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Captive-Financing Affiliates, Agency Costs, and the Security Offerings of Real Estate Investment Trusts.

Cheng-ho Hsieh
Louisiana State University and Agricultural & Mechanical College

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Hsieh, Cheng-Ho, Ph.D.

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CAPTIVE-FINANCING AFFILIATES, AGENCY COSTS, AND THE SECURITY OFFERINGS OF REAL ESTATE INVESTMENT TRUSTS

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by
Cheng-Ho Hsieh
B.B.A., National Chengchi University in Taiwan, 1980
M.B.A., University of Missouri at Columbia, 1985
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CONTENTS

Chapter Page

LIST OF TABLES

Table Page

Table Page

Table Page

LIST OF FIGURES

Figure Page

ABSTRACT

This dissertation explores the agency problems of REITs caused by the conflicts of interest between the REIT sponsor and the REIT shareholders. It also tests the impact of the agency problems on the pricing of REIT initial public offerings (IPOs) and on the valuation effects of secondary debt and equity offerings. Like the IPOs of ordinary corporations, REIT IPOs are also underpriced; however, the magnitude of the underpricing is far lower than that of the IPOs for ordinary corporations. Captive REITs have greater underpricing in IPOs than non-captive REITs. REIT secondary equity offerings exhibit negative announcement effects, while secondary debt offerings show no announcement effects. Captive REITs do not have significantly different valuation effects for secondary debt and equity offerings than those of non-captive REITs.

CHAPTER 1

Introduction

There exists a substantial body of literature dealing with captive-financing arrangements (e.g., captive-financing subsidiaries and captive insurance companies). This literature has identified three motivations for these arrangements: improving operational efficiency, enhancing debt capacity and transferring wealth between equity-holders and bond-holders. Andrew (1961, 1964) discusses the potential operating improvements attributable to a captive- financing subsidiary. Roberts and Viscione (1981) conclude that captive formation does enhance debt capacity. Kim, McConnell and Greenwood (1977) argue that forming a captive-financing subsidiary violates "me-first" rules for the parent company's bondholders and results in a wealth transfer from the bondholders to shareholders. The general conclusion for this literature is that the parent companies' shareholders gain by forming a captive-financing firm.

One type of captive-financing arrangement that has received little attention is the real estate investment trust (REIT). REITs often are created as captive-financing affiliates by their sponsors, e.g., a sponsor may find it advantageous to form a REIT and use the REIT

to obtain debt and equity capital at a price lower than elsewhere obtainable. For example, Indianapolis based Melvin Simon & Associates founded MSA Realty Corporation in 1984 to obtain cheaper financing for its construction projects in return for providing the REIT management skills and experience in real estate.[1]

The formation of captive REITs create conflict of interest problems between the sponsors/managers and the shareholders of REITs. The classic agency literature postulates that there exists an equilibrium contractual form between the agents and the principals which gives optimal incentives to the agents to maximize the principal's wealth given incomplete monitoring. The positive agency theory advanced by Jensen and Meckling (1976) first identifies three types of agency cost born by both the agent and the principal[2] and second postulates that agency cost is a reduction of firm value which can be minimized by appropriate ownership (capital) structure. REITs' unique type of agency cost incurred by the conflicts of interest between sponsors/managers and shareholders alone can lower the REITs' value.

Agency costs have also been shown to affect the market reaction to security offerings. The pricing of

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[1]See, Ross and Klein, 1986.

[2]The three types of agency cost are 1)the principal's monitoring expenditures, 2)the agent's bonding expenditures, and 3)the residual loss.

security offerings, initial and secondary, reflects the market assessment (or the change in the market assessment) of firm value. The general consensus on the underpricing of initial public offerings (IPOs) is that underpricing is caused by information asymmetry between the informed investors (including the issuer) and uninformed investors (including underwriters) about the value of the underlying issue.[3] If there is uncertainty about the agency cost of the underlying firm, then there is added uncertainty about firm value. This uncertainty about firm value can drive the underpricing of IPOs.

The financial literature has documented two sources of valuation effects of secondary security offerings: 1) valuation effects resulting from the change in capital structure by secondary offerings, and 2) valuation effects due to the mitigation of information asymmetry problems by using secondary offerings as signalling mechanisms. The general observation is that offerings which decrease the leverage ratio result in value reduction and offerings which increase the leverage ratio do not significantly affect firm value (Smith (1986)). The change in leverage ratio influences a firm's bonding activity and hence affects the agency costs of a firm (Jensen and Meckling (1976), and Jensen (1986)). Thus secondary security offerings can affect firm value via changes in agency

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[3]See, for example, Beatty and Ritter, 1986.

cost.

The purpose of this dissertation is to explore how the agency cost caused by the captive-financing nature of REITs affects firm value through empirical investigations of the pricing of initial public offerings and secondary security offerings of REITs. For REIT IPOs, there is an information asymmetry about the REITs' degree of captivity between informed and uninformed investors. This information asymmetry constitutes an uncertainty about the agency cost (and hence the firm value) attributable to this captive nature. This uncertainty, perceived by investors, will contribute to the underpricing of REIT IPOs. Using this line of reasoning, this study empirically tests the following hypothesis: captive REITs have greater underpricing in their IPOs than non-captive ones.

The general finding about the wealth effect of the announcement of secondary equity and debt offerings is that the former has negative wealth effects and the latter has zero effect. For REITs, however, positive debt announcement effects are detected (Howe and Shilling, (1988)). The agency problem arising from the captive-financing nature of REITs could be the cause of this anomalous finding. Easterbrook (1984) and Jensen (1986) point out specifically that debt financing provides a mechanism to monitor the management of a firm and hence

reduces agency cost. This monitoring mechanism could be particularly valuable given this unique type of agency cost for REITs and cause positive announcement effects. Along this line of reasoning, the following hypothesis is tested in this study: the stock price of captive REITs reacts more favorably to debt announcements than that of non-captive REITs.

Conversely, secondary equity offerings reduce the leverage ratio and hence decrease the degree of monitoring by debt-holders. This results in a larger agency cost and decreases firm value. This argument predicts a negative equity announcement effect for REITs which is consistent with Howe and Shilling's findings (1988). In particular, decreased monitoring also results in a smaller constraint on management's activities and may increase the agency cost associated with the captive financing nature of REITs. Thus this dissertation also tests the following hypothesis: the stock price of captive REITs reacts more unfavorably to equity announcements than that of non-captive REITs.

In summary, this dissertation analyzes and empirically investigates a specific type of agency problem for REITs which is inherent in the REITs' captive-financing arrangement. The contributions of this dissertation are: 1) it leads to more understanding of the nature of REITs; 2) it develops a framework to test agency

cost; 3) it helps us to discriminate between competing theories of the pricing of IPOs and secondary offerings, and 4) it extends the agency cost literature by introducing a new factor, the sponsor, into the contracting relationship among individuals.

The remainder of this research is organized as follows: Chapter II introduces the institutional characteristics of REITs to serve as the background of this dissertation, focusing on the captive financing nature of REITs. Chapter III develops the hypothesis for REIT IPOs and secondary offerings. Chapter IV empirically investigates the pricing of REIT IPOs, focusing on the influence of REITs' captive nature. Chapter V empirically examines the wealth effect of REIT debt offerings. Chapter VI empirically examines the wealth effect of REIT secondary equity offerings. The investigations in both Chapter V and Chapter VI also focus on the influence of REITs' captive-financing nature. Chapter VII concludes this research.

CHAPTER 2

Institutional Background

I: Introduction

This chapter provides an overview of REITs. A REIT typically invests in mortgages or commercial and residential real estate (e.g., office buildings, shopping centers, and large residential complexes). REIT shares are traded in the stock market much like corporate common stock, which allows investors with limited capital to take advantage of the benefits of real estate (e.g., diversification). Overall, use of the REIT form of ownership allows shareholders to avoid double taxation of dividends (since the conduit tax treatment exempts REITs from corporate taxes, given that REITs successfully comply with the tax code). This tax treatment greatly affects the cash flow pattern for REITs, and dividend and capital structure decisions.[4]

REITs can be categorized into non-captive REITs and captive REITs. Non-captive REITs are formed for many of the same reasons as financial intermediaries, while

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[4]For a discussion of the impact of the tax treatment on REIT dividend decisions, see REIT Fact Book 1988 and Tax Management-Real Estate Investment Trusts, 107-5th edition. For a discussion of the impact of the tax treatment on REIT capital structure decisions, see Howe and Shilling (1988).

captive REITs are formed by their sponsors to serve the sponsor's financial needs. The captive-financing nature of REITs provides a unique opportunity to investigate agency problems, as developed in the financial literature.

II: Non-Captive REITs

A. Organizational Structure

The organizational structure of a non-captive REIT is essentially the same as an ordinary corporation except that by law, they have to contract with an outside advisor/manager. The organizational environment of a non-captive REIT is formed by the contractual relationships among the sponsor, advisor, board of trustees (directors), asset managers, and the REIT shareholders, which can be depicted in Figure 1.

The REIT's sponsor is the entity which initiates the formation of the trust. In addition, the sponsor puts the reputation of its organization on the line for the REIT and usually provides financing and other services to the REIT.[5] The commonly observed sponsors are developers, bankers, and insurance companies.

Real estate interests in REIT portfolios are selected and managed by professional investment advisors.

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[5]See, REIT Fact Book 1988, page LVII.

These advisors are selected and periodically reviewed by a board of trustees or directors, who are elected by the shareholders.

The contractual relationship between the REIT and the advisor is set forth in the advisory agreement. The advisor is responsible for originating, holding, and disposing of the REIT's investments. Also, the advisor administers the REIT's day-to-day operations, supervises relationships with business counterparts, and maintains shareholder relations. For equity REITs, the advisor has the responsibility of overseeing the property managers' performance.[6] The advisory compensation scheme has a complicated structure which usually includes acquisition and origination fees, administrative services fees, asset management fees, and incentive participation fees.[7]

A REIT's board of trustees is consists of at least three trustees, a majority of which must be independent in the sense that they are unaffiliated with the REIT's sponsor/advisor. The board of trustees establishes written policies on the REIT's investment and financing policies, and monitors the advisor to assure that such policies are properly carried out.[8] Trustees are

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[6]See, REIT Fact Book 1988, page XLIV.

[7]The incentive participation fee is a share of the REIT's residual profit (see, Jarchow (1988)).

[8]See, REIT Fact Book 1988, page XXXii.

compensated by trustee fees.

Asset managers are part of the REIT organizational structure. Equity REITs are prohibited from managing directly their properties, thus outside property managers must be hired. The property managers are supervised by the REIT's advisor and their services are usually compensated by a percentage of gross rental income.[9]

REIT shareholders exercise their powers under the governing documents of the REIT. Shareholders elect trustees (directors), approve the advisory agreement, and endorse or reject proposed amendments to the declaration of trust. Thus shareholders have the ultimate control over the REIT. Shareholders receive dividends and capital gains as compensation for taking the risk of REIT operations.

A non-captive REIT is operationally independent from the sponsor and the advisor, and the board of trustees' decision making is not affected by the sponsor and the advisor. In the extreme case, the sponsor's interest is perfectly aligned with the REIT shareholders, which theoretically minimizes the REIT's agency costs caused by the separation of management and ownership.

B. Reasons for Non-Captive REIT Formation

Non-captive REITs may be formed to facilitate the

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[9]See, REIT Fact Book 1988, page 24.

redeployment of assets to their highest valued uses and for reasons which are commonly attributable to the existence of financial intermediaries, such as divisibility and transactions cost savings/professional management.

1. Redeployment of Assets to Their Highest Valued Uses

The increased REIT value due to the conduit tax treatment[10] given to trust earnings may be one of the major reasons for the selection of the REIT form. REITs are not taxed at the corporate level if they meet certain income, distribution and asset tests, as set forth by the Internal Revenue code. These tests generally require that REITs must distribute virtually all taxable income to shareholders and invest at least 75 percent of total assets in real estate and real estate-related assets.[11]

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[10]The Real Estate Investment Trust Act of 1960.

[11]The distribution test requires that REITs must distribute at least 95% of taxable income excluding capital gains. The asset test requires that REITs must invest at least 75% of total assets in real estate assets, cash, cash items and government securities. The income test includes two major requirements: 1) at least 75% of a REIT's gross income must be generated from interests on mortgage lending, rents from real property, gains from the sale of real property, abatements and refunds of property taxes, gains or dividends from holding other qualified REITs' shares and mortgage or purchase commitment fees, and 2) REITs are prohibited from generating more than 30% of gross income from the sale or disposition of real property held for less than four years and securities held for less than six months (see, REIT Fact Book, 1988).

Another major restriction is that REITs must maintain a diffuse ownership structure. In order that the REIT not be deemed a "personal holding company," more than fifty percent of the value of its outstanding shares may not be owned, directly or indirectly, by five or fewer individuals at any time during the last half of the entity's taxable year.[12]

The exemption from corporate taxation makes the REIT form of ownership a potentially attractive way to invest in real estate. However, since REITs do not pay corporate taxes, interest expenses do not provide tax savings and neither do other "tax shields substitutes" such as depreciation and investment tax credits.

The exemption from taxation at the corporate level also has implications for REIT capital structure. Modigliani and Miller (1963) show that the value of a levered firm is the value of the firm when it is unlevered plus the gain from leverage which is equal to the effective tax rate times the total market value of the debt. Thus firm value is an increasing function of debt financing, and the higher the effective tax rate, the greater the tax gains. When a firm reaches 100 percent debt financing, the gain from leverage is

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[12]See, Derenthal (1985). In addition, the REIT shares must be held by 100 or more persons during at least 335 days of a taxable year of twelve months or during a proportionate part of a taxable year of less than twelve months.

maximized, and the optimal capital structure is reached.

REITs, on the other hand, have zero gain from leverage since they pay no corporate taxes. This is because, according to MM, the value of a levered firm with a zero corporate tax rate is equal to the value of the firm when it is not levered. Thus the MM theory does not suggest an optimal capital structure for REITs.

In the Miller model (1977), the disadvantage of personal income tax exactly offsets the tax advantage of corporate borrowing when the firm pays the full statutory tax rate. This is because in equilibrium, the cost of debt (and, the required rate of return on the debt) would be equal to the rate paid by tax-free institutions divided by one minus the full statutory tax rate. If a firm pays tax at a rate lower than the statutory rate, it would suffer a loss in borrowing since the tax gain from leverage would be less than the cost of the debt. With a zero corporate tax rate, a REIT's loss by debt financing is maximized. Since REITs must pay a competitive interest rate without enjoying tax savings for debt financing, the static trade-off theory (Myers (1984))[13] predicts an all-equity capital structure for REITs (Howe and Shilling (1988)). Based on the above tax-related

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[13]The static trade-off theory maintains that a firm's capital structure decision is a result of the trade-off between tax savings and potential bankruptcy/agency costs associated with the debt.

arguments, the optimal capital structure for REITs seems to be 100 percent equity.

In the case that a REIT has net operating losses, the REIT can not pass through the losses to the shareholders; in other words, REIT shareholders cannot deduct REIT losses on their individual income tax returns. As a result, the net cash flow position for an individual investing in REIT shares could be quite volatile since he receives 95 percent of the REIT's earnings as dividends in "good years" and receives no tax advantage by offsetting the REIT losses in "bad years."

In summary, the typical advantage for a REIT to become qualified is the exemption from corporate taxation. However, being qualified subjects a REIT to several disadvantages, which are: 1) the possible losses in firm value due to the restrictions set forth by income, asset, and distribution tests, 2) the losses in savings from the tax shields including depreciation, depletion, and investment tax credits, and 3) the possible losses at the individual level due to the fact that a REIT can not pass through its net operating losses to its shareholders. For a REIT to obtain tax exemption to realize the redeployment of assets to their highest valued uses, the advantages must outweigh the disadvantages.

2. Divisibility

Klein (1973) points out that indivisibility alone can explain the formation of financial intermediaries. Klein's argument is that the number of obtainable points in the mean-variance space is an increasing function of an investor's scale of wealth so that there is an incentive for the pooling of funds. The larger the number of obtainable points in the mean-variance space, the higher the possibility for an investor to reach an indifference curve of higher utility. The pooling of funds can then be broken down into small denomination by taking a corporate form of organization.

REITs pool large amounts of funds from investors, purchase large blocks of real estate assets, combine these assets in portfolios, and provide divisibility by selling claims of small denomination on the portfolio. The divisibility in real estate may be particularly desirable for investors due to the typical "large financial commitment" in real estate investment (See, REIT Fact Book 1988, Chapter I).

3. Transactions Cost Savings/Professional Management

Klein (1973) argues that if there are no transactions costs, firms will issue perfectly divisible securities to maximize their market value. However, in an imperfect world, a firm must tradeoff between

transactions costs and divisibility.

As argued by Benston and Smith (1976), the existence of any financial intermediary must be a consequence of transactions costs.[14] In the presence of transactions costs and other forms of market friction, an opportunity exists for the creation of specialized financial instruments and other intermediary services. The demand for such services exists when the marginal benefit of reduced transactions costs outweigh the marginal cost of obtaining service. Ingersoll (1976) contends that for financial intermediaries such as closed-end funds, investors gain when the benefits from economies of scale in transactions cost outweigh the management fee costs to the investors. Being financial intermediaries, REITs may be able to invest at a much lower transactions cost due to economies of scale and due to professional management than could be achieved by individual investors.

In summary, REITs can be formed for the reason of tax saving and for the same generally given reasons for financial intermediaries, including divisibility, and transactions cost saving/professional management. Aside from these reasons, REITs may also be formed as a

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[14]Benston and Smith view the role of financial intermediaries as creating specialized financial commodities and an individual can maximize his utility by acquiring financial commodities to transfer his consumption inter and intra-temporally.

captive-financing vehicle to the sponsor in order to serve the sponsor's financial needs.

III: Captive REITs

A. Organizational Structure

The organizational structure of a captive REIT is depicted in Figure 2. The participants in this organizational structure are the same as those in the organizational structure of a non-captive REIT. However, in addition to those relationships among the participants in the organizational structure of a non-captive REIT, some control relationships exist in the organizational structure of a captive REIT. First, in a captive REIT, the sponsor maintains control over the REIT's assets, either directly by staying on as advisor or indirectly by forming a wholly-owned subsidiary to serve as the REIT's advisor.[15] This arrangement virtually assures that the REIT's operation conforms to the sponsor's interests. The advisor is basically responsible for the day-to-day management of the REIT and is also the planner and executor of the investment policy of the REIT. Thus, the advisor is an important position for the sponsor to hold,

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[15]For example, Connecticut General Life Insurance Co. created Congen Realty Advisory Co. to advise Connecticut General Mortgage and Realty Investments (see the 10-k report of Connecticut General Mortgage and Realty Investments).

either directly or indirectly.

Second, a sponsor may direct the board of trustees' approval on investment policy through its influence on both affiliated and "independent" trustees. Having control of the board of trustees is desirable since the board of trustees approves investment policy made by the advisor. Third, the sponsor may form several management firms to serve as the REIT's asset managers or form the management firms through its wholly owned advisor firm.

The REIT shareholders are still the ultimate controllers of the firm; however, the REIT's operations can be greatly influenced by the sponsor, given the sponsor's control over the advisor, asset managers, and the board of trustees. The degree of captivity of the REIT depends on the extent to which the sponsor controls the advisor, the board of trustees, and the management firms, such that he is able to direct the REIT's operation to conform to his interests.

B. Reasons for Formation

There exists a substantial body of literature dealing with captive-financing arrangements. Often the sponsoring corporation (the sponsor) forms a subsidiary to extend his business.[16] For example, General Motors

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[16]In some cases, the subsidiary is allowed to have a business relationship with other independent business organizations.

formed General Motors Acceptance Corporation to provide inventory financing for its car dealers. The subsidiary is wholly-owned by the sponsor. This literature has discussed three motivations for captive-financing arrangements: improving operational efficiency, enhancing debt capacity and transferring wealth between equity-holders and bond-holders. Andrew (1961, 1964) contends that captives are unnecessary. His analysis shows that segregating the financing department into a captive does not isolate the financing decisions from other decisions any more than a separate unit in the parent company would, thus forming a captive does not increase efficiency in this sense.

There are three major arguments for a change in debt capacity due to the formation of a captive subsidiary. First, Lewellen (1972) argues that forming a captive-financing subsidiary may increase the probability of default in parent company's debt obligations. This is because the separation of cash flows and debt obligations reduces the opportunity to use a cash surplus in one to cover a deficit in the other, thus reducing debt capacity. Second, Dipchand, Roberts, and Viscione (1982) contend that segregating the financing department into a captive subsidiary can lower the agency costs associated

with debt financing[17] and hence increase debt capacity. Third, Roberts and Viscione (1981) note that forming a captive subsidiary is a movement toward multidivisional form (M-Form) of organizational structure, which improves the control and decision making processes. These changes in turn, increase overall efficiency and debt capacity.

Kim, McConnell and Greenwood (1977) argue that forming a captive-financing subsidiary is a violation of "me-first" rule because the captive's creditors are paid off by the captive's cash flows and become superior to the bondholders in the sponsoring company. Thus a wealth transfer from the sponsoring firm's bondholders to stockholders can result.

In many cases, REITs are also used as a captive-financing vehicle. For example, Public Storage, Inc. (PSI) created a real estate investment trust, Storage Properties, Inc., to provide first mortgage loans to its wholly-owned subsidiary for the purpose of developing new mini-warehouses throughout the United States.[18] Melvin Simon & Associates founded MSA Realty Corporation to obtain cheaper financing for its construction projects in return for providing the REIT management skills and experience in real estate (Ross and Klein, 1986).

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[17]According to Jensen and Meckling (1976), debt financing incurs monitoring and bonding costs.

[18]See, "The Mortgage and Real Estate Executive Report," September 1, 1989, Vol. 22, No. 13, p 3.

The possible conflicts of interest between the sponsor and the REIT are exacerbated when it is formed for captive financing. The conflicts of interest result in various agency problems. For example, a REIT might pay more to acquire properties from its sponsor or advisor than it would pay an independent third party (Rosenberg (1986)). A REIT might provide financing to its affiliates at lower costs than other conventional sources would (Ross and Klein (1986)). A Wall Street Journal article notes that "... some REITs are advised by developers who may use them to unload properties at high prices."[19] A recent example of the possible conflicts of interest is also offered by the Wall Street Journal. The shareholders of VMS Mortgage Investment Fund (a REIT) filed a lawsuit against its sponsors and affiliates. The suit alleged that extensive conflicts of interest among VMS Mortgage Investment Fund and its affiliates existed such that the trust's loans to its affiliates "didn't approximate arms-length business transactions."[20] These agency problems reduce the REIT's net cash flow and hence lower the dividend payout level, which in turn, lowers the firm value.

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[19]Wall Street Journal, "Finding Real Estate Opportunities Despite Recent Woes of Market," August 28, 1989.

[20]See Wall Street Journal, "VMS Realty, Owners Are Accused in Suit Over Sales of Shares," January 12, 1990.

The financial literature has identified many sources of agency problems, such as the perk consumption problems of equity capital[21] and risk incentive,[22] investment incentive problems[23] of debt capital. Given these agency problems, agency costs are created by claimholders' monitoring activities, the agent's bonding activities, and the firm's residual loss (Jensen and Meckling (1976)). The agency problems caused by the conflicts of interest between the captive (the REIT) and its sponsor/advisor has not been discussed in the literature. These agency problems can also create agency costs for captive REITs.

