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Capital Structure Theory and REIT Security Offerings

JOHN S. HOWE and JAMES D. SHILLING*

ABSTRACT

In this paper, we examine the stock price reactions to announcements of new security offerings by Real Estate Investment Trusts (REITs). REITs offer a unique setting in which to study these events because they do not pay taxes at the firm level. Theory suggests that the net tax gain to corporate borrowing is unambiguously negative for a REIT. Contrary to some recent studies, however, we find a positive stock price reaction to debt offerings, while the negative equity-issuance effect is preserved. Further empirical evidence lends support to signalling as the explanation for the positive significant debt-issuance effect.

CAPITAL STRUCTURE THEORY REMAINS an unsolved puzzle for financial economists. In the first place, the theoretical answer to the question "Is there a net tax advantage to corporate borrowing?" is unclear. The dominant argument seems to be that any tax-paying corporation gains by borrowing and, on top of that, the greater the marginal tax rate, the greater the gain. On the other hand, Miller [13] argues that the tax gain to the firm from corporate borrowing just balances the tax loss to investors (provided that the firm pays the full statutory tax rate). The compromise view is that depreciation expenses and investment tax credits are important and serve as tax-shield substitutes for interest expense (DeAngelo and Masulis [4]).

Two further unresolved issues are the signalling and incentive effects of debt (e.g., Flannery [7] and Jensen [8]). Recent theories of capital structure have emphasized that not all market participants have the same information and that corporations issue new securities only if they have profitable investments that cannot be postponed or if management thinks the new securities are overvalued (Myers and Majluf [16]). The predictions of the asymmetric (or signalling) theory are in many respects consistent with the capital structure one actually observes in practice.

The broad topic of this paper is one of new security issues for non-tax-paying business enterprises, a subject that has garnered little attention in the literature. The setting is interesting because the usual tax incentives for issuing debt do not exist. The static-tradeoff theory suggests that the net tax gain to corporate borrowing is unambiguously negative (or nonpositive) for firms whose effective

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marginal tax rate is zero. (See Myers [15].) The intuition behind this conclusion is straightforward: non-tax-paying firms must compete in the debt markets with firms for which interest expense results in tax savings. These firms can afford to pay a higher interest on debt, and thus there is a strong tax disadvantage to the use of debt for non-tax-paying firms.

The paper is an extension of the general investigations of Eckbo [6] and Mikkelsen and Partch [12] over a different dataset. In particular, we study the stock price reaction to new security issues (debt and equity) by Real Estate Investment Trusts (REITs). The capital structure arguments outlined above suggest a negative reaction to debt issues and a neutral reaction to equity issues since REITs are exempt from paying corporate taxes. (The securityholders pay taxes on the dividends and interest payments at the personal level provided that the REIT meets certain asset and distribution-of-income criteria.) However, there are other hypotheses that seek to explain the market reaction to the announcement of the type of security to be issued; these hypotheses are discussed in Section I. Generally, the results of the paper are consistent with the extant literature except that we find a positive significant debt-issuance effect instead of a zero or negative effect. Section II reports the initial results, while Section III further explores the somewhat anomalous findings. The last section summarizes our conclusions.

I. REITs and New Security Issues

A variety of hypotheses have been advanced to explain the market reaction to announcements of new security issues. These hypotheses are as follows.

Optimal capital structure. The firm has an optimal capital structure, and new security issues represent a movement away from or toward this optimum. Determinants of the optimal capital structure may include taxes (as alluded to in the introduction), expected bankruptcy costs, and the minimization of agency costs. For a REIT, the optimal capital structure (based solely on tax considerations) is likely to be one hundred percent equity. (See Myers [15].)

Implied cash flow change. The implied-cash-flow change hypothesis suggests that unexpected offerings of securities, whether they are debt or equity, are used by investors to infer that operating cash flows are lower than expected. (This is basically a modified form of the Miller-Rock [14] analysis of dividends; see Smith [21], p. 7.) The prediction of this hypothesis is therefore one of a stock price decline in response to both equity and debt offerings. As a general rule, REIT operating cash flows are difficult to forecast. For example, it is relatively easy to forecast the depreciation deduction and debt service with a fixed-rate mortgage but much harder to forecast expected rents, vacancies, or selling prices.

Degree of anticipation. Marsh [9] provides evidence on the use of short-term debt to predict public debt issues; similar mechanisms may not be available to help predict equity issues. If debt offerings are more predictable than stock offerings, then the magnitude of the market response to debt offerings should be smaller than that of the response to equity offerings. Further, since the tax code by which REITs must abide forces them to follow a policy of high dividend

payout rates, REITs should employ external markets more extensively than do corporations (Rozeff [19] and Easterbrook [5]). It follows that external security issues by REITs may be more predictable than for corporations.

