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Key Factors Influencing Target Capital Structure of Property Firms in Malaysia

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Abstract

Very limited studies have been done on the capital structure of property firms in Malaysia emphasizing on the presence of target capital structure and the affecting determinants and also the speed of adjustment to target leverage. Thus, this study aims to investigate these issues among the property firms in Malaysia by using a dynamic model. This study finds that these property firms do practice target capital structure which is influenced by certain firm characteristics like non-debt tax shield, asset structure, profitability, firm size, growth opportunity and liquidity in their capital structure and they also time their security issuance. Being deviated from target from time to time these property firms partially adjust indicating a support for the dynamic trade-off theory. There are also influences of the pecking order and the market timing theories in the capital structure decisions of these property firms. This study contributes to the literature by offering insights of the capital structure practice and the adjustment speed to target capital structure of property firms in Malaysia and fills the gap in the literature.

Keywords: target capital structure, speed of adjustment, dynamic trade-off, property, generalized method of moments

1. Introduction

The body of knowledge has been recording an extensive work on capital structure ever since the influential paper by Modigliani and Miller (1958). Theoretical evolvement and the validity of the modern theory of finance have been the core interest of researchers. Many researches have also explored the capital structure of firms from different sectors of the economy, such as property (Ooi, 1999) manufacturing (Mukherjee & Mahakud, 2010) and construction firms (San & Heng, 2012). Researchers also show interest in making comparison studies on the capital structure decisions among the various sectors in the economy of either on an individual country (Salim & Yadav, 2012) or even cross-country (Le & Ooi, 2012). One common finding from these empirical studies is that industrial classification influences capital structure decisions a great deal.

Three dominant theories have been discussed and examined throughout the development of capital structure studies, which are the trade-off theory (TOT), the pecking order theory (POT), the agency theory and the market timing theory. The TOT theory argues that optimal capital structure is achievable when the cost of debt is traded off with the benefits of debt. The balances of the costs and benefits of debt determine the optimal debt ratio. Examples of leverages related costs taken into account in some empirical corporate financing investigations can be found in Scott (1977) where he incorporates bankruptcy costs; agency costs by Jensen and Meckling (1976) and in DeAngelo and Masulis (1980) on the loss of non-debt tax shield.

Derived from asymmetric information problems the POT on the contrary asserts that there is no optimal capital structure, instead firm practices financial hierarchy. When the manager is likely to have a great deal of private information regarding the value of the firm than outside investors or even the creditors, the financing method chosen by the manager can serve as a signal. Thus the information asymmetry which occurs between the two parties drives the manager to practice hierarchical financing where internal financing will be the first choice follows by debt and equity is issued only when firms have no more debt capacity (Myers & Majluf, 1984).

The agency theory is based on another problem due to information asymmetry, that is, the agency problems.

Unlike the POT, the agency theory argues that optimal capital structure can be achieved when the costs arising from conflicts between the parties involved is minimized. Jensen and Meckling (1976) argue that the use of debt financing can ease the conflicts or the moral hazards that may exist between shareholders and debt holders for debts can discipline managers. When the agency costs which include the monitoring expenditure by the principal, the bonding expenditure by the agent and the residual loss are balanced-off against the benefits of debt, the optimal capital structure can be achieved **(**Jensen, 1986**).** Baker and Wurgler (2002) suggest that in the market timing theory the capital structure has always been impacted by market valuation. This theory states that the current capital structure is based on the firm's historical experiences of being overpriced or underpriced by the investors. Firm with a history of strong stock price will issue more equities and less debt whereas a less fortunate firm will suffer from high debt ratios.

In relation to the theories, most sectorial analyses examine mainly the determining factors of capital structure and investigate whether such decisions are governed by the TOT or the POT or even both (Le & Ooi, 2012). Majority of studies on the property sector in Malaysia are done under the static framework investigating the contributing factors of the capital structure. Recent literature sees the emergence of dynamic model in examining the capital structure of firms. Different from the static model which assumes the observed leverage ratio as being the optimal, the dynamic model, however, put forward the notion of partial adjustment where firms may not, at any time be at their target capital structure due to adjustment cost and will occasionally adjust for value maximization. As Myers & Majluf (1984) points out, since to implement changes in capital structure are costly, the observed capital structure leverage ratio at any point in time may be significantly different from its optimal ratio. To the best of my knowledge, no study has been done on capital structure of property firms in Malaysia using the dynamic model. Under this dynamic model it allows the identification of target capital structure and the estimation of the magnitude of the adjustment speed if these property firms are diverged from their target.