The severity of these agency problems, and hence the magnitude of the agency cost, not only depends on the degree of captivity of the REIT but also depends on the ownership structure of the REIT. According to Jensen and Meckling (1976), a firm's agency cost is a decreasing function of the manager's ownership of the firm's shares. If the sponsor/advisor owns a substantial share of the REIT's common stock, it may provide an offsetting force to reduce the agency cost incurred by the captive nature

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[21]See, Jensen and Meckling (1976).

[22]Stockholders have the incentive to bear unwarranted risk and transfer debtholders' wealth to themselves.

[23]Stockholders have the incentive to forgo profitable investments when the investment opportunity is entirely supported by debt (see, Myers (1977)).

of REITs. Thus the degree of captivity of a REIT can vary widely. One extreme is that the REIT is operationally independent from the sponsor and the advisor, the board of trustees' decision making is not affected by the sponsor and the advisor, and the sponsor/advisor's interest is perfectly aligned with the REIT shareholders. Another extreme is that the sponsor has absolute control of the advisor, the board of trustees, and the property managers (for equity REITs), and owns no share of the REIT. The higher the degree of captivity of the REIT, the greater the magnitude of potential agency problems. This in turn, causes a higher uncertainty in firm value due to the higher uncertainty in agency cost associated with those agency problems.

C. Implications

1. Debt Capacity

Since REITs are operationally and legally separated from their sponsors, the Lewellen reverse co-insurance argument may be applicable to REITs and their sponsors. From the agency cost point of view, whether financing from the captive REIT results in higher (lower) agency costs associated with debt financing or not is not clear. Thus whether forming a captive REIT increases the sponsor's debt capacity or not is not clear either. Also since a captive REIT is not wholly owned by its sponsor,

Roberts and Viscione's M-form argument may not be applicable to REITs. Thus overall, the implications from the existing literature about the debt capacity issue is not clear for captive REITs and their sponsors.

2. Wealth Transfer

As noted earlier that Kim, McConnell, and Greenwood (1977) find a wealth transfer from bondholders to stockholders by forming a captive-financing subsidiary. They argue that this is due to the violation of "me-first" rule. This result is challenged by Malitz (1989). She finds that after forming a captive, shareholders gain far more than bondholders lose, and firm value increases significantly. Thus wealth transfer can not completely explain the gain to shareholders.

The wealth transfer argument may be applicable to the sponsor of a captive REIT. However, given the controversial evidence in the literature, the wealth transfer argument needs further development to draw the implications for REITs.

3. The Pricing of Initial Public Offerings (IPOs)

The financial literature postulates that "uncertainty" characterizes the pricing of IPOs. Beatty and Ritter (1986) argues that the greater the ex ante uncertainty about the value of a new issue, the larger

the underpricing. Uncertainties cause information asymmetry between different market participants. Rock (1986) argues that underpricing is an equilibrium solution when information asymmetry exists between informed and uninformed investors.

As discussed earlier, there is a specific type of agency cost incurred by the captive nature of REITs. If there is an uncertainty in the captivity of the REIT at the stage of initial public offerings, there is an uncertainty about the magnitude of this agency cost. This in turn creates uncertainty about firm value and causes underpricing in IPOs. The valuation effects of captive financing on initial public offerings has not been addressed in the literature and will be further explored in later chapters.

4. The Valuation Effects of Secondary Security Offerings

Several theories have been advanced to predict the valuation effects of debt or equity issuances. These theories generally focus on either 1) the valuation effect of changes in leverage,[24] or 2) the effects of information asymmetry/signalling on firm value.[25] However, given the potentially more severe agency

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[24]See, for example, Modigliani and Miller (1963), Kraus and Litzenberger (1973), DeAngelo and Masulis (1980).

[25]See, for example, Myers and Majluf (1984), Miller and Rock (1985), and Ross (1977).

problems for REITs due to captive financing, agency related arguments may be more relevant to REIT capital structure decisions and valuation effects of security offerings. In particular, the change in monitoring from creditors, due to the change in capital structure, may have important valuation effects for REITs. Easterbrook (1984) and Jensen (1986) argue that a firm may prefer to venture frequently to the capital market, such as through issuing debt, since it provides a mechanism to monitor the management of the firm and hence reduces agency problems.

REITs must maintain a diffuse ownership structure to comply with the tax code. A diffuse ownership structure theoretically makes monitoring of the agency relationship between agents and principals more difficult. Fama (1980) notes that modern portfolio theory tells us that the optimal investment strategy for an investor is to diversify across the securities of many firms, and since an investor's wealth would not depend too much on any particular firm, "an individual security holder generally has no special interest in personally overseeing the detailed activities of any firm." Given the diffuse ownership structure, monitoring from creditors may be particularly valuable for REITs.

It is discussed earlier that based on the tax-related capital structure theory, the optimal capital

structure for REITs seems to be 100 percent equity. Contrary to this prediction, the employment of debt financing by REITs is commonly observed. Given the captive financing nature of REITs, the necessity of monitoring by creditors can explain the non-zero leverage ratio for REITs. In addition, ceteris paribus, one should observe that on average captive REITs have a higher leverage ratio than non-captive REITs.

The above line of reasoning predicts a positive debt announcement effect and a negative equity announcement effect for REITs since equity issues relatively reduce monitoring from creditors, which are consistent with Howe and Shilling's findings (1988).

The captive-financing literature has not yet addressed the valuation effects of a captive firm's security offerings. This issue will be explored in later chapters using REIT debt and equity announcements.

IV: Conclusion

This chapter provides an overview of REITs. Non-captive REITs may be formed for several reasons such as the redeployment of assets to their highest valued use. They may also be formed due to the benefits provided to investors, such as divisibility and transactions cost savings/professional management.

One major aspect of REITs that has not been

investigated is their captive-financing nature. The degree of captivity is maximized when the sponsor has absolute control of the advisor, the board of trustees of the REIT, and the asset managers, and the sponsor has no ownership interest on the REIT. The possible conflicts of interest between the sponsor and the REIT may create agency problems for the REIT. The agency problems, in turn, create agency costs. The diffuse ownership structure of REITs makes monitoring of management difficult. Thus monitoring from creditors may be particularly valuable for REITs. The higher the degree of captivity of the REIT, the greater the magnitude of potential agency problems. This in turn, causes a higher uncertainty in firm value due to the higher uncertainty in agency cost associated with those agency problems.

The captive nature of REITs has important implications for REIT pricing of initial public offerings, valuation effects of secondary security offerings, and capital structure. No clear implications can be drawn from the literature about the change in debt capacity and wealth transfer for REIT sponsors.

CHAPTER 3

Hypotheses

I: Introduction

In this chapter, the hypotheses for the pricing of REIT IPOs and for the valuation effects of REIT secondary security offerings are generated.

The theoretical literature on IPOs argues that underpricing is caused by uncertainties about the value of the underlying issue, and the greater the uncertainty, the larger the underpricing. As we saw in Chapter II, REITs are often formed as captive-financing affiliates by the sponsor. The conflicts of interests between the sponsor and the REIT create agency problems, and hence agency costs to the REIT. The higher the degree of captivity of the REIT, the greater the magnitude of potential agency problems. This in turn causes higher uncertainty in firm value. This uncertainty in firm value may be reflected in the pricing of IPOs. It is thus hypothesized that captive REITs have larger underpricing in IPOs than non-captive REITs.

Secondary security offerings can affect firm value via changes in agency costs. Given the agency problems caused by REITs' unique captive-financing nature, monitoring from creditors may be particularly valuable

for REITs. Using this line of reasoning, it is hypothesized that the stock price of captive REITs reacts more favorably to debt announcements and more unfavorably to equity announcements than that of non-captive REITs.

II: Pricing of REIT IPOs

A. Background

An REIT initial public offering follows several steps. The sponsor must first consult with several potential underwriters about the plan of the offering. Once the underwriter(s) is (are) chosen and the offering plan is devised, the sponsor must choose lawyers, accountants, and other consultants for the offering. The registration statement (including a prospectus) of the offering is then filed with the SEC. Once the offering is approved by the SEC and the registration statement is in effect, the underwriter announces the public sale of the new issue and the selling period begins. The offering price of the new issue is set before the selling period begins and can not be changed during the selling period. Several states require that the subscription proceeds be deposited in an escrow account until a specified amount has been received. If the specified amount is not received within a specified period, the offering is cancelled and the proceeds are returned to

investors. If the specified amount is reached, the subscription proceeds are released from the escrow account to the REIT.

The offering contract can be either a firm commitment or a best effort. Under the firm commitment contract, the underwriter purchases the whole issue from the issuer and then sells it to investors at a set price. Under the best effort contract, the underwriter acts only as a marketing agent for the issuer and is compensated by a predetermined spread. Once the selling is in its final stage, documentation of the closing of the offering must be prepared and finalized. Once the offering is closed, the new issue can be traded on an exchange according to the agreement between the sponsor and the exchange. Typically the literature compares the closing price of the first trading day with the offering price. Underpricing results when the first trading day closing price is higher than the offering price.

B. Hypothesis

Initial public offerings are different from secondary offerings in the sense that the uncertainty about the market clearing price of the offering is greater than for secondary offerings. The IPO literature postulates that uncertainties characterize the pricing of IPOs. In other words, IPOs are underpriced due to the

information asymmetry between informed and uninformed market participants about the true value of the underlying firm.

Several authors, including Ibbotson (1975), Ritter (1984), and Chalk and Peavy (1987) have provided convincing evidence that initial public offerings are, on average, underpriced (for non-REITs). Several models have been developed to explain the pricing behavior of IPOs. Beatty and Ritter (1986) argue that the greater the ex ante uncertainty about the value of a new issue, the larger the underpricing; in other word, underpricing is a result of investor risk aversion.

Given the uncertainty described by Beatty and Ritter, information asymmetry exists between informed and uninformed investors about the true value of the underlying issue. Rock (1986) models the equilibrium pricing of IPOs given both informed and uninformed investors in the market. The informed investors submit bids only when the offering is not overpriced; on the other hand, the uninformed investors face the risk of buying the overpriced offerings. As a result, uninformed investors anticipate this adverse selection and bid only if the offering price is below their expected aftermarket price by enough to compensate for their expected losses on overpriced issues.

Tinic (1988) points out that underpricing can be

deemed as a compensation to investors for the cost of becoming informed. If there is a positive relationship between the degree of uncertainty and the amount of expenditure required to become informed, higher uncertainty offerings must be underpriced more than lower uncertainty ones to compensate for the higher information cost. Thus the degree of underpricing reflects the degree of uncertainty, which is consistent with the Beatty and Ritter risk-averse investor argument.

The common theme about IPO pricing is that uncertainties about the value of the new issue cause information asymmetry between different market participants, and information asymmetry in turn, causes underpricing in IPOs. These uncertainty arguments have important implications for REIT IPO pricing. Chapter II discussed the conflicts of interest that exist between the REIT sponsor and the REIT for captive REITs, and the resulting agency problems. The higher the degree of captivity of the REIT, the greater the magnitude of potential agency problems. This, in turn, causes a higher uncertainty in firm value due to the higher uncertainty in agency cost associated with those agency problems. Following the literature, the higher uncertainty in firm value due to the higher uncertainty in agency costs will yield a larger underpricing in the IPO. Using this line of reasoning, the following

hypothesis is formulated:

Hypothesis 1:

Captive REITs have greater underpricing in IPOs than non-captive REITs.

III: The Valuation Effects of REIT Secondary Security offerings

A. Background

Secondary equity and debt offerings follow the same process. Different from initial public offerings, a secondary equity or debt offering can be either an underwritten offering, a rights offering, or a private placement. In a rights offering, a firm offers the securities on a pro rata basis to its own stockholders. In an underwritten offering, the firm can either negotiate the offering terms with the underwriter(s) or structure the terms internally and solicit competitive bids. Similar to initial public offerings, the underwriting contract can be a firm commitment contract or a best effort contract.

A secondary equity or debt offering follows a series of steps similar to that of initial public offerings. The firm must identify and analyze the investment first and then determine whether to choose a underwritten offering or a rights offering. If an underwritten offering is chosen, the firm must first

determine the underwriter(s) and then negotiate with the underwriter in choosing between a firm commitment contract and a best effort contract. The selling period begins after the registration statement is approved by the SEC. The issue can not be sold at a price higher than the offering price during the selling period. After the selling is closed, the security can be publicly traded.

B. Hypothesis

Secondary security offerings have important valuation effects on the firm's existing common stocks. The direct result of a secondary security offering is the change in capital structure. Several theories show that a change in capital structure has important effects on the value of the firm (Miller and Modigliani (1958, 1963), Miller (1977), Ross (1977), DeAngelo and Masulis (1980)). Also, several theories have been advanced which directly predict the valuation effects of security offerings (Myers and Majluf (1984), Miller and Rock (1985)).

Empirical tests have examined the announcement effects of various types of security offerings. Earlier studies use samples of exchange offerings[26], stock

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[26]See, McConnell and Schlarbaum (1981).

repurchases[27], and convertible bonds call and issuances[28] to examine the announcement and issuance effects on the valuation of common stocks. The general finding is that there is a positive relation between the direction of the leverage change and the sign of the revaluation of common stock. In other words, security offerings that increase leverage result in positive announcement effects, and security offerings that decrease leverage result in negative announcement effects. Recent studies concentrate on the announcement effects of equity, debt, and convertible bonds. The general finding is that equity and convertible bond offerings exhibit negative announcement effects (Masulis and Korwar (1986), Asquith and Mullins (1986), Dann and Mikkelson (1984)) and straight debt offerings show non-positive announcement effects (Dann and Mikkelson (1984), Eckbo (1986), Mikkelson and Partch (1986)).

The tax effect is one of the major considerations in modern capital structure theory, which has important implications for the valuation effects of security offerings. According to Miller and Modigliani (1963), firm value is an increasing function of leverage ratio when corporate tax exists, and the optimal capital

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[27]See, Masulis (1980), Dann (1981), and Vermaelen (1981).

[28]See, Dann and Mikkelson (1984).

structure is 100% debt financing. The implications of this view are straightforward: debt financing has positive effects on firm value while equity financing has negative effects. This view is also shared by DeAngelo and Masulis (1980) although the importance of debt tax shields is partially replaced by tax-shields substitutes such as depreciation expenses and investment tax credits. Miller (1977) argues that the disadvantage of personal income tax exactly offsets the tax advantage of corporate borrowing when the firm pays the full statutory tax rate. Thus the presence of corporate tax only affects the aggregate debt-equity ratio and yields no optimal capital structure for an individual firm. The Miller theory predicts a neutral debt financing effect.

The considerations on the valuation effects of corporate tax are enhanced by incorporating other offsetting factors such as bankruptcy costs and agency costs. The capital structure is a result of the trade-off between tax advantages and bankruptcy costs[29] and the trade-off between tax advantages and agency costs of debt.[30] Under this view, debt financing is regarded as the result of increased debt capacity, which provides more tax advantages to allow more bankruptcy costs and/or

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[29]See, Kraus and Litzenberger (1973).

[30]One type of agency cost of debt is the cost caused by the adverse managerial incentive effects of debt financing (see, Myers (1977)).

agency costs of debt. Equity offerings are interpreted just the opposite. Thus debt offerings are predicted to have positive valuation effects and equity offerings have negative valuation effects.

However, since REITs are not taxed at the corporate level, the tax incentives for debt financing do not exist. Based solely on tax considerations, debt financing is disadvantageous to REITs since they have to pay a competitive interest rate[31] while obtaining no tax savings. In addition, the lack of tax saving rules out the trade-off between tax advantages and bankruptcy and agency costs. This line of reasoning suggests an optimal capital structure with 100 percent equity for REITs (Howe and Shilling (1988)) and predicts a negative debt announcement effect.

Given the captive-financing nature of REITs, agency-related capital structure theories may be more relevant to REIT valuation effects of security offerings. The classic agency literature postulates that there exists an equilibrium contractual form between the agents and the principals which gives optimal incentives to the agents to maximize the principal's wealth given incomplete monitoring. The captive-financing nature and the diffuse ownership structure may make monitoring from

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[31]Which is equal to the rate paid by tax-free institutions grossed up by the corporate tax rate.

debt-holders particularly valuable for REITs. Easterbrook (1984) and Jensen (1986) argue that a firm may prefer to venture frequently to the capital market, such as through issuing debt, since it provides a mechanism to monitor the management of the firm and hence reduces agency problems. Thus, ceteris paribus, debt offerings should have positive valuation effects for captive REITs.

Conversely, secondary equity offerings reduce the leverage ratio and hence relatively decrease the monitoring by creditors. This would result in a larger agency cost and decrease the firm value. Given this "monitoring argument," the following two hypotheses are formulated:

Hypothesis 2:

The stock price of captive REITs reacts more favorably to debt announcements than that of non-captive REITs.

Hypothesis 3:

The stock price of captive REITs reacts more unfavorably to equity announcements than that of non-captive REITs.

IV: Conclusion

The pricing of security offerings, initial and secondary, reflects the market assessment (or the change

of the market assessment) of firm value. The pricing of IPOs is determined by uncertainties about the value of the underlying issue. The greater the uncertainty, the larger the underpricing. The captive-financing nature of REITs amplifies the agency problem for REITs. The higher the degree of captivity of the REIT, the greater the magnitude of potential agency problems. This in turn causes higher uncertainty in firm value. This uncertainty in firm value should be reflected in the pricing of IPOs. It is thus hypothesized that captive REITs have larger underpricing in IPOs than non-captive REITs.

Secondary security offerings can affect firm value via changes in agency costs. Given the agency problems caused by REITs' unique captive-financing nature, monitoring from creditors may be particularly valuable for REITs. Thus it is hypothesized that the stock price of captive REITs reacts more favorably to debt announcements and more unfavorably to equity announcements than that of non-captive REITs.

CHAPTER 4

REIT Initial Public Offerings

I: Introduction

This chapter empirically investigates the pricing of REIT initial public offerings. The emphasis is placed on testing Hypothesis 1 that captive REITs have larger underpricing in IPOs than non-captive REITs. According to the literature, the pricing of IPOs is determined by uncertainties about the value of the underlying issue: The greater the uncertainty, the greater the underpricing. The empirical setting follows the literature. Proxies for uncertainty are examined. In addition, variables for specific REIT characteristics are also examined, with emphasis on testing the effect of captive-financing. The degree of captivity has a significant impact on the pricing of REIT IPOs in the expected manner.

II: Measurement of Initial Returns

Following the IPO literature, there are two major steps for the study of REIT IPOs. The first step is to calculate the pricing for REIT IPOs and the second step is to investigate the possible determinants of the cross-sectional variations. In this section, the initial

returns of REIT IPOs are examined.

Existing studies about initial public offerings focus on ordinary corporations. Several authors have provided convincing evidence that initial public offerings are, on average, underpriced. Ibbotson (1975) finds an average of 11.4 percent discount in the offering price for a sample of 120 firms offering new issues during 1960-1969. Ibbotson and Jaffe (1975) find a 16.8 percent underpricing for a sample of 2,650 firms offering new issues during 1960-1970. Ritter (1984) finds underpricing of initial public offerings by non-financial corporations ranging from 18.8 percent to 48.4 percent. Chalk and Peavy (1987) find an average of 13.8 percent underpricing for a sample of 440 firms which covers the period 1974 to 1982.[32]

For REITs, IPOs are collected and their initial returns are calculated. An initial return is calculated as the difference between the first recorded closing price and the offering price, divided by the offering price. This definition follows Ritter (1984), Beatty and Ritter (1986), Slovin and Young (1988), Johnson and Miller (1988), and Muscarella (1988). In equation form:

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[32]An anomalous finding is provided by Muscarella (1988). He finds no significant underpricing for a sample of fifty initial public offerings of master limited partnership units from 1983 to 1987.

$$R_i=(P_{ri}-P_{oi}) / P_{oi} ,$$

where R_i is the initial return for issue i, P_{ri} is the first recorded closing price and P_{oi} is the offering price. R_i is positive if the offering is underpriced and is negative if the offering is overpriced.

As shown by Table 1, there were 294 REIT initial public offerings from 1961 to 1986. From the 294 IPOs, a sample of 55 IPOs are collected (Table 2).[33] The 55 IPOs and their offering prices are collected from REIT Fact Book 1987, 1988, Moody's Banking and Financial Intermediaries, and Standard and Poor's Corporation Record, 1988. The first recorded closing prices are obtained from Standard and Poor's Stock Record of NYSE, AMEX and OTC.[34] The majority of REITs were listed in the OTC market when going public and transferred to either NYSE or AMEX after a short period of time.

The initial returns of the sample and their distribution are shown in Table 3 and Table 4 respectively. As shown by Table 5, the initial return ranges from 0.565 to -0.258 with a mean 0.0524 which is

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[33]Among the 294 REIT IPOs, only 55 have sufficient data for the empirical model described in next section.

[34]The Standard and Poor's OTC Stock Records do not have daily closing price, thus the average of the recorded daily bid and ask prices are used for stocks initially listed in OTC. Stoll (1989) points out that the true price can be approximated by the mid-point of the bid and the ask price.

significantly different from zero at 95 percent confidence level (P value = 0.0188), indicating that REIT IPOs are underpriced by an average of 5.24 percent. This result is consistent with the traditional findings on the pricing of initial public offerings; however, the magnitude of underpricing is far smaller than that of the IPOs of ordinary corporations when compared to the findings of Ibbotson (1975), Ritter (1984), and Chalk and Peavy (1987).

III. Empirical Model

A substantial body of research exists on the determinants of the pricing of IPOs. Previous studies (Logue (1973), Beatty and Ritter (1986), Johnson and Miller (1988), Tinic (1989)) suggest that the initial return is a function of uncertainty proxies such as offering size, underwriter prestige, offering types, etc. As discussed in earlier chapters, REITs possess the nature of financial intermediaries and operate in a different industry and in a different legal environment from ordinary corporations. The pricing of REIT IPOs may be determined by some unique factors in addition to the conventional factors identified by the IPO literature. In particular, whether the agency cost created by the unique captive-financing nature of REITs constitutes an uncertainty in firm value and affects the pricing of REIT

IPOs or not is the major interest of this research.

A regression model is formulated to examine the variations in the initial returns:

$$R_i = a_0 + a_1 LS_i + a_2 DUR_i + a_3 TYPE1_i + a_4 TYPE2_i + a_5 OFF_i + a_6 PTG_i + a_7 OFT_i + a_8 INFIN_i + a_9 UNAFF_i + a_{10} TIME_i + a_{11} BU + e_i$$

The dependent variable, R_i, is the initial return. The independent variables are as follows:

1. LS: This is the natural logarithm of the offering size. The offering size is adjusted for purchasing power (1967=100.0).[35] In the sample, the largest and the smallest offering size are $232.99 million and $1.90 million respectively after adjusting for purchasing power. The mean offering size is $29.27 million after adjusting for purchasing power (Table 6). Table 8 shows the distribution of offering size.

2. DUR: This is the duration of the offering period which is the time length from the offering day to the first trading day. In the sample, the longest duration is 31.47 months. Some IPOs have zero duration; in other words, the offering day and the first trading day are the same day. The mean duration is 5.27 months (Table 6). Table 9 shows the distribution by duration.

