Dividend Policy and Growth: Evidence from Asian REITs

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Abstract

It is well known that agency conflicts weaken the ability of a firm to seek potentially profitable investments due to high costs of external financing. REITs are required to pay high levels of dividends to maintain their tax status and as a result they rely heavily on external capital markets to fund acquisitions. Paying dividend in excess of mandatory level is one way to mitigate agency cost and improve the ability of REITs to fund their growth opportunities. This paper examines (1) the role of discretionary dividends in lowering agency costs and (2) the effect of discretionary dividend payments on externally financed growth. Using an Asian REIT sample, we find a substitution role of discretionary dividend payments for reduced agency costs and a significantly positive relation between paying discretionary dividends and externally financed growth, providing evidence from non-U.S. REIT markets on the agency cost explanation of paying discretionary dividends.

Keywords: Dividend Policy, Agency Cost, Growth, Asian REITs

1. Introduction

As a capital intensive industry, Real Estate Investment Trusts (REITs) require substantial capital to fund growth opportunities through either generating enough internal cash flows or having easy access to external capital markets. However, to maintain their tax-exempt status, REITs must pay 90% of their taxable income as dividends to shareholders.[1] This unique regulatory requirement leads to considerable limitations for REITs to use residual internal funds to acquire real estate properties and thus REITs rely heavily on external capital. Capital markets play an important monitoring role in lowering the risks to capital suppliers.[2]To facilitate their access to capital markets, REITs have to alleviate the principal-agent problems, improve transparency and manage assets effectively.

Although the distribution requirement is particularly high, many REITs pay dividends in excess of the mandatory level. The discretionary dividends have long been recognized in the U.S. REIT market.[3]Why do REITs exert themselves to get access to the more costly external funds while at the same time shrink the availability of internal funds through paying additional dividends that are not required by law? One explanation is to reduce potential agency costs, which is consistent with Jensen (1986) that distributing free cash flows as dividend payments restrict managers' misuse of capital and thereby reduce managerial discretion and resultant agency costs. As a substitute for reduced agency costs, distributing discretionary dividends can facilitate REITs' access to external capital markets for growth and thus mitigate their inability to use internal cash flows.

Some recent studies on the U.S. REITs provide empirical evidence on this notion. Hardin and Hill (2008) argue that REITs manage dividend policy to get access to external debt and equity funds which is essential for growth. Chou et al. (2013) extend Hardin and Hill's (2008) argument and provide direct evidence on the impact of discretionary dividend payments on the value of REITs. They find that the reduced agency costs through distributing discretionary dividends can be reflected on the increased value of REITs. Moreover, Ghosh and Sun (2013) test how discretionary dividends impact the growth of REITs and also find a strong positive relation between externally financed growth and discretionary dividend payments.

The unique regulatory environment and discretionary dividend payments by REITs provide an excellent opportunity to investigate dividend policy. However, what we currently know about the dividend policy of REITs is mostly from the dominant U.S. REIT market. Few studies focus on REITs in other regions. In this study, we extend existing literatures on REIT dividend policy by spotlighting Asian REIT markets and examining the relation

between dividend policy and growth. Specifically, we take two representative Asian REITs, Japanese REITs (J-REITs) and Singaporean REITs (S-REITs) to investigate whether paying dividends in excess of mandatory level enhances firm growth and whether it can be attributed to the role of discretionary dividends in reducing agency costs.

There are some advantages in choosing Asian REITs, especially J-REITs and S-REITs in our study. First, externally managed REITs are predominant in Asia but this management structure has become rare in the U.S. due to the potential conflicts of interest between REIT managers and shareholders. Therefore, J-REITs and S-REITs are likely to suffer agency conflicts. Second, external managers have incentives to expand assets under their management on account of their compensation provisions and most Asian REITs are in the stage of pursuing external growth. In both markets mangers pursue a growth-by-acquisition strategy which makes Asian REITs have more demand on external capital to fund real estate property acquisitions and other investments. Thereby they would be interested in reducing agency costs through discretionary dividend payments to smooth their access to capital markets.

To investigate the efficacy of discretionary dividends in reducing agency cost and giving REITs higher growth, we employ a simultaneous equation model (SEM) to describe the simultaneity relationship between discretionary dividends and externally financed growth. Some important reasons of dependent variable selection and calculation should be noted. First, the nondiscretionary dividend payments of REITs are statutory and in general cannot be manipulated by managers discretionarily which indicates that it has little to do with agency issues. Consequently, we only investigate the discretionary dividend payments. Discretionary dividends are defined as the amount of total common dividends paid in excess of mandatory dividend payments. Because taxable income is hard to accurately measure, we follow Hardin and Hill's (2008) approach to estimate discretionary dividends, i.e. total dividends paid minus 90 percent of before tax net income.[4] Second, the limited internal fund availability ensures REITs rely heavily on external capital markets and moreover agency theory involves funding through external markets. Taking these factors into account, we apply externally financed growth instead of total growth as a proxy for access to external markets. We follow Khurana et al. (2006) and Ghosh and Sun (2013) to measure externally financed growth and construct three versions of externally financed growth to capture the maximum level of growth that is driven by all forms of capital from external channels, both long-term debt and equity, and all equity, respectively.

The SEM consists of two equations: discretionary dividend equation and externally

financed growth equation. We apply both pooled and cross-sectional two-stage least square (2SLS) regressions to estimate all the coefficients of the SEM. Equation (1) describes the determinants of discretionary dividend payments. We find that the relationship between discretionary dividend payments and factors implying agency costs is significantly positive. It indicates that REITs paying more discretionary dividends when agency cost is higher to mitigate the cost of external financing and get better access to capital markets. In equation (2) we regress externally financed growth on the fitted discretionary dividends obtained from equation (1) and find a significant positive relation between externally financed growth and discretionary dividend payments. Summarizing the findings from the SEM, we conclude that discretionary dividend payments enhance externally financed growth and it can be attributed to the substitution role of discretionary dividends in reducing agency costs.

This paper expands the existing literature on REIT dividend policy by focusing on Asian REITs which have a different market structure compared to the U.S. REITs. The findings provide support to the agency cost explanation of paying discretionary dividends with a sample of non-U.S. REITs and the fact that dividend payments enhance firm growth. It confirms that REITs manage dividend policy to facilitate their access to capital markets to fund growth.

2. Background and hypotheses

Capital demand, availability of internal cash flows and the cost of external capital determine how frequently a firm goes to capital markets for financing. For Asian REITs, the high mandated dividend payout requirement limits the availability of internal funds and the growth-by-acquisition strategy boosts their financing demand. This situation makes them heavily rely on external channels to finance investments and thus any reduction in the cost of external financing will be important for REITs.

Many studies have provided evidence that the payment of dividends is a mean to mitigate agency costs and information asymmetry for general corporations to fund growth externally. For example, Easterbrook (1984) suggests that distributing dividends makes firms with high growth opportunities go to the external capital market more frequently where their management decisions are monitored. The free cash flow hypothesis of Jensen (1986) suggests that the payment of dividends reduces agency cost by restricting managers' abuse of free cash flow to invest in negative NPV projects.

Since REITs are required to pay a substantial percentage of their taxable incomes as dividends, is there any discretion for REIT managers related to agency issues? Given the

regulatory limits placed on REITs, Down, Guner and Patterson (2000) suppose that REIT managers may suffer limited flexibility relative to their counterparts in non-REIT sectors in dividend policy decisions and thereby this inflexibility may weaken the ability of dividends in reducing agency costs and information asymmetry. However, their finding that REITs distributing more to shareholders suffer less information asymmetry negates this argument. Hartzell, Kallberg and Liu (2005) and Han (2006) suggest that due to the high level of depreciation expense for REITs, cash flow exceeds taxable income which gives REITs managers discretion regarding cash retention. By investigating the effects of the regulated distribution requirement placed on REITs, Ghosh, Roark and Sirmans (2011) find that REIT managers indeed have some flexibility in dividend payments and they pay discretionary dividend exceeding the required amount. Most importantly, they find that discretionary dividend payments and other governance mechanisms are still significant tools for REITs to reduce agency costs and maintain good corporate governance. Therefore, REIT managers are able to pay non-mandatory dividends and the discretionary component of dividend payments is a way to decrease agency costs.

