



# REIT capital structure: is it market imposed?

REIT capital  
structure

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## Abstract

**Purpose** – This study sets out to focus on the identification of determinants of real estate limited partnership (REIT) capital structure from a market perspective.

**Design/methodology/approach** – This study uses ordinary least squares regression to test whether REIT capital structure is impacted by various market variables.

**Findings** – The findings indicate that investors do appear to be attracted to specific debt characteristics of REITs or, simply put, REIT capital structure is influenced by market factors. REIT debt levels appear to be directly influenced by the price-to-book ratio and are inversely related to the percentage of institutional ownership and price-to-cash flow. Forecast growth rates do not appear to significantly influence debt while the type of REIT (mortgage, retail, etc.) does appear to influence the level of debt.

**Research limitations/implications** – Small sample size limits applicability of results, so further research with larger datasets is appropriate.

**Practical implications** – Investors do appear to consider capital structure when purchasing REITs. REIT managers should consider this when determining whether to incur additional debt.

**Originality/value** – The determination of various market factors linked to REIT capital structure.

**Keywords** Real estate, Capital structure, Market forces, Debt financing

**Paper type** Research paper

## 1. Introduction

The concept of an optimal capital structure for business firms remains a cornerstone of financial economics theory since the seminal works of Modigliani and Miller (1958; 1963) that focused on tax benefits and other costs of debt. While many aspects of the corporate capital structure puzzle have been filled in, many questions remain. The emphasis in current research has shifted to nontax-driven capital structure theories as extensively surveyed by Harris and Raviv (1991). While they reviewed over 150 papers on the topic (just since the mid-1970s), that number is now in the hundreds.

One of the four identified models or categories of the determinants of capital structure within the nontax theories is the agency theory approach and a desire to reduce the conflicts of interest that arise among the parties to the firm. Jensen and Meckling (1976) assert that as management owns less and less of a firm's equity, conflicts of two types arise. Conflict one is between managers and shareholders. Conflict two is between equity holders and debt holders.

The conflict between management and equity holders arises when managers own less than 100 per cent of the equity. In that commonplace instance, managers do not receive 100 per cent of the gain when their actions enhance firm value. Therefore, management has an incentive to consume excessive levels of perquisites such as corporate limos, apartments, aircraft, etc. This inefficiency is naturally mitigated the larger management's ownership position. Increases in the portion of the firm financed



by debt thereby increase the manager's equity share and somewhat mitigates management's loss from the manager-equity holder conflict.

The second conflict arises because equity holders have some incentive to invest in less-than-optimal projects. Larger than normal returns from an investment are more likely to be captured by equity holders than by debt holders. Additionally, bankruptcy costs can be increased if equity holders "shoot the moon" with risky investments and debt holders can be penalized. Several authors have also pointed out that agency costs can be mitigated through managerial incentives in compensations plans or convertible debt (see Brander and Poitevin (1989), Dybvig and Zender (1989), Narayanan (1987) and Haugen and Senbet (1987)).

However, a firm seeking external capital (either equity or debt) receives the scrutiny of these respective capital markets. Monitoring functions automatically take place that help ensure that management behaves in a manner consistent with maximizing shareholder wealth. Additionally, debt can also reduce agency costs by reducing free cash flow and forcing management to operate more efficiently to service the debt and reduce the threat of bankruptcy. Stultz (1990), Jensen (1986), and Maloney *et al.* (1993) all provide arguments supporting the assertion that debt can improve managerial decision-making.

Another factor that may work to mitigate agency costs and influence capital structure is institutional ownership. Demsetz (1983) and Shliefer and Vishny (1986) suggest that institutional investors have natural incentives to monitor management. Agarwal and Mandelker (1990), Brickley *et al.* (1988) and McIntyre and Rao (1993) all report evidence of various aspects of the firm being influenced by institutional investors. Friend and Lang (1988) suggest that managers can be motivated by a higher debt ratio demanded by at least one large non-managerial shareholder.

Chaganti and Damanpour (1991) and Grier and Zychowicz (1994) both find an inverse relationship between the level of institutional ownership and debt. Grier and Zychowicz contend that aggressive monitoring of managers by institutional owners through the corporate governance process may "substitute" for the monitoring role of debt. Perhaps large block shareholders have advantages in monitoring corporate activity that individual investors do not have.

However, contrary findings are presented by Casey and Anderson (1997) who examine capital structure in the petroleum industry and conclude that "higher levels of institutional ownership are significantly related to higher levels of debt". Certainly, though, their result may turn out to be industry specific.