3. TYPE1: TYPE1 is a dummy variable which has value

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[35]This follows Beatty and Ritter (1986).

1 for equity REITs, 0 for hybrid and mortgage REITs. REITs are generally categorized into three types: equity REITs, mortgage REITs, and hybrid REITs. Using the definition of the National Association of Real Estate Investment Trusts (NAREIT), equity REITs hold at least 75 percent of their assets in the ownership of real estate equity interests. Mortgage REITs hold at least 75 percent of their assets in mortgages. Hybrid REITs hold both equities and mortgages. In the sample, there are 18 equity REITs, 5 hybrid REITs, and 32 mortgage REITs (Table 10).

4. TYPE2: TYPE2 is a dummy variable which has value 1 for hybrid REITs and 0 for equity and mortgage REITs. The purpose of this variable is the same as that of TYPE1.

5. PTG: PTG is a dummy variable which has value 1 if the underwriter of the offering is deemed as "prestigious" and has value 0 otherwise.

According to Hayes (1971), the prestige and originating experience of investment bankers can be classified in descending order into special bracket firms, major bracket firms, submajors, and others. Following Tinic (1988), and Miller and Johnson (1988), this study categorizes the first two groups, special bracket and major bracket firms into "prestigious" firms and the last two groups, submajors and others into

"fringe" firms. In the sample, 40 REIT IPOs were handled by "prestigious" investment bankers, and 15 IPOs were underwritten by "fringe" investment bankers (Table 11).

6. OFT: OFT has value 1 if the method of best effort is used for the IPO and has value 0 if the method of firm commitment is used. In the sample, 50 REIT IPOs chose firm commitment and 5 IPOs used best effort (Table 12).

7. INFIN: INFIN is a dummy variable which has value 1 for infinite-life REITs and 0 for finite-life REITs. According to NAREIT, there has been a total of 39 finite-life REITs since 1975. Finite-life REITs are designed to exist for a definite length of time usually ranging from 10 to 20 years. Forty three of the 55 REITs in the sample are infinite-life REITs (Table 13).

8. UNAFF: UNAFF is a dummy variable which has value 1 if the REIT is classified as an unaffiliated REIT and has value 0 if the REIT is classified as an "affiliated" REIT by the NAREIT. Forty eight of the 55 REITs in the sample are unaffiliated REITs (Table 14).

9. OFF: OFF is the log of total dollar amount of REIT security offerings in the year the REIT went public. The dollar amounts are also adjusted for 1967 purchasing power. The REIT annual total dollar amount of offerings from 1961 to 1986 are shown in Table 1.

10. TIME: This variable has value 1 for REITs

organized in early 1970s and 0 for REITs organized in 1980s. In the sample, 31 REITs are organized in 1970s and 24 REITs are organized in 1980s (Table 15).

The data of the above variables are obtained from REIT Fact Book 1987 and 1988, Moody's Banking and Financial Intermediaries, and Standard and Poor's Corporation Record, 1988.

In addition to the above variables, proxies for REIT captivity are searched to test Hypothesis 1 that captive REITs have a greater underpricing in IPOs than non-captive REITs. Being aware of the possible captive arrangement for REITs, the SEC requires that the REIT's organizational relationship (with its sponsor, advisor and affiliates), and investment objectives be described in the prospectuses of IPOs.[36] Thus if it is found from the prospectus that a REIT is to be captive such that it will have an advisor (which is usually a subsidiary of the sponsor) and/or will have a business relationship with its affiliates such as the sponsor and the advisor, then possible conflicts of interest exist, and so does the agency cost associated with this agency problem. However, since a prospectus only provides a general

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[36]See, Derenthal "Real estate investment trusts: formation and initial public offerings," September 1985, Sorg Printing Company Incorporated. Also, see prospectuses of REIT initial public offerings.

description about the possible conflicts of interest,[37] the magnitude of the agency cost constitutes an uncertainty. On the other hand, if it is found from the prospectus that the REIT does not seem to be captive in the sense that the REIT is going to be self-managed and will have business relationships with organizations which are not affiliated with the REIT, the uncertainty about this type of agency cost is less. Thus the uncertainty about this type of agency cost for an IPO investor seems to depend on the information about the captivity of the REIT provided by the prospectus, and the disclosure of this information is required by the SEC.

Since not all of the IPO prospectuses for the REITs in the sample are obtainable, an alternative approach is used. The 10-K reports of sample REITs are scanned. If a REIT is found to have advisory agreement and/or business relationship with its sponsor, advisor, and/or affiliates "ex post", the REIT is deemed as captive. It is assumed that the IPO prospectus of the REIT has disclosed this information, and consequently the "ex ante" uncertainty about the possible conflicts of interest (and hence, the agency cost) exists. On the other hand, if no information about advisory agreement and business relationship with affiliates can be found for a REIT from the 10-K, the REIT is assumed to be non-captive, and the

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[37]See, prospectuses of REIT initial public offerings.

prospectus of the REIT would have contained no information about the firm's captivity either. In this case, there is little uncertainty about the possible conflicts of interest for the REIT at the stage of the initial public offering.

Using the above line of reasoning, three captivity variables, CAP, BU, and AD are used. CAP is a dummy variable which has value 1 if a REIT 1) has business relationships with its affiliates and 2) employs an advisor, and has value 0 otherwise. BU is a dummy variable which has value 1 if a REIT has business relationships with its affiliates and has value 0 otherwise. AD is a dummy variable which has value 1 if a REIT employs an advisor, and has value 0 otherwise. These three variables separate REIT into captive and non-captive groups, and ex post captive REITs may have ex ante greater uncertainty about the agency cost caused by the conflicts of interest than non-captive REITs. Given the SEC's stringent requirements on the revelation of firm information, the possibility of misclassification by the above method is small.

The regression model uses BU as the captivity variables. For the results using CAP and AD as the captivity variable, see Appendix A, sections X, XI, and XII.

IV: Analysis

A. Difference in Means

In Table 7, the 55 REITs are classified by BU. In Table 8 to Table 15, the REITs are first classified by each of the independent variables respectively and are then broken down to captive and non-captive REITs by BU. The average initial return of each group is calculated and its significance is tested (See, Table 7 to Table 15). In addition, tests of difference-in-means are performed and the results are also reported in Table 7 to Table 15.

As shown by Table 7, captive REITs classified by BU have an average initial return 8.05 percent which is significantly different from zero at 95 percent level, and non-captive REITs have an average initial return 2.54 percent which is not significantly different from 0. The mean initial returns of the captive and non-captive REITs classified by BU are not significantly different from each other (Table 7).[38]

In Table 8, the 55 REITs are categorized into 4 groups by offering size. Among the four groups, only the second group (20.0<=SIZE<40.0) has an average initial

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[38]The mean tests for the initial returns of captive and non-captive REITs classified by the other two captivity proxies, CAP and AD are shown in Appendix A, section IX.

return significantly different from zero. In other word, the underpricing of REIT IPOs mainly comes from IPOs with a size ranging from 20 to 40 million. When REITs are broken down to captive and non-captive, only the captive REITs in the third group has an average initial return significantly different from zero. The difference-in-means tests show that the initial returns of captive and non-captive REITs are not different from each other for all of the four groups.

In Table 9, the REITs are categorized by the duration of the offering. The majority of REIT IPOs have a duration less than or equal to 6 months and greater than one day. This is also the group which has a significant difference in means between the average initial returns of captive and non-captive REITs.

When REITs are grouped into equity, hybrid, and mortgage REITs, only the mortgage group has an initial return significantly different from zero (Table 10), indicating that the underpricing of REIT IPOs mainly comes from the IPOs of mortgage REITs. The captive REITs in the mortgage group also has an average initial return significantly different form zero. However, none of the three difference-in-means tests detects any significant difference in means between captive and non-captive REITs for all of the three groups.

When REITs are categorized into two groups based on

underwriter prestige, only the "prestigious" group has an initial return significantly different from zero. However, there is no difference in means between the initial returns of captive and non-captive REITs for both groups (Table 11).

When REITs are categorized into two groups based on offering types, firm commitment and best effort, only the firm commitment group has an average initial return which is significantly different from zero. This indicates that the underpricing of REIT IPOs mainly comes from the IPOs using a firm commitment contract. The average initial return of captive REITs in the firm commitment group is significantly different from zero. However, there is no difference in means between the initial returns of captive and non-captive REITs for both groups (Table 12).

In Table 13, REITs are separated into two groups: infinite-life and finite-life. The finite-life group has an average initial return significantly different from zero. The captive REITs in both groups have an initial return significantly different from zero. In the infinite-life group, the initial return of captive REITs is significantly different from that of non-captive REITs at 95% level.

As shown by Table 14, when REITs are separated into two groups: unaffiliated and affiliated, only the

unaffiliated group has an initial return significantly different from zero. The captive REITs in the unaffiliated group has an initial return significantly different from zero. However, there is no difference in means between the initial returns of captive and non-captive REITs in the unaffiliated group. The difference-in-means test is not performed for the affiliated group due to small sample size.

In Table 15, REITs are separated into two groups: the REITs organized in 1970s and the REITs organized in 1980s. The 1970s group has an initial return which is positive and significantly different from zero at 99% level. However, the 1980s group has an initial return which is negative and significantly different from zero at 95% level, indicating that REITs organized in 1980s have overpriced IPOs. The captive REITs in both groups have an initial return significantly different from zero. There is a difference in means between the initial returns of captive and non-captive REITs for the 1970s group.

B. Regressions

1. The Unrestricted Sample

In estimating the regression model, the problem of heteroscedasticity would be present if ordinary least squares is used since every firm potentially has a

different return variance. Thus weighted least squares is employed in the regressions. Ritter (1984) shows that initial returns are positively correlated with the risk of the underlying issue, when the risk of the underlying issue is measured by either the issuing firm's past sales or by the standard deviation (or equivalently, the variance) of the first 20 trading day returns of the issue. Following Ritter's finding, Beatty and Ritter (1986) use log(1,000+sales) as the weighing factor. Since almost all REITs were new firms when going public, data on past sales are not available. Thus another weighing factor, the variance of the first 20 trading day returns is used in this study. To transform the data, both the dependent and independent variables are multiplied by 1/(TVAR*X) where TVAR is the variance of the first 20 trading day returns and X=10,000 is a scale factor. Since X is constant across all observations, it will have no effect on the result.

The regression model is first estimated using the unrestricted sample (e.g., the 55-IPO sample). The results are presented in Table 16.

In existing empirical tests of IPO pricing, offering size is used as a surrogate for the uncertainty of the firm (Logue (1973), Ritter (1984), Miller and Johnson (1988)). A negative relationship between LS and the initial return is predicted. As shown by Table 16,

LS has significant and negative impact on initial returns. Thus IPOs with larger offering size have less underpricing than IPOs with smaller size. This result is consistent with the prediction.

Booth and Smith (1986) propose a "certification hypothesis" which is based on the information asymmetry between existing shareholders and prospective subscribers to new issues. The existing shareholders have superior knowledge about the nature of the firm compared to outside investors and may take opportunistic actions at the expense of outside investors. Underwriters can be employed to certify that the issue price is consistent with inside information and to reduce the magnitude of underpricing. This is termed "third party certification." Based on their analysis, Booth and Smith conclude that firm value can be increased if the firm makes a bonding investment to certify the offering price and this certification can be strengthened if an underwriter is employed who has invested in its reputation.

The implication of the Booth-Smith model is that IPOs handled by "fringe" investment bankers would tend to be relatively more underpriced. The reason is that "fringe" underwriters have less reputation on underwriting than prestigious ones and hence are forced to underprice more to protect their business. This

implication is supported by Tinic (1988) who finds that IPOs underwritten by "fringe" investment bankers are underpriced significantly more than those underwritten by prestigious investment bankers. Johnson and Miller (1988) find a negative relationship between the level of banker prestige and the degree of IPO underpricing.

As shown by Table 16, however, the underwriter prestige (PTG) is positively related to initial returns, indicating that REIT IPOs handled by prestigious investment bankers are priced lower than those handled by "fringe" underwriters. This result is contradictory to the implication of certification hypothesis and to Tinic's finding (1988).

DUR (the duration of an offering) proxies the uncertainty of market demand on an offering to test Baron's (1982) theory. Baron contends that the investment banker is better informed about the market demand for the firm's security than the issuer, and the optimal offering price is a decreasing function of the uncertainty about the market demand for the issue while the value of employing the underwriter is an increasing function of the uncertainty. A greater uncertainty about market demand creates difficulties for underwriters to price the IPO correctly and results in a longer duration on average. Thus the longer the ex post duration, the greater the ex ante uncertainty about the market demand,

and hence the larger the underpricing.[39]

The insignificance of DUR (Table 16) does not support Baron's theory (1982) that the degree of underpricing is an increasing function of the uncertainty about the market demand of the issue, if DUR is an appropriate proxy for the uncertainty of market demand. However, this result is consistent with Muscarella and Vetsuypens (1989). They test Baron's theory by using a sample of IPOs of investment bankers. Since the issuers are themselves underwriters in this case, the information asymmetry between the issuers and the underwriters does not exist. Contrary to the Baron theory, Muscarella and Vetsuypens find significant underpricing in IPOs of that sample and the magnitude of underpricing is comparable to that of other IPOs.

Equity REITs and mortgage REITs are different in some fundamentals such as cash flow pattern. Existing empirical studies show that in the past two decades, equity REITs were different from mortgage REITs in terms of return and riskiness.[40] Thus it is desirable to see whether REIT types affect the pricing of initial public offerings. The insignificance of TYPE1 and TYPE2 indicates that REIT types, equity or mortgage, do not

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[39]The duration has a negative relationship with the first trading day volume. See Appendix A, section II.

[40]See, for example, Kuhle and Walther (1986).

affect IPO pricing (Table 16).

There are two major types of underwriting contracts: best effort and firm commitment. Ritter (1985) argues that best effort contracts should result in smaller underpricing because the adverse selection problem for uninformed investors is reduced under best effort contracts.[41] The reason is that under best effort contracts, if the subscription of the issue does not reach the pre-specified level, the offer would be cancelled, and the uninformed investors avoid the losses to informed investors in the case that the issue is actually overpriced. On the other hand, it is found that best effort contracts are usually used when the underlying issue has greater ex ante uncertainty (Ritter (1985)).[42] This finding predicts that best effort offerings have greater underpricing than firm commitment offerings if the above mentioned uncertainty theories are correct. Ritter (1985),[43] Chalk and Peavy (1985),[44] Slovin and Young (1988), and Beatty (1989) find that best effort offerings have higher underpricing than firm commitment offerings, which is consistent with the uncertainty theories.

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[41]See, Smith (1986).

[42]Ibid.

[43]Ibid.

[44]Ibid.

As shown by Table 16, OFT is not significant, which is contrary to existing findings.

Infinite-life and finite-life REITs are different in the length of life. Most of the finite-life REITs are also single-purpose REITs, namely, their investment policies are fixed and are stated in the IPO prospectus. This may help to attenuate the information asymmetry problem between informed and uninformed investors about the firm's prospects. Thus it is predicted that infinite-life REITs have larger initial returns than finite-life REITs. However, the insignificance of INFIN does not support the prediction that IPOs of infinite-life REITs have greater uncertainty than those of finite-life REITs (Table 16).

The "affiliated" REITs have a common sponsor and usually have the same advisor.[45] For the IPO of an "affiliated" REIT, investors may be able to assess the uncertainty of the issue based on the performance of other REITs in the family. Thus it is predicted that unaffiliated REITs have larger underpricing than "affiliated" REITs.

The insignificance of UNAFF does not support the prediction that IPOs of unaffiliated REITs have greater

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[45]For example, the Travelers Corporation sponsored two "affiliated" REITs: Travelers Real Estate Investment Trust and Travelers Realty income Investors. They have the same advisor, Keystone Realty Advisers, Inc.

uncertainty than those of affiliated REITs.

The purpose in using OFF is to identify the possible influence from the market supply on the pricing of REIT IPOs. According to Ritter (1984), initial return has a positive relationship with concurrent total dollar amount of security offerings. If this result holds for REIT IPOs, OFF should have a positive relationship with initial returns. The insignificance of OFF is inconsistent with Ritter's findings.

As shown by Table 1 and Table 2, REIT IPOs seem to cluster in two time periods, the early 1970s and the first half of 1980s. Between these two periods is the great recession for the real estate market. Many REITs went bankrupt during this recession. The survivors made critical adjustments to their operations as well as to their financial structure[46]. REITs organized after this recession also operated under a different legal and economic environment. Given these structural changes for REITs, it is desirable to examine whether there is a difference in the pricing of IPOs between REITs organized in the two time periods. The insignificance of TIME indicates that the possible structural changes for the REIT industry caused by the recession in the late 1970s

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[46]See, REIT Fact Book 1988, Chapter II.

did not result in a difference in REIT IPO pricing.[47]

The captivity proxy BU is positive and significant, indicating that captive REITs have larger underpricing than non-captive REITs. This result supports Hypothesis 1.

2. The Restricted Sample

For further analysis, REIT IPOs with duration greater than 12 months are excluded from the total sample. The reason is that the duration of a REIT IPO can be at least partly determined ex ante-some REIT shares can not be traded after the initial public offering for a pre-determined period. The pricing of these IPOs might be fundamentally different from other IPOs. An IPO with a long duration is more likely to have a pre-determined "non-trading" period, thus they are excluded from the sample. The selection of 12 months is arbitrary.

In addition, REIT IPOs which choose a best effort contract are also excluded from the total sample. The reason is that under best effort contracts, if the subscription of the issue does not reach the pre-specified level, the offering would be cancelled, and the proceeds must be returned to the subscribers. This

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[47]The regression results using the other two captivity proxies CAP and AD are shown in Appendix A, section X.

condition may result in survivorship bias in the analysis of REIT IPO pricing if best effort offerings are included in the sample. The exclusion of IPOs with duration greater than 12 months and of IPOs which used a best effort contract results in a restricted sample which contains 46 IPOs.[48]

For the model, the independent variables used are the same except TIME. TIME is not used to avoid the possible multicollinearity with OFF. The model is again weighted by 1/(TVAR*X).

Table 18 shows the regression results. SIZE is negative and significant at 90 percent level, which is consistent with our prediction. DUR is negative and significant at 90 percent level, which is contrary to our prediction that the longer the duration, the larger the underpricing. TYPE1 and TYPE2 are not significant, indicating that REIT types do not differentiate IPO pricing. PTG is positive and significant at 95 percent level, which is again contrary to our prediction. OFF is not significant, which is not consistent with the Ritter finding. INFIN is not significant, which does not

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[48]For the 46-IPO sample,the average initial return is 0.0428 with a t-statistic 1.988 and a p-value 0.0509. The summary statistics and the correlation coefficients of the independent variables without weighing are presented in Appendix A, section V and VI respectively. The summary statistics and correlation coefficients of the independent variables weighted by 1/(TVAR*X) are shown in Appendix A, section VII and VIII respectively.

support the prediction that infinite-life REITs have greater underpricing than finite-life REITs. UNAFF is not significant. The captivity variables BU is significant at 95 percent level, which supports Hypothesis 1 that captive REITs have larger underpricing than non-captive REITs.[49]

The model used in this regression analysis is further adjusted. PTG is omitted to avoid the possible multicollinearity with SIZE. INFIN and UNAFF are also omitted to avoid the possible multicollinearity with SIZE, TYPE1, and OFF. OFF is not used to avoid the possible multicollinearity with TIME.[50] The sample for this model is again the restricted sample (46 IPOs).

The regression results are shown in Table 19. SIZE is negative and significant at 95 percent level, which is consistent with our prediction. DUR is negative and significant at 99 percent level. This result is inconsistent with our prediction. TYPE1 is positive and significant at 95 percent level, indicating the equity REITs have larger underpricing than other types of REITs. TYPE2 is not significant. TIME is not significant. The

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[49]The regression results using other two captivity proxies are shown in Appendix A, section XI.

[50]See the correlation coefficient matrix in Appendix A, section VIII.

captivity variable BU is not significant.[51]

In summary, although some independent variables vary in their significance in the regression models, SIZE shows consistently significant relationships with the initial return. The negative relationship between SIZE and the initial return is consistent with the prediction that larger size has smaller uncertainty and hence smaller underpricing than smaller size. The significant and positive relationship between BU and the initial return in two of the above three regression analysis supports Hypothesis 1.

V: Conclusion

The IPO literature postulates that uncertainties characterize the pricing of IPOs. IPOs are underpriced due to the information asymmetry between the informed and uninformed market participants about the value of the underlying issue. REITs IPOs are also underpriced; however, the magnitude of the underpricing is far lower than that of the IPOs of ordinary corporations documented in the literature. The regression analyses of REIT IPOs focus on the influence of the uncertainty of REIT value caused by the agency cost incurred from the captive-financing nature. The regression results support

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[51]The regression results using other two captivity proxies are shown in Appendix XII.

Hypothesis 1 that captive REITs have larger underpricing than non-captive REITs. In addition, the uncertainty proxy, firm size, has a negative relation with initial return which is consistent with the findings in the literature. However, IPOs underwritten by "prestigious" investment bankers are more underpriced. This result is contradictory to the finding of Tinic (1988).

CHAPTER 5

REIT Debt Offerings

I: Introduction

This chapter empirically examines the wealth effect of REITs debt announcements, again focusing on the influence of REIT captive nature. Various capital structure theories provide many implications for the valuation effects of debt offerings. Given the unique captive-financing nature, the agency cost related capital structure theory may be more relevant to REITs. In the cross-sectional analyses, a proxy for REIT captivity is used to test Hypothesis 2: the stock price of captive REITs reacts more favorably to debt announcements than non-captive REITs. The empirical results do not support the hypothesis.

II: Measurement of Abnormal Returns

There are two steps of this investigation: the event study and the cross-sectional analysis of announcement effects. In this section, event studies on debt offerings are performed.

A. Data and Methodology

The recent findings on the valuation effects of

debt offerings are that convertible bond offerings exhibit negative announcement effects (Masulis and Korwar (1986), Asquith and Mullins (1986), Dann and Mikkelson (1984)), and straight debt offerings show non-positive announcement effects (Dann and Mikkelson (1984), Eckbo (1986), Mikkelson and Partch (1986)). These event studies use the market model.

The REIT debt announcement effects are examined using the mean-adjusted model. Howe and Shilling (1988) point out that for the event study of real estate firms, the mean-adjusted model is more appropriate than the market model. The methodology follows Howe and Shilling (1988). The mean return for each firm is calculated using days -80 to day -41 returns (day 0 is the announcement day). The abnormal return on day i is obtained by subtracting the mean return from the day i return.

Three announcements are examined: debt[52] announcement, line of credit announcement, and debenture[53] announcement. The announcement data is collected from the Wall Street Journal Index. The daily stock returns are obtained from the CRSP tape. The

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[52]Including senior debentures, subordinated debentures, senior notes, subordinated notes, floating rate notes, term loans and bank lines of credit.

