data are available, the proportion of long-term debt that is private is related only to firm size among our independent variables. For this sample, the relationship between maturity and the proxy variables is stronger than the results reported in Table 1. The inability to identify the private component of STD does not allow a clear separation of the role of maturity versus private placement.

Table 1—Impact of the Potential for Agency Conflicts on Debt Maturity and Leverage

Y	Intercept	S	FA	DR	AD	RD	VE	F	R^2	N
(1) STD1	0.247 (11.32)	0.001 (0.40)	-0.241 (-7.05)	0.019 (0.20)	0.606 (2.82)	0.551 (2.69)	0.629 (4.54)	24.70	0.16	736
(2) STD2	0.346 (14.40)	-0.012 (-2.88)	-0.235 (-6.22)	0.050 (0.48)	0.526 (2.23)	0.703 (3.01)	0.555 (3.57)	26.76	0.18	709
(3) STD3	0.414 (16.55)	-0.023 (-5.18)	-0.199 (-5.05)	0.093 (0.86)	0.562 (2.28)	0.767 (3.15)	0.549 (3.39)	30.15	0.20	706
(4) WATM	5.766 (25.98)	0.235 (6.07)	1.521 (4.35)	-1.030 (-1.07)	-4.590 (-2.10)	-6.114 (-2.81)	-3.659 (-2.56)	28.36	0.19	702
(5) STA1	0.044 (5.79)	-0.001 (-0.58)	-0.012 (-0.98)	0.031 (0.97)	0.059 (0.79)	-0.236 (-3.31)	0.370 (7.68)	18.19	0.12	736
(6) LEV	0.140 (7.00)	-0.004 (-1.26)	0.341 (10.87)	0.164 (1.92)	-0.140 (-0.71)	-1.117 (-5.91)	0.698 (5.48)	52.94	0.30	736

T-statistics appear in the parentheses under the coefficient estimates

STD_i = All debt that matures within i years/total debt;
WATM = Weighted average term to maturity;
STA_1 = All debt that matures within one year/total assets;
LEV = Book value of total debt/(book value of total debt + market value of equity);
S = Log of firm value;
FA = Fixed asset proportion;
DR = Depreciation rate;
AD = Advertising expense/sales;
RD = R&D expense/sales;
VE = Standard deviation of earnings before interest and taxes/total assets

One could argue that because of exposure to interest rate risk (or some other reason), firms endeavor to match the maturity of assets and liabilities. This argument would predict a positive coefficient for the rate of depreciation and, possibly, a negative coefficient for the proportion of assets that is fixed. Our findings are somewhat consistent with these predictions. Note, however, that maturity matching has no prediction for the other proxy variables that also exert a significant impact on maturity choice. The findings, while not inconsistent with maturity matching, indicate that other considerations play an important role in determining maturity structure.

The impact of industry practices, independent of agency considerations, is examined by estimating the model from equation (2) with industry dummy variables defined using two digit SIC codes. These results are not reported. The significance of the proxy variables and the explanatory power of the model are approximately the same as in Table 1. The model with the proxy variables and industry dummies also is compared to a model with only industry dummies. The explanatory power is substantially higher when the proxies are included.[17] These comparisons indicate that the proxies capture important intra-industry as well as inter-industry differences in maturity structure.

RECONCILIATION WITH PRIOR STUDIES

The regression results discussed above differ substantially from the findings of Auerbach (1985), Long and Malitz (1985), and Titman and Wessels (1988). To explore the possibility that their results are attributable to mismeasurement of the maturity decision, equation (2) is estimated using STA1 (debt maturing within one year/total assets) as the dependent variable. These results, presented in the fifth row of Table 1, are weaker than the results of the first four rows. The null hypothesis can be rejected for only one variable, the volatility of earnings. Additionally, research and development expenses have a highly significant *negative* relationship with STA1. The null hypothesis cannot be rejected for size, fixed assets, the depreciation rate, and advertising. The explanatory power of this regression is about two-thirds that of the regressions using STD (short-term debt/total debt).

The weaker results for the STA measure may occur because it mixes the leverage and maturity decisions. Row 6 of Table 1 shows the relationship between leverage and the various proxies for agency conflicts. (Leverage (LEV) is measured as the book value of total debt divided by the sum of the market value of equity and the book value of total debt.) The estimate of the coefficient for research and development expenditures in the leverage equation is large and negative, while the estimate in the STD1 equation is positive and significant. Not surprisingly, the estimate in the STA1 equation is about half way between these estimates. Similar arguments can be advanced to explain the weaker explanatory power of the overall model when STA1 is used. Thus, the inconclusiveness of these previous studies could be at least partly attributable to the selection of a measure of short-term debt usage that includes both the firm's maturity and leverage decision.[18]

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[17] The explanatory power of industry dummies alone is slightly less than 10 percent; inclusion of the independent variables increases this figure to about 20 percent.

[18] Other factors that may contribute to the difference in results are the substantially larger sample used by this study and the use of a longer time period for averaging the data. Averaging intervals in these studies range from three to nine years. For a subsample of 132 firms with complete annual data, a pooled cross-

FIRM SIZE, FLOTATION COSTS, AND MATURITY

The results presented in the previous section point to an important role for short-term debt in resolving agency problems. Thatcher (1985) and Malitz (1986) document a similar role for complex debt provisions. The choice between short maturities and alternative complex provisions as mechanisms for controlling agency conflicts should depend on the relative magnitude of issue and contracting costs. This section provides indirect evidence that the significance of issue costs is a critical determinant of the choice between short maturities and complex provisions.