Therefore, the objective of this study is to investigate the practice of target capital structure among the property firms in Malaysia and the speed of adjustment to target when they are off the target. Haron, Ibrahim, Mat Nor, & Ibrahim (2013) study on Malaysian listed firms using partial adjustment model has proven the existence of target in the capital structure with a rapid adjustment speed recorded among the firms. While their study is a generalization of listed firms from all sectors, this study focusses particularly on property sector as this sector, being in the domestic demand category is one of the main drivers of Malaysian economy after the service sectors. Property sector in Malaysia has been sub-sectored as landed residential sector, condominium sector, industrial sector, office sector, retail sector and hotel sector (WTW Property Market Report, 2013). As at 2012, Malaysian property sector managed to maintain its double digit growth of 18.5%, contributing 3.4% to Malaysian GDP and is forecasted to grow at 15.9% in 2013 (BNM Outlook and Policy Report, 2013).

This study is organized as follows: the next session covers the literature review of the determinants of target capital structure then followed by a review on capital structure studies on property sector. Later the data and methodology employed are laid out in section 4. Next is the analysis and findings and the final section discusses the overall conclusion of the study.

2. Literature Review of the Determinants of Target Capital Structure

Several determinants have been recognized as being influential in capital structure decisions and represent different arguments relating to the domineering capital structure theories. These include non-debt tax shield (NDTS), profitability, tangibility, liquidity, firm size, growth opportunity, business risk and share price performance.

After the perfect market assumption in their 1958 study, Modigliani and Miller (1963) have lifted the assumption and included taxes in their capital structure studies showing that debt could yield substantial gains from the tax shields. However according to DeAngelo and Masulis (1980) the benefits of tax shield from debt financing encourage firms to include more debt in their capital structure but firms may encounter the danger of default in interest payment thus may lead to financial distress and bankruptcy risk. Firms, on the other hand, may choose other ways such as tax loss carry forward, investment tax credits and depreciation to shelter income instead of the tax benefit from the use of debt financing. These firms therefore will take less debt in their capital structure. DeAngelo and Masulis (1980) opine that NDTS are the alternatives to tax shields provided by debt financing, hence a negative relationship between NDTS and leverage should be expected (Deesomsak, Paudyal & Pescetto, 2009). NDTS is represented by the annual depreciation expenses to total asset (De Angelo & Masulis, 1980).

Asymmetric information problems drive firms to opt to internal resources first when deciding on investment financing as these are the cheapest funds (Myers & Majluf, 1984). Therefore, firms with high profit and cash flows will finance investment with retained earnings rather than using external financing, either debt or equity.

Profitability thus affects leverage negatively indicating the support of the POT. Nevertheless based on the TOT, a positive relationship would also be expected as firms take advantage of tax savings from debt interests. Profitability is represented by earnings before interest and tax (EBIT) over total asset (Rajan & Zingales, 1995).

Representing financial distress and bankruptcy, business risk, is represented by yearly change in the firm EBIT (Deesomsak et al., 2009). Firms with a high degree of earnings volatility in their operation may be facing with the possibility to default on debt payments, therefore should opt for less debt financing. This indicates a negative relationship with leverage. For business expansion and competencies, equity issuance would be the preferred funding over debt for firms with high risk. Hence, equity holders would seek for higher return as compensation to the higher risk taken on investment.

The TOT suggests that tangibility relates positively with leverage as firms with high tangible asset can tender these assets as collateral. Debt is then less risky and consequently lenders will lend more. The higher tangible assets they have the more debt they can take on in their capital structure. Nonetheless, the agency theory postulates that firms with lesser tangible assets might want to increase their debt level as to limit managers from squandering (Titman & Wessels, 1988). Net fixed asset over total asset is used to represent the value of tangible assets of a firm for this study (De Jong, Kabir & Nguyen, 2008).

A positive relationship is postulated between firm size and leverage where smaller firms appear to be less diversified and fail more often thus have smaller capacity to consume higher debt. Looking at the asymmetric information, the information asymmetry level in the market will be much lower for larger firms since more information is expected to be available for these firms. With a much lower level of asymmetric information, it is more possible for these larger firms to turn to debt financing. There are also evidences of firm size reacts negatively towards leverage. This is when smaller firms having limited access to equity market, are more inclined towards engaging with bank loans to fund their investments. This study uses natural logarithm of total asset to represent firm size (Deesomsak et al., 2009).

