

1. INTRODUCTION

The existence of free cash flow (FCF) has received numerous attentions from both researchers and practitioners. In corporate finance world, free cash flow is important in explaining the over investment problem and the relevance of capital structure. It also shows firm's opportunities that enhance shareholder value. This paper aims to determine REITs investment and capital structure decisions in presence of free cash flow.

The paper will proceed in two parts. First part will determine the level of free cash flow in Asian REITs. It will then assess the managerial entrenchment issues that are caused by free cash flow. We evaluate the managerial entrenchment issue by examining the over investment activities. The second part will examine the impact of free cash flow on REITs capital structure decisions.

Jensen and Meckling (1976) were among the first to advance the agency cost theory. They argued that separation of ownerships between manager and shareholder would lead to conflict of interests or agency problem. Most of Asian REITs still adopt externally managed strategy as their preferred organisational form unlike its US or UK counterparts. Externally managed REITs employ independent and external real estate advisors to manage REITs asset and property holdings, whereas internally managed REITs, the today's preferred managerial form of US and EU REITs, employ their own advisors and acquisitions and asset management staff. Several studies have shown how this separation of ownership have created agency problem [Cannon and Vogt, 1995; Ghosh and Sirmans, 2006; Ling and Ryngaert, 1997]. Additionally, several studies have been assessing the impact of different managerial structure on REITs value and performance [Bers and Springer, 1997; Hsieh and Sirmans, 1991; Hardin et al, 2008]. Many researchers have demonstrated that the internally managed REITs have dramatically outperformed its externally managed counterparts [Capozza and Seguin (1998, 2000); Ambrose and Linneman (2001); Lu (2002); Cannon and Vogt (1995); Howe and Shilling (1990)]. Their results show how managerial structures affect the level of leverage, cash holding position, and transaction costs level. However, most of these studies are based on US market. Even though it is not the focus of this paper, it is essential to point out that because of this different

managerial structure as Asian REITs may perform differently than US REITs or EU REITs.

Additionally, Asian REITs operate in different market environment. The trading market is relatively smaller than that of US market. It has been evidenced that thin markets behave relatively different than the more liquid markets. They are characterized to be more inefficient, have more small capitalized listed companies, low trading volume, limited liquidity, higher price variability, higher standard deviation, and higher information asymmetry that is usually proxied by higher bid ask spreads [Virtanen and Yli-Olli, 1987: Glaeser and Kallal, 1997: Schindler, 2010). Hence, this can play pivotal part on managerial and financing decisions of REITs.

This paper contributes to literature in several ways. First, there are numerous amounts of literatures on investment and capital structures decisions on US and EU REITs, but limited studies based on the Asian market. By investigating the REITs financing behaviour in the Asian market, we hope to provide additional evidence and fill in the gap. Additionally, the existing studies on REITs capital structure and investment decisions have taken little consideration on the existence of free cash flow. This is because most of them assumed that REITs are left with very little cash in hand due to its regulation that required them to distribute most of their retained earnings as dividends. Therefore, they only assumed that REITs are left with debt and equity choice for their financing decision. However, several studies have shown that REITs may be left with excess cash, which is believed to have an additional effect on the financing and investment decisions.

2. LITERATURE REVIEW

2.1 FREE CASH FLOW, MANAGERIAL ENTRENCHMENT AND REITS

Jensen (1986) developed the free cash flow hypothesis building upon Jensen and Meckling (1976) agency theory. Jensen's free cash flow theory argued that an increase in the amount of discretionary cash flow at manager's disposal induce agency costs. When firms have high level of excess cash flows, managers are more likely to engage in wasteful investment rather than funding positive net present value projects and payment to debt holders. An increase in the degree of managerial

entrenchment is believed to lower shareholder wealth through the agency costs of free cash flow.

The separation of ownership between stakeholders can also lead to the creation of managerial entrenchment. According to the management entrenchment theory, managers have their own incentives in making investment and capital structure decisions that sometimes at the shareholders' expense. Managers who are entrenched tend to choose capital structure that has debt and leverage below its optimal level [Ghosh et al, 2010;]. They will only increase it toward the optimal level in response to the threat of shareholder activism or takeover threat. Furthermore, it can be argued that entrenched managers are more likely to be 'empire building', meaning, they are willing to take on negative NPV investment and prefer large firms than small one to increase the size of the firm rather than the profitability of the firm [Jensen, 1986; Lang and Litzenberger, 1989; Sheifer and Vishny, 1997; Lee and Slawson, year; Baker, Mukherjee and Powell, 2005].