The issuance of short-term debt, rather than long-term debt, necessarily leads to a greater frequency of issue and larger flotation costs. Small firms face large relative flotation costs because of their small issue size and have a strong preference for longer maturities, *ceteris paribus*. Economies of scale in the issue process reduce the disincentive to issue short-term debt for large firms that issue large blocks of securities. Contracting costs (e.g., the value of flexibility lost due to restrictive debt covenants) are not likely to decrease with firm size. Therefore, large firms may have a stronger preference than small firms to choose short-term debt for resolving agency problems. If so, the link between short-term debt usage and proxies for agency conflicts should be stronger for large firms than small.

This issue is examined by first classifying firms into size quartiles based on firm value.[19] Equation (2) is estimated separately for the firms in each size quartile. Results using the proportion of debt maturing within one year (STD1) are presented in Panel A of Table 2. The explanatory power of the model is 31 percent for firms in the largest size quartile, versus about 15 percent for the other three size quartiles. Panel B of Table 2 shows that results are similar when the dependent variable is weighted average term-to-maturity (WATM). The explanatory power of the model is again highest for firms in the largest size quartile (also 31 percent). Only three of the six variables, however, have significant coefficients that are consistent with the alternate hypothesis.[20] These results provide weak evidence of a stronger preference for using short maturities over complex provisions among firms in the largest size quartile, for which issue costs are low. The explanatory power for the smallest size quartile is consistently greater than those for the medium-size quartiles. This aspect of the results is puzzling.[21]

CONCLUSIONS

The use of risky debt creates agency conflicts between stockholders and bondholders. Existing theoretical research states that firms mitigate these agency problems by using bond features such as short maturities and covenants. Some authors have suggested that

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section, time-series regression using annual observations rather than ten year averages yields results similar to those reported.

[19] The cut-offs for the first three size quartiles are $81 million, $284 million, and $1.3 billion, respectively.

[20] The coefficients for firm size, R & D, and volatility of earnings are significantly different across the two extreme size quartiles.

[21] An integrated model of the choice among various bond provisions in the presence of agency conflicts would provide valuable insights and suggest directions for future empirical research.

Table 2—Impact of Firm Size on the Link Between Debt Maturity and the Potential for Agency Conflicts

Y	Intercept	S	FA	DR	AD	RD	VE	F	R^2	N
Panel A—Short-Term Debt										
(1) STD1 for firms in the lower size quartile	0.254 (4.53)	-0.053 (-2.47)	-0.313 (-3.81)	-0.004 (-0.02)	0.059 (0.11)	0.281 (0.57)	0.573 (2.53)	7.21	0.17	184
(2) STD1 for firms in the second size quartile	0.187 (4.78)	-0.006 (-0.20)	-0.167 (-2.36)	0.081 (0.59)	0.432 (0.92)	0.204 (0.56)	1.008 (3.84)	5.11	0.11	184
(3) STD1 for firms in the third size quartile	0.236 (4.07)	0.009 (0.37)	-0.206 (-3.25)	-0.008 (-0.04)	0.785 (2.13)	0.617 (1.69)	-0.202 (-0.59)	5.34	0.13	184
(4) STD1 for firms in the upper size quartile	0.160 (2.72)	0.035 (2.69)	-0.248 (-3.81)	0.054 (0.23)	0.605 (1.61)	1.064 (2.64)	-0.311 (-0.70)	14.49	0.31	184
Panel B—Weighted Average Term-to-Maturity										
(1) WATM for firms in the lower size quartile	5.782 (10.23)	0.634 (2.94)	1.452 (1.73)	-0.512 (-0.22)	-0.036 (-0.01)	4.580 (0.91)	-4.963 (-2.14)	4.59	0.11	177
(2) WATM for firms in the second size quartile	6.082 (13.55)	0.160 (0.42)	0.990 (1.21)	-1.517 (-0.92)	1.932 (0.35)	-1.342 (-0.27)	-5.412 (-1.78)	1.60	0.02	173
(3) WATM for firms in the third size quartile	5.869 (10.48)	0.161 (0.66)	1.427 (2.27)	-0.135 (-0.08)	-5.368 (-1.51)	-12.082 (-3.41)	3.113 (0.94)	6.19	0.15	179
(4) WATM for firms in the upper size quartile	7.018 (13.36)	-0.179 (-1.49)	1.662 (2.83)	-2.177 (-1.02)	-8.057 (-2.35)	-10.547 (-2.82)	6.569 (1.63)	14.14	0.31	173

T-statistics appear in parentheses under the coefficient estimates; STD1 = All debt that matures within one year/total debt; all other terms are as defined in Table 1

shortening maturities is not an efficient alternative due to the consequent increase in issue costs. The relevant empirical research seems to support this contention. These studies, however, use a measure of short-term debt that combines both the leverage and maturity decisions. This paper focuses exclusively on the maturity decision and documents that shorter debt maturities are linked to a higher potential for agency conflicts.

Previous empirical research provides evidence that long-term debt with complex provisions also is used in resolving agency conflicts. The extent of substitution between maturity and these other provisions should depend on the magnitude of issue and contracting costs. Our evidence indicates that the link between the use of short maturities and the potential for agency problems is stronger for larger firms that have lower issue costs. The important role of issue costs in influencing firms' financial decisions (Flannery, 1986; Titman and Wessels, 1988; and Fischer, Heinkel, and Zechner, 1989) calls for a thorough and updated documentation of the magnitude of these costs.

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