Huge capital funds will be needed by firms to capture all growth and investment opportunities. According to the agency theory, these firms will be more inclined to lower their debt level and opt to equity issuance as a gesture showing that they are not facing underinvestment and asset substitution problems. This indicates a negative relationship. The POT suggests that when investment and growth opportunities are smaller than the retained earnings, debt ratios will be decreased. For a given profitability, debt ratios are lower for firms with more growth opportunities (Myers & Majluf, 1984). Nonetheless, property developers with bigger scale developments and have reached a certain size have been reported to be having difficulties in maintaining the growth. Smaller developers on the other hand, can build up margins, they have room to grow into the high-end projects and maintain profit margins. Market value of equity over book value of equity is used as the measurement for growth opportunity (Rajan & Zingales, 1995).

Liquidity affects leverage negatively as the more liquid the firm the more internal funds will be available to the firm thus the need for debt financing will be minimal. When the liquidity level increases the firm will appear attractive and consequently earns good reputation from investors and shareholders, making it easier for the firm to issue equity for future investment and projects. This will then minimize the need for debt financing (Myers & Majluf, 1984). Current assets to current liabilities is the measurement for firm liquidity (Deesomsak et al., 2009).

When a firm records a strong share price performance with the present market values relatively higher than the past market values, the firm is more inclined to issue equity whereas when the present market values are comparatively low the firm will, on the other hand, repurchase equity. This notion is based on the market timing theory by Baker and Wurgler (2002) indicating a negative relationship. The first difference of the year end share price represents the share price performance (Deesomsak et al., 2009).

3. Review of Capital Structure Studies on Property Sector

Studies on capital structures of firms in the property sector gain wide coverage from researchers with factors anticipated to affect the financing decisions of firms in these sectors. Apart from the custom firm determinants like size, growth, profitability, risk, effective tax rate, interest and market performance, Ooi (1999) includes exclusive factors like property asset intensity, types of company in the sector and level of development activities in his study on capital structure of property firms in the UK. Property asset intensity and development activity are reported to correlate positively with leverage. This is attributed to the activities being funded through project financing which usually involves high level of debt. Ooi finds that size is negatively associated with leverage indicating that small property firm relies on bank loans perhaps because they face difficulties to access the equity market. The inversed relationship recorded between interest rate and leverage implies that property firms opt to debts when interest rate is low and the negative relationship between stock market condition and leverage shows

that during poor stock market condition property firms will prefer debt to equity.

Gau and Wang (1990) in their study on Vancouver firms in the property sector finds that the level of debt in the capital structure relates positively with the cost of investment while inversely correlates with their depreciation tax shield, expected costs of financial distress and market interest rates. In a recent study done by Le and Ooi (2012) on 13 countries' property firms concluded that capital market development influences and relates negatively with the firms' capital structure. They also find that larger property firms with more tangible assets seem to take on more debt in their financing decision. Growth opportunity also seems to be a significant influence to their capital structure.

A recent sectorial analysis on Malaysian firms by Mazlina, Hasanah and Badriyah (2011) find that firms in the property sector do not consider size as a factor in their capital structure decision and these firms take on higher level of debt comparative to other sectors. Salim and Yadav (2012) contrastingly find that growth and size significantly affect financing decisions among firms in the property sector in Malaysia. For this study firm specific factors like NDTS, tangibility, profitability, business risk, firm size, growth opportunity, liquidity and share price performance are used to investigate the aspect of capital structure of property firms in Malaysia.

4. Data and Methodology

This study analyzes 127 listed property firms in Malaysia between 2000 and 2009 (a 10 year period) with firm data extracted from the Datastream. To meet its objective, this study employs the Generalized Method of Moments (GMM) – First Difference (Arellano & Bond, 1991). Only firms listed from 2007 and before are included in the study as to meet the GMM minimum requirement of three consecutive observations.

4.1 Measures of Leverage

Four measures of leverage are used. Following Titman and Wessels (1988), leverage is defined as; the ratio of total debt to total asset (TD/TA); long term debt to total asset (LTD/TA); total debt to total debt plus total equity [TD/(TD+TE)] and long term debt to total debt plus total equity [LTD/(TD+TE)]. These measures of leverage are used to check the robustness of the results of this study.

4.2 Target Capital Structure

This study postulates that a dynamic panel data model is able to ascertain the existence of target (optimal) leverage on properties firms in Malaysia. Based on the Partial Adjustment Model (Drobetz & Wanzenried, 2006) this study assumes that a set of explanatory variables influence the target leverage ratio for a firm as in Equation (1).

$$Y_{it}^{*} = F(X_{it}, X_i, X_t) \tag{1}$$

The observed leverage of firm i at time t (Y_{it}) should be equal to the optimal leverage, that is, $Y_{it} = Y_{it}^{*}$ and this implies that $Y_{it} - Y_{it-1} = Y_{it}^{*} - Y_{it-1}$. The adjustment costs significantly impact the adjustment process and allow only partial adjustment, represented in Equation (2).

