Financial Flexibility and Security Issuance Decisions

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Abstract

This paper examines the roles of financial flexibility in firms' security issuance decisions. Focusing on Asian Real Estate Investment Trusts (REITs) that are subject to regulatory debt limit, we construct a direct proxy to financial flexibility measured as the difference between debt limit and actual debt ratio. This unused debt capacity or buffer measures financial flexibility as it indicates how much additional debt a REIT can issue. REITs maintain significant debt buffer in their balance sheet which equals to 25% of the total assets. This buffer has been relatively stable during the 10 years study period indicating a conservative debt policy being adopted by REITs in our sample. Controlling for investment policy, we find that REITs' security issuance decisions are influenced by its debt buffer in a manner consistent with financial flexibilities hypotheses where REITs with larger (smaller) unused debt capacity are more likely to issue marginal debt (equity) in the next period. The drop in debt buffer due to marginal debt issuance is swiftly replenished in the following six months period after the issuance.

Keywords: Financial Flexibility, Debt Buffer, Security Issuance, Capital Structure, REITs
JEL Classification: G32 G35

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1. Introduction

Financial flexibility has become a popular topic in the finance literature since the publication of Graham and Harvey (2001)'s influential survey paper on the practice of corporate finance by top executives in the U.S. The respondents who comprising 329 chief finance officers gave a resounding approval to the important roles of financial flexibility in firm capital structure decisions outranks other traditional considerations such as tax benefits, default costs, and information asymmetric.[2] A firm is considered to be financially flexible if it has sufficient financial slack to withstand liquidity or production shock, easy access to external capital market and is able to move quickly to take up the investment opportunity when it arises. Financial flexibility is therefore analogous to a financial option that allow firm to react to future contingency or unexpected outcome without much distortions (Byoun, 2011). In fact, the literature has established the value of financial flexibility in term of reducing investment distortions (Marchira and Mura, 2010; Jong, Verbeek and Verwijmeran, 2012), increases firm value (Gamba and Triantis, 2006) and lead to a better performance during the crisis periods (Arslan, Florackis and Ozlan, 2014)

Despite being recognized as one of the most important determinants of capital structure choices, empirical evidence on the relevance of financial flexibility in firm capital structure is relatively scarce. This is because financial flexibility is not directly observable. Recent studies have attempted to overcome this issue by estimating the debt capacity from a debt rating regression (see De Jong, Verbeek, and Verwijmeren, 2012). This estimated debt capacity is the cut-off debt ratio above which will substantially increase firm's cost of debt due to increase level of financial distress. The difference between the estimated debt capacity and the actual debt known as debt buffer is used as proxy to financial flexibility. Others resort to indirect approach to measure financial flexibility such as cash holdings (Faulkender and Wang, 2006), leverage ratio (Byoun, 2011) and accessibility to public debts market (Lemmon and Zender, 2010). Allen (2000) adopts a qualitative approach through field interviews where the responding firms were asked about their debt buffer policy (Allen, 2000).[3] Graham (2000) on the other hand uses the

[2] See Bancel and Mittoo (2004) and Brounen, De Jong and Koedijk (2006) for similar evidences from the European countries.

[3] The author documents that the average debt capacity as a proportion to total debts preserves by firms in their sample are 0.24, 0.45 and 0.94 for Australia, Britain and Japan firms respectively.

kink in the tax benefit function to infer how aggressive firms use debt. Specifically, firms with large untapped tax deductible benefits are considered to be conservative in their debt policy.

In this paper, we propose a direct approach to measure firm's financial flexibility by examining REITs in Asia where debt capacity (limit) is determined exogenously by the regulators. REITs in Singapore, Hong Kong and Malaysia are subject to regulatory debt limit of 60% (35% prior to Nov 2005), 45% and 50% (35% prior to August 2006) of total asset value respectively. Following previous literature, we measure financial flexibility as the company's unused debt capacity or debt buffer, which corresponds to the difference between its regulatory debt limit and its debt ratio. This debt limit is binding since failing to adhere to this regulatory gearing will make REITs lose their tax-exempt status.[4] None of the REITs in our sample breach their debt limit during the 10 years study period. In fact, REITs on average maintain a significant amount of debt buffer which equal to 25% of their total assets. Moreover, this buffer has been relatively stable even during the period of global financial crisis in 2008-9.

The rest of the paper is proceeds as follows. Section 2 reviews the extant literature and describes the institutional background of REITs in Asia. Section 3 develops hypotheses for our empirical study. In section 4, we discuss the data and methodology used in this paper. Section 5 presents empirical results and Section 6 provides conclusions.