[53]Including senior debentures, subordinated debentures, senior notes, subordinated notes, floating rate notes, and term loans.

sample size for debt announcement is 36. This sample is further split into two samples: the line of credit sample and the debenture sample. The size of the line of credit sample is 17 and the size of the debenture sample is 19. For every security announcement, no other security announcement is made by the firm during a period of four months prior and one month after the announcement. In addition, if an event occurred on a day during the announcement period (day -10 to day +10), the abnormal return of that day is excluded from calculating the average abnormal return of that day.

B. Results

1. The Debt Sample

Different from the Howe and Shilling findings (1988), REIT debt offerings in this study shows no announcement effect on day -1 and day 0. As shown by Table 20, the average abnormal return for day -1 (AAR_{-1}) is -0.0067 with a t-statistic -1.1436.[54] The average abnormal return for day 0 (AAR_0) is zero with a t-statistic -0.0047. However, this result is consistent with existing findings on debt announcements by ordinary corporations (Dann and Mikkelson (1984), Eckbo (1986),

[54]The t-statistic is equal to AAR_i/SD, where AAR_i is the average abnormal return on day i and SD is the standard deviation of daily average returns for the period day -40 to day -11.

Mikkelson and Partch (1984)). The cumulative abnormal returns and their t-statistics[55] are also shown in Table 20.

2. The Line of Credit Sample

Similar announcement effects hold for line of credit announcements. As Table 21 shows, the average abnormal return for day -1 (AAR_{-1}) is -0.0039 with a t-statistic of -0.3167. The average abnormal return for day 0 (AAR_0) is -0.0028 with a t-statistic -0.2303. The cumulative abnormal returns and their t-statistics are shown in Table 25.

3. The Debenture Sample

As Table 22 shows, the average abnormal return for day -1 (AAR_{-1}) is -0.0094 with a t-statistic -3.0492, which is significant at 99% level. The average abnormal return for day 0 (AAR_0) is -0.0025 with a t-statistic -0.7987, which is not significant. Since announcement effects can be reflected on day -1,[56] this result indicates a negative announcement effect for debenture announcements. The cumulative abnormal returns and their

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[55]The t-statistic for cumulative abnormal returns is equal to $CAAR_{i,j}/(SD*N^{0.5})$, where SD is the standard deviation of average daily returns for the period day -40 to day -11 and N is the number of days for the cumulation.

[56]See, Asquith and Mullins (1986).

t-statistics are shown in Table 22.

III: Empirical Model

The major purpose of this empirical investigation of REIT debt offerings is to search for the determinants of announcement effects. Emphasis is placed on the possible monitoring effects from debtholders to test Hypothesis 2 that the stock price of captive REITs reacts more favorably to debt announcements than that of non-captive REITs. A regression model is formulated. Based on the existing literature, several independent variables are examined, with emphasis placed on the captivity variable BU.

Ordinary least squares procedures are used for the following regression model:

$$Yi=a_0+a_1TV_i+a_2PF_i+a_3LVG_i+a_4CHG_i+a_5TYPE_i+a_6LINE_i+a_7BU_i+e_i$$

Two dependent variables are used separately: the cumulative average abnormal return from day -1 to day 0 ($CAAR_{-1,0}$), and the cumulative average abnormal return from day -1 to day +1 ($CAAR_{-1,+1}$). For the sample of the regression analysis, the observations in which events occurred during day -1 to day +1 are excluded from the 36-announcement sample, resulting in a sample size of 31. The independent variables are described in the following.

1. TV:

This variable is the total risk of the issuing firm's common stock measured by 10,000 times the variance of the stock's returns over the sixty trading days prior to the announcement period. The mean of this variable is 17.9102 (Table 23).

2. PF:

This variable is the stock price appreciation measured by the cumulative stock returns for the ninety trading days period prior to the announcement period. The mean of this variable is 0.0848 (Table 23).

3. LVG:

This variable is the leverage ratio before the announcement. Following Eckbo (1986), LVG is the sum of the issuing firm's long and short-term debt (excluding convertible debt) before the offering, divided by the market value of common stock prior to the offering. The debt data is taken from the Moody's Banking and Financial Intermediaries, and the market value of common stock is taken from the CRSP master files. The mean of this variable is 7.5427 (Table 23).

4. CHG:

This variable is the change in leverage ratio due to the offering. This variable is the leverage ratio after the offering minus the leverage ratio before the

offering (LVG). The leverage ratio after the offering is the sum of the issuing firm's debt (excluding convertible debt) before the offering and the dollar amount of the offering, divided by the market value of common stock prior to the offering. The mean of this variable is 4.5848 (Table 23).

5. TYPE:

TYPE is a dummy variable which has value 1 for mortgage REITs and 0 for hybrid REITs.[57] Twenty of the 31 announcements come from mortgage REITs.

6. LINE:

LINE is a dummy variable which has value 1 for line of credit announcements and 0 for debenture announcements. Fifteen of the 31 debt announcements are line of credit announcements.

7. BU:

This variable has been described in Chapter 4. It is used to separate REITs into captive and non-captive groups. Based on this variable, 13 of the 31 debt announcements come from captive REITs.

IV: Regression Results

A. The Debt Sample

The inclusion of the variable TV in the model

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[57]There are no equity REITs in this sample.

follows Masulis and Korwar (1986). They use this variable to proxy the market's uncertainty about the value of the firm's current assets. The higher the uncertainty, the greater the Myers and Majluf information asymmetry problem,[58] and consequently the larger the magnitude of the market's negative reaction to the firm's debt offerings. Thus it is predicted that TV has a negative relationship with debt announcement effects. When $CAAR_{-1,0}$ is used as the dependent variable, TV is negative and significant at 99% level (Table 24), which is consistent with the prediction. When $CAAR_{-1,+1}$ is used as the dependent variable, TV is not significant (Table 25).

Masulis and Korwar (1986) show that the variable PF is used by the market to predict equity announcements. They point out that large stock price appreciation lowers firm leverage ratio, and a firm would find that it is disadvantageous to further decrease its leverage ratio by selling additional common stock. Thus an equity offering is less anticipated for a firm with larger stock price appreciation, and since the equity offering is less anticipated, the announcement of an equity offering by such a firm is predicted to have a larger negative market

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[58]Myers and Majluf (1984) point out that given the superior information about the firm's prospects, management and insiders may act opportunistically on behalf of existing shareholders and issue securities whenever they are over-prices.

reaction. On the contrary, the debt offering for such a firm is predicted to have a larger positive market reaction since the debt offering mitigates the problem of reduced leverage ratio caused by stock price appreciation.

When $CAAR_{-1,0}$ is used as the dependent variable, PF is not significant (Table 24). When $CAAR_{-1,+1}$ is used as the dependent variable, PF is also not significant (Table 25). These results do not support the prediction.

LVG is used by Eckbo (1986) as one of the proxies[59] for information asymmetry between management and investors to test the Myers and Majluf prediction on debt offerings. According to Eckbo, the higher the leverage ratio prior to the offering, the higher the risk of the debt offering, and consequently, the greater the information asymmetry problem. This line of reasoning predicts a negative relationship between LVG and announcement effects for debt offerings. When $CAAR_{-1,0}$ is used as the dependent variable, LVG is not significant (Table 24). When $CAAR_{-1,+1}$ is used as the dependent variable, LVG is negative and significant at 95% level (Table 25), which is supportive of the prediction.

CHG is the change in leverage ratio due to the offering. Masulis and Korwar (1986) find that offerings which increase leverage result in a more positive

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[59]Another proxy used by Eckbo is the bond rating.

announcement effect. However, if this announcement effect comes from the increase in tax savings, then this result may not hold for REIT security offerings since REITs are exempt from corporate taxes. According to Ross (1977), the change in leverage ratio signals the change in firm quality. If the increase in firm quality is proportional to the magnitude of the increase in leverage ratio, then CHG should have a positive relationship with debt announcement effects. When $CAAR_{-1,0}$ is used as the dependent variable, CHG is significant at 90% level (Table 24). When $CAAR_{-1,+1}$ is used as the dependent variable, CHG is positive and significant at 99% level (Table 25), which supports the Ross argument.

The reason to include TYPE in the model is given in Chapter IV. As Tables 24 and 25 show, TYPE is not significant, indicating that REIT types (mortgage and hybrid) do not affect debt announcement effects.

Howe and Shilling (1988) found positive debt announcement effects, and the positive effects mainly come from short term debt offerings. They indicate that the results lend support to the Flannery (1986) signalling effects. The short term debt offerings are mainly lines of credit. Thus it is predicted that LINE has a positive relationship with the dependent variable. As shown by Tables 24 and 25, LINE is not significant, which does not support the prediction.

The captivity variable BU is not significant as shown by Tables 24 and 25, which does not support hypothesis 2 that the stock price of captive REITs reacts more favorably to debt announcements than non-captive REITs.[60]

B. The Line of Credit Sample

The sample for the regression analysis of line of credit announcements contains 15 observations. The regression results using the two dependent variables are shown in Tables 28 and 29 respectively.

When $CAAR_{-1,0}$ is used as the dependent variable, TV is negative and significant at 99% level (Table 28), which is consistent with the prediction. When $CAAR_{-1,+1}$ is used as the dependent variable, TV is not significant (Table 29).

When $CAAR_{-1,0}$ is used as the dependent variable, PF is not significant (Table 28). When $CAAR_{-1,+1}$ is used as the dependent variable, PF is also not significant (Table 29). These results do not support the prediction that PF has a positive relationship with announcement effects.

When $CAAR_{-1,0}$ is used as the dependent variable, LVG is not significant (Table 28). When $CAAR_{-1,+1}$ is used as the dependent variable, LVG is negative and

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[60]The regression results using the other captivity variable AD are shown in Appendix B, sections XI and XII.

significant at 95% level (Table 29), which supports the prediction.

When $CAAR_{-1,0}$ is used as the dependent variable, CHG is not significant (Table 28). When $CAAR_{-1,+1}$ is used as the dependent variable, CHG is positive and significant at 95% level (Table 29), which supports the prediction.

As Tables 28 and 29 show, TYPE is never significant, indicating that REIT types (mortgage and hybrid) do not affect line of credit announcement effects.

The captivity variable BU is not significant as shown by Tables 28 and 29, which does not support Hypothesis 2 that captive REITs have more positive debt announcement effects than non-captive REITs.[61]

C. The Debenture Sample

The sample for the regression analysis of debenture announcements contains 16 observations. The regression results using the two dependent variables are shown in Tables 32 and 33 respectively. As shown by the tables, none of the independent variables is significant.[62]

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[61]The regression results using AD as the captivity variable are shown in Appendix B, sections XIII and XIV.

[62]The regression results using AD as the captivity variable are shown in Appendix B, sections XV and XVI. In addition, difference-in-means tests are performed for the three samples. The results are shown in Appendix B,

V: Conclusion

Given the unique captive-financing nature of REITs, this study focuses on the agency cost implications on the valuation effects of REIT debt offerings. Contrary to the Howe and Shilling (1988) findings, debt offerings in the sample do not exhibit announcement effects. When the debt sample is split into the line of credit sample and the debenture sample, no announcement effects are found for either sample.

On the regression analysis, the independent variables exhibit varying relationships with the dependent variables. However, the captivity variable BU is insignificant in all the three samples, which does not support Hypothesis 2 that captive REITs have more positive debt announcement effects than non-captive REITs.

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sections I to X.

Chapter 6

REIT Secondary Equity Offerings

I: Introduction

This chapter empirically examines the wealth effect of REIT secondary equity offerings, again focusing on the influence of REIT captive nature. Various capital structure theories provide many implications for the valuation effects of secondary equity offerings. Given the unique captive-financing nature, the agency cost related capital structure theory may be more relevant to REITs. In the regression analysis, a proxy for REIT captivity is used to test Hypothesis 3: the stock price of captive REITs reacts more unfavorably to equity announcements than non-captive REITs. The empirical results do not support the hypothesis.

II: Measurement of Abnormal Returns

A. The Sample

There are two steps for this investigation: the event study and the cross-sectional analysis of announcement effects. In this section the event study is performed.

Secondary equity offerings are found to have negative announcement effects (Masulis and Korwar (1986),

Asquith and Mullins (1986), Dann and Mikkelson (1984)). These event studies use the market model. The event study for REIT equity offerings uses the same methodology as debt offerings in the previous chapter. Nineteen equity announcements are collected from the Wall Street Journal Index. The daily stock returns are obtained from the CRSP tapes. For every security announcement, no other security announcements are made by the firm during a period of four months prior and one month after the announcement. If an event occurred on a day during the announcement period (day -10 to day +10), the abnormal return on that day is excluded from calculating the average abnormal return of that day.

B. Results

Consistent with the Howe and Shilling (1988) finding, equity offerings exhibit significantly negative announcement effects. As shown by Table 35, the average abnormal return for day -1 (AAR_{-1}) is -0.0129 with a t-statistic of -3.2116, which is significant at the 99% level. The average abnormal return for day 0 (AAR_0) is -0.0042 with a t-statistic of -1.0360, which is not significant. Given that day -1 can possibly capture the announcement effects, this result is consistent with existing literature (for example, Asquith and Mullins (1986), Masulis and Korwar (1986)). The cumulative

average abnormal returns and their t-statistics are also shown in Table 35.

III: Empirical Model

The major purpose of this empirical investigation on REIT secondary equity offerings is to search for the possible determinants of announcement effects. Emphasis is placed on the possible monitoring effects from debtholders to test Hypothesis 3. A regression model is estimated to see what factors influence the equity announcement day stock revaluation. Based on the existing literature, several explanatory variables are selected, with emphasis placed on the captivity variable BU.

Ordinary least squares procedures are used for the following regression model:

$$Y_i=a_0+a_1TV_i+a_2PF_i+a_3RS_i+a_4CHG_i+a_5SIZE_i+a_6TYPE1_i+a_7TYPE2_i+a_8BU_i+e_i$$

The two variables, $CAAR_{-1,0}$ and $CAAR_{-1,+1}$, are used separately as dependent variable Y. For the sample of the regression analysis, the observations in which events occurred during day -1 to day +1 are excluded from the 19-announcement sample, resulting in a sample size of 18. The independent variables are described in the

following.

1. TV:

This variable has been described in section III, Chapter 5. The mean of this variable is 2.9362 (Table 36).

2. PF:

This variable has been described in section III, Chapter 5. The mean of this variable is 0.1896 (Table 36).

3. RS:

This variable is the percentage increase in common stock outstanding due to the offering. It is the total number of shares of the equity offering divided by the total number of shares outstanding prior to the offering. The mean of this variable is 0.3441 (Table 36).

4. CHG:

This variable is the change in leverage ratio due to the offering. This variable is the leverage ratio after the offering minus the leverage ratio before the offering (LVG). The leverage ratio after offering is the sum of the issuing firm's debt (excluding convertible debts) before the offering divided by the sum of the market value of common stock prior to the offering and the dollar amount of the equity offering. This variable has a mean -.1589 (Table 36).

5. SIZE:

This variable is the offering amount divided by the market value of common stock prior to the offering. Offering size is obtained from the Wall Street Journal Index and REIT Fact Books. The mean of this variable is 0.2759 (Table 36).

6. TYPE1:

TYPE1 is a dummy variable which has value 1 for equity REITs and 0 for mortgage and hybrid REITs. In the sample, nine announcements come from equity REITs, four announcements come from hybrid REITs, and five announcements come from mortgage REITs.

7. TYPE2:

TYPE2 is a dummy variable which has value 1 for hybrid REITs and 0 for equity and mortgage REITs.

8. BU:

This variable has been described in Chapter 4, which separates REITs into captive and non-captive groups. Based on this variable, eight of the 18 announcements come from captive REITs.

IV: Regression Results

The regression results are shown in Table 37 and Table 38. TV is the total risk of the issuing firm's common stock. The inclusion of this variable follows Masulis and Korwar (1986). They use this variable to

proxy the market's uncertainty about the value of the firm's current assets. The higher the uncertainty, the greater the Myers and Majluf information asymmetry problem, and consequently the larger the magnitude of the market's negative reaction to the firm's debt or equity offerings. Thus it is predicted that TV has a negative relationship with equity announcement effects. As Tables 37 and 38 show, TV is not significant when $CAAR_{-1,0}$ or $CAAR_{-1,+1}$ is used as the dependent variable, which does not support the prediction.

PF is the stock performance prior to the announcement. Masulis and Korwar (1986) show that this variable is used by the market to predict equity announcements. They point out that large stock price appreciation lowers leverage ratio, and a firm would find that it is disadvantageous to further decrease its leverage ratio by selling additional common stock. Thus equity offering is less anticipated for a firm with larger stock price appreciation, and since equity offering is less anticipated, the announcement of equity offering by such a firm is predicted to have a larger negative market reaction. However, the insignificance of PF does not support this prediction (Tables 37 and 38).

RS is the percentage increase in common stock outstanding due to the offering. It is used by Masulis and Korwar (1986) to test Jensen and Meckling (1976)

agency theory and the Leland and Pyle (1977) signalling theory. According to both theories, equity announcements result in a larger negative stock reaction for firms with larger percentage rise in shares outstanding, if management's share holding is not increased proportionately. Thus assuming management's share holding remain unchanged, the larger the RS, the larger the negative equity announcement effects. As shown by Tables 37 and 38, RS is not significant, which does not support the prediction.

CHG is the change in leverage ratio due to the offering. Masulis and Korwar (1986) find that offerings which increase leverage result in a more positive announcement effect. However, if this announcement effect comes from the increase in tax savings, then this result may not hold for REIT security offerings since REITs are exempt from corporate taxes. In particular, the change in leverage ratio caused by equity offerings is relevant to the Galai and Masulis (1976) wealth-transfer hypothesis. According to Galai and Masulis, debt becomes less risky after an unanticipated reduction in financial leverage, consequently, bondholders gain at the expense of shareholders. If the gain is an increasing function of the reduction in financial leverage, CHG has a positive relationship with equity

announcement effects[63]. However, the insignificance of CHG does not support this prediction (Tables 37 and 38).

Eckbo (1986) specifies SIZE as a proxy for the amount of unanticipated new financing to test Miller and Rock (1985) implied-cash-flow hypothesis. Miller and Rock contend that outside investors realize the Myers/Majluf type of information asymmetry problem, and interpret firm debt/equity offerings as results of the firm's receiving lower than expected cash flows.[64] Based on this hypothesis, SIZE would have a negative relationship with equity announcement effects. The insignificance of SIZE does not support the prediction (Tables 37 and 38).

As shown by Tables 37 and 38, TYPE1 and TYPE2 are not significant, indicating that REIT types do not affect equity announcement effects.

BU separates REITs into captive and non-captive groups. Based on the theory developed in the previous chapters, it is hypothesized that the stock price of captive REITs reacts more unfavorably to equity announcements than non-captive REITs. As shown by Tables 37 and 38, BU is not significant, which does not support

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[63]For equity offerings, CHG is always negative.

[64]Miller and Rock also argue that equity issues are equivalent to negative dividends. Since an increase in dividend conveys positive information concerning the firm's future earnings, equity issues have opposite valuation effects.

this hypothesis.[65]

V: Conclusion

Given the unique captive-financing nature of REITs, this study focuses on the agency cost implications of the valuation effects of REIT secondary equity offerings.

Consistent with the literature, equity offerings exhibit negative announcement effects. On the equity cross-sectional analysis, several explanatory variables suggested by the literature are examined. However, REIT equity announcement effects are not explained by those variables. In particular, the captivity variable BU exhibits no explanatory power, which does not support Hypothesis 3 that the stock price of captive REITs reacts more unfavorably to equity announcements than non-captive REITs.

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[65]The regression results using CAP and AD as the captivity variable are shown in Appendix C, sections XII and XIII. In addition, difference-in-means tests are performed. The results are shown in Appendix C, sections I to XI.

Chapter 7

Conclusion

There exists a substantial body of literature dealing with captive-financing arrangements. This literature has discussed three motivations for captive-financing arrangements: improving operational efficiency, enhancing debt capacity and transferring wealth between equity-holders and bond-holders. The general conclusion of this literature is that the parent companies' shareholders gain by forming a captive-financing firm.

One type of captive-financing arrangement that has received little attention is the real estate investment trust (REIT). REITs are often created as captive-financing affiliates by their sponsors. The formation of captive REITs creates conflict of interest problems between the sponsors and the shareholders of the REITs. These problems create agency costs for REITs. The diffuse ownership structure of REITs makes monitoring of management difficult. Thus monitoring by creditors may be particularly valuable for REITs. The higher the degree of captivity of the REIT, the higher the probability for the agency problems to occur. This, in turn, causes a higher uncertainty in firm value due to the higher uncertainty in agency costs associated with these agency problems.

This dissertation explores how the agency costs caused by the captive-financing nature of REITs affects firm value through empirical investigations of the pricing of initial public offerings (IPOs) and secondary debt and equity offerings of REITs.

The theoretical literature on IPOs argues that underpricing is caused by uncertainties about the value of the underlying issue; and the greater the uncertainty, the larger the underpricing. REITs IPOs are also underpriced, but the magnitude of the underpricing is far lower than that of the IPOs of ordinary corporations documented in the literature. Captive REITs have a higher uncertainty in firm value than non-captive REITs due to the possible greater magnitude of agency problems. The higher uncertainty in firm value will yield a larger underpricing in the IPO. Using this line of reasoning, it is hypothesized that captive REITs have greater underpricing in IPOs than non-captive REITs. The regression results support this hypothesis.

Given the captive-financing nature of REITs, agency related capital structure theories may be more relevant to REIT valuation effects of secondary debt and equity offerings. The captive-financing nature and the diffuse ownership structure may make monitoring from debt-holders particularly valuable for REITs. Since debt offerings increase leverage ratios and hence increase the degree of

monitoring from debt-holders, it is hypothesized that the stock price of captive REITs reacts more favorably to debt announcements than that of non-captive REITs. The regression results do not support this hypothesis.

Conversely, secondary equity offerings reduce leverage ratios and hence decrease the degree of monitoring by debt-holders. This results in a larger agency cost and decreases firm value. Thus it is hypothesized that the stock price of captive REITs reacts more unfavorably to equity announcements than that of non-captive REITs. The regression results do not support this hypothesis.

Table 1

Public offerings of securities by REITs 1961-1986[a]
($ Millions)

Year	All Offerings No.	All Offerings Total	Initial Offerings No.	Initial Offerings Total	Secondary Offerings No.	Secondary Offerings Total
1961	14	$ 71.9	14	$ 71.9	0	0.0
1962	16	105.9	12	81.8	4	24.1
1963	9	25.8	6	4.0	3	21.8
1964	19	36.2	11	1.4	8	34.8
1965	14	32.6	5	3.0	9	29.6
1966	3	5.8	1	0.0	2	5.8
1967	7	41.5	1	0.0	6	41.5
1968	14	122.4	4	67.6	10	54.8
1969	58	1,256.7	33	976.7	25	280.0
1970	72	1,687.4	41	1,358.4	31	329.0
1971	78	1,987.3	32	1,183.4	46	803.9
1972	67	1,223.3	29	563.2	38	660.1
1973	68	852.1	18	156.8	50	695.3
1974	17	23.7	5	1.5	12	22.2
1975	5	0.4	1	0.0	4	0.4
1976	8	19.7	0	0.0	8	19.7
1977	8	91.9	0	0.0	8	91.9
1978	12	91.5	3	8.4	9	83.1
1979	18	110.5	4	0.0	14	110.5
1980	20	264.0	4	30.0	16	234.0
1981	22	244.7	5	100.0	17	144.7
1982	12	453.6	3	315.0	9	138.6
1983	23	741.3	4	159.0	19	582.3
1984	34	2,729.9	9	378.8	25	251.1
1985	59	4,270.6	29	2,791.9	30	1,478.7
1986	63	4,668.9	20	1,204.4	43	3,464.5
Total	740	21,159.6	294	9,457.2	446	11,702.4

[a]Data source: The REIT Fact Book 1988 published by National Association of Real Estate Investment Trusts, Inc.