Since Wang et al. (1993) first point out that REITs often pay dividends exceeding mandatory levels, legislation may not be the only determinant of dividend policies, and therefore discretionary dividends have been regarded as the more interesting component to examine. A number of REIT studies have explored the effectiveness of discretionary dividends in alleviating agency conflicts. Wang et al. (1993) argue that agency costs are an important determinant of REIT dividend policy and dividend announcements have a significant impact on share value depending on the extent of asymmetric information between the REIT managers and shareholders.

More recently, Hardin and Hill (2008) extend the implication of Wang et al. (1993) by differentiating the mandatory and non-mandatory components of REIT common dividends. They argue that the payment decision of discretionary dividends reflects managerial discretion and signals the future requirement of external capital which increases transparency to the market. They also find strong evidence that paying discretionary dividends is associated with factors implying reduced agency costs. Chou et al. (2013) examine how the market values REIT dividends conditional on corporate governance. The results indicate that market significantly and positively values discretionary dividend payments by REITs.

Based on the discussion above, our hypotheses are:

Hypothesis 1: Discretionary dividend payments are positively related to agency costs.

Hypothesis 2: Externally financed growth is positively related to discretionary dividend

payments.

3. REIT markets in Asia

The introduction of REITs in Asia aimed to increase liquidity of the real estate markets and bring international capital to Asia. The first Asian REIT was established in Japan in 2001 followed by South Korea and Singapore in 2002, Thailand in 2003, and Taiwan, Malaysia and Hong Kong in 2005. Relative to the history of the U.S. REITs since 1961, Asia REITs are very young. After a decade of development, Japan and Singapore have become the two largest REIT markets in this region with market capitalization of approximately US$38 billion and US$ 30 billion as of 31 Dec 2012 respectively while other REIT markets in this region account for about 10 percent of the total in Asia. The excellent performance of J-REITs and S-REITs should be spotlighted. For the year ended 2012, the one-year rate of return is 17.4% and 21.8% respectively in Japan and Singapore which is higher than 15.3% in the U.S. The dividend yield for J-REITs and S-REITs of 5.8% and 6.8% are also higher than that for the U.S. REITs of 3.7%.

It should be noted that the market structure of Asia REITs is different from that in the U.S. The umbrella partnership scheme is commonly applied in the U.S. to transfer the ownership of private properties to a public REIT on a tax-deferred basis. As a more complex organizational structure, Umbrella Partnership REITs (UPREITs) are regarded as having less transparency. Chou et al. (2013) find that for UPREITs, paying discretionary dividends is valued by the market. Additionally, due to potential conflicts of interest between the REIT managers and shareholders, externally managed REIT is rare in the U.S. However, most REITs in Asia are externally managed.[5] Moreover, REIT sponsors also play an important role in Asia because they usually wholly own the REIT manager and provide the source of properties to REITs.[6] Therefore, most Asian REITs may suffer potential conflicts of interest between manager/sponsor and shareholders.

4. Methodology and data

This paper investigates (1) the relationship between discretionary dividend payments and agency costs, and (2) the impact of paying discretionary dividends on externally financed growth. Discretionary dividend rather than total dividends is applied in this paper as the nondiscretionary component is obliged by law and has nothing to do with agency costs. As REITs are more dependent on external funds, their growth is mostly externally financed. We use externally financed growth instead of total growth due to the limited internal financing of

REITs.

(1) Measurement of Discretionary Dividend

Hardin and Hill (2008) define discretionary dividends as the difference between total common dividends paid and mandatory dividend payments (calculated as 90 percent of before tax net income). However, Boudry (2011) point out that Hardin and Hill's (2008) measurement of discretionary dividends based on before tax net income may create errors as taxable income may vary based on differences in financial and tax accounting. Boudry uses the NAREIT data which provides a decomposition of REIT dividends in Form 1099-DIV to calculate taxable income. Both studies find evidence that REITs appear to use discretionary dividend payments to smooth their payout ratio. Chou et al. (2013) examine how dividend policy impacts the market value of REITs conditional on agency costs and they measure discretionary dividends using both methods. It shows that for REITs with greater principal-agent conflicts, paying discretionary dividends enhances market value, implying that discretionary dividend payments are a substitute for stronger governance. Their results are consistent although the discretionary dividends are measured in different ways. They also mention that using NAREIT data reduces the sample size substantially as the decomposition of REIT dividends is not a mandatory disclosure for REITs and thus some sample bias may result from this methodology.

Given the data availability and ease of calculation, the methodology proposed by Hardin and Hill (2008) is followed in this paper. Specifically, we define discretionary dividends as the difference between total annual common dividends paid minus 90 percent of before tax net income.

(2) Measurement of Externally Financed Growth

We measure the maximum attainable growth rate financed externally by following Demirguc-Kunt and Maksimovic (1998) (2002), Khurana et al. (2006) and Ghosh and Sun (2013).[7] As the external financing needed by a firm is determined by the availability of internal funds and investment opportunities as well, the external financing needs of a firm at time t can be expressed as:

$$EFN_t = [g_t \times ASSET_t] - [(1 + g_t)(FFO_t \times b_t)] \quad (1)$$

where EFN_t is a measure of external financing needs, g_t is firm growth rate, $ASSET_t$ is firm assets, FFO_t is funds from operations for REITs, and b_t is the proportion of the

firm's FFO that are retained for reinvestment ($b_t = (FFO_t - DIV_t)/FFO_t$). Therefore, this equation can be interpreted as the difference between required capital to satisfy a firm growing at g_t and its internal funds available for investments.

We also calculate three benchmark constrained growth rates that a firm can achieve by using: (1) all funds generated internally (IG), (2) short-term debt financing (SFG) and (3) both short-term and long-term debt (SG).[8] Then the differences between actual realized growth rate and the three estimates of constrained growth rates (IG, SFG and SG) are the levels of growth rate a firm can achieve driven by (1) all external funds (EFG_IG), (2) both long-term debt and all equity (EFG_SFG), and (3) all equity (EFG_SG). EFG_IG, EFG_SFG, and EFG_SG are the three measures of externally financed growth in our model.[9]The analysis of Khurana et al. (2006) is based on growth in sales. However, for REITs asset growth is more related to capital investment and therefore can more closely reflect the need and availability of external funds than growth in sales. Ghosh and Sun (2013) apply the growth rate on both sales and assets basis and the results are consistent. Our test is based on growth in assets.

IG is the maximum growth rate that is only funded by internal funds. It means the dividend payout ratio is zero, i.e. b=1. It is obtained by setting external financing needs is zero, i.e. $EFN_t = 0$. It follows that,

$$IG_t = \frac{RE_t}{(ASSET_t - RE_t)} \quad (2)$$

where RE_t is retained earnings, calculated as the difference between FFO and total dividends paid. This equation shows that IG_t is convex and thus more profitable firms have higher growth rate financed internally.

SFG, the second benchmark growth rate, is the maximum growth rate of a firm that reinvests all its earnings after dividends and short-term debt at the current ratio of short-term borrowing to assets.[10]This ensures the feasibility of calculating SFG but it doesn't capture the changes in the firm's short-term borrowing capacity. SFG is obtained by setting b to 1, $EFN_t = 0$ and using the value of assets that is not financed by short-term debt instead of total assets as in equation (1). Here the assets not financed by short-term debt are defined as "long-term debt" which is computed by multiplying total assets by one less the ratio of short-term debt to total assets. Hence,

$$SFG_t = \frac{RE_t}{ASSET_t - STDEBT_t - RE_t} \quad (3)$$

where $STDEBT_t$ is the amount of short-term debt.

The final estimate of benchmark growth rate, SG, is the maximum sustainable growth

rate that can be achieved by a firm reinvesting all its internal funds and obtaining enough short-term and long-term borrowings to maintain a constant ratio of total debt to assets. Therefore, the firm doesn't issue new equity or change the realized leverage level. Hence,

$$SG_t = \frac{RE_t}{EQUITY_t - RE_t} \quad (4)$$

where $EQUITY_t$ is the book value of equity.

(3) Model

Our hypothesis that discretionary dividend payments and externally financed growth of REITs are significantly positively related is based on the argument that discretionary dividend payments are a substitution for reduced agency costs and lower cost of external financing. Compared to REITs with poor performance, well-performing and growing REITs are more likely to pay more discretionary dividends to shareholders. To the extent that the cause and effect relation between discretionary dividends and growth are reasonable, they are likely to be jointly determined. Given this simultaneity, we apply a simultaneous equation system to examine the relation between discretionary dividends and externally financed growth. Equation (1) shows the determinants of discretionary dividend payments ($EXDIV_t$) and is applied to examine the relation between factors implying agency costs and discretionary dividend payments. Equation (2) captures the variables related to externally financed growth (EFG_t) and is applied to test the relation between firm growth and discretionary dividend payments.