2. Institutional Background & Literature review

2.1 REITs Institutional background

REITs were first introduced in the U.S. in 1960s as a passive investment vehicle that invests in the real properties. Asian countries only began to embrace the REIT structure in early 2000 with the first two REITs listed in Japanese markets followed by South Korea, Singapore, Thailand, Taiwan, Malaysia and Hong Kong. As of the end of Dec 2012, there were 145 listed REITs in Asia constitute of US$134.5 billion in market capitalization. Figure 1 tracks the dramatic growth of the REIT market in Asia between 2001 and 2012.

[4] REITs globally are designed as an investment conduit that are exempted from paying corporate taxes as long as they distributed most of their taxable net income (up to 90%) as dividend.

{Figure 1}

Numerous authors have argued that REITs provide a unique laboratory to test the capital structure theories because the key drivers behind the traditional capital structure theories may not be relevant to REITs (Ooi, et al. 2010; Harrison et al. 2011).[5] To begin with, REITs do not pay tax as long as they distributed 90% of their taxable income as dividend. This tax exempt status of REITs essentially muted tax-shield motivation from using debt. According to trade-off theory, REITs should carry zero debt in their balance sheet. The distribution requirement also makes REITs become cash constraints entities that have to repeatedly return to the capital market for funding. The capital market may therefore less sensitive to the adverse selection issues surrounding the equity issuance of REITs than general firms. Moreover, REITs do not enjoy the full financing options as enjoyed by general firms. This renders pecking order's hierarchy of financing choices irrelevant.

2.2 Literature review

Ever since Graham and Harvey (2001), a central question being posed in corporate finance literature is the roles of financial flexibility in firms' capital structure decisions. Graham and Harvey (2001)'s survey shows that although preserving of financial flexibility come to consideration when issue debt, it is not related to factors related to pecking order such as informational asymmetric (size and dividend payout) and growth options. The authors find that financial flexibility is statistically more important for informational insensitive firms (dividend-paying firms) which run contrary to Myers and Majluf (1984)'s pecking order model's prediction.

[5] The finance literature proposes three traditional theories explaining firm's capital structure decisions: (1) trade-off theory; (2) pecking order theory; and market timing theory. The trade-off theory is based on the premise that firm trade-off between the marginal benefits of issuing debts in the form of tax-shield and the marginal costs due to bankruptcy risks (Modigliani and Miller (1958, 1963). The trade-off theory posits that firms have an optimal or target leverage which maximizes the value of the firm. The pecking order theory is based on the premise that there exists information asymmetric between managers and the market. This lead to a pecking order of securities such that firms will issue security in the order of their information sensitivity begins with internal fund, safe debts and reluctantly, equity when firms have used up the other two financing options (Myers and Majluf, 1984). Market timing hypothesis is built on the premise that managers with their superior knowledge over a firm's intrinsic value could strategically time their issuance decisions such that to issue equity when the valuation for firms' stock is high and debt when interest rate is low (Baker and Wurgler, 2002).

Pecking order model posits that firms with lesser information problems have little incentive to maintain financial slack to avoid issuing of information sensitive securities.

Findings from this survey paper cannot be easily verified by empirical tests since debt capacity is unobservable in actual data. Lemmon and Zender (2010) argue that debt capacity is the critical missing link that could possible explain some of the puzzles in capital structure theory. One of these puzzles is that firms on average have less leverage then one would expect based on the traditional trade-off theory. Graham (2000) for instance reports that 44% of U.S. firms are underleveraged. Paradoxically, he finds that firms that use debt conservatively are large, profitable, liquid, in stable industries, and face low ex ante costs of distress large. Graham offers financial flexibility as one of the candidates explaining this anomaly. Empirically, he shows that firms appear to retain significant amount of unused flexibility even after expanding.

Lemmon and Zender (2010) contend that the absence of debt capacity has exposed the existing literature to misclassification of firms with large debt capacity but high leverage as unconstrained firms and those with small capacity but low leverage as constrained firms. This point is illustrates in **Table 1** where Firm A with debt capacity doubles that of Firm B is in fact financially more constrained (0% debt buffer) as compared to Firm B (30% debt buffer) due to its high debt ratio. Existing capital structure theory generally silence on the heterogeneity of individual firms' debt buffer because debt capacity is unobservable.

