

## **The Determinant of Capital Structure of Malaysian Firms: Test of Pecking Order and Trade-off Theories under Different Corporate Ownership Identities**

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**Abstract:** This paper develops a corporate ownership identity-based to investigate the financial decision of Malaysian firms. Specifically, this study investigates whether the financial strategy of family, managerial-owned, foreign, and government firms tend to adopt the assumptions of the trade-off or pecking order theories. Panel data analysis is conducted on a sample of 407 firms for the period of 2012 to 2015. In general, the results provide evidence for both theories. The trade-off theory seems to be more obvious in firms dominated by family and managers. On the other hand, pecking order theory is more pronounced in government and foreign firms. The current paper argues that the information asymmetry is lower in managerial-owned and family firms compared to government and foreign firms because of their direct engagement in the management. In addition, the higher information asymmetry in government and foreign firms slows the speed of adjustment to the target capital structure.

**Keywords:** ownership identity, trade-off, pecking order, capital structure.

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### **I. Introduction**

Since the proposition of Modigliani and Miller [1] to Jensen and Meckling [2] theory and afterward, in literature, ownership and capital structure have been presented as a governance substitute to mitigate agency costs. Jensen and Meckling [2] have emphasized that the separation of ownership and management lead to managerial incentives to engage in other non-maximizing behavior due to a conflict of interests between shareholders and managers. Shleifer and Vishny [3] assert that dispersed ownership and the resulting weak control of shareholders increase the managerial discretion and agency costs. In contrast, shareholders with dominant share have the power to discipline managers. Easterbrook [4] and Jensen [5] argue that capital structure is an effective governance mechanism. The control associated with debt and capital market monitoring reduces the managerial opportunism.

Such an agency rationale clearly links the firm's capital structure and ownership structure. However, the firms' capital structure is not derived only from the governance reasons. The empirical work on capital structure has evolved into a set of testable theories that attempt to predict how firms determine their capital structure. In trade off theory, the determinants of capital structure are trickled from weighting the tax benefit of debt and the associated risk of bankruptcy. Accordingly, firms adjust their capital gradually to the optimal target. In contrast, pecking order theory, which identifies firms' financial behavior, is based on the adverse selection and asymmetric information assumptions. As a result, the change in capital structure is mainly occurred due to unbalance in firms' cash earnings and investment opportunities [6]. Despite the theoretical contradiction between trade-off and pecking order models, the empirical studies on capital structure show that they are not mutually exclusive [7]. Chipeta and McClelland [8] argue that the partial adjustment investigation of capital structure with the presence of pecking order determinants provides evidence to support both theories.

While the previous studies focused on control and monitoring as the underlying rationale links ownership and capital structure, this study attempts to highlight the effect of ownership identity on the implemented strategy regarding the financial decision and determinants of capital structure. In practical, the identity of controlling shareholders may result in a different implemented financial strategy. Kim, Kim [9] assert that the agency-theoretic perspective of ownership structure is incomplete. Generally, Attig, Fong [10] and Al-Janadi, Abdul Rahman [11] argue that the larger ownership concentration is associated with greater asymmetric information. Large shareholders act to minimize disclosure to execute their plan away from intervening of

minority shareholders. In such case, new outside shareholders are expected to demand compensation for the cost of information asymmetry. Therefore, external equity is more costly than internal equity and debt, thus pecking order is more likely to be practiced. However, distinct factors in firms' ownership status might affect the optimal capital structure. Large shareholders with undiversified capital tend to pursue risk-reducing strategy; thus, they target capital structure at lower level of default risk [12]. On the contrary, large shareholders, such as government and foreign institutes have a strong credit capacity that enables them to borrow at lower cost [13]. As a result, they are more flexible to adjust faster toward the optimal capital structure.

In literature, some studies have highlighted the variation in economic and non-economic objectives among controlling ownership identities. Thomsen and Pedersen [14] argue that the economic objectives vary from one identity of ownership to another, and this has implications for the firm-specific characteristics, such as profitability, risks, investment. Kim, Kim [9] assert that the strategic investment is different among different types of owner. Zellweger, Nason [15] find that family firms strive to pursue private nonfinancial goals. Douma, George [16] highlight the differential impact of foreign shareholders on firms' policies and its performance implications. Therefore, it is not well-known whether the identities of block-holders are guided by the same premises in the financial decision process and whether these determinants are different from one identity of ownership to another. Keeping the above perspective into consideration, the study analyzes the discrepancies between block-holders identities with regards to their determinant of leverage, strict ordering of financing, and their speed of adjustment to the target.

Malaysia is one of the emerging markets which is characterized by great ownership concentration [17]. Ownership concentration in Malaysian firms allows large shareholders to have full control over decisions making and firms' policy. Yunos, Smith [18] have found that substantial shareholders own the mean of 53% of shareholdings in Malaysian firms. More recently, Ting, Kweh [19] document that the top five shareholders dominate on average 51.7% of ordinary shares in the years from 2005 to 2015. Such characteristics introduce an ideal setting to analyze the differences in financial strategies among different ownership identities.