We take the bi-directional causality between discretionary dividend payments and externally financed growth into account and use EFG_t as an explanatory variable in equation (1).[11]This system is estimated by two-stage least squares (2SLS) method to obtain consistent estimates for endogenous variables.

The equations in the system are as follows:

$$\begin{aligned} EXDIV_t = {} & \alpha_0 + \alpha_1 EFG_t + \alpha_2 EXDIV_{t-1} + \alpha_3 EXFFO_{t-1} + \alpha_4 \Delta EXFFO_t \\ & + \alpha_5 MANDIVRATE_t + \alpha_6 \Delta MANDIVRATE_t + \alpha_7 Q_t + \alpha_8 SIZE_t + \alpha_9 LEV_t \\ & + \alpha_{10} ASSETTO_t + \alpha_{11} ROA_t + \alpha_{12} TYPE_t + \mu_t; \quad (1) \end{aligned}$$

$$\begin{aligned} EFG_t = {} & \beta_0 + \beta_1 EXDIV_t + \beta_2 Q_t + \beta_3 SIZE_t + \beta_4 FIN_t + \beta_5 \Delta PROFITMGN_t \\ & + \beta_6 \Delta ASSETTO_t + \varepsilon_t; \quad (2) \end{aligned}$$

where

$EXFFO_{t-1}$ = the prior year's funds from operations (*FFO*), defined as net income excluding profits from the sale of properties, plus

depreciation and amortization, less the mandatory dividend payment, all divided by prior year's total assets

$\Delta EXFFO_t$ = excess *FFO* in the current year less prior year's excess *FFO*, scaled by current year's total assets

MANDIVRATE_t = 90% of before tax net income divided by total assets

$\Delta MANDIVRATE_t$ = change in mandatory dividends divided by total assets

Q_t = Tobin's Q, measured as the sum of market capitalization, total debt and preferred equity, scaled by total assets.

$SIZE_t$ = nature logarithm of market capitalization

LEV_t = leverage ratio, measured as total debt to total assets.

$ASSETTO_t$ = asset turnover, computed as total revenue divided by total assets.

ROA_t = return on assets, calculated as net income available to shareholders divided by total assets

$\Delta ASSETTO_t$ = change in asset turnover, computed as annual change in total revenue divided by total assets.

FIN_t = total changes in debt and equity scaled by total assets

$\Delta PROFITMGN_t$ = change in profit margin, computed as change in net income scaled by total revenue

Equation (1) specifies discretionary dividends as a function of externally financed growth, lagged discretionary dividends, mandatory dividends, and characteristics of REITs that may have impacts on discretionary dividend payments.

As stated above, growing REITs are more likely to payout more earnings as dividends. We predict the sign of externally financed growth (EFG_t) to be positive. Given the persistence of agency costs argued by Florackis and Ozkan (2009), Ghosh and Sun (2013) show that the dividend policy should be serially correlated conditional on other firm characteristics. They include lagged discretionary dividends ($\text{EXDIV}_{\text{t}-1}$) in their discretionary dividend model and the results confirm the serially correlation between discretionary dividends. We also include the value of lagged discretionary dividends in equation (1) and predict that the sign will be positive.

Jensen (1986) proposes that a firm with substantial free cash flow has to pay more dividends to prevent its manager from misuse of the resources under his/her control at the expense of shareholders. Jensen indicates that dividend policy can be effective in reducing agency costs by reducing free cash flow. Thus free cash flow can be used as a proxy for

potential agency costs. For REITs, the cash flow is reflected by funds from operation (FFO) and because a certain proportion of it is distributed as dividends, only the remaining cash flow is discretional and may have impacts on dividend policy. Thus, following Hardin and Hill (2008) we also use excess FFO in our equation, defined as funds from operation minus mandatory dividends, as a proxy for free cash flow of REITs. We model it using lagged excess funds from operations ($\mathrm{EXFFO_{t-1}}$) and change in excess funds from operations ($\Delta\mathrm{EXFFO_t}$) as suggested by Bradley, Capozza and Seguin (1998). Both values reflect the availability of internal funds and potential agency costs. For REITs with more agency conflicts, they have to pay more dividends to reduce managers' misuse of free cash flows. We anticipate both are positively related to discretionary dividends.

Boudry (2011) shows that REITs are less likely to pay non-mandatory dividends when their current mandatory dividends are already high as the current level of dividends has already met a target payout ratio that smooths their dividends. Following Boudry, we also include mandatory dividends ($\mathrm{MANDIVRATE_t}$) and changes in mandatory dividends ($\Delta\mathrm{MANDIVRATE_t}$) in this equation and expect the signs of coefficients on these two variables to be negative.

Tobin's Q ($\mathrm{Q_t}$) is usually used as a proxy for investment opportunity. More investment opportunities mean more external financing demands and to get better access to capital markets, REITs are required to mitigate potential agency costs. Under the hypothesis that paying discretionary dividend is a way of reducing agency cost, REITs with more investment opportunities have to pay more discretionary dividends to fund acquisitions. As a measure of investment opportunity, Tobin's Q is predicted to be positively related to dividend payments. Moreover, REITs with good investment opportunities are more likely to pay more discretionary dividends, implying a positive relationship. However, Tobin's Q is often also used as a measure of overinvestment and following Lang and Litzenberger (1989) an average Tobin's Q ratio less than one means that the firm is overinvesting in projects with negative NPVs. It suggests an inverse relationship between Tobin's Q and discretionary dividend distribution because REITs with overinvestment would be required to pay more dividends to reduce agency costs. Therefore, we cannot predict the sign of Tobin's Q.

We also cannot predict the sign of the coefficient for firm size ($\mathrm{SIZE_t}$). Because larger REITs are more likely to reduce the volatility of generating cash flows due to the increased diversification of their properties, they are able to afford discretionary dividend payments. However, it is not necessary for large REITs to payout dividends in excess of mandatory level

to mitigate the cost of external financing as larger firms have lower asymmetry information and greater access to the capital markets as suggested by Boudry, Kallberg and Liu (2011).

The cost of debt reduces free cash flow under the control of management and increased debt means increased supervision from capital markets. Therefore, leverage (LEV_t) may act as a way of reducing agency costs and for REITs with higher leverage, it is not necessary to reduce agency costs by paying discretionary dividends. Moreover, REITs with higher leverage ratios are more likely to suffer from higher volatility of cash flows. Because the market may penalize the REITs that decrease dividends, REITs with more volatile cash flows should not pay more dividends in order to reduce the penalty risk for dividend reduction. Thus we expect that the leverage ratio is negatively related to discretionary dividends.

Both asset turnover ($ASSETTO_t$) and return on assets (ROA_t) measure REITs' ability to generate profit on existing assets.[12] REITs with higher profitability are more likely to pay more discretionary dividends, which imply a positive relationship. However, high efficient REITs have fewer demands to reduce agency costs by paying extra dividends to get access to capital markets due to their higher productivity of internal funds. It means the need for paying discretionary dividends is decreasing for REITs with high efficiency and thus both proxies have an inverse relationship with dividend payments. Therefore, the signs of asset turnover and ROA are unpredictable. As a control variable, the sign of TYPE is not predicted. It is a set of dummy variables and presents different sectors of underlying real estate properties of REITs, including housing, industrial, health care, retail, office, and diversified.[13]

In equation (2), we regress the REIT's externally financed growth rate on the fitted value of discretionary dividends using all exogenous variables in equations (1) and (2) and a set of REIT's characteristics that may have impact on external financing needs. Discretionary dividend payments are predicted to be positively related to externally financed growth as their substitution role of reducing agency cost and resultant better access to capital markets.

As the demand on external funds can be influenced by two main factors, the availability of internal and external funds and investment opportunities, we control for these variables using proxies. Q is used as a proxy for investment opportunities. A firm with higher Q is regarded as owning more opportunities to grow, so we expect that Q is positively related to the dependent variable, externally financed growth. The sign of SIZE in equation (2) is also unpredictable. On one hand, larger REITs are more likely to have more investment opportunities and generally an increase in size enhances their access to external capital markets, both indicating that size is positively related to externally financed growth. On the other hand, REITs with more assets are more likely to be diversified and mitigate operating

risks, thereby generating more internal cash flows steadily which means larger REITs are not as dependent on external financing as smaller REITs. So the relationship between firm size and growth may be ambiguous.