{Table 1}

De Jong, Verbeek and Verwijmeran (2011) extend the literature by quantifying firms' debt capacity. In particular, they construct a model explaining a firm's credit rating and use this to derive an estimate of the marginal debt ratio that would make a firm lose its investment grade rating and hence substantially increase its cost of debt. They interpret this debt ratio as an estimate for a firm's debt capacity. In a similar vein, Leary and Roberts (2010) and Lemmon and Zender (2010) measure firms' debt capacity based firms' predicted bond rating, i.e. firms in the lowest (highest) 3rd of the distribution of predicted bond rating are classified as firm with low debt capacity (high debt capacity). One drawback from these methods is sample selection bias where the estimated debt capacity is generated from sample of firms with credit rating. It is plausible for some firms to deliberately avoid credit rating for reason beyond financial flexibility.

Using De Jong, Verbeek and Verwijmeran (2011)'s approach to estimate debt capacity, Hess and Immenkotter (2012) show that firms target on preserving financial flexibility provided by debt buffer or unused debt capacity. Specifically, they show that firms close to or beyond their debt capacity are more likely to reduce their leverage in the following period by issuing equity or repurchasing debts. Moreover, debt issues are most common for firms with large debt buffer. The direct link between firms' funding decision and its debt buffer is further echoed by De Jong, Verbeek and Verwijmeren (2012). Though not the focus of their paper, these authors show that unused debt capacity significantly increases firms' likelihood to issue marginal debts.

We attempt to circumvent the unobservability of debt capacity by focusing on REITs in Singapore, Hong Kong and Malaysia that operate under a regulatory debt limit or debt capacity regime. Capitalizing on the exogenously determined debt capacity, we construct a direct measure of firm's unused debt capacity measured as the difference between REIT's regulatory debt limit and the actual debt ratio. This buffer measures financial flexibility as it indicates how much additional debt a firm can issue before it exceeds its debt limit.

3. Hypotheses Development

The main objective of this paper is to show that debt buffer has predictive power for REITs' future financing decisions even after controlling for factors that are commonly associated with future financing decisions. REITs provide a good laboratory tests to the role of financial flexibility due to its financially constraints status. External capital is the life blood for REITs with marginal financing issuance made up of 50.2% of the total observations (to elaborate more in Section 4 of the paper). It is sensible for REIT managers to time their capital raising activities based on their current debt buffer. This is evidenced by *CapitaMall Trust* (CMT), a Singapore REIT, which details in its 2012 annual report how an equity issue (private placement) has improved its debt buffer (headroom) as follows:

> *The private placement in November 2012 improved CMT's financial capacity and flexibility, with gross proceeds of approximately S$250.0 million raised from the issue of 125.0 million new units. The net proceeds, together with part of the amounts raised from fixed rate notes issuances, will be used to refinance CMT's debts due in 2013. This will reduce CMT's aggregate leverage and enhance the trust's debt headroom.*

We hypothesize that controlling for investment policy, debt and equity issuances are motivated by REITs' intention to preserve financial flexibility. This hypothesis is built on DeAngelo, DeAngelo and Whited (2011) (DDW hereafter)'s theoretical model where the cost of leverage not only depend on firms' current capital structure, but also include the opportunity cost of its consequent future inability to borrow. DDW's model suggests that firms increase leverage when facing investment shocks and subsequently reduce leverage in order to reposition themselves for other future investment shocks. Byoun (2011) further argues that DDW's model essentially describes the utilizing and recharging of financial flexibility by firms. In this paper, we provide empirical evidence of how firms preserve, draw down and replenish its financial flexibility over time. Specifically, we develop the following hypotheses for our empirical exercise.

Hypothesis I (Financial Capacity Hypothesis): There is a positive (negative) relation between marginal debt (equity) issues in period t and REIT's debt buffer in period t-1

Hypothesis I is based on the premise that controlling for investment needs in period t, only REITs with sufficient large debt buffer in the preceding period exhibit a higher probability of issuing marginal debt in the following period. REITs with low buffer on the other hand will opt for equity issues to avoid exceed their regulatory debt limit.

Hypothesis II (Financing Drawdown Hypothesis): There is a negative (positive) relation between marginal debt (equity) issues in period t and REIT's debt buffer in period t

Hypothesis II is a straightforward one where marginal debt (equity) issuance in period t, all else equal, will lead to a smaller (larger) debt buffer in the same period controlling for investment needs in period t.

Hypothesis III (Financial Replenish Hypothesis): There is no significant relation between marginal debt (equity) issues in period t and REIT's debt buffer in period t+1

Hypothesis III is based on the premise that controlling for investment needs in period t, REITs will swiftly replenish (utilize) their debt buffer after a marginal debt (equity) issuance. We therefore expect no significant relation between marginal debt (equity) issuance in the current period (t) with next period debt buffer (t+1) for the debt buffer has return to its pre-issue level.