Richardson (2006) examined the level of over-investment activity of free cash flow of 58,053 firm year observations during the period 1988 to 2002. Using accounting based framework to measure the constructs of over-investment and free cash flow, he found that over-investment activities are concentrated in firms that have the highest level of free cash flow. In average, US publicly traded firms over-invest 20 percent of its available free cash flow.

Hartzell, Sun and Titman (2006) investigated the relationship of various governance mechanisms and the investment choice of 153 equity REITs over 1995 to 2004 period. They found strong relationship between ownership and investment decisions. The investment choices of REITs with higher institutional ownership or lower officer and director ownership are closely tied up with Tobin's q, their proxy of growth opportunity. They argued that REITs that are managed in the interests of empire building managers rather than shareholders will be less sensitive to changes in investment opportunities.

Consistent with the findings of Hartzell, Sun and Titman (2006), Howe, He and Kao (1992) also find that firms with lower Tobin's Q will tend to experience large abnormal returns and have over investment problem when face with significant amount of free cash flow. Additionally, with the presence of agency problem of free

cash flow, firms with lower Tobin's Q and investment opportunity will have higher sensitivity of new information (Baker, Mukherjee and Powell (2005))

Ghosh et al (2010) examined the effect of managerial entrenchment on the capital structure decisions of 136 equity REITs for 1997 to 2007 period. By assessing firm specific variables and several corporate governance structures, they found that entrenched managers tend to choose lower leverage level and short maturity debt to enhance their compensation, enhance reputation by empire building and to minimise the bankruptcy risk.

REITs and its implication

We have chosen REITs as our study sample because REITs provide a good platform to study the cross sectional variation on capital structure and investment decisions due to its unique regulatory environment. In order to maintain their tax-exempt status, REITs must comply with the minimum 90 percents dividend distribution policy requiring them to distribute 90 percents of their taxable income or retained earnings to shareholders annually. Some argued that this requirement leaves management with little cash flow and necessitate them to raise capital from external market to fund acquisitions [insert]. The limited discretionary cash flow reduces the agency problems and the trip to capital market improves transparency as it exposes the firm to the scrutiny of outside institutions.

However, despite the high mandatory dividend payout requirement, some studies have shown that REITs managers still have a considerable amount of discretionary cash flow at their disposal [Bianco et al, 2007; Bradley et al, 1998; Downs, Guner and Patterson, 2000; Kallberg, Liu and Srinivasan, 2003; Wang, Erickson and Gau, 1993]. Bradley et al (1998) result showed that the dividend to funds from operations ratio for REITs lies between 50 percent and 65 percent. This indicates a free cash flow and managerial entrenchment problems. Bianco et al (2007) concurred this hypothesis. They noted that due to the limited liability feature of REITs, managers might undertake risky investment in order to maximize their own wealth at the expense of shareholders. Furthermore, Downs, Guner and Patterson (2000), Kallberg, Liu and Srinivasan, (2003), Wang, Erickson and Gau (1993) assert that REITs are able to pay out significantly more dividends than required because their generated cash flows tend to be higher than their tax qualifying earnings. In addition, REITs were able

generate more cash flows due to debt refinancing and their large non-taxable depreciation.

Additionally, 75 percent of REITs income must be originated from the real estate related sources and 75 percent of REITs assets must be held in real estate, cash, government securities, including direct ownership, leaseholds, or options in land and improvements. Even though these REITs restriction can reduce the agency problem by reducing the managerial freedom, it can also lead to the managerial entrenchment as it limits the manager opportunities to experience in diverse industries. Campbell (2001) argued that this promote entrenchment due to a lack of opportunities for manager to experience in diverse industries. In addition, Hartzell et al (2006) stated that when managers own fewer shares in REITs firm, the investment choices of REITs are found to be more sensitive to investment opportunities. This means rather than investing, more entrenched managers tend to follow their own agenda when opportunities are the most attractive.