Informational asymmetry. The issue of informational asymmetry has several different implications. First, firm managers may be viewed as having superior information and may wish to convey that information to the market. One way to accomplish this is through capital structure changes (Ross [18]). As noted below, this line of reasoning is generally supported by the studies of exchange offers. More recently, however, Myers and Majluf [16] have pointed out that managers with more information may decide to issue securities whenever the securities are overpriced in the market. In turn, the market may react negatively to the announcement of the issuance of any new securities. Thus, the prediction of the informational asymmetry hypothesis is ambiguous.

Changes in ownership. Finally, the issue of ownership changes is not important in this study. REITs must maintain a relatively diverse shareholder base in order to maintain their trust status.¹ Further, in our sample, approximately fifty-five percent of the equity offerings constitute less than ten percent of total assets.

Empirical evidence in this area is somewhat mixed. There is substantial evidence that changes in capital structure convey new information to the market. For example, studies of exchange offers have generally shown a positive relation between the direction of leverage change and the sign of the market reaction of equity to that change. (See Smith [21], Table 3 for a summary.)

However, Eckbo [6] recently demonstrated that this finding does not extend to new offerings of corporate debt. Specifically, he finds that straight debt offerings have nonpositive effects on equity prices while convertible debt offerings have significantly negative effects. Mikkelsen and Partch [12] demonstrate significantly negative stock price reactions to the issuance of common stock, straight debt, and convertible debt; they find an insignificant positive reaction to the issuance of preferred stock.

II. Findings

A. Data

This study analyzes a sample of forty-three NYSE- or ASE-listed REITs that announced security offerings. The sample consists of REIT common stock offerings and private and public placement of debt reported in the *Wall Street Journal* that met the following criteria:

1. The announcement took place between January 1970 and December 1985.²

¹ The ownership requirements prohibit the holding of fifty percent or more of a REIT's stock by any five or fewer shareholders.

² REIT common stock offerings and private placement of debt borrowings are often reported in the *Wall Street Journal* several days prior to registration with the SEC and again at the issuance date. In such cases, we took the registration announcement date to be the event date; otherwise, the announcement of the offering is taken to be the event date. This is consistent with Masulis and Korwar [11].

Table I
Distribution of Announcement Dates

Year	Number of Announcements		Year	Number of Announcements	
	Debt	Equity		Debt	Equity
1970	1	1	1978	7	0
1971	9	0	1979	5	0
1972	4	5	1980	1	1
1973	15	3	1981	2	3
1974	5	1	1982	0	1
1975	8	0	1983	3	5
1976	7	1	1984	0	3
1977	5	1	1985	1	2

2. The REITs are qualified trusts at the time of the announcement.³ This excludes those REITs that may have been taxed as regular corporations even though they may have distributed most of their income to their shareholders.
3. Daily prices are available from the Center for Research in Security Prices (CRSP) tapes.
4. No joint offerings of common stock and any other financing instrument are included.⁴
5. Announcements of first mortgages are excluded because they represent both an investment decision and a financing decision.

Table I presents the distribution of announcement dates. The total sample consists of one hundred financing events.⁵ There are twenty-seven common stock offerings and seventy-three debt announcements. About one half of the announcements (fifty-two out of one hundred, or fifty-two percent) were made between 1970 and 1975. Of the twenty-seven common stock offerings, there were ten announcements (thirty-seven percent) in the 1970 to 1975 period and seventeen announcements (sixty-three percent) in the 1976 to 1985 period. A total of forty-three leverage-increasing announcements (fifty-eight percent) occurred in the 1970 to 1975 period, and twenty-nine announcements (forty-two percent) took place from 1976 to 1985. Approximately forty-eight percent of the debt announcements (thirty-five out of seventy-three) are short-term bank agreements and/or lines of credit, forty-one percent of the debt announcements (thirty out of seventy-three) are long-term callable bonds, and the remaining announcements are either long-term noncallable bonds or undetermined.

³ In order to qualify for REIT status, a trust must satisfy four tests: organizational structure, sources of income, nature of assets, and distribution of income. (See IRS Code Section 856-857.) If the election of trust status has been voluntarily terminated for any of these reasons, a REIT is not eligible to make a new election for five years. These provisions place substantial penalties on a REIT that opts for voluntary termination of trust status.