## **II. Literature Review**

### **2.1 Tradeoff Model of Capital Structure**

The original version of the trade-off theory grew out of the debate over the irrelevance theory developed by Modigliani and Miller [1], which postulates that capital structure decision has no material effects on firms' value. Modigliani and Miller [20] modified their proposition to considering some of imperfection market assumptions. They suggested that since the interest expenses on debt are tax-deductible, thus the market value of firms increases by the present value of deducted income from tax expenses due to an increase in debt. Kraus and Litzenger [21] argue that the cost of bankruptcy associated with debt financing affects the firm value negatively. Therefore, the optimal capital structure is determined at the equilibrium of debt tax benefits with costs of bankruptcy. In literature, the trade-off theory has gone through stages of evolution. The first stage is the static version, which implies that the capital structure is chosen by a single period balancing between the costs and benefits of debt. Therefore, there is a cross-sectional relationship between target capital structure and corporate risk, tax status, profitability, size and tangibility of assets [22-24]. The second stage is the target adjustment version of trade-off, which has been developed to refine uninterpreted limitations in static model. In practice, the assumption of cross section single-period model has failed to justify the fact of time effect and heterogeneous firms' characteristics. Therefore, the partial adjustment model implies that the actual capital structure may deviate from the optimum level due to the changes of firms' financing position associated with firms' activities over time [25]. Accordingly, firms restructure their optimal capital and attempt to adjust the actual capital toward the optimum continuously over the time. Furthermore, the adjustment toward the optimum level depends on the tradeoff between the cost of adjustment and the cost of deviation [26]. Dang, Kim [27] have found out that the speed of adjustment toward the optimum level varies based on firms' characteristics.

Empirical literature shows evidence in favor of the target adjustment hypothesis for the developed countries [28, 29]. The adjustment behavior has also been approved by Malaysian studies. Abdeljawad and Mat Nor [26] have documented that Malaysian firms adjust their capital structure toward the target at relatively slow speed of adjustment.

### **2.2 Pecking Order Theory**

Myers and Majluf (1984) and Myers (1984) suggest that the asymmetric information among managers and investors puts extra cost on issuing new external funds, and these costs overwhelm the other costs and benefits that are mentioned in trade-off model. Thus, the asymmetric information, transaction costs and risks associated with issuing new securities lead firms to prioritize their financing choice by: first internally by retained earnings then reducing the cash balance or liquidating marketable securities, second externally by safe debt then the equity issuing as a last resort. Consequently, the pecking order model posits that there is no well-defined optimal capital structure [23]. Shyam-Sunder and Myers [23] suggest that based on pecking order

theory, the change in debt should be quantitatively matched by the internal financial deficit. However, they have documented that the assumption of information asymmetry invalidates the sole effect of the financial deficit on capital structure. Similarly, Frank and Goyal [30] assert that financial deficit is not the only explanatory factor of pecking order behavior. Instead, much of its influences are derived from conventional factors that are related to the requirements of external finance and facts of the way firms use it.

### **2.3 Ownership Identity and Financial Strategy**

The effects of ownership structure on capital structure are widely discussed in the literature. Nevertheless, inconclusive results have been reported. The ownership concentration may result in relatively less leverage ratio. That is because large shareholders act as a disciplinary inspector against managerial opportunism; thus, the governance role of debt is less needed [3, 31]. Furthermore, large shareholders have a sensitivity to the risks associated with debt. On the other hand, Lundstrum [32] argue that large shareholders prefer debt over equity issuance because of their concern regarding the controlling power and voting right in the firm. Rossi, Rossi [33] conclude that debt and ownership concentration are complementary in corporate governance and monitoring managerial opportunism. Therefore, positive association exists between leverage and ownership concentration.

Recently, empirical studies provide evidence for the influential role of ownership identities such as families, managers, government, and foreign shareholders in the financial decisions. However, these studies show mixed results too. Studies like Ramalho, Rita [34] and Pindado and Torre [35] have found that the leverage ratio is positively related to family and managerial ownership, on the other hand, the negative effect of family and managerial ownership has also documented by Vo and Nguyen [36] and Ampenberger, Schmid [37]. These studies refer the differences to the variation in control and monitoring incentives of shareholders and their risk aversion. Pöyry and Maury [13] have found that the privilege given by banks and financial institutes to government-controlled firms increases the level of debt in these firms.

The majority of corporate finance literature shows that the traditional factors are more important in explaining the changes in capital structure [38-41]. Rumelt, Schendel [42] and Douma, George [16] argue that ownership structure and its identities create the differences across firms regarding these factors. Although there are growing numbers of studies on the effects of ownership identities on capital structure, these studies have used the agency theory perspective as the underpinning theory in their analysis. However, firms' capital structure is a subject of intense debate about the validity and applicability of various financial strategies based on different theoretical perspectives [8, 23, 26, 43, 44]. Particularly, out of the most cited theories, this paper focuses on the pecking order and trade-off theories.