3. Hypotheses and Methodology

We propose to test the determinants of REITs investment decisions in presence of free cash flow. We argue that the investment decisions made by REIT manager are driven by the information asymmetry and agency costs in the real estate markets. When managers are left with significant amount of discretionary cash flow, they will act at the cost of shareholder's interest. Therefore, instead of investing in positive net present value projects and maximizing shareholder's value, managers with excess cash flow will tend to over-invest or empire building. We evaluate the degree of managerial entrenchment by examining the level of over-investment activities of free cash flow in REITs.

The Cash Flow Framework and Variables

As stated in previous section, none of the existing studies have taken into consideration of the presence of excess cash flow in the investigation of REITs investment and capital structure decisions. Therefore, this study modifies Richardson (2006) study and applies his model to REITs. In his study, Richardson (2006) built a framework to measure the behaviour of free cash flow and over investment simultaneously.

Jensen (1986) defined free cash flow as the available cash flow left after the firm has invested in maintaining asset in place and financing the expected new investments in positive NPV project. The over investment is defined as investment expenditure beyond that is required to maintain assets in place and to finance expected new investments in positive NPV project (Richardson, 2006).

a. Construction of investment expenditures

Following Richardson (2006), in order to determine the level of free cash flow, we first need to determine the level of total investment:

$$I_{TOTAL,t} = CAPEX_t + Acquisitions_t + RD_t - SalePPE_t$$

Where:

$I_{TOTAL,t}$	=	Total investment expenditure
$CAPEX_t$	=	Capital expenditure
RD_t	=	Research and development
$SalePPE_t$	=	Sale of property, plant and equipment

However, total investment expenditure can be split into two main components:

$$I_{TOTAL,t} = I_{MAINTENANCE,t} + I_{NEW,t}$$

Where:

a. $I_{MAINTENANCE,t}$

- the required investment expenditure to maintain assets in place
- $I_{MAINTENANCE,t}$ is proxed by amortization and depreciation

b. $I_{NEW,t}$

- The investment expenditures on new projects
- This can be divided into two components: the expected investment expenditures in new NPV projects (I_{NEW}^*) and abnormal or unexpected investment expenditure (I_{NEW}^E), the abnormal component can be either positive or negative, where positive value indicate over-investment.
- $I_{NEW,t} = I_{NEW}^* + I_{NEW}^E$

b. Construction of free cash flow

In order to estimate the free cash flow, we also need to determine a measure of cash flow generated from assets in place (CF_{AIP}):

$$CF_{AIP} = CFO - I_{MAINTENANCE} + RD$$

Where:

CFO = net cash flow from operating activities

Finally, we then can compute the level free cash flow:

$$FCF = CF_{AIP} - I_{NEW}^*$$

The framework above allows the simultaneous estimation of free cash flow and over-investment (Richardson, 2006).

c. Expectation model for firm level investment decisions

Recall that:

$$I_{NEW,t} = I_{NEW}^* + I_{NEW}^e$$

We can then decompose it into the following equation:

$$I_{NEW,t} = \alpha + \beta V/P_{t-1} + \phi Z_{t-1} + I_{NEW}^e$$

The first part of the equation is the expected investment expenditures in positive NPV projects, with V/P as the proxy for growth opportunities and Z as the vector of additional determinants of investment expenditures. The later part of the equation denotes any abnormal or over (under) investment activities.

There is a large amount of empirical researches in finance and economics that investigate the investment decision determinants of firms [Richardson, 2006; Hubbard, 1998; Hartzell, Sun and Titman, 2006].

The firm level investment decision expectation model used by Richardson (2006) is not applicable for REITs. We felt like it does not capture the whole picture. Thus, we modify his investment expectation model by changing and adding some more variables. It is important to note that by adding some more variables, this may reduce the power of these tests to capture the overall investment activities.