Many studies report that industries tend to have target capital structures. Bowen *et al.* (1982), Bradley *et al.* (1984), Long and Malitz (1985), Kester (1986), and Titman and Wessels (1988) all find a link between industry affiliation and capital structure. Scott and Johnson's 1982 survey of CFOs finds that leverage determination is "benchmarked" with industry average factors. Logically, industry capital structure could evolve because exogenous variables tend to impact similar firms in similar ways.

Other researchers target only one industry at a time. McCue (1992) investigates hospital capital structure and Sharpe (1995) studies Australian trading banks. Capital structure determinants for real estate limited partnerships (REITs) have gotten some attention.

Maris and Elayan (1990) examine the relationship between capital structure and the cost of capital in REITs from 1981 to 1987. They report a "leverage clientele effect" as an incentive for REITs to use debt. A study by Theis and Casey (1999) comes the closest to a recent examination of REIT-like firms by analyzing property management

firms in the UK. Their findings indicate that debt is inversely related to percentage of shares closely held, dividend yield and the price-to-book ratio.

REITs appear to be an ideal proxy for nontax-driven capital structure research since they commonly avoid corporate taxation. Additionally, in cases of being held in portfolios of pension funds, endowments, IRAs, 401Ks, etc. REITs can avoid personal taxes for many years.

In addition to Maris and Elayan (1990), the Bradley *et al.* (1984) study includes a sub-sample of REITs and finds that REITs are more heavily leveraged than 16 of the 25 industries they studied from the 1960s and 1970s. Howe and Shilling (1988) report positive wealth effects from announcements of REIT debt offerings. Providing a counter argument, Jaffe (1991) examines real estate partnerships and REITs and determines that capital structure does not influence firm value. Hamill's (1993) findings agree with Howe and Shilling in terms of REIT capital structure and the relationship with value.

Allen's (1995) examination of RELPs finds a negative link between growth rates and nondebt tax shields and a firm's level of debt. However, research identifying the important capital structure determinants for REITs is scarce. In addition to institutional ownership, this study examines other market variables suggested by the literature that might impact capital structure decisions for REITs including: price-to-book, price-to-cash flow, dividend yield, and forecast revenue growth. We also include a dummy variable coded one for mortgage REITs to see if REIT type impacts capital structure.

The rest of the paper is organized as follows. Section II discusses the data and methodology. Section III analyzes the findings and section IV provides some conclusions and makes recommendations.

## 2. Data and methodology

The data for this study were obtained from various free online sources such as Reuters Miltex Investor and Yahoo Finance. A full set of data is available for 89 REITs listed on US stock exchanges. The methodology is a linear regression model with one dependent and six independent variables. A presentation of the model follows:

$$DEBT_j = \alpha + \sum \beta_i X_{ij} + \varepsilon$$

where DEBT = debt to equity ratio, and  $X_{ij}$  represents each independent variable  $i$ , for each firm  $j$ . These variables are:

GROWTH = % forecast five year growth rate in revenues;

INSTIT = % institutional ownership;

PBOOK = price-to-book ratio;

PCASHFLOW = price-to-cash flow ratio;

DIVY = % dividend yield;

MORTGAGE = dummy variable coded 1 for mortgage REITs, 0 otherwise;

$\varepsilon$  = an error term.

A more detailed discussion of the variables and their measurement follows. The dependent variable, DEBT, is the percentage of long-term debt in the capital structure of each REIT for their most recent reporting period typically ending in 2003.

GROWTH is the consensus analyst forecast five-year growth rate in revenues. Firms expecting higher growth rates are assumed to also have greater needs for capital

and thus would be expected to incur additional debt. We would expect GROWTH to be positively related to debt levels. However, Allen (1995), in his study of RELP capital structure, found the relationship between growth and debt to be negative.

INSTIT is the percentage of equity held by institutional owners. Grier and Zychowicz (1994) find the relationship between level of institutional ownership and debt to be negative. Their study maintains that institutional ownership may substitute for the monitoring role of debt in the agency model. Additionally, their study concluded that institutional owners may actually influence debt levels.

PBOOK[1], or the price-to-book ratio, is a recent market price divided by the book value per share. Fama and French (1995) find that firms with higher PBOOK ratios tend to generate higher returns and are also generally growth stocks. Therefore, PBOOK could serve as an investor proxy for future growth. Growth firms may be forced into the external market for additional debt financing, particularly in the REIT industry with greater stability of cash flows.

PCASHFLOW, or the price-to-cash flow ratio, should serve as a proxy for investor interest in a company. REITs with higher PCASHFLOW ratios could be considered investor favorites. The justification for including this variable is to examine whether investors are attracted to higher or lower debt REITs. The sign could, therefore, be positive or negative.