Table 2

Frequency of a sample of 55 REIT IPOs based on the offering year[a]

Year	Frequency	Cumulative Frequency	Percent	Cumulative Percent
1969	5	5	9.1%	9.1%
70	11	16	20.0	29.1
71	15	31	27.3	56.4
82	1	32	1.8	58.2
84	4	36	7.3	65.5
85	18	54	32.7	98.2
86	1	55	1.8	100.0

[a]The REIT IPO data is collected from REIT Fact Books, Moody's Banking and Financial Intermediaries, and Standard & Poor's Corporation Records.

Table 3

Initial returns for a sample of 55 REIT IPOs[a]

	Year	Initial Returns
Larwin Mortgage Investors	69	-9.7
Midland Mortgage Investors	69	-14.0
Security Mortgage Investors	69	32.5
Sutro Mortgage Investors	69	-3.1
Washington REIT	69	-2.6
American Fletcher Mortgage Investors	70	9.6
Chase Manhatton Mortgage Investors	70	13.0
Connecticut General Mortgage & Realty	70	1.9
Guardian Mortgage Investors	70	15.0
Hubbard Real Estate Investors	70	-8.0
Lomas & Nettleton Mortgage Investors	70	37.5
MONY Mortgage Investors	70	0.0
National Mortgage Fund	70	-3.7
Unionamerica Mortgage & Equity	70	5.7
Wachovia Realty Investors	70	0.7
Wells Fargo Mortgage Investors	70	-19.8
C I Mortgage Group	71	56.5
Continental Ilinois Realty	71	37.7
Equitable Life Mortgage & Realty	71	20.0
Fidelco Growth Investors	71	10.2
First of Denver Mortgage Investors	71	25.3
General Growth Properties	71	31.1
Heitman Mortgage Investors	71	5.6
Hotel Investors	71	20.2
Investors Realty Trust	71	-9.7
Massmutual Mortgage & Realty Investors	71	20.5
PNB Mortgage & Realty Trust	71	32.8
Realty Refund Trust	71	-2.5
State Mutual Investors	71	17.8
Tri-South Mortgage Investors	71	37.8
Federal Realty Investor Trust	71	-4.5
Wedgestone Realty Investor Trust	82	10.4
Travelers REIT	84	-1.8
VMS Short Term Income Trust	84	-9.1
REIT of California	84	4.4
Strategic Mortgage Investors	84	0.0
Beverly Investor Properties	85	0.0
Copley Properties	85	-4.6
EQK Realty Investors I	85	-6.9
Grubb & Ellis Realty Income Trust	85	-2.3
Health Care Property Investors	85	5.2
Lincoln N C realty Fund	85	0.0

Table 3 (Continued)

Mellon Participation Mortgage	85	0.1
Nooney Realty Trust	85	0.0
Rainier Realty Investors	85	-5.0
Realty South Investors	85	-4.7
Resources Pension Share III	85	-9.8
Rockfeller Center Property	85	-4.6
Sierra R E Equity Trust 83	85	0.4
Trammell Crow R E	85	0.0
Travelers Realty Income Trust	85	-4.7
Turner Equity Investors	85	-9.1
Weingarten Realty	85	-2.3
Lomas Mortgage Corporation	85	0.0
CRI Insured Mortgage Investors II	86	-4.6

[a]Initial returns R_i's are calculated as: $R_i=(P_{ri}-P_{oi})/P_{oi}$, where P_{ri} is the first recorded closing price and P_{oi} is the offering price. Issue i is underpriced if R_i is positive.

Table 4

Frequency of a sample of 55 REIT IPOs based on the level of initial return

Initial Return[a]	Frequency	Percent	Cumulative Frequency	Cumulative Percent
R_i<-.2	1	1.8	1	1.8
-.2<=R_i<-.1	2	3.3	3	5.1
-.1<=R_i< .0	20	36.4	23	41.8
.0<=R_i< .1	16	29.1	39	70.9
.1<=R_i< .2	5	9.1	44	80.0
.2<=R_i< .3	4	7.3	48	87.3
.3<=R_i< .4	6	10.9	54	98.2
.4<=R_i	1	1.8	55	100.0

[a]Initial returns R_i's are calculated as: $R_i=(P_{ri}-P_{oi})/P_{oi}$, where P_{ri} is the first recorded closing price and P_{oi} is the offering price. Issue i is underpriced if R_i is positive.

Table 5

Statistics of initial returns for 55 REIT IPOs

Number of observations	55
Mean	0.0524
Highest	0.565
Lowest	-0.258
Standard deviation	0.1606
T: Mean = 0.0	2.421
Prob > abs(T)	0.0188

Table 6

Summary statistics of the variables of the 55-IPO sample without weighing

Variables	N	Mean	Standard Deviation	Minimum	Maximum
R	55	.0524	.1606	-.2580	.5650
LS	55	2.9781	.9066	.6419	5.4501
DUR	55	5.2707	7.2821	.0000	31.4700
TYPE1	55	.3273	.4735	.0000	1.0000
TYPE2	55	.0909	.2901	.0000	1.0000
OFF	55	7.2048	.3274	5.2138	7.5010
PTG	55	.7273	.4495	.0000	1.0000
OFT	55	.0909	.2901	.0000	1.0000
TIME	55	.5636	.5005	.0000	1.0000
INFIN	55	.7818	.4168	.0000	1.0000
UNAFF	55	.8727	.3364	.0000	1.0000
CAP	55	.4182	.4978	.0000	1.0000
TVAR	55	.0004424	.0005743	.0000014	.0032

R: the initial return.
LS: The log of the offering size expressed in terms of 1967 purchasing power.
DUR: the duration of the offering which is expressed in months.
TYPE1: a dummy variable which has value 1 for equity REITs and 0 for hybrid and mortgage REITs.
TYPE2: a dummy variable which has value 1 for hybrid REITs and 0 for equity and mortgage REITs.
OFF: the log of the concurrent yearly total dollar amount of REIT security offerings which is expressed in terms of 1967 purchasing power.
PTG: a dummy variable which has value 1 if the underwriter of the issue is deemed prestigious and has value 0 otherwise.
OFT: a dummy variable which has value 1 for best effort offerings and 0 for firm commitment offerings.
TIME: a dummy variable which has value 1 for REITs organized in the 1970s and 0 for REITs organized in the 1980s.
INFIN: a dummy variable which has value 1 for infinite-life REITs and has value 0 for finite-life REITs.
UNAFF: a dummy variable which has value 1 for unaffiliated REITs and has value 0 for affiliated REITs.

Table 6 (Continued)

BU: a dummy variable which separates REITs into captive and non-captive. It has value 1 if the REIT has business relationships with its sponsor, or advisor, or their affiliates, and has value 0 otherwise.
TVAR: the variance of the first 20 trading day returns.

Table 7

Average initial returns classified by
REIT captivity[a]
(t value in parentheses)

REIT Captivity	Total N	Total Initial Return	Non-Captive REITs N	Non-Captive REITs Initial Return	Captive REITs N	Captive REITs Initial Return	Difference in Means Test
BU	55	0.0524[b]	28	0.0254	27	0.0805[b]	-0.0551
		(2.4209)		(0.90762)		(2.4462)	(-1.2789)

[a]A REIT is classified as captive if it has business relationship with its sponsor, advisor, and/or affiliates.
[b]Significant at 95% level.

Table 8

Average initial returns classified by offering size ($ millions) and REIT captivity[a] (t value in parentheses)

	Total		Non-Captive REITs		Captive REITs		
Size	N	Initial Return	N	Initial Return	N	Initial Return	Difference in Means Test
0.0<=SIZE<20.0	25	0.0198 (0.7627)	16	0.0282 (0.7600)	9	0.0050 (0.1572)	0.0232 (0.4204)
20.0<=SIZE<40.0	18	0.0709[b] (1.9027)	8	0.0639 (1.1001)	10	0.0766 (1.4963)	-0.0127 (-0.1647)
40.0<=SIZE<60.0	8	0.1543 (1.9940)	2	0.0133	6	0.2013[b] (2.0772)	-0.1880 (-1.0641)
60.0<=SIZE	4	-0.0308 (-0.3685)	2	-0.1385	2	0.0770	-0.2155

[a]A REIT is classified as captive if it has business relationship with its sponsor, advisor, and/or affiliates.
[b]Significant at 90% level.

Table 9

Average initial returns classified by duration (months) and REIT captivity[a] (t value in parentheses)

	Total		Non-Captive REITs		Captive REITs		
Duration	N	Initial Return	N	Initial Return	N	Initial Return	Difference in Means Test
0.0=DUR	15	-0.0135 (-1.5295)	4	-0.0113 (-0.9710)	11	-0.0143 (-1.2371)	0.0030 (0.1464)
0.0<DUR<=6.0	26	0.0492 (1.4145)	17	0.0031 (0.0749)	9	0.1364[b] (2.4196)	0.1333[c] (1.9185)
6.0<DUR<=12.0	7	0.1000 (1.8667)	4	0.1235 (1.5986)	3	0.0687 (0.8047)	0.0548 (0.4726)
12.0<DUR<=18.0	3	0.1730 (0.8806)	0	-	3	0.1730 (0.8806)	-
18.0<DUR<=24.0	1	0.1020	1	0.1020	0	-	-
24.0<DUR<=30.0	2	0.0540	2	0.0540	0	-	-
30.0<DUR	1	0.3770	0	-	1	0.3770	-

[a]A REIT is classified as captive if it has business relationship with its sponsor, advisor, and/or affiliates.
[b]Significant at 95% level.
[c]Significant at 90% level.

Table 10

Average initial returns classified by
REIT type and captivity[a]
(t value in parentheses)

	Total		Non-Captive REITs		Captive REITs		
REIT Type	N	Initial Return	N	Initial Return	N	Initial Return	Difference in Means Test
Equity REIT	18	-0.0015 (-0.0544)	7	-0.0134 (-0.2104)	11	0.0061 (0.2603)	-0.0195 (-0.2871)
Hybrid REIT	5	0.0722 (1.4608)	2	-0.0020 (-0.0952)	3	0.1217 (1.7315)	-0.1237 (-1.3434)
Mortgage REIT	32	0.0797[b] (2.4688)	19	0.0426 (1.2417)	13	0.1339[b] (2.2215)	-0.0913 (-1.4120)

[a]A REIT is classified as captive if it has business relationship with its sponsor, advisor, and/or affiliates.
[b]Significant at 95% level.

Table 11

Average initial returns classified by underwriter prestige and REIT captivity[a] (t value in parentheses)

Underwriter Prestige	Total N	Total Initial Return	Non-Captive REITs N	Non-Captive REITs Initial Return	Captive REITs N	Captive REITs Initial Return	Difference in Means Test
Prestigious	40	0.0490[b] (1.9335)	18	0.0217 (0.5667)	22	0.0713 (2.1076)	0.0496 (0.9741)
Non-Prestigious	15	0.0617 (1.4294)	10	0.0321 (0.8027)	5	0.1210 (1.1499)	-0.0889 (-0.9682)

[a]A REIT is classified as captive if it has business relationship with its sponsor, advisor, and/or affiliates.

[b]Significant at 90% level.

Table 12

Average initial returns classified by offering type and REIT captivity[a] (t value in parentheses)

	Total		Non-captive REITs		Captive REITs		
Offering Type	N	Initial Return	N	Initial Return	N	Initial Return	Difference in Means Test
Firm Commitment	50	0.0603[b] (2.5861)	26	0.0271 (0.9154)	24	0.0963[b] (2.6990)	-0.0692 (-1.5001)
Best Effort	5	-0.0262 (-0.7080)	2	0.0030 -	3	-0.0457 (-1.7384)	0.0487 -

[a]A REIT is classified as captive if it has business relationship with its sponsor, advisor, and/or affiliates.

[b]Significant at 95% level.

Table 13

Average initial returns classified by
REIT life and captivity[a]
(t value in parentheses)

	Total		Non-Captive REITs		Captive REITs		
REIT Life	N	Initial Return	N	Initial Return	N	Initial Return	Difference in Means Test
Infinite-Life	43	0.0762 (2.8708)	24	0.0345 (1.0712)	19	0.1288[b] (3.0623)	-0.0943[c] (-1.8143)
Finite-Life	12	-0.0326[b] (-3.5150)	4	-0.0290 (-1.2195)	8	-0.0344[b] (-3.8433)	0.0054 (0.2615)

[a]A REIT is classified as captive if it has business relationship with its sponsor, advisor, and/or affiliates.
[b]Significant at 99% level.
[c]Significant at 95% level.

Table 14

Average initial returns classified by
REIT affiliation and captivity[a]
(t value in parentheses)

REIT Affiliation	Total N	Total Initial Return	Non-Captive REITs N	Non-Captive REITs Initial Return	Captive REITs N	Captive REITs Initial Return	Difference in Means Test
Unaffiliated	48	0.0575[b] (2.4656)	26	0.0310 (1.0407)	22	0.0888[b] (2.4430)	-0.0578 (-1.2432)
Affiliated	7	0.0180 (0.2928)	2	-0.047 -	5	0.0440 (0.5228)	0.0910 -

[a]A REIT is classified as captive if it has business relationship with its sponsor, advisor, and/or affiliates.
[b]Significant at 95% level.

Table 15

Average initial returns classified by offering time and REIT captivity[a] (t value in parentheses)

	Total		Non-Captive REITs		Captive REITs		
Offering Time	N	Initial Return	N	Initial Return	N	Initial Return	Difference in Means Test
1970s	31	0.1088[b] (3.1411)	19	0.0429 (1.0714)	12	0.2132[b] (4.1168)	-0.1703[c] (-2.6154)
1980s	24	-0.0204[c] (-2.1273)	9	-0.0117 (-0.6381)	15	-0.0257[c] (-2.3211)	0.0140 (0.6983)

[a]A REIT is classified as captive if it has business relationship with its sponsor, advisor, and/or affiliates.
[b]Significant at 99% level.
[c]significant at 95% level.

Table 16

Weighted least squares regression results with the initial return as the dependent variable, using the 55-IPO sample[a]

	Parameter Estimate	t Statistic
Constant	.0015	.110
LS	-.0200[c]	-2.118
DUR	.0017	1.281
TYPE1	-.0129	-.949
TYPE2	-.0315	-.554
OFF	-.0020	-.281
PTG	.0720[b]	3.347
OFT	.0314	1.163
INFIN	.0038	.249
UNAFF	-.0073	-.396
TIME	.0267	1.172
BU	.0215[c]	2.542
R^2	.3639	
F-value	2.237[c]	

[a]The weighing factor is 1/(TVAR*X), where TVAR is the variance of the first 20 trading day returns and X is equal to 10,000. The sample size is 55. For the definition of the independent variables, see Table 6.

[b]Significant at 99% level.

[c]Significant at 95% level.

[d]Significant at 90% level.

Table 17

Pearson correlation coefficient matrix for the variables of the 55-IPO sample / prob>|R| under H_0: Rho=0[a]

	LS	DUR	TYPE1	TYPE2	OFF	PTG	OFT	TIME	INFIN	UNAFF	CAP	BU	AD
R	.060	.307	-.236	.039	.217	-.035	-.156	.402	.282	.082	.170	.173	.003
	.661	.022	.082	.775	.110	.795	.254	.002	.036	.548	.212	.206	.980
LS		-.171	-.095	-.001	.285	.373	-.134	.078	-.045	.059	.296	.286	.161
		.210	.478	.989	.034	.005	.326	.568	.743	.664	.028	.033	.239
DUR			-.126	-.158	-.193	-.364	.259	.141	.061	.057	-.010	-.079	.055
			.359	.248	.156	.006	.055	.303	.654	.677	.937	.566	.686
TYPE1				-.220	.042	.079	-.085	-.323	-.100	.033	-.041	.167	-.371
				.105	.756	.566	.533	.015	.464	.806	.764	.221	.005
TYPE2					.013	.193	-.100	.023	-.139	-.069	.116	.069	.130
					.923	.156	.467	.866	.310	.616	.396	.616	.342
OFF						.188	-.456	.428	.053	.118	.045	.066	-.044
						.167	.001	.001	.697	.387	.738	.627	.746
PTG							-.232	-.127	.071	.133	.105	.193	-.021
							.087	.354	.602	.330	.444	.158	.878
OFT								-.359	-.292	-.258	.116	.069	.130
								.007	.030	.056	.396	.616	.342
TIME									.600	.324	-.145	-.236	.052
									.000	.015	.287	.082	.701
INFIN										.326	-.266	-.185	-.217
										.014	.049	.174	.109
UNAFF											-.229	-.170	-.157
											.092	.212	.250
CAP												.863	.349
												.000	.009
BU													-.007
													.956

[a]For the definition of the variables, see Table 6.

Table 18

Weighted least squares regression results with the initial return as the dependent variable using the 46-IPO sample[a]

	Parameter Estimate	t Statistic
Constant	.0148	1.060
LS	-.0172[d]	-1.894
DUR	-.0050[d]	-1.913
TYPE1	-.0162	-1.192
TYPE2	-.0161	-.291
PTG	.0370[c]	2.266
OFF	-.0019	-.351
INFIN	.0255	1.683
UNAFF	.0058	.316
BU	.0213[c]	2.610
R^2	.4628	
F-value	3.446[b]	

[a]The weighing factor is 1/(TVAR*X), where TVAR is the variance of the first 20 trading day returns and X is equal to 10,000. The sample size is 46. For the definition of the independent variables, see Table 6.

[b]Significant at 99% level.

[c]Significant at 95% level.

[d]Significant at 90% level.

Table 19

Weighted least squares regression results with the initial return as the dependent variable, using the 46-IPO sample and the adjusted model[a]

	Parameter Estimate	t Statistic
Constant	.0143	.920
LS	-.0067[c]	-2.204
DUR	-.0096[b]	-2.870
TYPE1	.0148[c]	2.200
TYPE2	-.0049	-.087
TIME	.0252	1.068
BU	.0167	1.563
R^2	.2834	
F-value	2.571[c]	

[a]The weighing factor is 1/(TVAR*X), where TVAR is the variance of the first 20 trading day returns, and X is equal to 10,000. The sample size is 46. For the definition of the independent variables, see Table 6.

[b]Significant at 99% level.

[c]Significant at 95% level.

[d]Significant at 90% level.

Table 20

Average and cumulative abnormal returns to REITs around the announcement of debt offerings[a]

Event Day	Average Abnorma Return	t-Statistic[b]	Cumulative Abnormal Return	t-Statistic[c]
-10	-.012[d]	-2.0587	-.0121[d]	-2.0587
-9	.0094	1.5876	-.0028	-.3331
-8	-.0004	-0.0649	-.0032	-.3094
-7	-.0018	.3004	-.0049	-.4182
-6	.0026	.4428	-.0023	-.1760
-5	-.0020	-.3345	-.0043	-.2972
-4	.0057	.9610	.0014	.0881
-3	.0057	.9691	.0070	.4250
-2	.0081	1.3756	.0152	.8592
-1	-.0067	-1.1436	.0085	.4535
0	-.0000	-.0047	.0085	.4310
+1	.0122[d]	2.0722	.0206	1.0109
+2	.0008	.1336	.0214	1.0083
+3	.0079	1.3379	.0293	1.3292
+4	-.0120[d]	-2.0304	.0174	.7598
+5	-.0007	-.1247	.0166	.7045
+6	.0028	.4797	.0138	.5671
+7	-.0017	-.2859	.0121	.4838
+8	-.0084	-1.4216	.0037	.1447
+9	-.0097	-1.6461	-.0060	-.2270
+10	.0093	1.5700	.0033	.1211

[a]The sample size is 36. Debt includes senior debentures, subordinated debentures, senior notes, subordinated notes, floating rate notes, term loans and bank lines of credit.

[b]The t-statistic is equal to AAR_i/SD, where AAR_i is the average abnormal return on day i and SD is the standard deviation of daily average returns for the period day -40 to day -11. SD=0.00590.

[c]The t-statistic for cumulative abnormal returns is equal to $CAAR_{i,j}/(SD*N^{0.5})$, where SD is the same as in footnote b and N is the number of days for cumulation.

[d]Significant at 95% level.

Table 21

Average and cumulative abnormal returns to REITs around the line of credit announcements[a]

Event Day	Average Abnormal Return	t-Statistic[b]	Cumulative Abnormal Return	t-Statistic[c]
-10	-.0192	-1.5642	-.0192	-1.5642
-9	.0244[e]	1.9865	.0052	.2986
-8	.0028	.2303	.0080	.3768
-7	-.0026	-.2159	.0054	.2183
-6	.0123	1.0028	.0176	.6438
-5	-.0041	-.3311	.0136	.4525
-4	.0282[d]	2.3015	.0418	1.2888
-3	.0129	1.0508	.0547	1.5771
-2	.0106	.8637	.0653[e]	1.7748
-1	-.0039	-.3167	.0614	1.5836
0	-.0028	-.2303	.0586	1.4404
+1	.0204	1.6641	.0790[e]	1.8595
+2	.0001	.0096	.0791[e]	1.7892
+3	.0143	1.1660	.0934[e]	2.0357
+4	-.0096	-.7821	.0838[e]	1.7648
+5	.0079	.6478	.0917[e]	1.8707
+6	-.0072	-.5854	.0846	1.6728
+7	.0078	.6373	.0924[e]	1.7759
+8	-.0202	-.6467	.0722	1.3508
+9	-.0089	-.7233	.0633	1.1548
+10	.0156	1.2695	.0789	1.4040

[a]The sample size is 17.

[b]The t-statistic is equal to AAR_i/SD, where AAR_i is the average abnormal return on day i and SD is the standard deviation of daily average returns for the period day -40 to day -11. SD=0.01226.

[c]The t-statistic for cumulative abnormal returns is equal to $CAAR_{i,j}/(SD*N^{0.5})$, where SD is the same as in footnote b and N is the number of days for cumulation.

[d]Significant at 95% level.

[e]Significant at 90% level.