We divide the explanatory variables into six categories (see table #): 1) growth opportunities 2) firm specific variables capturing financial constraints 3) additional variable capturing growth opportunity not measured in V/P 4) measures of information asymmetric 5) measure of non modeled firm characteristics that impact investment decisions 6) indicator variables for investment expenditures that are not explained by growth opportunities and finance constraint. The new firm level investment decision expectation model is as followed:

$$I_{NEW,t} = \alpha + \beta_1 V/P_{t-1} + \beta_2 LEVERAGE_{t-1} + \beta_3 SIZE_{t-1} + \beta_4 VOL_{t-1} + \beta_5 CASH_{t-1} + \beta_6 AGE_{t-1} + \beta_7 STOCK_{t-1} + \beta_8 EARNING_{t-1} + \beta_9 INSIDER_{t-1} + \beta_{10} INSTITUTION_{t-1} + \beta_{11} I_{NEW,t-1} + \Sigma TYPE INDICATOR$$

The fitted value of the above regression will determine the expected level of new investment, I_{NEW}^* . We assumed that the expected level of new investment expenditure on new NPV projects to be an increasing function of growth opportunities as explained in the next section.

On the other hand, the residual or the unexplained portion of the regression will estimate the over-investment activities. This can be estimated using the following regression that assumed over-investment as a function of free cash flow:

$$I_{NEW}^e = \alpha + \delta_1 FCF < 0_t + \delta_2 FCF > 0_t + \varepsilon$$

$FCF < 0$ is equal to FCF values of FCF less than zero or equal to zero otherwise. In other words, $FCF < 0$ means that firms do not have free cash flow and assumed to not engage in over-investment activity as the possibility of doing so is mitigated by the scrutiny of external capital market. On the other hand, $FCF > 0$ is equal to FCF values of FCF greater than zero or zero otherwise. This means that firms have excess free cash flow and assumed to have the possibility to engage in over-investment activity. This regression allows the relation between free cash flow and over-investment to be asymmetric. In particular, the regression allows the slope coefficient to vary based on the sign of free cash flow to reveal that firms with positive free cash flow has over-investment activities.

d. Chosen Variables

Following Richardson (2006), we used V/P as our proxy for growth opportunities. He argued that the general measure such as Tobin's Q does not enough to give a complete picture of the market's expectation of growth opportunities. In addition, using book-to-market equity (BM) or earnings-price (EP) ratios alone as measures of growth opportunities might suffer from degree of mean reversion or earning persistence. Therefore, we construct a parsimonious measure of growth opportunities by using the residual income framework by incorporating both BM and EP components (add footnote).

We assumed that the expected investment expenditure on positive net present value projects to be an increasing function of growth opportunities. The construction of growth opportunities represents the present value of the firm's options to make future investments. Therefore, we need to estimate the firm value (P), which can be decomposed into two components: the value of assets in place (V_{AIP}) and the value of growth opportunities (V_{GO}) as shown below:

$$P = V_{AIP} + V_{GO}$$

In order to determine the V_{AIP} (value of assets in place), we assumed that price is equal to the discounted expected dividends. We also assumed that the abnormal earnings to follow an auto regressive process (AR) with persistence parameter. In addition, the accounting information is expressed via the clean surplus relation (Richardson, 2006). Based on these assumptions, we can express V_{AIP} as:

$$V_{AIP} = (1-\alpha r) BV + \alpha (1+r) X - \alpha r d$$

Where:

- BV = Book value of common equity
- X = operating income after depreciation
- r = discount rate
- d = dividends
- w = fixed abnormal earnings persistence parameter restricted to be positive and less than one
- $\alpha = (\omega / (1+r-\omega))$

The expression above allows both book market values and current earnings to be simultaneously captured in the value of the firm (V_{AIP}) attributable to its asset in place. Firms with the lowest level of BM and EP are the firms with the highest level of growth opportunities. It is important to note that this expression follows Ohlson (1995) work that estimate the firm value absent growth opportunities. [\[add footnote\]](#)

We assumed growth opportunities to be negatively related to the degree of over-investment activities. An increase in growth opportunity increase the likelihood for managers to retain cash in order to invest in non negative NPV projects and to fund positive acquisitions in the futures. Higher growth opportunities also signify the greater need for external financing to fund such acquisitions and projects. Firms are forced to seek external funding from the capital market and hence be subject of the scrutiny of external capital market (Easterbrook, 1984). On the other hand, entrenched managers with limited opportunities to diversify across industry or types are more likely to follow its own agenda and over invest.