DIVY, or dividend yield (most recent annualized dividend divided by price), is another variable expected to proxy investor interest in the firm. Higher yields could signal lower levels of investor enthusiasm as a dollar of dividends received a lower market valuation. This variable is also included to determine whether investors are attracted to a certain REIT capital structure. This sign could also be positive or negative.

MORTGAGE, a dummy variable for mortgage REITs, was also included due to the cash flow certainty differences between mortgage REITs and other classes. Mortgage REITs are expected to carry higher levels of debt because of the predictability of cash flows.

### 3. Empirical results

Table I presents the ordinary least squares regression results achieved from running variations of the previously specified model. All three models are significant at the 0.05 level or better. However, it is obvious that model three, where a dummy variable for mortgage REITs was included, is far superior to the other two models. The explanatory power of the model increases from 0.158 (model 1) to 0.414 with the addition of the dummy variable MORTGAGE.

Note that the individual variables representing institutional ownership (INSTIT) and PCASHFLOW are both negative and significant in model one. However, when the dummy variable MORTGAGE is included, the model loses the significance attributed to institutional ownership. Conversely, PBook remains positive and significant in all three models.

Also note that forecast growth rates are not significant in any model, contrary to expectations about future growth serving as an indicator of financing needs. Dividend yield, also related to growth prospects, was also not significant in model 2.

### 4. Conclusions

The finding of a significant inverse relationship between institutional ownership and debt in model 1 partially confirms the research of Chiganti and Damanpour (1991) and

$$\text{Model: Debt}_j = B_0 + \sum B_1 X_{ij} + e$$

Variables	Regression model 1	Regression model 2	Regression model 3
CONSTANT	1.507 (1.598)	1.074 (0.917)	1.093 (1.372)
GROWTH	0.186 (1.415)	0.172 (1.294)	0.111 (1.000)
INSTIT	-1.858E-02 (-1.768)*	-1.724E-02 (-1.555)	-1.020E-02 (-1.136)
PBOOK	1.140 (2.685)*	1.107 (2.581)*	0.929 (2.588)*
P CASH FLOW	-0.184 (-2.296)*	-0.166 (-1.995)*	-0.122 (-1.779)*
DIVY		3.572E-02 (0.660)	
MORTGAGE			5.178 (5.291)*
F-statistic ( <i>p</i> -value)	3.046 (0.023)	2.460 (0.042)	9.047 (0.000)
R <sup>2</sup>	0.158	0.163	0.414

**Notes:** \*Significant at the 0.10 level or better; DEBT = debt to equity ratio; GROWTH = % forecast five year growth rate in revenues; INSTIT = % institutional ownership; PBOOK = price-to-book ratio; P CASH FLOW = price-to-cash flow ratio; DIVY = dividend yield; MORTGAGE = dummy variable coded 1 for mortgage REITs, 0 otherwise

**Table I.**  
REIT industry OLS regression results for the period ending 2003 *T*-values are in parentheses (Dependent = Debt)

Grier and Zychowicz (1994), at least as it pertains to REITs. However, when dividend yield or mortgage REIT variables are included, institutional ownership turns insignificant. This finding indicates that while for most REITs institutional owners might prefer lower levels of debt it appears that mortgage REITs are considered to be enough lower in risk, probably due to the predictability in cash flows and the availability of mortgage insurance, to support higher levels of debt.

The significance of the variable PCASHFLOW, and the inverse relationship, in all three models is intriguing. As PCASHFLOW increases debt levels go down. Investors appear to bid up the price of non-mortgage REITs relative to each dollar of cash flow depending on debt levels. The implications are that non-mortgage REITs should opt for lower levels of debt, while mortgage REITs should take on additional debt.

The positive relationship between debt and price-to-book is also interesting. It is possible that PBOOK is not a good proxy for investor growth expectations. However, this finding could be explained at least partially by the age of the assets. Non-mortgage REITs, in particular, could be carrying older assets that are closer to being paid for and thus investors will bid up the price relative to the book value. This discrepancy between true market value of the assets and book value could also inflate the debt to equity ratio and create this relationship.

When considering the overall models, investors appear to gravitate towards certain capital structures and REIT market values should reflect these preferences. Capital structure, at least for REITs, should be considered by managers attempting to optimize value and also investors looking for REITs likely to appreciate.

This area of investigation could be greatly expanded with additional data and thus is one limitation of this study. Further research could explore many other agency factors shown to impact capital structure in other industries.

#### Note

1. An anonymous reviewer suggested this variable might be correlated with GROWTH. Analysis of the correlation matrix indicates low correlation between the two growth measures with a coefficient of 0.251.

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