Table 22

Average and cumulative abnormal returns to REITs around the announcement of debenture offerings[a]

Event Day	Average Abnormal Return	t-Statistic[b]	Cumulative Abnormal Return	t-Statistic[c]
-10	-.0058[f]	-1.8862	-.0058[f]	-1.8862
-9	-.0041	-1.3084	-.0099[e]	-2.2589
-8	-.0036	-1.1585	-.0135[e]	-2.5133
-7	-.0009	-.3049	-.0144[e]	-2.3290
-6	-.0061[f]	-1.9542	-.0205[d]	-2.9571
-5	-.0001	-.0340	-.0206[e]	-2.7133
-4	-.0109[d]	-3.5345	-.0315[e]	-3.8479
-3	-.0011	-.3408	-.0326[e]	-3.7199
-2	.0059	1.9032	-.0267[e]	-2.8728
-1	-.0094[d]	-3.0492	-.0361[d]	-3.6896
0	-.0025	-.7987	-.0337[d]	-3.2771
+1	.0050	1.6143	-.0287[e]	-2.6716
+2	.0015	.4842	-.0272[e]	-2.4324
+3	.0022	.6967	-.0250[e]	-2.1578
+4	-.0141[d]	-4.5540	-.0391[d]	-3.2604
+5	-.0094[d]	-3.0387	-.0485[d]	-3.9166
+6	-.0013	.4125	-.0473[d]	-3.6996
+7	-.0097[d]	-3.1267	-.0569[d]	-4.3323
+8	.0021	.6816	-.0548[d]	-4.0604
+9	-.0104[d]	-3.3476	-.0652[d]	-4.7061
+10	.0039	1.2745	-.0612[d]	-4.3146

[a]The sample size is 19. Debentures include senior debentures, subordinated debentures, senior notes, subordinated notes, floating rate notes, and term loans.

[b]The t-statistic is equal to AAR_i/SD, where AAR_i is the average abnormal return on day i and SD is the standard deviation of daily average returns for the period day -40 to day -11. SD=0.00310.

[c]The t-statistic for cumulative abnormal returns is equal to $CAAR_{i,j}/(SD*N^{0.5})$, where SD is the same as in footnote b and N is the number of days for cumulation.

[d]Significant at 99% level.

[e]Significant at 95% level.

[f]Significant at 90% level.

Table 23

Summary statistics of the variables of the debt sample

Variable	N	Mean	Standard Deviation	Minimum	Maximum
$CAAR_{-1,0}$	31	-.0112	.0587	-.1560	.1670
$CAAR_{-1,+1}$	31	.0018	.0608	-.1040	.2430
TV	31	17.9102	33.9133	.8990	131.4880
PF	31	.0848	.2451	-.3070	.9600
LVG	31	7.5427	12.9670	.2950	65.3090
CHG	31	4.5848	9.2696	.1370	37.7450
TYPE	31	.6452	.4864	.0000	1.0000
LINE	31	.4839	.5080	.0000	1.0000
BU	31	.4222	.4995	.0000	1.0000
AD	31	.8888	.3178	.0000	1.0000

$CAAR_{-1,0}$: the cumulative average abnormal return for day -1 to day 0.
$CAAR_{-1,+1}$: the cumulative average abnormal return for day -1 to day +1.
TV: the total risk of the issuing firm's common stock measured by 10,000 times the variance of the stock's returns over the sixty trading days prior to the announcement period (day +10 to day -10).
PF: the stock price appreciation measured by the cumulative stock returns for the ninety trading days period prior to the announcement period (day +10 to day -10).
LVG: the sum of the issuing firm's long and short-term debt before the offerings divided by the market value of common stock prior to the offering. Convertible bonds are not included.
CHG: the change in leverage ratio due to the offering, which is equal to the offering amount divided by the market value of common stock prior to the offering.
TYPE: a dummy variable which has value 1 for mortgage REITs and 0 for hybrid REITs. There is no equity REITs in this sample.
LINE: a dummy variable which has value 1 for lines of credit and 0 for debentures.
BU: a dummy variable which separates REITs into captive and non-captive groups. It has value 1 if the REIT has business relationship with the sponsor, advisor, or their affiliates and has value 0 otherwise.
AD: a dummy variable which separates REITs into captive and non-captive groups. It has value 1 if the REIT employs an advisory agreement and has value 0 otherwise.

Table 24

Ordinary least squares regression results for debt announcements with $CAAR_{-1,0}$ as the dependent variable, using BU as the captivity variable[a]

	Parameter Estimates	t Statistics
Intercept	.0150	.629
TV	-.0016[b]	-3.797
PF	.0873	1.606
LVG	-.0021	-.865
CHG	.0066[d]	1.830
TYPE	-.0188	-.871
LINE	.0107	.488
BU	-.0296	-1.323
R^2	.4487	
F-value	2.675[c]	

[a]$CAAR_{-1,0}$: the cumulative average abnormal return for day -1 to day 0. For the definition of the independent variables, see Table 23.

[b]Significant at 99% level.

[c]Significant at 95% level.

[d]Significant at 90% level.

Table 25

Ordinary least squares regression results for debt announcements with $CAAR_{-1,+1}$ as the dependent variable, using BU as the captivity variable[a]

	Parameter Estimates	t Statistics
Intercept	.0361	1.549
TV	-.0006	-1.562
PF	-.0080	-.152
LVG	-.0067[c]	-2.765
CHG	.0115[b]	3.280
TYPE	-.0277	-1.316
LINE	-.0009	-.043
BU	-.0169	-.736
R^2	.5149	
F-value	3.487[c]	

[a]$CAAR_{-1,+1}$: the cumulative average abnormal return for day -1 to day +1. For the definition of the independent variables, see Table 23.

[b]Significant at 99% level.

[c]Significant at 95% level.

Table 26

Pearson correlation coefficients for the variables of the debt sample / Prob > |R| under H_0: Rho=0 / N=31[a]

	$CAAR_{-1,+1}$	TV	PF	LVG	CHG	TYPE	LINE	BU	AD
$CAAR_{-1,0}$	.765	-.446	-.190	.037	.107	-.123	-.077	.002	-.065
	.000	.012	.306	.843	.566	.509	.681	.991	.729
$CAAR_{-1,+1}$		-.271	-.495	.021	.224	-.159	.046	-.023	.167
		.140	.005	.913	.227	.394	.805	.904	.368
TV			.302	.584	.534	.254	.434	-.327	-.049
			.098	.001	.002	.168	.015	.072	.791
PF				-.039	-.217	.037	-.208	.165	-.074
				.832	.240	.843	.261	.372	.688
LVG					.942	.208	.426	-.273	-.282
					.000	.261	.017	.137	.123
CHG						.220	.451	-.280	-.216
						.232	.011	.127	.242
TYPE							.043	-.462	-.084
							.816	.008	.651
LINE								-.168	-.204
								.364	.268
BU									.327
									.072

[a]For the definition of the variables, see Table 23.

Table 27

Summary statistics of the variables of the line of credit sample[a]

Variable	N	Mean	Standard Deviation	Minimum	Maximum
$CAAR_{-1,0}$	15	-.0158	.0717	-.1560	.1670
$CAAR_{-1,+1}$	15	.0046	.0782	-.1040	.2430
TV	15	32.8553	44.5708	2.2950	131.4880
PF	15	.0330	.3027	-.3070	.9600
LVG	15	13.1580	17.1025	.2950	65.3090
CHG	15	8.8328	12.1021	.2040	37.7450
TYPE	15	.6667	.4880	.0000	1.0000
BU	15	.3333	.4880	.0000	1.0000
AD	15	.8000	.4140	.0000	1.0000

[a]For the definition of the variables, see Table 23.

Table 28

Ordinary least squares regression results for line of credit announcements with $CAAR_{-1,0}$ as the dependent variable, using BU as the captivity variable[a]

	Parameter Estimates	t Statistics
Intercept	.0087	.216
TV	-.0018[b]	-3.869
PF	.0986	1.318
LVG	-.0028	-.983
CHG	.0073	1.697
TYPE	.0203	.507
BU	-.0292	-.729
R^2	.7114	
F-value	3.287[c]	

[a]$CAAR_{-1,0}$: the cumulative average abnormal return for day -1 to day 0. For the definition of the independent variables, see Table 23.

[b]Significant at 99% level.

[c]Significant at 90% level.

Table 29

Ordinary least squares regression results for line of credit announcements with $CAAR_{-1,+1}$ as the dependent variable, using BU as the captivity variable[a]

	Parameter Estimate	t Statistic
Intercept	.0087	.198
TV	-.0008	-1.578
PF	-.0092	-.113
LVG	-.0072[b]	-2.342
CHG	.0119[b]	2.551
TYPE	.0210	.484
BU	-.0068	-.157
R^2	.7147	
F-value	3.340[c]	

[a]$CAAR_{-1,+1}$: the cumulative average abnormal return for day -1 to day +1. For the definition of the independent variables, see Table 23.

[b]Significant at 95% level.

[c]Significant at 90% level.

Table 30

Pearson correlation coefficients for the variables of the line of credit sample / Prob > $|R|$ under H_0: Rho=0 / N=15[a]

	$CAAR_{-1,+1}$	TV	PF	LVG	CHG	TYPE	BU	AD
$CAAR_{-1,0}$	.770	-.576	-.364	.070	.185	.069	-.100	-.109
	.001	.024	.182	.802	.507	.805	.722	.698
$CAAR_{-1,+1}$		-.397	-.650	-.019	.253	.059	-.050	.233
		.142	.008	.944	.361	.832	.858	.402
TV			.524	.489	.420	.415	-.409	.042
			.044	.063	.118	.123	.129	.880
PF				.063	.164	.169	-.170	-.133
				.821	.557	.546	.542	.635
LVG					.931	.325	-.315	-.277
					.000	.236	.252	.316
CHG						.328	-.327	-.172
						.232	.233	.538
TYPE							-.700	.000
							.003	1.000
BU								.353
								.196

[a]For the definition of the variables, see Table 23.

Table 31

Summary statistics of the variables of the debenture sample[a]

Variable	N	Mean	Standard Deviation	Minimum	Maximum
$CAAR_{-1,0}$	16	-.0069	.0452	-.1120	.0750
$CAAR_{-1,+1}$	16	-.0009	.0409	-.0630	.0680
TV	16	3.8992	3.6543	.8990	12.7500
PF	16	.1334	.1717	-.0910	.5490
LVG	16	2.2784	1.4824	.4640	5.8720
CHG	16	.6023	.4362	.1370	1.5500
TYPE	16	.6250	.5000	.0000	1.0000
BU	15	.5000	.5164	.0000	1.0000
AD	15	.9375	.2500	.0000	1.0000

[a]For the definition of the variables, see Table 23.

Table 32

Ordinary least squares regression results for debenture announcements with $CAAR_{-1,0}$ as the dependent variable, using BU as the captivity variable[a]

	Parameter Estimate	t Statistic
Intercept	-.0311	-.779
TV	.0065	1.317
PF	.0809	.791
LVG	.0108	1.000
CHG	-.0418	-.820
TYPE	-.0106	-.369
BU	-.0095	-.258
R^2	.3918	
F-value	.966	

[a]$CAAR_{-1,0}$: the cumulative average abnormal return for day -1 to day 0. For the definition of the independent variables, see Table 23.

Table 33

Ordinary least squares regression results for debenture announcements with $CAAR_{-1,+1}$ as the dependent variable, using BU as the captivity variable[a]

	Parameter Estimate	t Statistic
Intercept	-.0132	-.429
TV	.0057	1.494
PF	-.0034	-.044
LVG	.0079	.957
CHG	-.0205	-.523
TYPE	-.0261	-1.177
BU	.0023	.083
R^2	.5612	
F-value	1.918	

[a]$CAAR_{-1,+1}$: the cumulative average abnormal return for day -1 to day +1. For the definition of the independent variables, see Table 23.

Table 34

Pearson correlation coefficients for the variables of the debenture sample / Prob > |R| under H_0: Rho=0 / N=16[a]

	$CAAR_{-1,+1}$	TV	PF	LVG	CHG	TYPE	BU	AD
$CAAR_{-1,0}$	.785	.459	.187	.379	.190	-.403	.112	-.017
	.000	.073	.486	.147	.479	.121	.677	.949
$CAAR_{-1,+1}$		.613	-.013	.429	.255	-.569	.042	.026
		.011	.959	.097	.339	.021	.875	.922
TV			-.127	.445	.607	-.364	-.174	.190
			.637	.083	.012	.165	.518	.479
PF				.016	.018	-.143	.628	-.094
				.950	.944	.594	.009	.729
LVG					.643	-.197	-.210	.290
					.007	.463	.433	.274
CHG						.019	-.405	.213
						.941	.119	.427
TYPE							-.258	-.200
							.334	.458
BU								.258
								.334

[a]For the definition of the variables, see Table 23.

Table 35

Average and cumulative abnormal returns to REITs around the announcement of equity offerings[a]

Event Day	Average Abnormal Return	t-Statistic[b]	Cumulative Abnormal Return	t-Statistic[c]
-10	-.0032	-.8029	-.0032	-.8029
-9	-.0027	-.6688	-.0059	-1.0407
-8	-.0011	.2769	-.0070	-1.0096
-7	.0018	.4430	-.0052	-.6528
-6	-.0001	-.0277	-.0054	-.5963
-5	.0014	.3599	-.0039	-.3974
-4	.0017	.4251	-.0022	-.2073
-3	-.0033	-.8167	-.0055	-.4826
-2	.0020	.4984	-.0035	-.2889
-1	-.0129[d]	-3.2116	-.0164	-1.2897
0	-.0042	-1.0360	-.0205	-1.5420
+1	-.0074[f]	-1.8360	-.0279[f]	-2.0064
+2	-.0013	-.3322	-.0292[f]	-2.0198
+3	-.0007	-.1661	-.0299[f]	-1.9908
+4	-.0101[e]	-2.5194	-.0400[e]	-2.5738
+5	.0050	1.2459	-.0350[e]	-2.1806
+6	-.0036	-.8998	-.0386[e]	-2.3337
+7	.0003	.0656	-.0384[e]	-2.2525
+8	-.0072[f]	-1.8065	-.0456[e]	-2.6069
+9	-.0037	-.9136	-.0493[e]	-2.7451
+10	.0028	.6922	-.0465[e]	-2.5280

[a]The sample size is 19. Equity includes common stock/shares of beneficial interest and common stock/share of beneficial interest with warrant(s).

[b]The t-statistic is equal to AAR_i/SD, where AAR_i is the average abnormal return on day i and SD is the standard deviation of daily average returns for the period day -40 to day -11. SD=0.00383.

[c]The t-statistic for cumulative abnormal returns is equal to $CAAR_{i,j}/(SD*N^{0.5})$, where SD is the same as in footnote b and N is the number of days for cumulation.

[d]Significant at 99% level.

[e]Significant at 95% level.

[f]Significant at 90% level.

Table 36

Summary statistics of the variables for the equity sample

Variable	N	Mean	Standard Deviation	Minimum	Maximum
$CAAR_{-1,0}$	18	-.0188	.0228	-.0680	.0180
$CAAR_{-1,+1}$	18	-.0261	.0268	-.0960	.0240
TV	18	2.9362	2.3020	.7880	9.0390
PF	18	.1896	.1315	-.0300	.4220
RS	18	.3441	.1931	.1456	.9309
CHG	18	-.1589	.2302	-.8900	-.0060
SIZE	18	.2759	.1432	.0130	.5190
TYPE1	18	.5000	.5145	.0000	1.0000
TYPE2	18	.2778	.4609	.0000	1.0000
CAP	18	.1111	.3234	.0000	1.0000
BU	18	.4444	.5113	.0000	1.0000
AD	18	.2778	.4609	.0000	1.0000

$CAAR_{-1,0}$: the cumulative average abnormal return for day -1 to day 0.
$CAAR_{-1,+1}$: the cumulative average abnormal return for day -1 to day +1.
TV: the total risk of the issuing firm's common stock measured by 10,000 times the variance of the stock's returns over the sixty trading days prior to the announcement period (day +10 to day -10).
PF: the stock price appreciation measured by the cumulative stock returns for the ninety trading days period prior to the announcement period (day +10 to day -10).
RS: the percentage increase in common stock outstanding due to the offering.
CHG: the change in leverage ratio due to the offering.
SIZE: the offering amount divided by the market value of common stock prior to the offering.
TYPE1: a dummy variable which has value 1 for equity REITs and 0 for hybrid and mortgage REITs.
TYPE2: a dummy variable which has value 1 for hybrid REITs and 0 for equity and mortgage REITs.
CAP: a dummy variable which separates REITs into captive and non-captive groups. It has value 1 if the REIT has a advisor and has business relationship with the sponsor, advisor, or their affiliates, and has value 0 otherwise.

Table 36 (Continued)

BU: a dummy variable which separates REITs into captive and non-captive groups. It has value 1 if the REIT has business relationship with the sponsor, advisor, or their affiliates, and has value 0 otherwise.
AD: a dummy variable which separates REITs into captive and non-captive groups. It has value 1 if the REIT employs an advisory and has value 0 otherwise.

Table 37

Ordinary least squares regression results for equity announcements with $CAAR_{-1,0}$ as the dependent variable using BU as the captivity variable[a]

	Parameter Estimate	t Statistic
Intercept	-.0558	-3.221[b]
TV	.0020	.753
PF	.0445	.718
RS	.0557	1.680
CHG	.0918	1.741
SIZE	.0386	.798
TYPE1	-.0094	-.521
TYPE2	.0181	.972
BU	.0162	.949
R^2	.6242	
F-value	1.869	

[a]$CAAR_{-1,0}$: the cumulative average abnormal return for day -1 to day 0. For the definition of the independent variables, see Table 36.

[b]Significant at 95% level

Table 38

Ordinary least squares regression results for equity announcements with $CAAR_{-1,+1}$ as the dependent variable, using BU as the captivity variable[a]

	Parameter Estimate	t Statistic
Intercept	-.0491	-2.061[b]
TV	.0032	.881
PF	-.0427	-.500
RS	.0530	1.162
CHG	.0968	1.335
SIZE	.0949	1.426
TYPE1	-.0258	-1.032
TYPE2	-.0059	-.233
BU	.0162	.689
R^2	.4845	
F-value	1.057	

[a]$CAAR_{-1,+1}$: the cumulative average abnormal return for day -1 to day +1. For the definition of the independent variables, see Table 36.

[b]Significant at 95% level.

Table 39

Pearson correlation coefficients for the variables of the equity sample / Prob > |R| under H_0: Rho=0 / N=18[a]

	$CAAR_{-1,+1}$	TV	PF	CHG	SIZE	RS	TYPE1	TYPE2	BU	AD	CAP
$CAAR_{-1,0}$	.857	.185	-.128	.343	.117	.178	-.075	.524	-.049	-.319	-.218
	.000	.462	.611	.162	.642	.478	.767	.025	.846	.196	.383
$CAAR_{-1,+1}$		.024	-.321	.266	.194	.137	-.176	.410	-.023	-.131	-.161
		.922	.193	.284	.438	.587	.483	.090	.925	.602	.521
TV			.457	.117	-.105	-.136	.284	-.169	-.087	-.226	-.147
			.056	.641	.679	.589	.253	.501	.729	.366	.560
PF				-.435	.296	-.007	-.005	-.230	-.164	.281	.367
				.070	.232	.976	.982	.358	.514	.258	.133
CHG					-.597	-.242	.284	.008	-.488	-.504	-.830
					.008	.332	.251	.972	.039	.032	.000
SIZE						.245	-.316	.331	.192	.113	.439
						.325	.200	.178	.445	.654	.068
RS							.257	-.080	-.038	-.179	.201
							.301	.752	.880	.475	.423
TYPE1								-.620	.000	-.620	-.353
								.006	1.000	.006	.150
TYPE2									.194	-.107	.175
									.440	.670	.486
BU										-.055	.395
										.827	.104
AD											.570
											.013

[a]For the definition of the variables, see Table 36.

Figure 1

The organizational structure of a non-captive REIT

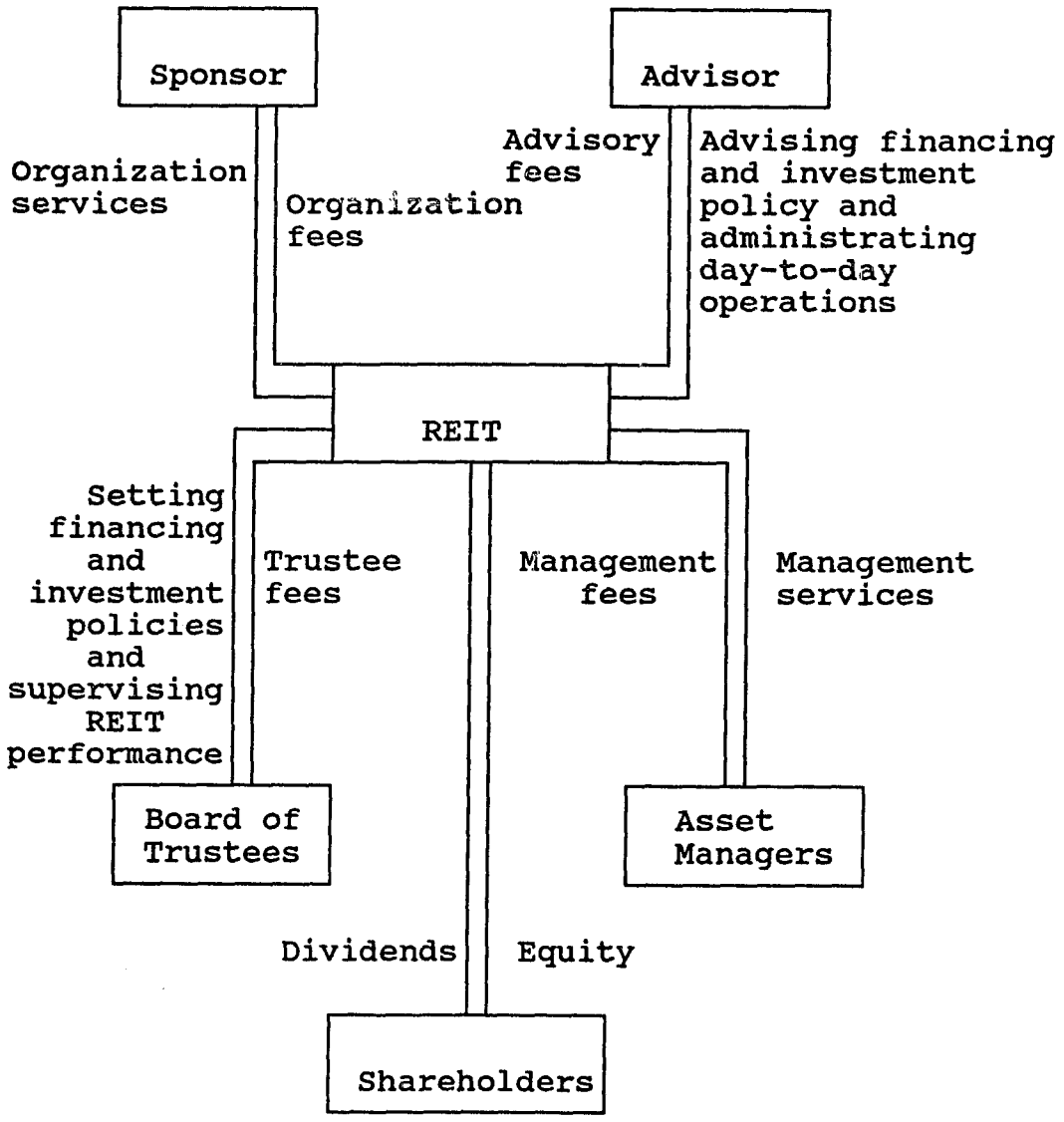
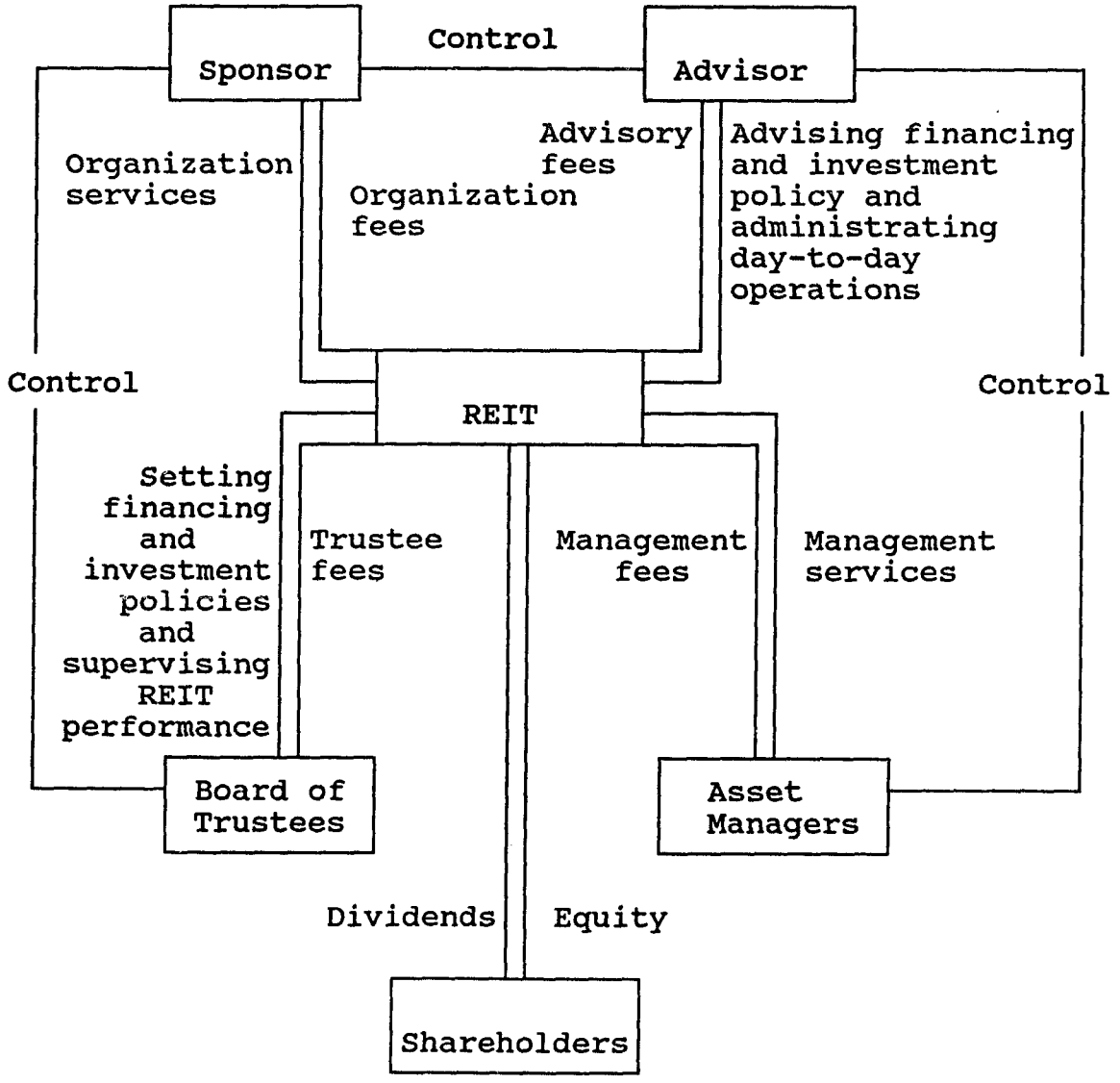