FIN is used as a proxy for the availability of external funds and reliance of a REIT on external financing. It is expected to be positively related to externally financed growth. Fairfield and Yohn (2001) argue that asset turnover measures a firm's ability to generate revenues from its assets and profit margin measures its ability to control the costs incurred to generate revenues. So we use $\Delta\text{ASSETTO}_t$ and $\Delta\text{PROFITMGN}_t$ to control for changes in firm performance. ASSETO means a firm's efficiency at using its assets in generating profits and PROFITMGN is how much out of each dollar of sales a company actually keeps in earnings. Both reflect REITs' ability of generating internal funds, indicating that increases in ASSETO and PROFITMGN lead to decreasing demand on external funds. The sign of change in profit margin is predicted to be negative. However, due to the method used to calculate the change in asset turnover, it has impact on both internally financed growth and total growth. The sign of changes in asset turnover is unpredictable.[14]

(4) Data

Our sample consists of all REITs listed on Tokyo Stock Exchange and Singapore Stock Exchange between 2002 and 2012, including 45 J-REITs and 46 S-REITs. To avoid survival bias, we include all active, suspended and delisted REITs in our sample. After removing the firm-years with missing data, we have 417 firm-year observations in our final sample comprising 40 J-REITs and 33 S-REITs. Data of all variables is obtained from Datastream.

5. Empirical Results

(1) Descriptive Statistics

[Insert Table 1]

Table 1 reports the summary statistics of all variables applied in our model. The average rates of growth financed by all external funds, both long-term debt and equity, and all equity are 0.146, 0.142, and 0.125, respectively. Ghosh and Sun (2013) report that the proportions of years in which EFG_IG, EFG_SFG and EFG_SG are greater than zero in three consecutive years are 73.3%, 69% and 56.5% for the U.S. REITs which is larger than the reported proportions for the industrial firms in Khurana et al. (2006). To make them comparable, we also use the same measure to calculate the proportions for our Asian sample. We find 81% of REITs in our sample grow relying on external financing, 80% on long-term debt and equity

issue and 77.3% on equity financing. The larger percentages in our sample are consistent with the growth-by-acquisition strategy of Asian REITs so that rely more heavily on external capital markets to fund growth compared to U.S REITs.

Comparing the average mandatory dividends (MANDIVRATE) between our sample and the U.S. REITs, our mean value is 0.025 which is less than the reported mean values of the U.S. REITs in Boudry (2011) and Ghosh and Sun (2013) (both 0.033). The average discretionary dividends (EXDIV) of our full sample is 0.002, suggesting that in general discretionary dividend payments account for 0.2% of a REIT's total assets.[15] The reported average discretionary dividend of the U.S. REITs is 0.6% in Hardin and Hill (2008) and 0.5% in Ghosh and Sun (2013) which are larger than our Asian sample.

The average EXFFO of 0.021 is comparable with Hardin and Hill (2008) and Ghosh and Sun (2013). However, The Tobin's Q of our sample is 0.89 which is also less than 1.258 which is reported in Ghosh and Sun (2013), suggesting a better performance and growth momentum in the U.S. REIT market. The average leverage ratio (LEV) of our sample is less than that of the U.S REITs (0.378 vs. 0.519) indicating that in general the U.S. REITs borrow more than their Asian counterparts to fund investments. The average market capitalization (MKTCAP) of our sample is US$1068 million which is smaller than the U.S. REITs of US$1732. The average ROA is 0.035, indicating that 0.035 dollars of earnings they derive from each dollar of assets under their control. The average of total changes in debt and equity (FIN) for Asian REITs is 0.154. The average changes in asset turnover (ΔASSETTO) and profit margin (ΔPROFITMGN) of our sample is 0.012 and 0.005, respectively which are larger than that of the U.S. sample in Ghosh and Sun (2013) (0 and -0.004), indicating that the ability of J-REITs and S-REITs to generate revenues from their assets and control the costs incurred to generate revenues are both greater than the U.S. REITs.

[Insert Table 2]

Table 2 presents the descriptive statistics by year and by property type in panels A and B, respectively. The number of REITs in our sample gradually increases until 2008 before several J-REITs merged between 2009 and 2010 for synergy effects to overcome financial distress. The 2008 global financial crisis spread to Asian real estate markets. As a sector whose underlying assets are real estate properties, REITs are inevitably affected by this crisis. Also in 2008 the overall market capitalization reached the bottom level. From the growth relevant variables, we can also find a relatively slower growth situation during this period. Mandatory dividends present a slightly drop down due to the depression. The averages of discretionary dividend payments were negative in their initial years of establishing while

became to be positive since 2007. During financial crisis the cost of external financing rises sharply. The figures show that REITs distribute more dividends in challenging times to get better access to capital markets. Other financial variables, such as excess FFO, asset turnover rate, and profit margin also show a trend of fluctuated performance over the period of financial crisis.

Panel B demonstrates the variable averages of our sample by seven property types. Up to 27.6% of the observations in our sample are office properties, followed by retail and diversified properties while only 10 observations in our sample holding health care properties.[16] Consistent with the U.S. REITs in Ghosh and Sun (2013), the average growth rates and the reliance on external funds among different property types are quite different. As a whole, industrial properties in general show the highest growth rates and more dependent on external financing. Following industrial properties, retail and housing properties also have higher growth rates. Diversified properties experience the lowest externally financed growth while health care properties have the slowest growth rates in assets and only fund investment by external channels. In spite of this, health care properties pay the highest mandatory dividends to their shareholders and their discretionary dividend payments are also higher, just following industrial and retail properties. Housing is the sector paying the least dividends.

(2) Correlation

[Insert Table 3]

Table 3 reports the pairwise correlation between independent variables in discretionary dividends and externally financed growth equations in our model.[17] As shown in panels A and B, the correlation coefficients between independent variables are ranging from 0.65 to -0.51 in dividend equation and 0.62 to -0.27 in growth equation. All of the correlations are less than the 0.80 threshold suggested by Judge et al. (1980). Therefore, there are no serious multicollinearity problems in this model.

(3) Regressions

[Insert Table 4]

Table 4 reports the pooled and cross-sectional 2SLS estimates of the SEM model in panels A and B, respectively. The instrumental variables are all exogenous variables in either equation. Three different measures of externally financed growth (EFG_IG, EFG_SFG, and EFG_SG) are applied and the regression estimates are shown in respective columns.

Panel A reports 2SLS estimates of discretionary dividend equation. The most important

relationship in discretionary dividend equation is the relationship between discretionary dividend payments and factors implying agency costs. The results confirm that paying discretionary dividends is a way to reduce agency costs. First, lagged excess FFO and the change in excess FFO are positively related to discretionary dividend payments at the 10% and 1% level of significance, respectively. More dividend distribution would be forced to mitigate the increased potential agency costs associated with free cash flows, indicating the role of discretionary dividend payments in reducing agency costs. Second, the relation between leverage ratio and discretionary dividends is significantly negative at the 10% level. It means that for REITs with more monitoring from capital markets due to higher leverage ratio have less demand to distribute their earnings to shareholders to reduce agency costs. These findings are consistent with hypothesis 1.

Some important features of discretionary dividends in Asian REITs should also be noted. First, growing REITs are more likely to distribute more dividends as the results show that externally financed growth is significantly positively related to discretionary dividend payments. Second, consistent with the U.S. REITs, discretionary dividends are serially correlated and mandatory dividend payments have a significantly negative relation with discretionary dividends. Third, the relationship between asset turnover ratio and dividends is significantly positive which is contrary to the findings of Ghosh and Sun (2013) on the U.S. REITs. It means high efficient REITs tend to pay more dividends. Fourth, REITs investing in industry and healthcare properties distribute more discretionary dividends than other types.

Panel B reports pooled 2SLS estimates of externally financed growth equation. As expected, discretionary dividend payments are significantly positively related to externally financed growth at the 1% level. It means for Asian REITs paying more discretionary dividends to shareholders grow faster by external financing which is consistent with our hypothesis 2. Combining this with finding from discretionary dividend equation, it ensures that discretionary dividend payments indeed enhance firm growth and it can be attributed to the substitution role of paying discretionary dividends in reducing agency costs.