$$Y_{it} - Y_{it-1} = \delta_{it} \ (Y_{it}^{*} - Y_{it-1}) \tag{2}$$

Where δ_{it}, is known as the speed of adjustment, it represents the convergence degree of Y_{it}, to its optimal value with restriction that $|\delta_{it}| < 1$, which is a condition that $Y_{it} \rightarrow Y_{it}^{*}$ as $t \rightarrow \infty$. The firm's behaviour is represented by Equation (3) below.

$$Y_{it}^{*} = \sum_{n=1}^{N} \beta_k X_{kit} + \varepsilon_{it} \tag{3}$$

Combining Equation (2) and (3), we derived,

$$Y_{it} = Y_{it-1} + \delta_{it} \ (Y^{*}_{it} - Y_{it-1}) \tag{4}$$

$$Y_{it} = Y_{it-1} + \delta_{it} \ Y^{*}_{it} - \delta_{it} \ Y_{it-1} \tag{5}$$

$$Y_{it} = (1 - \delta_{it}) Y_{it-1} + \delta_{it} \left(\sum_{n=1}^{N} \beta_k X_{kit} + \varepsilon_{it} \right) \tag{6}$$

$$Y_{it}^{*} = (1 - \delta_{it}) Y_{it-1} + \sum_{n=1}^{N} \delta_{it} \beta_k X_{kit} + \delta_{it} \varepsilon_{it} \tag{7}$$

To simplify, Equation (7) can also be written as,

$$Y_{it}^{*} = \lambda_0 Y_{it-1} + \sum_{n=1}^{N} \lambda_k X_{kit} + \mu_{it} \quad (8)$$

where $\lambda_0=1-\delta_{it}$, $\lambda_k=\delta_{it}\beta_k$, and $\delta_{it}\varepsilon_{it}=\mu_{it}$ (where μ_{it} has the same properties as ε_{it})

Equation (8) denotes the dynamic capital structure model and is estimated based on the GMM - First Difference. To ensure efficiency of the estimator, three diagnostic tests are performed which are the Wald test, second order correlation test (AR2) and the *J*-test.

5. Analysis and Findings

Table 1 presents the empirical results on determinants of target capital structure according to the various leverage definitions. All the models appeared to qualify the diagnostic tests, thus the *R*-squared for each model needs to be computed. Having compared the *R*-squared among the models, model total debt to total asset (TD/TA) is selected to explain the dynamic capital structure of properties firms in Malaysia.

Table 1. Determinants of target capital structure

Independent	TD/TA	TD/(TD+TE)	LTD/TA	LTD/(TD+TE)	VIF
Lev(-1)	0.826833***	0.386177***	0.864201***	0.106782*	
	[16.70914]	[4.867266]	[11.44892]	[1.657265]	
NDTS	-0.002658	0.081295***	-0.04222***	0.125286***	0.5733
	[-0.069433]	[3.713430]	[-2.658620]	[3.706285]	
Tangibility	0.244622***	0.092269**	0.045602	-0.003520	0.5283
	[6.864112]	[1.963733]	[1.009741]	[-0.086978]	
Profitability	-0.392556***	-0.15275***	-0.006479	0.062433	0.4129
	[-2.871296]	[-3.234820]	[-0.131316]	[0.671417]	
Risk	-0.003464**	-0.000766	-0.000369	-0.001744	0.0324
	[-2.043774]	[-0.494130]	[-0.213103]	[-0.821298]	
Firm Size	0.006487	-0.000866	0.001241	-0.014526**	0.5226
	[0.624889]	[-0.240616]	[0.563068]	[-2.460609]	
Growth	-0.060303***	-0.053767	-0.001111	-0.113956**	0.8225
	[-3.011304]	[-1.633793]	[-0.052365]	[-1.983001]	
Liquidity	-0.020864*	-0.012583*	-0.001291	-0.016241**	0.1250
	[-1.821483]	[-1.655453]	[-0.645981]	[-2.244152]	
SPP	-0.021030**	-0.06891***	-0.017467*	-0.049639***	0.2542
	[-2.166404]	[-6.145970]	[-1.653614]	[-2.782241]	
R-squared	0.2507	0.0882	0.0005	0.1892	
AR(1)	-2.428023**	-1.44328***	-3.88636***	-2.346498**	
AR(2)	-0.047860	-0.889462	-0.995313	-1.477802	
Wald (joint) χ^2	499.13660***	80.26428***	550.0674***	26.52418***	
J-statistic	32.83922	37.60325	33.23399	36.19533	
Observations (N)	1270	1270	1270	1270	