⁴ The design of the sample follows Mikkelsen and Partch [12] and Masulis and Korwar [11]. All common stock issues are secondary offerings of new shares of common stock that are added to the number of shares outstanding.

⁵ It should be emphasized that the financing events in this study may be contaminated somewhat by simultaneous asset structure changes. For a more complete discussion, see Masulis [10].

B. Methodology

The methodology is the mean adjusted returns (MAR) model developed by Masulis [10]. We choose not to use the market-model approach for two reasons. First, Brown and Warner [2] demonstrate that the MAR model is virtually as powerful as the market model under a broad range of circumstances. Second, a number of recent studies suggest that single-factor CAPM models are inappropriate for assessing the risk of real estate investments. (See, for example, Brueggeman et al. [3] and Titman and Warga [22].) These studies have found that, because real estate investments are particularly sensitive to unexpected changes in inflation and interest rates, single-factor asset-pricing models provide biased estimates of the riskiness of real estate.

C. Results

Table II contains information about the market's reaction to REIT debt announcements for the period beginning ten days before the announcement and ending ten days after. None of the individual average excess portfolio returns

Table II
Average and Cumulative Excess Returns to REITs Associated
with Debt Announcements^a

Day Relative to Announcement Date	Average Excess Return (%)	<i>t</i> -Statistic	Cumulative Excess Return (%)
-10	-0.012	-0.03	-0.012
-9	-0.563	-1.51	-0.575
-8	0.261	0.70	-0.314
-7	-0.613	-1.65	-0.927
-6	-0.644	-1.73	-1.571
-5	0.157	0.42	-1.415
-4	0.295	0.79	-1.119
-3	-0.280	-0.75	-1.399
-2	-0.636	-1.71	-2.035
-1	0.981	2.64	-1.054
0	0.742	2.00	-0.312
+1	0.217	0.58	-0.095
+2	0.386	1.04	0.291
+3	-0.048	-0.13	0.243
+4	-0.245	-0.66	0.002
+5	0.052	0.14	0.050
+6	-0.266	-0.71	-0.216
+7	-0.378	-1.02	-0.594
+8	-0.214	-0.58	-0.808
+9	0.180	0.49	-0.627
+10	0.042	0.11	-0.585

^a See text for a description of the sample. There are seventy-three observations in total. The average daily portfolio raw return over the comparison period is 0.039 percent. The estimated standard deviation of the portfolio returns over days -40 through -11 is 0.372. The percentage of excess returns positive on days -1 and 0 equals 58.9 and 57.5 percent, respectively.

(AERs) is significant until the day prior to the *Wall Street Journal* announcement. (Some of the announcements were made while the market was open and were not publicized in the *Wall Street Journal* until the following day.) On the day before the announcement, the sample stocks experienced a daily abnormal return of almost one percent. The AER for the day of the announcement is also significant. After day 0, no individual AER is significant.

The daily cumulative excess returns (CERs) in response to debt announcements are also generally positive. The three-day cumulative excess return $CER_{-1,1}$ is 1.94 percent and significant. The five-day cumulative excess return $CER_{-2,2}$ is slightly lower at 1.69 percent but significant. However, looking at the entire announcement period, the twenty-one-day cumulative excess return $CER_{-10,10}$ is insignificant. Overall, we interpret these results as evidence of a positive market reaction to the issuance of REIT debt.

Table III contains evidence about the effects of new stock issues on REIT share prices. As in Table II, the only individual AERs that are significant occur on days -1 and 0; these AERs are negative. Further, the CER is negative from day -4 onward, ending at a day +10 value of -3.4 percent (almost a thirty-four

Table III
Average and Cumulative Excess Returns to REITs Associated
with Stock Announcements^a

Day Relative to Announcement Date	Average Excess Return (%)	<i>t</i> -Statistic	Cumulative Excess Return (%)
-10	0.044	0.14	0.044
-9	0.206	0.67	0.249
-8	-0.269	-0.87	-0.019
-7	0.010	0.03	-0.010
-6	-0.158	-0.51	-0.167
-5	0.183	0.60	0.016
-4	-0.061	-0.20	-0.045
-3	-0.023	-0.08	-0.069
-2	-0.502	-1.63	-0.571
-1	-1.294	-4.21	-1.865
0	-0.603	-1.96	-2.468
+1	-0.272	-0.89	-2.740
+2	-0.204	-0.66	-2.944
+3	0.466	1.52	-2.478
+4	-0.285	-0.93	-2.763
+5	-0.050	-0.16	-2.813
+6	-0.340	-1.11	-3.153
+7	-0.165	-0.54	-3.318
+8	-0.576	-1.87	-3.894
+9	0.583	1.89	-3.311
+10	-0.088	-0.29	-3.399

^a See text for a description of the sample. There are twenty-seven observations in total. The average daily portfolio raw return over the comparison period is 0.109 percent. The estimated standard deviation of the portfolio returns over days -40 through -11 is 0.307. The percentage of excess returns positive on days -1 and 0 equals 33.3 and 48.1 percent, respectively.

percent decline if annualized). This twenty-one-day $CER_{-10,10}$ is statistically significant.