In this equation, we control for Tobin's Q, firm size, the change in debt and equity (FIN), the change in profit margin (△PROFITMGN), and the change in asset turnover (△ASSETTO). All the control variables are significant but △ASSETTO. First, Q is negatively related to external growth which is inconsistent with our expectation. As a proxy for investment opportunity, larger Q doesn't mean higher realized growth. Second, size is significantly positively related to external growth, indicating that larger REITs have more

access to external markets and thus experience higher externally financed growth. Third, the change in debt and equity is significantly positive. It indicates that better access to external financing leads to higher externally financed growth. Fourth, contrary to our prediction, the coefficient of the change in profit margin is positive and significant at the 10% level, indicating that REITs with improvements in profits experience higher externally financed growth. It can be interpreted as although these REITs have more internal capital available, they still choose external funds to fund growth.

[Insert Table 5]

Table 5 reports cross-sectional 2SLS estimates of the SEM model and provides further support to our hypotheses. Excess FFO is insignificant in these cross-sectional regressions, but leverage ratio is more significant (5%) than in pooled regressions (10%). Discretionary dividends are positively related to firm growth at the 1% level. It also shows strong evidence that paying discretionary dividends acts as a means of reducing agency costs and enhances externally financed growth. When ignoring the time-varying effects, REITs with industrial, office and diversified properties are more likely to distribute more discretionary dividends.

In summary, our findings are consistent with hypotheses that paying discretionary dividends enhances externally financed growth of REITs by reducing agency costs. It provides evidence from non-U.S. REIT markets to support the findings of Ghosh and Sun (2013).

6. Sensitivity analysis

We test the robustness of our regression results by changing some of the particular of our procedures. To ensure the sample size is larger, the data we use in our regressions so far are annual data without any constraints. It may have outlier issue and selection bias. We re-estimate the model by taking three-year averages of all regression variables to remove the issues. After this restriction, the final sample has 144 less firm-year observations and 6 less unique REITs. The unreported results show that with three-year averages, the coefficients on discretionary dividends are positive and greater than those without such restriction. It indicates that for the excluded REITs without three-year consecutive life, paying discretionary dividends to shareholders has less positive effects on firm growth than sustainable REITs. The results of this specification are similar to those reported in Tables 4 and 5 and our results provide supportive evidence on the relationship between dividend payments and externally financed growth.

[Insert Table 6]

Our results confirm a significantly positive relationship between discretionary dividend payments and externally financed growth and it can be attributed to the effect of paying dividends in reducing agency costs. To check the robustness of our findings, we make further tests by dividing our sample into high and low agency cost groups. If our findings are robust, we expect that the sensitivity of externally financed growth to discretionary dividend payments is greater for REITs identified as with high agency costs.

We use Tobin's Q-excess FFO interaction as a proxy for agency costs. Tobin's Q is used to measure the investment opportunity of a REIT and excess FFO presents its free cash flows. Those with less investment opportunities and high free cash flows are classified into the high agency cost group. A Tobin's Q dummy variable is constructed which takes the value of 1 if the REIT's Tobin's Q is less than one and zero otherwise. It means that the REIT has less investment opportunity when the Q dummy is 1. We partition our sample by the product of this dummy variable multiply by excess FFO and then the high agency cost group can be identified. A REIT is divided into high agency cost subsample if the result is greater than sample median and low otherwise.

The regression estimates are reported in Table 6. The high agency cost group shows larger coefficients on discretionary dividends with higher significance, indicating that the growth of REITs with higher potential agency costs is more sensitive to dividend payments. It suggests that when suffering higher external financing costs, REITs manage dividend policy to facilitate their access to capital markets to fund growth. This is also consistent with our hypotheses.

7. Conclusions

Conflicts between managers and shareholders and the resultant costs have been shown to weaken the ability of a firm to seek potentially profitable investments since high agency costs increase the cost of external financing, and this is especially true for REITs. Since they are required to pay a high proportion of their income in mandated dividends, REITs rely heavily on external capital markets to fund acquisitions and therefore can benefit if they reduce agency costs and the resultant costs associated with external financing. Paying dividends in excess of mandatory level is one way to mitigate agency costs and improve the ability of REITs to fund their growth opportunity. Therefore, discretionary dividend payments can positively impact REITs' growth through reducing agency costs and improving access to lower cost external financing.

We investigate this notion by examining the relationship between discretionary dividend

payments of REITs and their growth. Specifically, we apply a simultaneous equation model to describe the association between discretionary dividends and externally financed growth. We estimate discretionary dividend as the difference between total cash dividend payments and 90 percent of before tax net income. Externally financed growth is computed as the rate of growth in assets exceeding the growth that can be obtained by relying strictly on all their internal funds, the short-term debt, and total debt, respectively.

We extend the existing literature on dividend policy of REITs by using an Asian sample. From the pooled and cross-sectional 2SLS regressions, we find a significantly positive relation between externally financed growth and discretionary dividends, indicating that paying dividends in excess of the mandatory level enhances access to external markets and firm growth. We also find a significantly positive relation between discretionary dividends and factors implying agency costs, which suggests the role of discretionary dividend payments in reducing agency costs and ensures that the effect of discretionary dividends on firm growth can be attributed to the reduced agency costs by paying discretionary dividends.

Notes

1 Prior to 2001, the U.S. REITs were required to pay at least 95% of their taxable income in dividends in order to avoid taxation. For most Asian REIT markets, such as Japan and Singapore, the percentage is 90%.

2 Besides the allocation function of capital markets, Tadess (2004) also finds theory and international evidence that the financial system Uprovides investors a variety of mechanisms for monitoring inside decision makers and helps mitigate the various agency problems of firms.

3 Since Wang et al. (1993) first present that tax regulations are not the only reason for REITs paying dividends and REITs often distribute dividends in excess of required levels, some studies have investigated the determinants of the discretionary dividends of the U.S. REITs. See Hardin and Hill (2008), Boudry (2011), Chou et al. (2013), and Lee and Chiu (2010).

4 In the U.S., taxable income is estimated from mandatory disclosures under SFAS 109, however, Hanlon (2003) and Lisowsky (2009) argue that the common method of estimating the taxable income used in literature is likely to be inaccuracy except for the simplest corporate structures. This issue also exists in the U.S. REITs as stated in Boudry (2011). For Asian REITs, the disclosure of taxable income is also not mandatory and we can only estimate it approximately by available data.

5 The Link REIT listed in Hong Kong is managed internally. Under this structure, the trust owns the assets and the management company.

6 Although the REIT is a completely separate listed entity, the sponsor is often still very connected to the operations and cash flow of a REIT. It is very common for the manager and the property manager to be wholly owned subsidiaries of the sponsor. Therefore, the sponsor captures the entire fee stream paid by the REIT to the manager. The sponsor can also have large shareholders in the REIT, which not only allows it to retain interest in the underlying cash flows of the properties but also gives it significant control.

7 The externally financed growth is measured by using the ”percentage of sales” approach to financial planning and under the assumptions that (1) the ratio of assets used in production to sales is constant; (2) the profit rate per unit of sales is constant; and (3) the economic depreciation equals the depreciation amount reported in the firm’s financial statements.

8 The method to measure the constrained growth rate driven by total debt (SG) is developed by Ghosh and Sun (2013).

9 In Demirguc-Kunt and Maksimovic (1998) (2002), Khurana et al. (2006) and Ghosh and Sun (2013), they use the proportion of years in which EFG_IG, EFG_SFG, and EFG_SG are greater than zero in three consecutive years to reduce the effect of outliers. In order to avoid the substantial decrease of sample size, we use EFG_IG, EFG_SFG and EFG_SG directly as dependent variables in our model and it is consistent with the calculation of other variables used in our model.

10 we follow Ghosh and Sun (2013) to calculate SFG, which is more suitable for REITs. The definition of SFG in their paper takes payout ratio into consideration. However, in Demirguc-Kunt and Maksimovic (1998) (2002) and Khurana et al. (2006), they assume the payout ratio is zero.

11 In Ghosh and Sun’s (2013) model, they did not include the endogenous variable EFG_t as an independent variable in discretionary dividend equation. It ignores the bi-directional causality between discretionary dividend payments and externally financed growth. Our results confirm this bi-directional causality.

12 ROA is excluded from the dividend equation in Ghosh and Sun (2013) as the Spearman rank correlation between ROA and mandatory dividend is close to 1 with their sample. In Wang et al. (1993) and Ghosh and Sirmans (2006), and Hardin and Hill (2008), they all obtain an inverse relation between dividend payments and ROA.