$Lev_{i,t} = Lev(-1)_{i,t} + \beta_1 NDTS_{i,t} + \beta_2 TANG_{i,t} + \beta_3 PROFIT_{i,t} + \beta_4 RISK_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 GROWTH_{i,t} + \beta_7 LIQUIDITY_{i,t} + \beta_8 SPP_{i,t} + \varepsilon_{it.}$

Notes: The *t*-statistics in parentheses are the *t*-values adjusted for White's heteroscedasticity consistent standard errors; ***, **, * denotes significant at 1%, 5%, 10% level respectively. The Wald test statistic refers to the null hypothesis that all coefficients on the determinants of the target debt ratio are jointly equal zero; AR(2) refers to the null of no second order correlation in the residuals; The *J*-test statistic for the null that the over identifying restrictions are valid. Multicolinearity test in the dataset is performed and no multicolinearity problem is found in the data since the variance-inflating factor (VIF) of variables are less than 10.

5.1 Existence of Target and Speed of Adjustment to Target Capital Structure

The estimated coefficient of the lagged leverage is significant (p=0.01) and this denotes the presence of target leverage for property firms in Malaysia. These firms occasionally rebalance to long term targets leverage at the speed of 0.1732 ($\delta_{it} = 1-\lambda_0$) within a year or it takes 5.77 year ($1/\delta_{it}$) to be at the target. This concludes that property firms in Malaysia close by 17.32% the gap between current and target leverage within one year. The existence of dynamic TOT is indicated by such adjustment rate (Haron & Ibrahim, 2012).

5.2 Determinants of Target Capital Structure

Six factors significantly influence the capital structure of property firms in Malaysia throughout the period understudy. This study depicts a positive relationship (p=0.01) between tangibility and target leverage of property firms, supporting the TOT (Rajan & Zingales, 1995). Property firms, being asset intensive are more inclined to take on more debt relative to firms in the other sectors with fewer tangible assets. This finding supports Rabiah, Mohd Sabri and Khairuddin (2012) where they find tangibility correlates positively with leverage for property firms in Malaysia.

As for profitability, an inversed relationship between profitability and leverage (p=0.01) is recorded. The negative relationship indicates the practice of hierarchical financing where property firms with high profit consume less debt financing in their capital structure. Profitable firms in Malaysia seem to sustain their profit margins by raising the new launch prices and testing new grounds for buyers' affordability. In tandem with that, they are putting in more eco-friendly and green building features as an added value to the projects. This inversed relationship is similar with past studies on Malaysian firms by Deesomsak et al. (2009) and Haron et al. (2013). Morri and Cristanziani (2009) also find negative relationship between profitability and capital structure among European property firms. Business risk is reported to negatively related to target capital structure (p=0.05) thus supporting the TOT that property firms with volatile earnings employed lower debt in their capital structure (De Jong et al., 2008).

A significant negative relationship (p=0.01) between growth and leverage is observed. Property firms in Malaysia with good growth opportunities seem to have lower debt ratio and this is perhaps due to a good and encouraging property business and investments during the period (WTW Property Market Report, 2013) thus retained earnings are suffice to finance their operation. Liquidity is found to relate negatively with leverage of property firms in Malaysia (p=0.10). Deesomsak et al. (2009) argue that liquid assets may be used as source of financing and property firms in Malaysia seem to consider these liquid assets in their capital structure. Share price performance relates negatively with leverage (p=0.01). This finding supports the market timing hypothesis and indicates that when property stocks record good performance, equity capital will be preferred by property firms in Malaysia. Equally, in a declining stock market, the debt ratio of property companies increases. Survey done on CEO of property companies reported that not only the stock market performance has an influence on the capital structure of property firms it also has significant impact on the performance of the industry as a whole (WTW Property Market Report , 2009).

6. Conclusion

This study investigates the dynamic aspects of capital structure particularly on the existence of target capital structure and the speed of adjustment to target capital structure of property firms in Malaysia. The study finds that there exists target leverage for property firms in Malaysia and take into account factors like NDTS, asset structure, profitability, firm size, growth opportunity and liquidity in their capital structure and also appear to time their security issuance. Pursuing target capital structure property firms do adjust occasionally due to time varying factors. The magnitude of speed of adjustment suggests an adjustment towards target leverage thus supporting the existence of dynamic TOT. There are also traces of market timing as well as the POT hypotheses found in this study. By employing a robust econometric model (GMM), this study contributes to the literature by examining the corporate financing behaviour of property firms in Malaysia. Yet, until today despites extensive studies done covering either sectorial or cross countries, the questions of how firms decide on their capital structure remains unanswered (Haron, 2014), thus invites further research and studies.

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