The idea of including the financial constrains variables as control variables is that firms that are facing difficulty to raise additional cash to finance the new investments will have lower firm level of investment (Hubbard, 1998). Leverage, firm size, firm age and the volatility of cash flow are used to capture this. These variables also represent the firm's quality. Entrenched managers tend prefers to have high level of leverage to generate more cash in both good and bad markets. This is consistent with the assumption of Diamond (1991), who assumed the riskier firms would tend to choose long maturity debt in order to minimise the liquidity risk of leverage. We measured leverage (LEVER) as the sum of book value of short and long-term debt deflated by the sum of the book value of the total debt and equity. However, some studies found negative correlation between degree of managerial entrenchment and leverage, stating the entrenched managers would choose lower leverage to reduce liquidity risk (Ghosh et al, 2010). Hence, the effect of leverage on investment decision is still mixed.

We measured size (SIZE) as the natural log of the market value of the firm's assets. We assumed size to have a positive relationship with investment decision. Large firms are able to generate more operating income and are expected to have larger amount of

free cash flow. Due to this we expect them to have higher level of over investment problem.

In order to control for any systematic change of the firm's financing needs, we include firm age (AGE) as a control variable. It is measured as the time when firm's launched its first IPO of common stock. We argue that older or mature firms will have lower financing needs than younger firms.

We measured volatility of cashflow (VOL) as the time series standard deviation of fund from operations (FFO). An increase in the volatility of cash flow increases the likelihood of firms to rely on external funding and the costs of doing so given fixed investment opportunity [Rozeff, 1982; Minton and Schrand, 1999]. Furthermore, a higher level of over investment risk is also associated with higher level of cash flow volatility. Lee and Slawson (year) argued that an increase in over investment risk is attributed to the deviation of cash flows that are caused by the action of the corporate management. Therefore, we assumed cash flow volatility to have a positive relationship with over investment activities. However, a higher volatility of cash flow is also associated with a higher level of cash holding. This is because firms with more volatile cash flow may retain higher cash level for the future when the expected cash flow is low (Richardson, 2006). Thus, the relationship between over-investment and the volatility of cash flow are still ambiguous.

Following Richardson (2006), we include the stock return (STOCK) as a control variable to measure the growth opportunity that is not measured in the V/P. We calculate the stock return as the stock returns for the year prior to the investment year, which is measured as the change in the firm's market value over that period year. We assumed that past performance to have a significant effect on investment decisions. Firms that earn abnormal earnings or profits in the past years (signify by an increase in the stock return) have an incentive to over invest with hope to reap similar benefits in the future.

We include earning growth, insider ownership and institutional ownership as proxies for the possible influence of information asymmetry on the investment decisions of a firm. A higher level of information asymmetry increases the firm's agency costs that can be associated with higher degree of managerial entrenchment. We measured earning growth (EARNING) as the forward-looking growth rate of earnings.

We use the percentage of stock owned by insider or managers to the proportion of the whole stakes as our measure for insider ownership (INSIDER). We assume that as managers own more stake in the company, it will align the interests between managers and shareholders. The managers will deal with investment choice carefully and therefore will not be tempted to over-invest or act irrationally. However, as the percentage of manager stake in the company increases, this will in the end promote managerial entrenchment, as managers will have more incentive to empire building.

Institutional ownership (INSTITUTION) is measured as the percentage of stake owned by institutions to the proportion of the whole stakes. As stated before, the level of information asymmetry between institutions and shareholders of externally managed REITs is higher than the internally managed REITs. Hartzell et al (2006) argued that institutions have more information about the market than investors and hence higher level of institutional ownership will promote managerial entrenchment and over-investment activities. We expect that firms with higher institutions ownerships have higher level of over-investment activities.

In order to capture the non-modeled firm characteristics that have effects on investment decision, we include the previous level of investment ($I_{NEW,t-1}$) as our control variable (Richardson, 2006). Additionally, we include the indicator variable for property type (TYPE) effect to capture an additional variation in the investment behaviours that are not captured by the growth opportunities, financial constraint and information asymmetry measurements.