Table IV provides further information about the excess returns in three- and five-day event periods centered around the event. Debt announcements in aggregate result in many more positive excess returns than negative excess returns. This finding holds almost uniformly across classes of excess returns that differ by magnitude. Conversely, stock announcements are associated with more negative excess returns than positive excess returns. This result is also robust with respect to magnitude. The data in Table IV corroborate the findings in Tables II and III.

D. Discussion

The finding of a negative reaction to new *equity* offerings is consistent with recent findings (cf. Asquith and Mullins [1] and Masulis and Korwar [11]). It is also consistent with the implied-cash-flow change hypothesis, as well as with the Myers and Majluf [16] informational-asymmetry hypothesis. Further, the magnitude of the reaction to stock offerings is greater than that of the reaction to debt offerings ($CER_{1,0} = -1.90$ percent vs. $CER_{-1,0} = 1.72$ percent), as the degree-of-anticipation hypothesis would predict. Note that the two-day reaction to new equity issues (-1.90 percent) is smaller in magnitude than the comparable number for corporate equity issues (-3.14 percent) reported by Smith [21]; this is also consistent with the degree-of-anticipation hypothesis.

The finding of a strong positive reaction to *debt* announcements runs contrary to recent studies (e.g., Eckbo [6] and Mikkelsen and Partch [12]). It also is inconsistent with the optimal-capital-structure, implied-cash-flow-change, and Myers and Majluf [16] hypotheses. It is consistent with the use of debt as a signalling mechanism, which we explore in greater detail in the next section.

III. Additional Findings

In this section, we test two signalling models. The model of Robbins and Schatzberg (R-S) [17] suggests that (a) short-term debt and long-term callable bonds both dominate long-term noncallable bonds as a signalling mechanism and (b) risk-averse managers will prefer long-term callable bonds over short-term debt. A test of their model can be undertaken by examining subsets of our debt-issuance sample. Specifically, the R-S theory would predict a positive reaction to long-term callable bond issues as well as short-term debt issues.

Flannery [7] considers the effect of asymmetric information on the debt-maturity decision. In particular, when insiders know the firm to have better credit quality than the market perceives, they will regard the market's default premia (on debt of different maturities) as excessive. However, the least unreasonable of those premia will occur in short-maturity debt. Thus, the selection of short-term debt may serve as a signal of insiders' information. Flannery's model predicts a positive reaction to short-term debt issues and a neutral or negative reaction to long-term debt issues.

The evidence on debt announcements presented in Table V is divided into two samples: short-term debt (short-term bank agreements and/or lines of credit)

Table IV
Cross-Sectional Distribution of Cumulative Excess Returns to REITs Associated with Security
Issues Three and Five Days around the Announcement Date

Distribution of Cumulative Excess Return (Absolute Range)		Debt Announcements		Equity Announcements	
		CER _{-1,1} (%)	CER _{-2,2} (%)	CER _{-1,1} (%)	CER _{-2,2} (%)
0 < CER ≤ 2.0%	% positive	21.9	13.7	25.9	14.8
	% negative	16.4	11.0	18.5	25.9
2.0 < CER ≤ 5.0%	% positive	15.1	16.4	7.4	0
	% negative	15.1	19.2	22.2	33.3
5.0 < CER ≤ 10.0%	% positive	8.2	13.7	7.4	7.4
	% negative	4.1	2.7	18.5	11.1
10.0 < CER ≤ 20.0%	% positive	9.6	9.6	0.0	3.7
	% negative	2.7	5.5	0.0	3.7
20.0% < CER	% positive	6.8	8.2	0.0	0
	% negative	0.0	0	0.0	0
Total	% positive	61.6	61.6	40.7	25.9
	% negative	38.4	38.4	59.3	74.1

Table V
Average and Cumulative Excess Returns to REITs around the Announcement
by Type of Debt Offering