13 This classification is from Bloomberg.

14 Change in asset turnover in this paper is calculated as the annual change in total revenue divided by total assets.

15 The negative minimum discretionary dividend shows that the EXDIV is only estimated approximately.

16 Actually, none J-REITs invested in health care properties in our sample. All these 10 health care observations are from Singaporean market.

17 Only the correlations between EFG_IG and other independent variables in dividend equation are reported in Table 3 due to limited space. The unreported correlations of EFG_SFG and EFG_SG with other independent variables also satisfy the argument of Judge et al. (1980) that the spearman rank correlation should not be lower than 0.8.

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Table 1. Descriptive statistics

Variables	Mean	Median	Max.	Min.	Std.	N
MKTCAP	1068135	695119	7290333	29711	1138561	417
GROWTH	0.166	0.151	0.934	-0.150	0.161	417
EFG_IG	0.146	0.132	0.912	-0.358	0.166	417
EFG_SFG	0.142	0.127	0.887	-0.440	0.170	417
EFG_SG	0.125	0.115	1.211	-1.019	0.197	417
MANDIVRATE	0.025	0.024	0.069	0.000	0.011	417
ΔMANDIVRATE	0.004	0.004	0.051	-0.054	0.009	417
EXDIV	0.002	0.001	0.112	-0.035	0.012	417
LAGEXDIV	0.000	0.000	0.112	-0.050	0.015	417
EXFFO	0.021	0.013	0.285	-0.022	0.031	417
ΔEXFFO	0.004	0.002	0.272	-0.230	0.035	417
LAGEXFFO	0.020	0.013	0.285	-0.040	0.029	417
Q	0.890	0.868	2.002	0.360	0.228	417
LEV	0.378	0.383	0.600	0.000	0.111	417
SIZE	5.822	5.842	6.863	4.473	0.447	417
ASSETTO	0.067	0.067	0.154	0.013	0.017	417
ROA	0.035	0.028	0.268	-0.138	0.042	417
FIN	0.154	0.140	0.892	-0.616	0.159	417
ΔPROFITMGN	0.005	0.004	0.085	-0.088	0.012	417
ΔASSETTO	0.012	0.011	0.079	-0.070	0.015	417

This table presents the descriptive statistics of our sample from 2003 to 2012 which consists of 417 observations from J-REITs and S-REITs. MKTCAP is the market capitalization in U.S. dollars. GROWTH is the growth rate of total assets. EFG_IG, EFG_SFG and EFG_SG are the difference between growth rate in assets and three relevant benchmark growth rates. MANDIVRATE is 90% of before tax net income divided by total assets. ΔMANDIVRATE is the change in mandatory dividends divided by total assets. EXDIV is the discretionary dividend payments, defined as the difference between total cash dividends paid and 90% of before tax net income, divided by total assets. LAGEXDIV is the prior year's discretionary dividends divided by prior year's total assets. EXFFO is the amount of funds from operations, defined as net income excluding profits from the sale of properties, plus depreciation and amortization, exceeding mandatory dividend payments, scaled by total assets. LAGEXFFO is prior year's FFO, less the mandatory dividend payments, all divided by prior year's total assets. ΔEXFFO is the excess FFO in the current year less prior year's excess FFO, scaled by current year's total assets. Q is measured as the sum of market capitalization, total debt and preferred equity, scaled by total assets. SIZE is the nature logarithm of market capitalization. LEV is the leverage ratio, measured as total debt to total assets. ASSETTO is asset turnover, computed as total revenue divided by total assets. ROA is return on assets, calculated as net income available to shareholders divided by total assets. FIN is the sum of the change in total debt and the change in common equity, all divided by total assets. ΔPROFITMGN is the change in profit margin, computed as the change in net income scaled by total revenue. ΔASSETTO is the change in asset turnover, computed as the annual change in total revenue divided by total assets.

Table 2 Descriptive statistics by year and property type

Panel A. Descriptive statistics by year

Variables	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
N	7	12	18	29	48	62	61	58	59	63
MKT	837269	988123	1387543	1286266	1255788	707934	757134	970653	1183875	1411352
GROWTH	0.222	0.384	0.277	0.120	0.263	0.186	0.125	0.075	0.187	0.118
EFG_IG	0.198	0.368	0.249	0.099	0.226	0.163	0.108	0.058	0.176	0.103
EFG_SFG	0.197	0.364	0.246	0.097	0.217	0.156	0.103	0.055	0.173	0.099
EFG_SG	0.184	0.353	0.215	0.080	0.181	0.161	0.089	0.035	0.160	0.079
MANDIVRATE	0.029	0.028	0.027	0.025	0.025	0.026	0.024	0.025	0.024	0.024
ΔMANDIVRATE	0.001	0.010	0.008	0.003	0.008	0.006	0.001	0.003	0.003	0.003
EXDIV	-0.006	-0.004	-0.001	-0.001	0.000	0.002	0.005	0.002	0.006	0.003
LAGEXDIV	-0.023	-0.007	-0.009	-0.006	-0.007	-0.003	0.002	0.007	0.006	0.006
EXFFO	0.017	0.011	0.026	0.018	0.033	0.024	0.021	0.017	0.016	0.017
LAGEXFFO	0.019	0.015	0.013	0.020	0.013	0.026	0.022	0.021	0.018	0.018
ΔEXFFO	0.003	0.001	0.016	0.001	0.022	0.003	0.002	-0.003	0.001	0.000
Q	1.056	1.057	1.113	1.119	1.118	0.769	0.742	0.825	0.826	0.878
SIZE	5.844	5.874	6.046	5.964	5.890	5.621	5.609	5.780	5.906	5.991
LEV	0.295	0.361	0.351	0.348	0.381	0.397	0.376	0.380	0.381	0.389
ASSETTO	0.068	0.068	0.066	0.065	0.064	0.068	0.071	0.068	0.068	0.066
ROA	0.031	0.029	0.044	0.044	0.056	0.021	0.008	0.036	0.045	0.047
FIN	0.206	0.348	0.261	0.114	0.252	0.159	0.110	0.079	0.176	0.110
ΔPROFITMGN	0.001	0.011	0.009	0.004	0.009	0.005	0.002	0.004	0.003	0.004
ΔASSETTO	0.006	0.025	0.018	0.009	0.022	0.018	0.011	0.003	0.011	0.007

Panel B. Descriptive statistics by property type

Variables	Housing	Retail	Office	Industrial	Hotel	Health	Diversified
N	65	78	115	53	18	10	78
MKT	410577	1591378	1594693	864987	599317	484735	637543
GROWTH	0.178	0.176	0.154	0.179	0.142	0.150	0.163
EFG_IG	0.152	0.169	0.130	0.175	0.128	0.150	0.126
EFG_SFG	0.143	0.169	0.126	0.173	0.125	0.150	0.117
EFG_SG	0.151	0.164	0.101	0.166	0.117	0.150	0.073
MANDIVRATE	0.022	0.026	0.022	0.031	0.027	0.045	0.023
ΔMANDIVRATE	0.005	0.004	0.003	0.007	0.003	0.009	0.004
EXDIV	-0.002	0.003	0.002	0.010	0.000	0.002	0.000
LAGEXDIV	-0.004	0.001	0.000	0.012	-0.002	-0.002	-0.003
EXFFO	0.022	0.010	0.025	0.013	0.014	0.002	0.033
LAGEXFFO	0.022	0.010	0.023	0.013	0.013	0.004	0.029
ΔEXFFO	0.003	0.002	0.004	0.002	0.002	-0.002	0.008
Q	0.792	0.885	0.959	0.923	0.889	0.895	0.851
SIZE	5.446	6.057	6.043	5.772	5.588	5.587	5.693
LEV	0.434	0.289	0.410	0.344	0.353	0.232	0.422
ASSETTO	0.071	0.066	0.063	0.074	0.059	0.066	0.070
ROA	0.022	0.051	0.031	0.047	0.038	0.070	0.026
FIN	0.163	0.158	0.142	0.171	0.138	0.142	0.154
ΔPROFITMGN	0.005	0.005	0.003	0.007	0.003	0.010	0.005
ΔASSETTO	0.016	0.011	0.010	0.016	0.010	0.013	0.013