4. Sample Selection and Empirical Results

5. Conclusion



APPENDIX

Name of Company	Industry Type	Sub-Industry
Japan		
Advance Residence Investment Corp.	REIT	Apartments
Blife Investment Corp.	REIT	Apartments
Daiwa Office Investment Corp.	REIT	Office
FC Residential Investment Corp.	REIT	Apartments
Frontier Real Estate Investment Corp.	REIT	Shopping Centers
Fukuoka REIT Co.	REIT	Diversified
Global One Real Estate Investment Corp.	REIT	Office
Hankyu Reit Inc.	REIT	Diversified
Heiwa Real Estate REIT Inc.	REIT	Apartments
Industrial & Infrastructure Fund Investment Corp.	REIT	Warehouse / Industrial
Invincible Investment Corp.	REIT	Apartments
Japan Logistics Fund Inc.	REIT	Warehouse / Industrial
Japan OFFICE Investment Corp.	REIT	Office
Japan Prime Realty Investment Corp.	REIT	Office
Japan Real Estate Investment Corp.	REIT	Office
Japan Rental Housing Investments Inc.	REIT	Apartments
Japan Retail Fund Investment Corp.	REIT	Shopping Centers
Kenedix Realty Investment Corp.	REIT	Diversified
MID Reit Inc.	REIT	Office
Mori Hills REIT Investment Corp.	REIT	Diversified
Mori Trust Sogo Reit Inc.	REIT	Office
Nippon Accommodations Fund Inc.	REIT	Apartments
Nippon Building Fund Inc.	REIT	Office
Nippon Hotel Fund Investment Corp.	REIT	Hotels
Nomura Real Estate Office Fund Inc.	REIT	Office
Nomura Real Estate Residential Fund Inc.	REIT	Apartments
Orix JREIT Inc.	REIT	Office
Premier Investment Corp.	REIT	Office
Sekisui House SI Investment Co.	REIT	Diversified
Starts Proceed Investment Corp.	REIT	Diversified
Tokyu REIT Inc.	REIT	Office
Top REIT Inc.	REIT	Diversified
United Urban Investment Corp.	REIT	Diversified
Hong Kong		
Champion REIT	REIT	Diversified
Fortune Real Estate Investment Trust	REIT	Shopping Centers
GZI Real Estate Investment Trust	REIT	Office
Link REIT/The	REIT	Shopping Centers

Prosperity REIT	REIT	Office
Regal Real Estate Investment Trust	REIT	Hotels
RREEF China Commercial Trust	REIT	Diversified
Sunlight Real Estate Investment Trust	REIT	Diversified

South Korea		
Dasan Real Estate Investment Trust Incorp.	REIT	Diversified
Golden Narae Real Estate Development Trusts Co Ltd.	REIT	Diversified
Kocref Reit 8	REIT	Diversified
Kocref Reit15	REIT	Diversified
KR2 Development REIT co Ltd.	REIT	Diversified

Singapore		
AIMS AMP Capital Industrial REIT	REIT	Warehouse/Industrial
Ascendas India Trust	REIT	Diversified
Ascendas Real Estate Investment Trust	REIT	Diversified
Ascott Residence Trust	REIT	Hotels
Australand Property Group	REIT	Diversified
Cache Logistics Trust	REIT	Warehouse/Industrial
Cambridge Industrial Trust	REIT	Diversified
CapitaCommercial Trust	REIT	Diversified
CapitalMall Trust	REIT	Shopping Centers
CapitaRetail China Trust	REIT	Regional Malls
CDL Hospitality Trusts	REIT	Hotels
First Real Estate Investment Trust	REIT	Diversified
Fortune Real Estate Investment Trust	REIT	Shopping Centers
Frasers Centrepoint Trust	REIT	Shopping Centers
Frasers Commercial Trust	REIT	Diversified
K-REIT Asia	REIT	Office
Lippo-Mapletree Indonesia Retail Trust	REIT	Shopping Centers
Mapletree Industrial Trust	REIT	Warehouse/Industrial
Mapletree Logistics Trust	REIT	Diversified
Parkway Life Real Estate Investment Trust	REIT	Health Care
Sabana Shari'ah Compliant Industrial Real Estate Investment Trust	REIT	Diversified
Saizen REIT	REIT	Apartments
Starhill Global REIT	REIT	Shopping Centers
Suntec Real Estate Investment Trust	REIT	Diversified

(Source: Bloomberg, 2010)