Event Day	Type of Offering					
	Short-Term Debt ($N = 35$) ^a			Long-Term Debt ($N = 30$) ^b		
	Average Excess Return (%)	t -Statistic	Cumulative Excess Return (%)	Average Excess Return (%)	t -Statistic	Cumulative Excess Return (%)
-10	-0.300	-0.41	-0.300	-0.547	-1.85	-0.547
-9	-0.921	-1.25	-1.221	-0.087	-0.29	-0.634
-8	0.097	0.13	-1.124	-0.213	-0.72	-0.847
-7	-0.635	-0.86	-1.759	-0.253	-0.86	-1.099
-6	-1.386	-1.87	-3.145	-0.175	-0.59	-1.275
-5	0.115	0.16	-3.030	-0.106	-0.36	-1.381
-4	1.021	1.38	-2.009	-0.547	-1.85	-1.927
-3	-0.748	-1.01	-2.756	-0.454	-1.54	-2.382
-2	-1.259	-1.71	-4.016	0.291	0.99	-2.091
-1	2.802	3.80	-1.214	0.035	0.12	-2.056
0	0.354	0.48	-0.860	0.248	0.84	-1.809
+1	1.187	1.61	0.327	-0.432	-1.47	-2.241
+2	0.996	1.35	1.323	0.100	0.34	-2.141
+3	-0.943	-1.27	0.380	-0.226	-0.77	-2.366
+4	0.309	0.42	0.689	-0.404	-1.37	-2.770
+5	0.618	0.84	1.307	-0.752	-2.56	-3.522
+6	-0.104	-0.14	1.203	0.105	0.36	-3.417
+7	-0.511	-0.69	0.692	-0.235	-0.80	-3.652
+8	-0.245	-0.33	0.448	-0.198	-0.67	-3.849
+9	-0.661	-0.90	-0.213	-0.044	-0.15	-3.894
+10	0.529	0.71	0.315	-0.572	-1.94	-4.466

^a Comparison-period portfolio mean daily raw return equals -0.004 percent; standard deviation of raw return equals 0.738.

^b Comparison-period portfolio mean daily raw return equals 0.193 percent; standard deviation of raw return equals 0.294.

and long-term callable bonds. The individual AER on day -1 for the short-term debt sample is 2.80 percent and significant. The cumulative excess returns $CER_{-1,1}$ and $CER_{-2,2}$ for this sample equal 4.34 percent and 4.08 percent, respectively. Both of these cumulative excess returns are significant. For the long-term-callable-debt case, the pattern of the results does not display any discernible trend. At day -1 and day 0, the individual AER equals 0.04 percent and 0.25 percent, respectively. A similar insignificant pattern emerges for the three- and five-day cumulative excess returns. The $CER_{-1,1}$ and $CER_{-2,2}$ equal -0.15 percent and 0.24 percent, respectively.

The results in Table V can be summarized as follows. First, the market appears to regard REIT announcements of short-term debt as a positive signal. This finding is strongly supportive of the Flannery model. Second, contrary to the R-S model, there is little evidence that there is a positive information effect associated with long-term callable bonds. An alternative interpretation focuses on the reduction of uncertainty through the development of a banking relationship (Slovin and Young [20]). Since the short-term-debt sample comprises short-term bank agreements and lines of credit, we are unable to determine whether the short maturity of the debt or the willingness of the bank to commit funds to a REIT, singly or in combination, is driving the results. Bank debt may be more effective than long-term debt at reducing agency costs, perhaps because bankers are good monitors of managerial behavior.

We end this section by noting that a cross-sectional analysis revealed no differential reaction (a) by type of REIT (mortgage vs. equity), (b) in two subperiods, 1970 to 1974 (when many REITs experienced significant financial difficulty) and 1975 to 1985, and (c) by level of net operating income.

IV. Summary and Conclusions

In his review article, Smith [21] reports the average two-day excess stock returns from studies of announcements of different types of security offerings. Three studies of offerings of straight bonds report an average excess return of -0.26 percent, which is not significantly different from zero. In the present study, the average two-day excess return in response to REIT debt offerings is 1.72 percent, which is significant. Five studies of common stock announcements reviewed by Smith report a significant average return of -3.14 percent. REIT announcements of stock issues result in a return of about -1.90 percent. Thus, the results of this study are somewhat similar to extant studies with respect to common stock issues but are different from previous evidence concerning debt offerings.

We also find that most of the positive reaction to debt announcements occurs in response to short-term debt announcements. This runs contrary to the predictions of the Robbins and Schatzberg [17] signalling model but is strongly suggestive of the type of signalling found in Flannery [7] and Slovin and Young [20]. A cross-sectional analysis revealed that the magnitude of the reaction was not influenced by type of REIT (mortgage or equity), time period, or level of net operating income.

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