This table presents the variable averages of our sample by year in panel A and by property type in panel B, respectively. MKTCAP is the market capitalization in U.S. dollars. GROWTH is the growth rate of total assets. EFG_IG, EFG_SFG and EFG_SG are the difference between growth rate in assets and three relevant benchmark growth rates. MANDIVRATE is 90% of before tax net income divided by total assets. ΔMANDIVRATE is the change in mandatory dividends divided by total assets. EXDIV is the discretionary dividend payments, defined as the difference between total cash dividends paid and 90% of before tax net income, divided by total assets. LAGEXDIV is the prior year's discretionary dividends divided by prior year's total assets. EXFFO is the amount of funds from operations, defined as net income excluding profits from the sale of properties, plus depreciation and amortization, exceeding mandatory dividend payments, scaled by total assets. LAGEXFFO is prior year's FFO, less the mandatory dividend payments, all divided by prior year's total assets. ΔEXFFO is the excess FFO in the current year less prior year's excess FFO, scaled by current year's total assets. Q is measured as the sum of market capitalization, total debt and preferred equity, scaled by total assets. SIZE is the nature logarithm of market capitalization. LEV is the leverage ratio, measured as total debt to total assets. ASSETTO is asset turnover, computed as total revenue divided by total assets. ROA is return on assets, calculated as net income available to shareholders divided by total assets. FIN is the sum of the change in total debt and the change in common equity, all divided by total assets. ΔPROFITMGN is the change in profit margin, computed as the change in net income scaled by total revenue. ΔASSETTO is the change in asset turnover, computed as the annual change in total revenue divided by total assets.

Table 3. Correlation matrix

Panel A. Independent variables in discretionary dividend equation

	EFG_IG	LAGEXDIV	LAGEXFFO	ΔEXFFO	MANDIVRATE	ΔMANDIVRATE	Q	SIZE	LEV	ASSETTO	ROA
EFG_IG	1.00										
LAGEXDIV	-0.05	1.00									
LAGEXFFO	-0.12	0.05	1.00								
ΔEXFFO	-0.11	-0.14	-0.51	1.00							
MANDIVRATE	-0.14	-0.03	-0.07	0.07	1.00						
ΔMANDIVRATE	0.23	0.01	-0.20	0.22	0.52	1.00					
Q	0.08	-0.04	-0.04	0.14	0.27	0.14	1.00				
SIZE	0.05	0.15	-0.07	0.02	0.13	0.05	0.58	1.00			
LEV	0.00	0.01	0.20	0.05	-0.42	-0.11	-0.03	-0.16	1.00		
ASSETTO	-0.29	0.03	-0.02	0.08	0.65	0.25	0.07	0.02	-0.16	1.00	
ROA	0.35	0.12	-0.14	0.04	0.26	0.19	0.17	0.23	-0.24	-0.04	1.00

Panel B. Independent variables in externally financed growth equation

	EXDIV	Q	SIZE	FIN	ΔPROFITMGN	ΔASSETTO
EXDIV	1.00					
Q	-0.01	1.00				
SIZE	0.08	0.58	1.00			
FIN	-0.06	0.14	0.04	1.00		
ΔPROFITMGN	-0.27	0.13	0.04	0.19	1.00	
ΔASSETTO	-0.05	0.09	-0.07	0.40	0.62	1.00

This table presents correlations between the independent variables in two equations respectively in panels A and B. EFG_IG is the difference between growth rate in assets and growth rates achieved by all internal funds. MANDIVRATE is 90% of before tax net income divided by total assets. ΔMANDIVRATE is the change in mandatory dividends divided by total assets. EXDIV is the discretionary dividend payments, defined as the difference between total cash dividends paid and 90% of before tax net income, divided by total assets. LAGEXDIV is the prior year's discretionary dividends divided by prior year's total assets. EXFFO is the amount of funds from operations, defined as net income excluding profits from the sale of properties, plus depreciation and amortization, exceeding mandatory dividend payments, scaled by total assets. LAGEXFFO is prior year's FFO, less the mandatory dividend payments, all divided by prior year's total assets. ΔEXFFO is the excess FFO in the current year less prior year's excess FFO, scaled by current year's total assets. Q is measured as the sum of market capitalization, total debt and preferred equity, scaled by total assets. SIZE is the nature logarithm of market capitalization. LEV is the leverage ratio, measured as total debt to total assets. ASSETTO is asset turnover, computed as total revenue divided by total assets. ROA is return on assets, calculated as net income available to shareholders divided by total assets. FIN is the sum of the change in total debt and the change in common equity, all divided by total assets. ΔPROFITMGN is the change in profit margin, computed as the change in net income scaled by total revenue. ΔASSETTO is the change in asset turnover, computed as the annual change in total revenue divided by total assets.

Table 4. Pooled 2SLS estimation

Panel A. Estimates of discretionary dividend equation

Variables	Predicted sign	EFG_IG			EFG_SFG			EFG_SG		
		Coefficient		t-Statistic	Coefficient		t-Statistic	Coefficient		t-Statistic
INTERCEPT		0.006		0.764	0.006		0.779	0.003		0.412
EFG	(+)	0.008	**	2.023	0.008	**	2.062	0.013	***	2.877
LAGEXDIV	(+)	0.358	***	10.594	0.358	***	10.612	0.360	***	10.605
LAGEXFFO	(+)	0.033	*	1.660	0.035	*	1.760	0.051	**	2.366
ΔEXFFO	(+)	0.054	***	3.230	0.057	***	3.316	0.076	***	3.872
MANDIVRATE	(-)	-0.303	***	-3.188	-0.300	***	-3.149	-0.276	***	-2.859
ΔMANDIVRATE	(-)	-0.352	***	-5.161	-0.352	***	-5.183	-0.384	***	-5.488
Q	(+/-)	0.003		1.233	0.003		1.224	0.003		1.004
SIZE	(+/-)	-0.001		-0.971	-0.002		-0.988	-0.001		-0.791
LEV	(-)	-0.009	*	-1.664	-0.009	*	-1.648	-0.008		-1.417
ASSETTO	(+/-)	0.171	***	3.962	0.169	***	3.937	0.176	***	4.033
ROA	(+/-)	0.015		1.106	0.015		1.099	0.008		0.545
HOUSING		-0.003		-1.193	-0.003		-1.179	-0.004		-1.371
INDUSTRY		0.005	*	1.852	0.005	*	1.858	0.005	*	1.715
HEALTHCARE		0.007	*	1.817	0.007	*	1.815	0.007	*	1.808
RETAIL		0.001		0.391	0.001		0.399	0.001		0.332
OFFICE		0.000		-0.068	0.000		-0.064	0.000		-0.107
DIVERSIFIED		-0.002		-0.891	-0.002		-0.886	-0.002		-0.888
ADJ. R2		0.380			0.381			0.364		
N		417			417			417		

Panel B. Estimates of externally financed growth equation

Variables	Predicted sign	EFG_IG			EFG_SFG			EFG_SG		
		Coefficient		t-Statistic	Coefficient		t-Statistic	Coefficient		t-Statistic
INTERCEPT		-0.067		-1.302	-0.107	*	-1.894	-0.042		-0.403
EXDIV	(+)	1.605	***	3.138	1.767	***	3.168	2.495	**	2.405
Q	(+)	-0.061	***	-3.091	-0.071	***	-3.274	-0.084	**	-2.096
SIZE	(+/-)	0.020	*	1.902	0.027	**	2.405	0.018		0.841
FIN	(+)	0.939	***	37.259	0.947	***	34.434	0.834	***	16.313
ΔPROFITMGN	(-)	0.762	*	1.747	0.790	*	1.662	1.382		1.563
ΔASSETTO	(+/-)	0.186		0.548	0.060		0.163	-0.017		-0.024
ADJ. R2		0.806			0.778			0.432		
N		417			417			417		

This table reports the pooled 2SLS estimates of both discretionary dividend equation in panel A and externally financed growth equation in panel B, respectively. For each panel, three measures of externally financed growth (i.e. EFG_IG, EFG_SFG, and EFG_SG) are applied. MANDIVRATE is 90% of before tax net income divided by total assets. ΔMANDIVRATE is the change in mandatory dividends divided by total assets. EXDIV is the discretionary dividend payments, defined as the difference between total cash dividends paid and 90% of before tax net income, divided by total assets. LAGEXDIV is the prior year's discretionary dividends divided by prior year's total assets. EXFFO is the amount of funds from operations, defined as net income excluding profits from the sale of properties, plus depreciation and amortization, exceeding mandatory dividend payments, scaled by total assets. LAGEXFFO is prior year's FFO, less the mandatory dividend payments, all divided by prior year's total assets. ΔEXFFO is the excess FFO in the current year less prior year's excess FFO, scaled by current year's total assets. Q is measured as the sum of market capitalization, total debt and preferred equity, scaled by total assets. SIZE is the nature logarithm of market capitalization. LEV is the leverage ratio, measured as total debt to total assets. ASSETTO is asset turnover, computed as total revenue divided by total assets. ROA is return on assets, calculated as net income available to shareholders divided by total assets. HOUSING, INDUSTRY, HEALTHCARE, RETAIL, OFFICE, AND DIVERSIFIED presents different sectors in which the underlying real estate of REITs. FIN is the sum of the change in total debt and the change in common equity, all divided by total assets. ΔPROFITMGN is the change in profit margin, computed as the change in net income scaled by total revenue. ΔASSETTO is the change in asset turnover, computed as the annual change in total revenue divided by total assets. ***, **, and * indicate the significance of coefficient at levels of 1%, 5% and 10% respectively.