4. Methodology and Data

We employ a multinomial logistic (MNL) model to examine the financing choices of REITs where the dependent variables are represented by four mutually exclusive financing options: (1) debt issuances; (2) equity issuances, (3) dual issuances, and (4) no material financing activities as the base option. Our empirical model is designed as in Harrison et al. (2011) with lagged (*Debt Buffer* $_{t-1}$), contemporaneous (*Debt Buffer* $_{t}$) and lead (*Debt Buffer* $_{t+1}$) debt buffers as our key variables of interest. Equation (1) is used to examine factors that affect a firm's choice of security issuance. See Table 2 for the definitions for the explanatory variables.

$$\begin{aligned} \textit{Financing Choices}_{i\,t} = {} & \beta_0 + \beta_1(\textit{Debt Buffer})_{i\,t-1} + \beta_2(\textit{Debt Buffer})_{i\,t} + \beta_3(\textit{Debt Buffer})_{i\,t+1} \\ & \beta_4(\textit{Asset Tangibility})_{i\,t} + \beta_5(\textit{Asset Growth}) + \beta_6(\textit{Market-to-Book})_{i\,t} + \beta_7(\textit{Firm Size})_{i\,t} + \\ & \beta_8(\textit{Firm Age})_{i\,t} + \beta_9(\textit{Profitability})_{i\,t} + \beta_{10}(\textit{Stock Performance})_{i\,t} + \beta_{11}(\textit{Interest Rate})_{t} + \\ & \beta_{12}(\textit{Credit Crisis})_{t} + \beta_j(\textit{Country Dummies})_{j,t} + \beta_k(\textit{Year Dummies})_{k,,t} + \beta_l(\textit{Property Dummies})_{l\,t} + \varepsilon_{i\,t} \end{aligned} \quad (1)$$

{Table 2}

Follow Harrison et al. (2011), we control for the following traditional capital structure determinants. To the extent that real estate provide more effective collateral for lenders in the case of borrower financial distress, according to trade-off theory, increased use of tangible or long-run fixed assets (*Asset Tangibility*) should be associated with increased debt capacity for firm, thus, increased in firm leverage. Shyam-Sunder and Myers (1999) and Baker and Wurgler (2002) find support for this hypothesis. We control for real estate investment growth (*Asset Growth*) since REITs rely heavily on external financing to finance property acquisitions. We expect this variable to be positively related to marginal security issuances. Several studies documented a negative relationship between a firm's use of financial leverage and *Market-to-*

Book ratio due to market timing reasons (Baker and Wurgler, 2002) or the avoidance debt overhang problem by high growth firms as predicted by pecking order theory (Myers, 1977).[6]

The literature suggests *Firm size* to exert both positive and negative effects on firm's leverage decisions. The former is consistent with the prediction of trade-off theory where increased in size should decreased the bankruptcy costs faced by firms, hence, larger firms, all else equal, should borrow more. The latter is in line pecking order's prediction where larger firms face lower information costs when issue equity. According to perking order theory, *Firm Age* should be associated with a lower use of financial leverage as younger firms are typically more informationally challenged. Both trade-off and perking order theories predict a positive relationship between *Profitability* and leverage. Under the trade-off theory, profitable firms are leveraging up due to the decline in probability of encountering financial distress. Pecking order theory suggests profitable firms will more incline to increase their use if leverage to avoid the negative signal associated with equity issuance.

We also include two market timing variables in the regression.[7] First, firms experiencing significant stock price appreciation (*Stock Performance*) should be characterized by lower leverage, as these firms would be relatively more likely to issue equity than their low appreciation peers. Second, when market interest rates are high, firms should be reluctant to issue long-term fixed-income securities (*Interest Rate*). Lastly, we control for time (*Year*, *Credit Crisis*), *Country* and *Property* fixed effects.

4.1 Data and Sample

The primary data used in this research is an unbalanced panel data of REITs from Singapore, Hong Kong and Malaysia from Bloomberg's database. After dropping firms with missing variables, the final sample comprises 431 firm-semiannual observations from a total of 47 unique REITs over the period 2003-2012. The semiannual data used in this research would better capture the dynamics debt buffer in firms' balance sheet and offer more insights into firms' corporate financing decisions. The following filters were applied so that only material financing

[6] This implies that firms choose to stockpile their debt capacity when growth prospect is high.
[7] Although several papers have shown REITs' Price-to Net Asset Value as a good proxy to market timing theory, we did not this variable in the regression models because of its high correlation with market-to-book ratio.

events are included in the sample of financing activities: the sum involved must, firstly, be larger than US$5 million and constitute more than 5% of the REIT's total assets.