Figure 2

The organizational structure of a captive REIT



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Appendix A

I:

A test of speculative bubble hypothesis

The speculative bubble hypothesis of IPO pricing maintains that the appreciation in stock value on the first trading day which causes underpricing is a result of speculative trading on that day by investors who did not receive an allocation of the issue from the underwriter (See, Ritter (1984)). Under this hypothesis, underpricing is related to the trading volume of the first trading day. Thus the following model is proposed:

$$R_i = a_0 + a_1 VOL_i + e_i$$

VOL is the volume of the first trading day which, under the speculative bubble hypothesis, indicates the speculative trading on the first trading day. The occurrence of speculative trading must come from the divergence in opinion about the market-clearing price of the issue among investors. Thus VOL also reflects the degree of divergence in opinion about the market-clearing price of the issue on the first trading day. This model examines whether there is a significant relationship between volume and the initial return. This model is

also estimated using weighted least squares. The weighing factor is 1/(TVAR*X). VOL is obtained from Standard and Poor's Stock Record NYSE, AMEX, and OTC. Thirty of the 55 IPOs used in cross-sectional analysis 1 have data for the first trading day volume, thus the sample size for this model is 30.

As shown by the following table, VOL is not significant, indicating that underpricing is not the result of speculative trading on the first trading day. This result does not support the speculative bubble hypothesis.

Weighted least squares regression results with initial return as the dependent variable[a]
(t value in parentheses)

Constant	VOL	R^2	F-value	Observations
0.054	-0.000	0.0135	0.383	30
(0.264)	(-0.619)			

[a]The weighing factor is 1/(TVAR*X), where TVAR is the variance of the first 20 trading day returns and X is equal to 10,000. VOL is the volume of the first trading day.

II:

A test for the relationship between the duration of a IPO and the first trading day volume

The first trading day volume may be negatively related to the duration of the offering. This is because the longer the duration, the less the possibility that there is demand left over for the issue; in other words, the demand is exhausted during the long duration of the offering. Hence there must be less speculative trading on the first trading day by investors receiving no allocations from the underwriters. Thus the following model is also tested and the coefficient of DUR is predicted to be negative.

$$VOL_i = a_0 + a_1 DUR_i + e_i$$

The following table shows the results:

Ordinary least square regression results with VOL, the volume of the first trading day as the dependent variable[a]

Constant	DUR	R^2	F-value
2,350.50[b]	-167.08[c]	.1843	6.324[c]

[a]The sample size is 30. VOL is the volume of the first trading day. DUR is the duration of the offering.
[b]Significant at 99% level.
[c]Significant at 95% level.

VOL is negatively related to DUR, the time length of offerings, as evidenced by the significant and negative beta coefficient of DUR. This means that an offering which takes a longer time to complete the offering process exhibits smaller speculative trading on the first trading day. This is because a long offering period is likely to exhaust the demand before the stock is publicly traded. The sample for this model is the same as the sample used to test the speculative bubble hypothesis.

III:

Summary statistics of the variables of the 55-IPO sample weighted by 1/(TVAR*X)[a]

Variables	N	Mean	Standard Deviation	Minimum	Maximum
R	55	.0017	.0763	-.2053	.3051
LS	55	5.9319	21.4872	.0862	159.3635
DUR	55	4.2030	11.1401	.0000	66.2677
TYPE1	55	1.8766	9.6486	.0000	71.4286
TYPE2	55	.0430	.1785	.0000	1.2111
OFF	55	17.0431	69.0663	.2105	513.5389
PTG	55	2.0753	9.6321	.0000	71.4286
OFT	55	.0858	.4279	.0000	3.0400
TIME	55	.2333	.6270	.0000	4.5249
INFIN	55	1.9857	9.6350	.0000	71.4286
UNAFF	55	2.2002	9.6264	.0000	71.4286
BU	55	.5585	1.2969	.0000	6.9334

[a]For the definition of the variables, see Table 6.

IV:

Pearson correlation coefficient matrix for the weight variables of the 55-IPO sample / prob>|R| under H_0: Rho=0[a]

	LS	DUR	TYPE1	TYPE2	OFF	PTG	OFT	TIME	INFIN	UNAFF	CAP	BU	AD
R	-.019	-.080	.019	.019	-.007	.028	.024	-.145	.027	-.003	.165	.153	.088
	.891	.560	.889	.892	.959	.839	.860	.290	.847	.983	.228	.264	.521
LS		-.026	.987	-.047	.997	.994	-.010	-.044	.988	.992	.057	.053	.093
		.849	.000	.733	.000	.000	.942	.747	.000	.000	.678	.699	.498
DUR			-.000	-.085	-.011	-.071	.468	.198	-.044	-.032	.041	.022	.174
			.998	.540	.936	.609	.000	.147	.748	.816	.768	.876	.205
TYPE1				-.047	.993	.990	.002	-.007	.955	.990	.042	.039	-.003
				.729	.000	.000	.990	.956	.000	.000	.760	.776	.980
TYPE2					-.041	-.033	-.049	-.036	-.047	-.052	.029	.017	-.025
					.762	.809	.721	.789	.733	.704	.829	.901	.851
OFF						.995	-.004	-.020	.993	.997	.048	.042	.060
						.000	.973	.884	.000	.000	.727	.757	.660
PTG							-.042	-.071	.994	.992	.026	.022	.042
							.756	.603	.000	.000	.848	.870	.759
OFT								-.075	-.038	-.001	.229	.218	.167
								.581	.777	.995	.092	.109	.222
TIME									-.003	-.012	-.119	-.136	-.161
									.977	.926	.386	.319	.238
INFIN										.991	.019	.015	.001
										.000	.889	.909	.996
UNAFF											.023	.019	.037
											.862	.888	.783
CAP												.974	.742
												.000	.000
BU													.708
													.000

[a]For the definition of the variables, see Table 6.

V:

Summary statistics of the variables
of the 46-IPO sample without weighing[a]

Variables	N	Mean	Standard Deviation	Minimum	Maximum
R	46	.042	.1459	-.2580	.3770
LS	46	2.9990	.9247	.6418	5.4501
DUR	46	3.0759	3.4740	.0000	12.0000
TYPE1	46	.3478	.4815	.0000	1.0000
TYPE2	46	.1087	.3147	.0000	1.0000
OFF	46	7.2363	.1735	6.7771	7.4435
PTG	46	.7826	.4170	.0000	1.0000
TIME	46	.6087	.4934	.0000	1.0000
INFIN	46	.8261	.3832	.0000	1.0000
UNAFF	46	.9130	.2849	.0000	1.0000
BU	46	.3913	.4934	.0000	1.0000
TVAR	46	.0003846	.0004227	.0000014	.0020

[a]For the definition of the variables, see Table 6,

VI:

Pearson correlation coefficient matrix for the variables of the 46-IPO sample / prob>|R| under H_0: RHO=0[a]

	LS	DUR	TYPE1	TYPE2	OFF	PTG	TIME	INFIN	UNAFF	CAP	BU	AD
R	-.032	.163	-.226	.071	.370	-.040	.349	.235	-.074	.113	.128	-.026
	.832	.278	.130	.638	.011	.788	.017	.114	.621	.450	.393	.860
LS		-.209	-.060	-.009	.076	.364	-.013	-.088	.039	.270	.253	.186
		.162	.689	.947	.613	.012	.927	.559	.792	.069	.089	.214
DUR			-.224	-.143	.245	-.183	.507	.405	.272	-.119	-.177	-.162
			.133	.340	.100	.221	.000	.005	.067	.429	.237	.279
TYPE1				-.255	-.060	.163	-.349	-.026	.063	-.024	.214	-.387
				.087	.690	.277	.017	.862	.675	.872	.152	.008
TYPE2					-.036	.184	-.006	-.208	-.140	.149	.085	.160
					.810	.220	.967	.164	.353	.321	.573	.287
OFF						.057	.539	.263	.203	-.109	-.089	-.009
						.706	.000	.077	.175	.470	.553	.949
PTG							-.314	-.102	.024	.098	.188	.036
							.033	.496	.872	.514	.210	.810
TIME								.572	.226	-.178	-.302	.102
								.000	.129	.235	.041	.499
INFIN									.265	-.337	-.249	-.210
									.074	.021	.094	.160
UNAFF										-.384	-.322	-.141
										.008	.028	.347
CAP											.837	.367
											.001	.011
BU												-.019
												.892

[a]For the definition of the variables, see Table 6.

VII:

Summary statistics of the variables of the 46-IPO sample weighted by 1/(TVAR*X)[a]

Variables	N	Mean	Standard Deviation	Minimum	Maximum
R	46	-.0023	.0804	-.2053	.3051
LS	46	6.6996	23.4356	.1066	159.3635
DUR	46	1.9036	4.7247	.0000	24.8869
TYPE1	46	2.1232	10.5388	.0000	71.4286
TYPE2	46	.0514	.1944	.0000	1.2111
OFF	46	19.2062	75.3864	.3616	513.5389
PTG	46	2.4613	10.5070	.0000	71.4286
TIME	46	.2694	.6799	.0000	4.5249
INFIN	46	2.3460	10.5155	.0000	71.4286
UNAFF	46	2.5259	10.5056	.0000	71.4286
BU	46	.583	1.3560	.0000	6.9334

[a]For the definition of the variables, see Table 6.

VIII:

Pearson correlation coefficient matrix for the weight variables of the 46-IPO sample / prob>|R| under H_0: Rho=0[a]

	LS	DUR	TYPE1	TYPE2	OFF	PTG	TIME	INFIN	UNAFF	CAP	BU	AD
R	-.007	-.358	.029	.032	.003	.040	-.143	.036	.006	.200	.190	.109
	.962	.014	.843	.828	.981	.787	.340	.809	.963	.181	.204	.466
LS		-.049	.987	-.056	.997	.995	-.055	.989	.992	.046	.040	.082
		.745	.000	.709	.000	.000	.715	.000	.000	.759	.789	.585
DUR			-.017	-.087	-.024	-.066	.718	-.010	-.018	-.039	-.061	-.046
			.911	.561	.870	.658	.000	.942	.905	.794	.683	.756
TYPE1				-.054	.993	.992	-.014	.996	.990	.030	.026	-.019
				.719	.000	.000	.923	.000	.000	.839	.861	.899
TYPE2					-.049	-.043	-.051	-.056	-.061	.026	.010	-.029
					.742	.774	.732	.708	.686	.862	.945	.844
OFF						.996	-.029	.994	.997	.037	.029	.048
						.000	.848	.000	.000	.805	.844	.750
PTG							-.084	.994	.993	.023	.017	.042
							.576	.000	.000	.876	.909	.778
OFT								-.015	-.022	-.129	-.150	-.167
								.919	.880	.392	.316	.265
TIME									.992	.016	.011	-.001
									.000	.910	.940	.995
INFIN										.009	.003	.029
										.948	.983	.844
UNAFF											.971	.746
											.000	.000
CAP												.709
												.000
BU												

[A]For the definition of the variables, see Table 6.

IX:

Average initial returns classified by
REIT captivity
(t value in parentheses)

REIT Captivity	Total N	Total Initial Return	Non-Captive REITs N	Non-Captive REITs Initial Return	Captive REITs N	Captive REITs Initial Return	Difference in Means Test
CAP[a]	55	0.0524[c] (2.4029)	32	0.0294 (1.1695)	23	0.0845[c] (2.2300)	-0.0551 (-1.2789)
AD[b]	55	0.0524[c] (2.4029)	47	0.0511 (1.7295)	28	0.0527[c] (2.1117)	-0.0016 (0.0247)

[a]A REIT is classified as captive if it has business relationship with its sponsor, advisor, and/or affiliates and employs an advisor.
[b]A REIT is classified as captive if it employs an advisor.
[c]Significant at 95% level.

X:

Weighted least squares regression results with the initial return as the dependent variable, using the 55-IPO sample[a]

	Parameter Estimate	t Statistic	Parameter Estimate	t Statistic
Constant	.0033	.241	.0073	.565
LS	-.0185[d]	-1.963	-.0206[c]	-2.218
DUR	.0017	1.297	.0003	.239
TYPE1	-.0111	-.825	.0083	.569
TYPE2	-.0300	-.527	-.0160	-.283
OFF	-.0024	-.441	-.0025	-.463
PTG	.0700[b]	3.295	.0545[b]	2.663
OFT	.0314	1.068	.0330	1.147
INFIN	.0045	.298	.0062	.412
UNAFF	-.0047	-.252	-.0051	-.282
TIME	.0247	1.095	.0157	.717
CAP	.0220[c]	2.601		
AD			.0243[b]	2.875
R^2	.3679		.3836	
F-value	2.275[c]		2.461[c]	

[a]The weighing factor is 1/(TVAR*X), where TVAR is the variance of the first 20 trading day returns and X is equal to 10,000. The sample size is 55. CAP categorizes a REIT into captive group if the REIT has business relationships with its affiliates and employs an advisor. AD categorizes a REIT into captive group if the REIT uses an advisor. For the definition of other independent variables, see Table 6.

[b]Significant at 99% level.

[c]Significant at 95% level.

[d]Significant at 90% level.

XI:

Weighted least squares regression results with the initial return as the dependent variable, using the 46-IPO sample[a]

	Parameter Estimate	t Statistic	Parameter Estimate	t Statistic
Constant	.0161	1.188	.0174	1.353
LS	-.0158[d]	-1.751	-.0186[c]	-2.147
DUR	-.0051[d]	-1.993	-.0066[c]	-2.654
TYPE1	-.0148	-1.104	.0071	.497
TYPE2	-.0148	-.271	-.0017	-.031
PTG	.0360[c]	2.240	.0248	1.591
OFF	-.0030	-.560	-.0032	-.622
INFIN	.0265[c]	1.761	.0249[d]	1.731
UNAFF	.0091	.496	-.0075	.437
CAP	.0229[b]	2.805		
AD			.0269[b]	3.335
R^2	.4757		.5119	
F-value	3.628[b]		4.195[b]	

[a]The weighing factor is 1/(TVAR*X), where TVAR is the variance of the first 20 trading day returns and X is equal to 10,000. The sample size is 46. CAP categorizes a REIT into captive group if the REIT has business relationships with its affiliates and employs an advisor. AD categorizes a REIT into captive group if the REIT uses an advisor. For the definition of other independent variables, see Table 6.

[b]Significant at 99% level.

[c]Significant at 95% level.

[d]Significant at 90% level.

XII:

Weighted least squares regression results with the initial return as the dependent variable using the 46-IPO sample and the adjusted model[a]

	Parameter Estimate	t Statistic	Parameter Estimate	t Statistic
Constant	.0150	.997	.0131	.955
LS	-.0068[c]	-2.258	-.0136[b]	-3.803
DUR	-.0097[b]	-2.919	-.0108[b]	-3.484
TYPE1	.0150[c]	2.251	.0300[b]	3.801
TYPE2	-.0069	-.122	-.0015	-.029
TIME	.0253	1.082	-.0281	1.302
CAP	.0141[d]	1.738		
AD			.0262[b]	3.191
R^2	.2834		.3962	
F-value	2.571[c]		4.265[b]	

[a]The weighing factor is 1/(TVAR*X), where TVAR is the variance of the first 20 trading day returns, and X is equal to 10,000. The sample size is 46. CAP categorizes a REIT into captive group if the REIT has business relationships with its affiliates and employs an advisor. AD categorizes a REIT into captive group if the REIT uses an advisor. For the definition of other independent variables, see Table 6.

[b]Significant at 99% level.

[c]Significant at 95% level.

[d]Significant at 90% level.

Appendix B

I:

Average two-day cumulative abnormal returns for debt announcements classified by captivity variable BU (t value in parentheses)

Panel A: Debt Announcements

	Total		Non-captive REITs		Captive REIT		
REIT captivity	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
BU[a]	35	-.0066	22	-.0039	13	-.0111	.0072
		(-.6350)		(-.259)		(-.936)	(.3302)

Panel B: Line of Credit Announcements

	Total		Non-captive REITs		Captive REIT		
REIT captivity	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
BU	17	-.0067	12	.0012	5	-.0256	(.0268)
		(-.3556)		(.0456)		(-1.288)	(.6346)

Panel C: Debenture Announcements

	Total		Non-captive REITs		Captive REIT		
REIT captivity	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
BU	18	-.0064	10	-.0100	8	-.0020	-.008
		(-.6429)		(-.702)		(-.135)	(-.3865)

[a]For the definition of BU, see Table 23.

II:

Average two-day cumulative abnormal returns for debt announcements classified by captivity variable AD (t value in parentheses)

Panel A: Debt Announcements

	Total		Non-captive REITs		Captive REIT		
REIT captivity	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
AD[a]	35	-.0066 (-.6350)	4	-.0015 (-.171)	31	-.0072 (-.619)	.0057 (.1735)

Panel B: Line of Credit Announcements

	Total		Non-captive REITs		Captive REIT		
REIT captivity	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
AD	17	-.0066 (-.6350)	3	-.0007 (-.0539)	14	-.0080 (-.3489)	.0073 (.1437)

Panel C: Debenture Announcements

	Total		Non-captive REITs		Captive REIT		
REIT captivity	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
AD	18	-.0064 (-.6429)	1	-.0040 -	17	-.0066 (-.619)	- -

[a]For the definition of AD, see Table 23.

III:

Average two-day cumulative abnormal returns for debt announcements classified by total variance and REIT captivity (t value in parentheses)

Panel A: Debt Announcements

	Total		Non-captive REITs		Captive REIT		
Total Variance	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
TV<17.91[a]	16	-.0096 (-.8548)	10	-.0038 (-.2521)	6	-.0193 (-1.116)	.0155 (.6550)
17.91<=TV	19	-.004 (-.2378)	12	-.004 (-.1579)	7	-.004 (-.2366)	.000 (-.0000)

Panel B: Line of Credit Announcements

	Total		Non-captive REITs		Captive REIT		
Total Variance	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
TV<32.85	8	.009 (.3367)	4	.0528 (1.3442)	4	-.0348 (-1.526)	.0876 (1.9286)
32.85<=TV	9	-.0207 (-.7620)	8	-.0246 (-.8093)	1	.011 -	- -

Panel C: Debenture Announcements

	Total		Non-captive REITs		Captive REIT		
Total Variance	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
TV<32.85	7	-.0106 (-.6145)	5	-.0176 (-.7334)	2	.007 -	- -
32.85<=TV	11	.0038 (-.2975)	5	-.0024 (-.1370)	6	-.005 (-.2504)	.0026 (.0957)

[a]For the definition of TV, see Table 23.

IV:

Average two-day cumulative abnormal returns for debt announcements classified by REIT performance and captivity (t value in parentheses)

Panel A: Debt Announcements

	Total		Non-captive REITs		Captive REIT		
REIT Performance	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
PF<.0330[a]	19	-.0098 (-.6240)	13	-.0054 (-.2467)	6	-.0193 (-1.1115)	.0139 (.4036)
.0330<=PF	16	-.0028 (-.2058)	9	-.0018 (-.0859)	7	-.004 (-.2366)	.0022 (.0797)

Panel B: Line of Credit Announcements

	Total		Non-captive REITs		Captive REIT		
REIT Performance	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
PF<.0330	10	-.0127 (-.4717)	6	.0024 (.0464))	4	-.0348 (-1.526)	.0372 (.6468)
.0330<=PF	7	.0019 (.0688)	6	.0003 (.0105)	1	.011 -	- -

Panel C: Debenture Announcements

	Total		Non-captive REITs		Captive REIT		
REIT Performance	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
PF<.1334	10	-.0064 (-.4448)	8	-.0098 (-.5418)	2	.007 -	- -
.1334<=PF	8	-.0065 (-.4419)	2	-.011 -	6	-.005 (-.2504)	- -

[a]For the definition of PF, see Table 23.