Table 5. Cross-sectional 2SLS estimation

Panel A. Estimates of discretionary dividend equation

Variables	Predicted sign	EFG_IG			EFG_SFG			EFG_SG		
		Coefficient		t-Statistic	Coefficient		t-Statistic	Coefficient		t-Statistic
INTERCEPT		0.013		1.157	0.013		1.177	0.011		0.961
EFG	(+)	0.013		0.956	0.013		0.940	0.014		1.123
LAGEXDIV	(+)	0.451	***	11.040	0.451	***	11.043	0.451	***	11.205
LAGEXFFO	(+)	-0.004		-0.106	0.000		-0.004	0.001		0.031
ΔEXFFO	(+)	-0.099		-1.522	-0.094		-1.369	-0.082		-1.161
MANDIVRATE	(-)	-0.254		-1.526	-0.251		-1.484	-0.237		-1.422
ΔMANDIVRATE	(-)	0.050		0.234	0.044		0.202	0.056		0.291
Q	(+/-)	0.007		1.227	0.007		1.201	0.007		1.195
SIZE	(+/-)	-0.002		-0.990	-0.002		-1.008	-0.002		-0.864
LEV	(-)	-0.016	**	-2.250	-0.016	**	-2.216	-0.014	*	-1.883
ASSETTO	(+/-)	0.002		0.031	0.000		0.009	-0.002		-0.035
ROA	(+/-)	0.071	*	1.670	0.072	*	1.701	0.061		1.347
HOUSING		0.003		1.020	0.003		1.044	0.002		0.853
INDUSTRY		0.006	**	2.320	0.006	**	2.338	0.006	**	2.304
HEALTHCARE		0.003		0.843	0.003		0.850	0.003		0.883
RETAIL		0.002		0.830	0.002		0.845	0.002		0.844
OFFICE		0.004	*	1.697	0.004	*	1.702	0.004	*	1.671
DIVERSIFIED		0.005	**	2.023	0.005	**	2.034	0.005	**	2.079
ADJ. R2		0.878			0.878			0.881		
N		73			73			73		

Panel B. Estimates of externally financed growth equation

Variables	Predicted sign	EFG_IG			EFG_SFG			EFG_SG		
		Coefficient		t-Statistic	Coefficient		t-Statistic	Coefficient		t-Statistic
INTERCEPT		-0.073		-1.044	-0.115		-1.402	-0.011		-0.079
EXDIV	(+)	1.611	***	4.476	1.799	***	4.275	3.130	***	4.406
Q	(+)	-0.115	***	-3.356	-0.122	***	-3.054	-0.140	**	-2.072
SIZE	(+/-)	0.031	**	2.171	0.040	**	2.341	0.023		0.789
FIN	(+)	0.818	***	9.449	0.791	***	7.810	0.799	***	4.673
ΔPROFITMGN	(-)	4.135	***	2.850	4.520	***	2.664	4.184		1.461
ΔASSETTO	(+/-)	-0.781		-0.667	-0.971		-0.709	-1.776		-0.768
ADJ. R2		0.739			0.674			0.448		
N		73			73			73		

This table reports the cross-sectional 2SLS estimates of both discretionary dividend equation in panel A and externally financed growth equation in panel B, respectively. For each panel, three measures of externally financed growth (i.e. EFG_IG, EFG_SFG, and EFG_SG) are applied. MANDIVRATE is 90% of before tax net income divided by total assets. ΔMANDIVRATE is the change in mandatory dividends divided by total assets. EXDIV is the discretionary dividend payments, defined as the difference between total cash dividends paid and 90% of before tax net income, divided by total assets. LAGEXDIV is the prior year's discretionary dividends divided by prior year's total assets. EXFFO is the amount of funds from operations, defined as net income excluding profits from the sale of properties, plus depreciation and amortization, exceeding mandatory dividend payments, scaled by total assets. LAGEXFFO is prior year's FFO, less the mandatory dividend payments, all divided by prior year's total assets. ΔEXFFO is the excess FFO in the current year less prior year's excess FFO, scaled by current year's total assets. Q is measured as the sum of market capitalization, total debt and preferred equity, scaled by total assets. SIZE is the nature logarithm of market capitalization. LEV is the leverage ratio, measured as total debt to total assets. ASSETTO is asset turnover, computed as total revenue divided by total assets. ROA is return on assets, calculated as net income available to shareholders divided by total assets. HOUSING, INDUSTRY, HEALTHCARE, RETAIL, OFFICE, AND DIVERSIFIED presents different sectors in which the underlying real estate of REITs. FIN is the sum of the change in total debt and the change in common equity, all divided by total assets. ΔPROFITMGN is the change in profit margin, computed as the change in net income scaled by total revenue. ΔASSETTO is the change in asset turnover, computed as the annual change in total revenue divided by total assets. ***, **, and * indicate the significance of coefficient at levels of 1%, 5% and 10% respectively.

Table 6. Pooled estimation of growth equation: high and low agency cost groups

Panel B. Estimates of externally financed growth equation

Variables	EFG_IG				EFG_SFG				EFG_SG			
	High		Low		High		Low		High		Low	
INTERCEPT	-0.104		-0.096	*	-0.169	*	-0.111	*	-0.071		-0.169	*
	(-1.112)		(-1.694)		(-1.652)		(-1.852)		(-0.374)		(-1.830)	
EXDIV	5.068	***	0.741	*	5.652	***	0.799	*	6.963	**	1.450	**
	(3.186)		(1.849)		(3.265)		(1.878)		(2.149)		(2.221)	
Q	0.092		-0.135	***	0.091		-0.152	***	0.186		-0.249	***
	(1.393)		(-6.824)		(1.269)		(-7.197)		(1.382)		(-7.716)	
SIZE	0.002		0.037	***	0.012		0.042	***	-0.017		0.066	***
	(0.118)		(3.303)		(0.577)		(3.529)		(-0.430)		(3.567)	
FIN	0.931	***	0.979	***	0.949	***	0.979	***	0.711	***	1.016	***
	(19.552)		(36.682)		(18.301)		(34.555)		(7.328)		(23.368)	
ΔPROFITMGN	1.484		-0.074		1.463		-0.070		2.136		-0.166	
	(1.619)		(-0.146)		(1.467)		(-0.129)		(1.144)		(-0.201)	
ΔASSETTO	-0.241		0.774	*	-0.400		0.745	*	-0.267		0.600	
	(-0.405)		(1.857)		(-0.619)		(1.683)		(-0.220)		(0.883)	
ADJ. R2	0.682		0.898		0.647		0.886		0.161		0.780	
N	208		209		208		209		208		209	

This table reports the pooled 2SLS estimates of externally financed growth equation. our sample are divided into two agency cost groups based on the interaction between Tobin's Q and excess FFO. Three measures of externally financed growth (i.e. EFG_IG, EFG_SFG, and EFG_SG) are applied. EXDIV represents discretionary dividends payment which is defined as the difference between total cash dividends paid and 90% of before tax net income, divided by total assets. Q is measured as the sum of market capitalization, total debt and preferred equity, scaled by total assets. SIZE is the nature logarithm of market capitalization. FIN is the sum of change in total debt and change in common equity divided by total assets. FIN is the sum of the change in total debt and the change in common equity, all divided by total assets. ΔPROFITMGN is the change in profit margin, computed as the change in net income scaled by total revenue. ΔASSETTO is the change in asset turnover, computed as the annual change in total revenue divided by total assets. T-statistics are shown in the parentheses below the coefficients. ***, **, and * indicate the significance of coefficient at levels of 1%, 5% and 10% respectively.