Table 3 shows that between 2003 and 2012, 242 material financing events took place, which represents 50.2% of the firm-semiannuals. This is higher than 41.3% registered by REITs in the U.S. (Ooi et al, 2010). The high frequency of capital raising activities is due to REIT's cash constraints status that makes them repeatedly return to capital market for funding. Equity issues are the predominant form of financing with 122 events outpaced debt issues of 52 events.[8] This runs opposite to REITs in the U.S. where debt financing was found to outpace equity financing as the major source of capital since 1999 (Ooi, Ong and Li, 2010).

{Table 3}

4.2 Debt Buffer Over time

Figure 2 presents the average debt buffer for REITs during June 2003 to December 2012. There was a spike in debt buffer from 4% of total assets in June 2005 to 28% in December 2005. The sudden surge in debt buffer was due to a change in regulatory debt limit in Singapore and Malaysia to 60% (from 35% prior to November 2005) and 50% (from 35% prior to August 2006) respectively.[9] REIT managers in Singapore and Malaysia clearly did not tap into the excess debt capacity following the revision in debt limit. Debt buffer has been relatively stable between 2006 and 2012.[10] Nevertheless, we do observe a small drop in debt buffer during the global financing crisis from 27% in December 2007 (pre-crisis) to 23% in December 2008 (crisis) before reverting back to the pre-crisis level of 37% in December 2009 (post-crisis). This pattern is consistent DDW (2011)'s financial flexibility theory which postulates that managers strive to build, preserve and rebuild their debt capacity during good times to prepare themselves for the rainy days.

{Figure 2}

[8] An exception is year 2008 where total number of debt issues outpaced the equity issues.
[9] We exclude from our regression models observations before credit limit changes.
[10] In an unreported test, we also track the time path of debt buffer for individual REITs since their IPO year to analyze the dynamics of debt buffer adjustment. Consistent with the aggregate find findings in Figure 1 above, REITs' debt buffer is relatively stable up during the first 10 years of IPO in the range of 22%-29% of total assets.

4.3 Descriptive Statistics

Descriptive statistics for each of the variables in our model are found in **Table 4**. Debt Buffer is distributed symmetrically across the sample of REITs with the sample mean and median equal to 25.0% of total assets. These numbers is higher than 16.2% and 17.2% reported by Jong, Verbeek and Verwijmeren (2012) and Hess and Immenkotter (2012) respectively estimated from debt rating regression models. Approximately 93% of REITs' total assets are tangible fixed assets which consistent with their business nature of owning productive real estate. REITs in our sample are expanding aggressively at 18.8% p.a. (9.4%x2) by acquiring properties within a short time period.

The average market-to-book ratio, a proxy to growth opportunities is approximately 0.92 times with a range of 0.49 to 2.27. Firms in the sample have an average size of US$1.6 billion, with the Hong Kong based Link REIT being the largest REIT possessing nearly U$11.28 billion in assets for fiscal year 2012. REITs in our sample are relatively young with an average age of 3.76 years as the sector only began to flourish in early 2000s. Profitability wise, a typical REIT averaged a 3.0% as measured by the ratio EBITDA to total assets. Average stock performance of 2.0% represents the price appreciation of individual REIT stocks over the last three months. Turning to the macro variables, the 10-years bond yield averaged 2.9% while credit crisis period constitutes of 22% of the total observations.

{Table 4}

5. MNL Regression Results

The estimation results of the full MNL model are presented in **Table 5**. Note that the reported coefficient estimates compare the likelihood of (1) issuing debt, (2) issuing equity and issuing both debt and equity (3), relative to the likelihood of not executing any material financing (4) activities in that period. All models control for country, year and REIT property focus effects. Not reported here, the average variance-inflating factors (VIF) of 3.42 suggest that the explanatory variables are not highly collinear.

There is strong evidence supporting our financial flexibility story. Controlling for REITs' investment policy (*Asset Growth*), financial flexibility in the preceding period (*Debt Buffer* $_{t-1}$) is positive (negative) and strongly related to marginal debt (equity) issues in the current period.

This is consistent with the *financial capacity hypothesis* where REITs try not to exceed their debt capacity by only issue marginal debts when they have sufficient debt buffer to do so. Equity issues become a preferred choice when debt buffer in the preceding period is low.