V:

Average two-day cumulative abnormal returns for debt announcements classified by REIT leverage ratio and captivity
(t value in parentheses)

Panel A: Debt Announcements

	Total		Non-captive REITs		Captive REIT		
Leverage Ratio	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
LVG<7.543[a]	25	-.0034 (-.4752)	15	-.005 (-.4986)	11	-.0013 (-.1193)	-.0037 (-.2508)
7.543<=LVG	9	-.0157 (-.4366)	7	-.0016 (-.0351)	2	-.065 -	- -

Panel B: Line of Credit Announcements

	Total		Non-captive REITs		Captive REIT		
Leverage Ratio	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
LVG<13.158	11	-.0105 (-.9854)	6	.0022 (.2432)	5	-.0256 (-1.2883)	.0278 (1.3569)
13.158<=LVG	6	.0002 (.0032)	6	.0002 (.0032)	0	- -	- -

Panel C: Debenture Announcements

	Total		Non-captive REITs		Captive REIT		
Leverage Ratio	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
LVG<2.278	14	-.0101 (-1.4061)	7	-.0071 (-.7548)	7	-.013 (-1.1406)	.0059 (.3954)
2.278<=LVG	4	.0063 (.1509)	3	-.0167 (-.3416)	1	.075 -	- -

[a]For the definition of LVG, see Table 23.

VI:

Average two-day cumulative abnormal returns for debt announcements classified by change in leverage ratio and REIT captivity (t value in parentheses)

Panel A: Debt Announcements

Change in Leverage Ratio	Total N	Total $CAAR_{-1,0}$	Non-captive REITs N	Non-captive REITs $CAAR_{-1,0}$	Captive REIT N	Captive REIT $CAAR_{-1,0}$	Difference in Means Tests
CHG<4.585[a]	27	-.0066 (-.8650)	16	-.0103 (-.9535)	11	-.0013 (-.1193)	-.0090 (-.5712)
4.585<=CHG	8	-.0065 (-.1652)	6	.0137 (.2598)	2	-.065 -	- -

Panel B: Line of Credit Announcements

Change in Leverage Ratio	Total N	Total $CAAR_{-1,0}$	Non-captive REITs N	Non-captive REITs $CAAR_{-1,0}$	Captive REIT N	Captive REIT $CAAR_{-1,0}$	Difference in Means Tests
CHG<8.833	11	-.0175 (-1.3642)	6	-.0107 (-.5993)	5	-.0256 (-1.2883)	.0149 (.5609)
8.833<=CHG	6	.013 (.2598)	6	.013 (.2598)	0	- -	- -

Panel C: Debenture Announcements

Change in Leverage Ratio	Total N	Total $CAAR_{-1,0}$	Non-captive REITs N	Non-captive REITs $CAAR_{-1,0}$	Captive REIT N	Captive REIT $CAAR_{-1,0}$	Difference in Means Tests
CHG<.6023	11	-.0076 (-1.0038)	4	.0018 (.3210)	7	-.013 (-1.1406)	.0148 (.9260)
8.833<=CHG	7	-.0046 (0.1899)	6	-.0178 (-.7502)	1	.075 -	- -

[a]For the definition of CHG, see Table 23.

VII:

Average two-day cumulative abnormal returns for debt announcements classified by offering size (dollar) and captivity (t value in parentheses)

Panel A: Debt Announcements

Offering Size (Million)	Total N	Total $CAAR_{-1,0}$	Non-captive REITs N	Non-captive REITs $CAAR_{-1,0}$	Captive REIT N	Captive REIT $CAAR_{-1,0}$	Difference in Means Tests
SIZE<25.0	9	.0026 (.1854)	8	.0013 (.0902)	1	.012 -	- -
25.0<=SIZE	26	-.0097 (-.7369)	14	-.0069 (-.3085)	12	-.0139 (-1.0242)	.0061 (.2353)

Panel B: Line of Credit Announcements

Offering SIZE (Million)	Total N	Total $CAAR_{-1,0}$	Non-captive REITs N	Non-captive REITs $CAAR_{-1,0}$	Captive REIT N	Captive REIT $CAAR_{-1,0}$	Difference in Means Tests
SIZE<25.0	12	-.0038 (-.1492)	7	.0117 (.2769)	5	-.0256 (-1.2883)	.0373 (.6992)
25.0<=SIZE	5	-.0136 (-.6326)	5	-.0136 (-.6326)	0	- -	- -

Panel C: Debenture Announcements

Offering SIZE (Million)	Total N	Total $CAAR_{-1,0}$	Non-captive REITs N	Non-captive REITs $CAAR_{-1,0}$	Captive REIT N	Captive REIT $CAAR_{-1,0}$	Difference in Means Tests
SIZE<25.0	14	-.0148 (-1.2508)	7	-.0255 (-1.5259)	7	-.004 (-.2366)	-.0215 (-.9061)
25.0<=SIZE	4	.0228[a] (2.5804)	3	.0263 (2.312)	1	.012 -	- -

[a]Significant at 90% level.

VIII:

Average two-day cumulative abnormal returns for debt announcements classified by REIT types and captivity (t value in parentheses)

Panel A: Debt Announcements

	Total		Non-captive REITs		Captive REIT		
REIT Types	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
Mortgage REITs	22	-.0159 (-1.2150)	17	-.0138 (-.8287)	5	-.023 (-1.7687)	.0092 (.2899)
Hybrid REITs	13	.0092 (.5477))	5	.0296 (.8752)	8	-.0036 (-.2062)	.0332 (.9643)

Panel B: Line of Credit Announcements

	Total		Non-captive REITs		Captive REIT		
REIT Types	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
Mortgage REITs	11	-.0134 (-.5597)	10	-.015 (-.5696)	1	.003 -	- -
Hybrid REITs	6	.0055 (.1667)	2	.082 -	4	-.0328 (-.3683)	- -

Panel C: Debenture Announcements

	Total		Non-captive REITs		Captive REIT		
REIT Types	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
Mortgage REITs	11	-.0184 (-1.5263)	7	-.012 (-.6927)	4	-.0295 (-2.0289)	.0194 (.6807)
Hybrid REITs	7	.0123 (.7659)	3	-.0053 (-.1756)	4	.0255 (1.4631)	-.0308 (-.9423)

IX:

Average two-day cumulative abnormal returns for debt announcements classified by announcement year and captivity (t value in parentheses)

Panel A: Debt Announcements

	Total		Non-captive REITs		Captive REIT		
Year	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
1970s	30	-.0081	19	-.0045	11	-.0145	.0100
		(-.6768)		(-.2562)		(-1.0547)	(.3944)
1980s	5	.0028	3	-.0003	2	.0075	-
		(.3464)		(-.0277)		(-.2062)	-

Panel B: Line of Credit Announcements

	Total		Non-captive REITs		Captive REIT		
Year	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
1970s	15	-.0073	10	.0019	5	-.0256	.0275
		(-.3402)		(.0617)		(-1.2883)	(.5926)
1980s	2	-.0025	2	-.0025	0	-	-
		(-.1220)		(-.1220)		-	-

Panel C: Debenture Announcements

	Total		Non-captive REITs		Captive REIT		
Year	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
1970s	15	-.009	9	-.0116	6	-.0052	-.0064
		(-.7557)		(-.7305)		(-.2625)	(-.2539)
1980s	3	.00635	1	.004	2	.0075	-
		(.8036)		-		(.5556)	-

X:

Average two-day cumulative abnormal returns for debt announcements classified by types of debt and captivity (t value in parentheses)

	Total		Non-captive REITs		Captive REIT		
Types of Debt	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
Debenture	18	-.0064 (-.6429)	10	-.01 (-.7025)	8	-.002 (-.1353)	-.0080 (-.3865)
Lines of Credit	17	-.0067 (-.3556)	12	.0012 (.04562)	5	-.0256 (-1.2883)	.0268 (.6346)

XI:

Ordinary least squares regression results for debt announcements with $CAAR_{-1,0}$ as the dependent variable, using AD as the captivity variable[a]

	Parameter Estimate	t Statistic
Intercept	-.0103	-.280
TV	-.0015[b]	-3.361
PF	.0654	1.212
LVG	-.0016	-.622
CHG	.0059	1.578
TYPE	-.0064	-.313
LINE	.0097	.417
AD	.0047	.153
R^2	.4074	
F-value	2.258[c]	

[a]$CAAR_{-1,0}$: the cumulative average abnormal return for day -1 to day 0. For the definition of the independent variables, see Table 23.

[b]Significant at 99% level.

[c]Significant at 90% level.

XII:

Ordinary least squares regression results for debt announcements with $CAAR_{-1,+1}$ as the dependent variable, using AD as the captivity variable[a]

	Parameter Estimate	t Statistic
Intercept	.0003	.008
TV	-.0006	-1.585
PF	-.0141	-.280
LVG	-.0060[c]	-2.461
CHG	.0109[b]	3.120
TYPE	-.0196	-1.029
LINE	.0022	.102
AD	.0240	.841
R^2	.5183	
F-value	3.535[c]	

[a]$CAAR_{-1,+1}$: the cumulative average abnormal return for day -1 to day +1. For the definition of the independent variables, see Table 23.

[b]Significant at 99% level.

[c]Significant at 95% level.

XIII:

Ordinary least squares regression results for line of credit announcements with $CAAR_{-1,0}$ as the dependent variable, using AD as the captivity variable[a]

	Parameter Estimate	t Statistic
Intercept	-.0191	-.481
TV	-.0018[b]	-3.594
PF	.1042	1.338
LVG	-.0029	-.956
CHG	.0076	1.715
TYPE	.0383	1.187
AD	.0051	.133
R^2	.6929	
F-value	3.009[c]	

[a]$CAAR_{-1,0}$: the cumulative average abnormal return for day -1 to day 0. For the definition of the independent variables, see Table 23.
[b]Significant at 99% level.
[c]Significant at 90% level.

XIV:

Ordinary least squares regression results for line of credit announcements with $CAAR_{-1,+1}$ as the dependent variable, using AD as the captivity variable[a]

	Parameter Estimate	t Statistic
Intercept	-.0226	-.560
TV	-.0009	-1.792
PF	.0017	.022
LVG	-.0066[c]	-2.181
CHG	.0116[b]	2.584
TYPE	.0248	.758
AD	.0311	.807
R^2	.7354	
F-value	3.705	

[a]$CAAR_{-1,+1}$: the cumulative average abnormal return for day -1 to day +1. For the definition of the independent variables, see Table 23.
[b]Significant at 95% level.
[c]Significant at 90% level.

XV:

Ordinary least squares regression results for debenture announcements with $CAAR_{-1,0}$ as the dependent variable, using AD as the dependent variable[a]

	Parameter Estimate	t Statistic
Intercept	-.0089	-.156
TV	.0060	1.277
PF	.0562	.783
LVG	.0116	1.082
CHG	-.0330	-.749
TYPE	-.0131	-.456
AD	-.0293	-.592
R^2	.4103	
F-value	1.044	

[a]$CAAR_{-1,0}$: the cumulative average abnormal return for day -1 to day 0. For the definition of the independent variables, see Table 23.

XVI:

Ordinary least squares regression results for debenture announcements with $CAAR_{-1,+1}$ as the dependent variable, using AD as the captivity variable[a]

	Parameter Estimate	t Statistic
Intercept	.0174	.405
TV	.0056	1.563
PF	-.0053	-.098
LVG	.0090	1.115
CHG	-.0195	-.589
TYPE	-.0296	-1.371
AD	-.0316	-.849
R^2	.5934	
F-value	2.189	

[a]$CAAR_{-1,+1}$: the cumulative average abnormal return for day -1 to day +1. For the definition of the independent variables, see Table 23.

Appendix C

I:

Average two-day cumulative abnormal returns for equity announcements classified by captivity variable BU (t value in parentheses)

	Total		Non-captive REITs		Captive REITs		
REIT captivity	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
BU[a]	18	-.0188[b]	10	-.0178[c]	8	-.0200[d]	.0022
		(-3.4871)		(-2.7034)		(-2.1271)	(.1972)

[a]For the definition of BU see Table 23.
[b]Significant at 99% level.
[c]Significant at 95% level.
[d]Significant at 90% level.

II:

Average two-day cumulative abnormal returns for equity announcements classified by captivity variable CAP and AD (t value in parentheses)

	Total		Non-captive REITs		Captive REITs		
REIT captivity	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
CAP[a]	18	-.0188[b]	16	-.0171[b]	2	-.0325	.0154
		(-3.4871)		(-3.433)		(-.9154)	(.4307)
AD	18	-.0188[b]	13	-.0144[c]	5	-.0302[d]	.0158
		(-3.4871)		(-2.5689)		(-2.4340)	(1.3466)

[a]For the definition of CAP and AD see Table 36.
[b]Significant at 99% level.
[c]Significant at 95% level.
[d]Significant at 90% level.

III:

Average two-day cumulative abnormal returns for equity announcements classified by total variance and REIT captivity (t value in parentheses)

	Total		Non-captive REITs		Captive REITs		
Total Variance	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
TV<2.936[a]	12	-.0242[b] (-3.3402)	6	-.0288[c] (-3.7808)	6	-.0195 (-1.5252)	-.0093 (-.6270)
2.936<=TV	6	-.008 (-1.4462)	4	-.0013 (-.2381)	2	-.0215 -	- -

[a]For the definition of CAP and AD see Table 36.
[b]Significant at 99% level.
[c]Significant at 95% level.

IV:

Average two-day cumulative abnormal returns for equity announcements classified by REIT performance and captivity (t value in parentheses)

	Total		Non-captive REITs		Captive REITs		
REIT Performance	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
PF<.1897[a]	8	-.0175[c] (-2.1340)	4	-.0175 (-1.4183)	4	-.0175 (-1.3767)	0.0 (.0000)
.1897<=PF	10	-.0198[b] (-2.6345)	6	-.018[c] (-2.1649)	4	-.0225 (-1.4324)	.0045 (.2779)

[a]For the definition of PF see Table 36.
[b]Significant at 95% level.
[c]Significant at 90% level.

V:

Average two-day cumulative abnormal returns for equity announcements classified by REIT leverage ratio and captivity (t value in parentheses)

Percentage Outstanding	Total N	Total $CAAR_{-1,0}$	Non-captive REITs N	Non-captive REITs $CAAR_{-1,0}$	Captive REITs N	Captive REITs $CAAR_{-1,0}$	Difference in Means Tests
RS<.3442[a]	10	-.0218[b] (-4.6959)	6	-.0188[c] (-2.7233)	4	-.0263[c] (-4.7099)	.0075 (.7644)
.3442<=RS	8	-.015 (-1.3685)	4	-.0163 (-1.1371)	4	-.0138 (-.7294)	-.0025 (-.1057)

[a]For the definition of RS see Table 36.
[b]Significant at 95% level.
[c]Significant at 90% level.

VI:

Average two-day cumulative abnormal returns for equity announcements classified by change in leverage ratio and REIT captivity (t value in parentheses)

Change in Leverage Ratio	Total N	Total $CAAR_{-1,0}$	Non-captive REITs N	Non-captive REITs $CAAR_{-1,0}$	Captive REITs N	Captive REITs $CAAR_{-1,0}$	Difference in Means Tests
CHG<-.1589[a]	4	-.0285 (-1.7650)	1	-.041 -	3	-.0243 (-1.1029)	- -
-.1589<=CHG	14	-.016[b] (-2.9768)	9	-.0152b (-2.2473)	5	-.0174 (-1.7671)	.0022 (.1868)

[a]For the definition of CHG see Table 36.
[b]Significant at 90% level.

VII:

Average two-day cumulative abnormal return for equity announcements classified by offering size and captivity (t value in parentheses)

Offering Size	Total N	Total $CAAR_{-1,0}$	Non-captive REITs N	Non-captive REITs $CAAR_{-1,0}$	Captive REITs N	Captive REITs $CAAR_{-1,0}$	Difference in Means Tests
SIZE<.2760[a]	8	-.0235[b] (-3.1565)	5	-.02 (-1.7271)	3	-.0293[b] (-4.4675)	.0093 (.5773)
.2760<=SIZE	10	-.015[c] (-1.9279)	5	-.0156 (-2.0386)	5	-.0144 (-.9851)	-.0012 (-.0727)

[a]For the definition of SIZE see Table 36.
[b]Significant at 95% level.
[c]Significant at 90% level.

VIII:

Average two-day cumulative abnormal return for equity announcements classified by offering size (dollar) and captivity
(t value in parentheses)

Offering Size (Million)	Total N	Total $CAAR_{-1,0}$	Non-captive REITs N	Non-captive REITs $CAAR_{-1,0}$	Captive REITs N	Captive REITs $CAAR_{-1,0}$	Difference in Means Tests
SIZE<25.0	13	-.0176[a] (-3.2127)	7	-.0159 (-1.8273)	6	-.0183[b] (-2.9166)	.0024 (.2239)
25.0<=SIZE	5	-.0234 (-1.5854)	3	-.0223 (-2.1446)	2	-.0259 (-.5813)	- -

[a]Significant at 95% level.
[b]Significant at 90% level.

IX:

Average two-day cumulative abnormal return for equity announcements classified by REIT types and captivity (t value in parentheses)

	Total		Non-captive REITs		Captive REITs		
REIT Types	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
Equity REITs	9	-.0204[a] (-3.139)	5	-.0182 (-1.6730)	4	-.0233[a] (-3.2069)	.0051 (.3638)
Mortgage REITs	4	-.0385[a] (-3.2337)	3	-.0287[b] (-3.0199)	1	-.068 -	- -
Hybrid REITs	5	.0000 (.0000)	2	-.0005 (.8752)	3	.0003 (-.0302)	- -

[a]Significant at 95% level.
[b]Significant at 90% level.

X:

Average two-day cumulative abnormal return for equity announcements classified by announcement year and captivity (t value in parentheses)

	Total		Non-captive REITs		Captive REITs		
Year	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
1970s	3	-.037 (-2.1326)	1	-.035 -	2	-.038 (-1.2667)	- (.3944)
1980s	15	-.0151[a] (-2.8619)	9	-.0159 (-2.255)	6	-.0145 (-1.6038)	- (-.1688)

[a]Significant at 95% level.
[b]Significant at 90% level.

XI:

Average two-day cumulative abnormal return for equity announcements classified by REIT affiliation and captivity
(t value in parentheses)

	Total		Non-captive REITs		Captive REITs		
Affiliation	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	N	$CAAR_{-1,0}$	Difference in Means Tests
Unaffiliated REITs	16	-.0197[a] (-3.3411)	10	-.0178[b] (-2.7035)	6	-.0228[c] (-1.8991)	.0050 (.4018)
Affiliated REITs	2	-.0115 (-.7931)	0	- -	2	-.0115 (-.7931)	- -

[a]Significant at 99% level.
[b]Significant at 95% level.
[c]Significant at 90% level.

XII:

Ordinary least squares regression results for equity announcements with $CAAR_{-1,0}$ as the dependent variable, using CAP and AD as the captivity variable[a]

	Parameter Estimate	t Statistic	Parameter Estimate	t Statistic
Intercept	-.0496	-2.945[b]	-.0773	-2.738[b]
TV	.0024	.862	.0030	1.161
PF	.0125	.227	-.0000	-.001
RS	.0397	1.330	.0408	1.474
CHG	.0466	.914	.0676	2.059[c]
SIZE	.0252	.477	.0449	.935
TYPE1	.0012	.082	.0261	1.034
TYPE2	.0287	1.625	.0462	2.143c
CAP	-.0033	-.107		
AD			.0291	1.185
R^2	.5871		.6424	2.213
F-value	1.600		2.021	

[a]$CAAR_{-1,0}$: the cumulative average abnormal return for day -1 to day 0. For the definition of the independent variables, see Table 36.

[b]Significant at 95% level.

[c]Significant at 90% level.

XIII:

Ordinary least squares regression results for equity announcements with $CAAR_{-1,+1}$ as the dependent variable, using CAP and AD as the captivity variable[a]

	Parameter Estimate	t Statistic	Parameter Estimate	t Statistic
Intercept	-.0414	-1.848[b]	-.0808	-2.129[b]
TV	.0039	1.063	.0044	1.275
PF	-.0844	-1.154	-.0912	-1.341
RS	.0349	.879	.0386	1.039
CHG	.0815	1.201	.0787	1.784
SIZE	.0959	1.367	.1076	1.667
TYPE1	-.0156	-.779	.0187	.553
TYPE2	-.0006	-.027	.0287	.994
CAP	.0200	.482		
AD			.0397	1.202
R^2	.4709		.5324	
F-value	1.001		1.281	

[a]$CAAR_{-1,+1}$: the cumulative average abnormal return for day -1 to day +1. For the definition of the independent variables, see Table 36.

[b]Significant at 90% level.

Vita

CHENG-HO HSIEH

Address:
8510 Millicent Way #816
Shreveport, LA 71115
(318) 797-8704

AREA OF INTEREST

Teaching and Research: Real Estate, Corporate Finance, Investments, Financial Institutions

EDUCATION

Ph.D. 1985-1990	Louisiana State University Major: Business Administration Minor: Economics
M.B.A. 1983-1985	University of Missouri-Columbia Major: Business Administration
B.B.A. 1976-1980	National Chengchi University, Taiwan Major: Business Administration

DISSERTATION

Title: "Captive-Financing Affiliates, Agency Costs, and The Security Offerings of Real Estate Investment Trusts."

Dissertation Chairman: C. F. Sirmans

WORK EXPERIENCE

August, 1989-	Department of Economics and Finance, Louisiana State University-Shreveport Instructor (Introductory Corporate Finance, Advanced Corporate Finance)

June, 1989- July, 1989	Department of Finance, Louisiana State University Instructor (Introductory Real Estate)
January, 1989- May, 1989	Department of Finance, Louisiana State University Graduate Research Assistant
June, 1988- July, 1988	Department of Finance, Louisiana State University Instructor (Introductory Investments)
August, 1985- May,1988	Department of Finance, Louisiana State University Graduate Research Assistant
October, 1982- July, 1983	Department of Real Estate, Pacific Construction Corporation, Taiwan Project Supervisor
October, 1980- August, 1982	Army, Taiwan Lieutenant (Financial Officer)

RESEARCH IN PROGRESS

"On the Contractual Structure of Mutual Funds: The Role of Demand and Transactions Costs," with Melvin Jameson, April 1990.

PRESENTATION AT PROFESSIONAL MEETINGS

Doctoral Seminar, American Real Estate Society, April 1989.

PARTICIPATION IN PROFESSIONAL MEETINGS

Discussant, Financial Management Association, October 1989.

PROFESSIONAL MEMBERSHIP

American Finance Association
American Real Estate and Urban Economics Association
American Real Estate Society
Eastern Finance Association
Financial Management Association
Southern Finance Association

PERSONAL DATA

Date of Birth: February 25, 1956
Place of Birth: Taiwan
Visa Status: H-1
Marital Status: Single

DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Cheng-Ho Hsieh (Student Number 486-88-8640)

Major Field: Business Administration (Finance)

Title of Dissertation: "Captive-Financing Affiliates, Agency Costs, and The Security Offerings of Real Estate Investment Trusts"

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Geoffrey K. Turnbull

James D. Shilling

J. S. Hsu

John L. Seale

Michael Carpenter

Date of Examination:

April 23, 1990