Financing drawdown hypothesis is supported where debt buffer in the current period (*Debt Buffer* $_t$) is negative (positive) and significantly related to marginal debt (equity) issued during the same period. Turning to the lead debt buffer, the coefficient for *Debt buffer* $_{t+1}$ is insignificant in debt issues equation implying that that the debt issuers' debt buffer is of no different from their non-issuer counterparts 6 months after the issuance. This is in line with our *Financing Replenish hypothesis* where REITs swiftly replenish their debt buffer after a marginal debt issue to prepare themselves for future investment or earning shocks.

The coefficient for *Debt buffer* $_{t+1}$ however remains positive and significant in equity issues equation implying that compared to debt issues, marginal equity issues have a longer impact on REITs' capital structure. In an unreported test, we find that the coefficient for debt buffer in equity equation only turns insignificant at period t+3 (1.5 years after issuance). This suggests that besides cater for investment needs, marginal equity issues do allow REITs to reconfigure their capital structure. In the context of this paper, increases REITs' debt buffer or financial flexibility which is consistent with an anecdote we highlight earlier. The results for dual issuers resemble those of debt issuers where REITs preserve significant debt buffer in their balance sheet prior to marginal debt issues (a positive *Debt Buffer* $_{t-1}$), this debt buffer is depleting during the issuance period (a negative *Debt Buffer* $_t$) and is replenished in the next 6 months after the issuance (an insignificant *Debt Buffer* $_{t+1}$).

Turning to the control variables, except for *Asset Growth* and *Firm Size*, none of the firm characteristics are found to be related to REITs' security issuance decisions. This result reinforces the argument that the traditional capital structure determinants may not be relevant to REITs due to its unique institutional structure. The coefficient for *Asset Growth* is significantly positive in all the regressions, suggesting that REITs rely heavily on external financing to support their growth due to their cash constraints status. This is in line with REIT in the U.S. where only 7% of investments are funded by retained earnings (Ott, Riddigiouh and Yi, 2005). The coefficient for *Firm Size* is significantly positive in equity and dual issues equation suggesting that smaller-size REITs are less active in the capital market. The positive findings in equity equation is also consistent with the pecking order theory's prediction where large firms

tend to opt for equity issues as they face lower information costs compared to small firms. As expected, the global financial crisis in 2008-9 has dampened REIT sector's capital raising activities. This was the period where capital and loan markets dried-up while firms cutting back their capital expenditure. The coefficient for *Credit Crisis* is negative and significantly (except for dual issuers) related to REITs' marginal financing activities.

{Table 5}

5.1 Robustness tests

To examine the robustness of our results, we also estimate the regression models using the logistics regression with a binary variable equal to one for marginal debt (equity) issues as the dependent variable. Our key results remain unchanged with the logistics methodology. To further differentiate our financial flexibility story from firms' target leverage behavior as prescribed by the trade-off theory, we include a variable that capture the difference between the predicted target leverage and the actual leverage ratio into the regression models.[11] The target leverage ratio is obtained using regression-proxy adopted by Hovakimian et al. (2001) and Flannery and Rangan.[12] Inclusion of this target leverage variable does not alter the conclusion of this study. None of the target leverage coefficients is found to be significantly related to REITs' marginal financing decisions. We also add cash holdings and dividend payout in the regression models. The estimation results are also robust to the inclusion of these additional variables.[13]

7. Conclusions

We document, for the first time, firms' *actual* debt buffer by focusing on REITs in Singapore, Hong Kong and Malaysia that are subject to regulatory debt limit (debt capacity). Debt buffer is measured as the difference between debt limit and actual debt ratio. The substantial debt buffer (25% of total assets) maintain by REITs in our sample is consistent with the stylized fact of firms tend to operate below their optimal debt ratio (Graham, 2000). Controlling for firms' investment

[11] According to trade-off theory, there exists a target or optimal debt ratio where the marginal cost of debt is equal to its benefits. Under this theory, firms always revert to this target debt ratio in the long-run.

[12] The regression approach first involves deriving a proxy for firms' target leverage ratio using the predicted value from a regression of debt ratios on a set of tradeoff variables, namely market-to-book value ratio, profitability, size and property focus for individual REITs.

[13] These robustness tests are made available upon request from the author.

policy, we provide strong evidence showing how REITs in our sample preserve, draw down and replenish their flexibility over time in a manner consistent with the predictions of financial flexibility hypotheses. Specifically, debt buffer in the preceding period is positively (negative) associated with the marginal debt (equity) in the current period. This relationship flips to negative (positive) when REITs utilize (stockpile) their debt buffer during the debt (equity) issuance period. Post issuance, REIT managers react swiftly to replenish their debt buffer 6 months after a marginal debt issues. Marginal equity issues on the other hand have a longer impact on REITs' capital structure up to 1.5 years after the issuance.

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Figure 1: Growth of REITs listed in Asia

This figure tracks the total number of listed REITs in Asia from 2001 to 2012 (bar chart using left axis) as well as the total market capitalization of Asian REITs during the corresponding periods (line chart using right axis). The data is from *Bloomberg*.

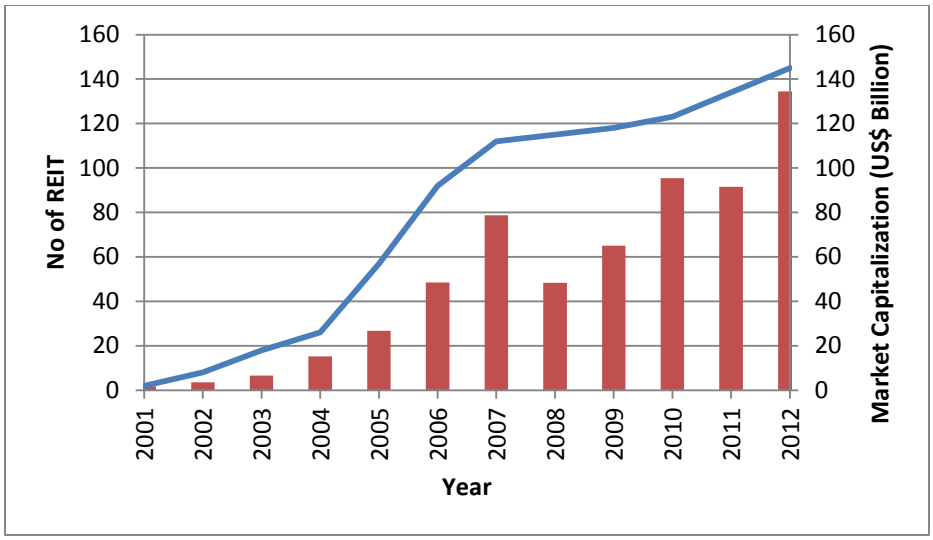

Figure 2: Asian REITs' debt buffer during June 2003 to December 2012

This figure tracks the total market capitalization of REITs in Singapore, Hong Kong and Malaysia from June 2003 to December 2012 (bar chart using left axis) as well as the debt buffer during the corresponding periods (line chart using right axis). The data is from Bloomberg.

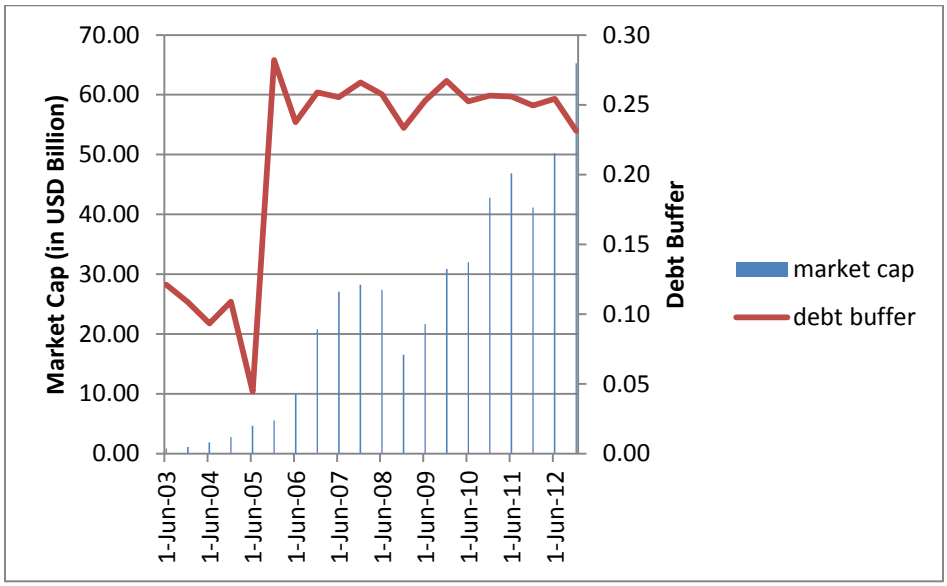

Table 1: A hypothetical case showing the role debt capacity

	Actual debt ratio	Debt capacity (unobservable)	Unused debt capacity (debt buffer)
Firm A	80%	80%	0%
Firm B	10%	40%	30%

Table 2: Explanatory variables in the regression models

Variable	Definition
Debt Buffer	The difference between regulatory debt limit and actual debt ratio.
Asset Tangibility	Ratio of net property investments to total assets.
Asset Growth	Real estate investment growth for the past six months.
Market-to-Book ratio	Market value of equity plus total book assets minus book value of common equity divided by total book assets.
Firm Size (in USD Million)	Book value of total assets
Firm Age (year)	Number of years since the REIT's initial public offering.
Profitability	Ratio of EBITDA to total assets.
Stock Performance	Price appreciation of individual REIT stocks over the last three months.
10-year Bond Yield	Average 10-year government bond yield estimated from monthly observations over the 12-month period
Credit Crisis (0,1)	Binary variable taking on value of one for observation during the period Dec 2007-Dec 2008, zero otherwise.

Table 3 Financing activities of Asian REITs (2003-2012)

Mutually exclusive financing activities	Count	Percent
(0) No material change	244	50.2
(1) Equity issues	122	25.1
(2) Debt issues	52	10.7
(3) Dual issues	68	14.0
Total sample	486	100

Table 4: Descriptive statistics

This table shows the characteristics of the sample consisting of 431 semi-annual observations for 47 unique REITs over the period 2003 to 2012. All variables are defined as in Table 1 above.

	Mean	Median	StdDev	Min.	Max.
Debt buffer					
Unused debt capacity	0.25	0.25	0.119	0	0.60
Firm Characteristics					
Asset Tangibility	0.93	0.95	0.09	0.31	1.00
Market-to-book	0.92	0.92	0.21	0.49	2.27
Asset Growth	0.094	0.052	0.198	-0.633	1.793
Firm Size (in USD Million)	1,612.32	902.52	1,863.74	52.19	11,280.06
Firm Age (year)	3.76	3.56	2.10	0.340	10.47
Profitability	0.03	0.03	0.01	-0.01	0.08
Stock Performance	0.02	0.02	0.16	-0.72	0.71
Macro Variables					
10-year Bond Yield	2.91	2.83	0.84	0.97	4.34
Credit Crisis (0,1)	0.22	0	0.41	0	1

Table 5: MNL model in joint-financing decisions

The table presents the MNL estimation results on the probability of each financing event against alternative in a given quarter. The dependent variables are the three mutually exclusive financing choices, with the passive or no material financing activity being the base case. Our key variable of interest *Debt Buffer* defined as the difference between regulatory debt limit and actual debt ratio. Other explanatory variables are defined in Table 1. The sample covers the marginal financing activities of Asian REITs between 20031H and 20122H. Standard errors are robust to heteroskedasticity. T-statistics are in parentheses. Statistical significance is displayed by the use of one (10%), two (5%), and three (1%) asterisks.

Explanatory variables	Dependent variable: [passive=0]		
	[1] Debt issues	[2] Equity issues	[3] Dual issues
Intercept	-4.169	-15.900	-3.363
	(-0.38)	(-3.04)	(-0.31)
Debt Buffer $_{t-1}$	172.49***	-23.339***	121.768***
	(4.84)	(-3.18)	(2.85)
Debt Buffer $_{t}$	-190.38***	16.462*	-130.621***
	(-5.46)	(1.80)	(-3.45)
Debt Buffer $_{t+1}$	2.551	11.145**	-11.908
	(0.29)	(2.38)	(-1.48)
Asset Tangibility $_{t}$	-5.337	2.927	-11.302
	(-0.67)	(0.97)	(-1.33)
Asset Growth $_{t}$	59.705***	55.667***	78.078***
	(6.00)	(6.16)	(7.97)
Market-to-book	1.428	-0.103	-2.497
	(0.47)	(-0.05)	(-0.81)
Firm Size $_{t}$	-1.340	2.233***	2.778*
	(-0.87)	(2.56)	(1.94)
Firm Age $_{t}$	-1.181	1.524	-3.373
	(-0.33)	(0.62)	(-1.10)
Profitability $_{t}$	19.006	22.989	-31.353
	(0.34)	(0.46)	(-0.53)
Stock Performance $_{t}$	-0.076	3.394	1.705
	(-0.02)	(1.17)	(0.30)
Interest rate $_{t}$	2.281	-0.653	1.162
	(1.04)	(-0.93)	(0.52)
Credit Crisis (0,1) $_{t}$	-15.167***	-1.719*	-1.740
	(-5.91)	(-1.70)	(-0.70)
Country dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Property dummies	Yes	Yes	Yes
No of Obs		431	
Pseudo R^2		0.74	