According to pecking order theory, as shown earlier, the firm's financial strategy is mainly affected by the information asymmetry costs added to external finance. Kim, Kim [9] suggest that shareholders in family firms and owner-managers are more likely to gain access to firm-specific information. Such informational advantages reduce the costs of information asymmetry in firms with high family or managerial ownership. Correspondingly, researchers argue that family and managerial ownership augment the information asymmetry costs. Controlling shareholders may exploit informational advantages to extract private gains to the detriment of minority shareholders [45]. As for foreign ownership, Choi, Lam [46] suggest two competing impacts of foreign ownership on information asymmetry. Foreign shareholders demand to apply international standards in terms of accounting, disclosure, and corporate governance. Therefore, lower information asymmetry is associated with foreign ownership. In the opposite, the superior capability of foreign shareholders to process information and the incentive to take advantage of private information for their own interests increase the information asymmetry. Similarly, government ownership is found to be associated with higher information asymmetry by Choi, Sami [47]. Apparently, the effect of shareholders identity on the firms' information asymmetry is ambiguous, thus the validity of strict ordering of financing behavior suggested by pecking order theory does not strictly hold.

Since large shareholders seem to have lower diversification, in terms of trade-off perspective, concentrated firms have to tradeoff between the agency cost of equity and risk associated with debt [33]. Furthermore, the tax advantage of debt depends on the tax code and included features. However, Frank and Goyal [22] point out that when the firm seems to have better investment opportunity than the shareholders, firms may tend to use equity over debt even though they are exposed to higher tax. López-Gracia and Sánchez-Andújar [48] and Kayo, Brunaldi [49] indicate that the active monitoring of large shareholders substitutes the governance role of debt that results into relatively lower leverage and faster speed of adjustment.

## **2.4 The determinants of Capital Structure**

### **2.4.1 Growth opportunity**

Literature provides a complex prediction regarding the effect of growth opportunity under pecking order theory. Growing firms are expected to have a higher internal deficit and more likely to issue external funds with less asymmetric information. Therefore, the debt ratio is positively related to firms' growth opportunity

[50]. Nevertheless, Fama and French [6] argue that the complex version of the theory suggests that, in anticipation of the future, firms keep a lower leverage ratio to avoid abandon profitable investment. Similarly, trade-off theory predicts lower leverage ratio with higher growth opportunity. In the world of trade-off, tangible assets are used as collateral against bankruptcy risks, thus the intangibility of growth opportunity makes it a valueless for creditors and increases the financial distress cost [44, 51].

#### **2.4.2 Profitability**

Trade-off theory predicts a positive influence of profitability on the debt level. This is because high profits increase the income that is subject to tax and make the debt tax shields more valuable. The positive effect has been proven by Kaur and Rao [52] and Zhang [53]. Correspondingly, the supporters of pecking order theory interpret the profits and debt as substitutes of funds with a preference for internal funds. Therefore, profitable firms use less debt. The negative influence has also been proven by Köksal and Orman [41] and Abdeljawad and Mat Nor [26].

#### **2.4.3 Firm Size**

According to trade-off theory, large firms are characterized by greater diversification, less volatile profits, and strong solvency, which imply less the likelihood of bankruptcy. Furthermore, large firms are more likely to take advantage of the debt tax shields [40]. Consequently, higher debt ratio is associated with large firms. On the contrast, pecking order approach suggests a negative relationship between firms' size and leverage ratio. Large firms have greater accumulated retained earnings. Consequently, less debt is required [54]. Furthermore, large firms less suffer from information asymmetry compared to small firms. This allows firms to issue equity at a fair price. Nonetheless, pecking order theory, as well, postulates a positive effect of firms' size on leverage ratio [55]. The lower level of information asymmetry grants large firms the privilege of borrowing at favorable terms.

#### **2.4.4 Corporate Risk**

According to both pecking order and trade-off theory, the leverage ratio is negatively related to corporate risk. From a trade-off perspective, corporate risk increases the costs of bankruptcy associated with debt. Consequently, firms with high level of risk maintain lower leverage ratio [6]. Based on pecking order theory, the adverse selection between managers and creditors is more severe in firms with higher corporate risk [41]. The negative effect of firms' risk has been supported by Chadha and Sharma [38] and Köksal and Orman [41].

#### **2.4.5 Effective Tax Rate**

The trade-off theory postulates that firms take advantage of debt as its payments are tax deducted expenses. Therefore, the debt financing is utilized as tax shields, and the higher effective tax rate motivates firms to use more debt. The positive effect of corporate tax has been found by [40]. However, several empirical studies have reported the insignificant effect of corporate tax on leverage ratio [39, 56, 57].

#### **2.4.6 Non-debt Tax Shields**

Since that corporate tax has been found an empirically inefficient factor to evidence the trade-off behavior, DeAngelo and Masulis [58] have introduced the non-debt tax shields as a substitute to examine the presence of trade-off behavior empirically. The non-debt tax shields are like depreciation, amortization, and investment tax credits. From a trade-off perspective, the presence of tax shields substitutes other than debt reduces the benefits of debt financing. Accordingly, firms seem to have a lower level of debt if they enjoy a high level of non-debt tax shields [56, 59].

#### **2.4.7 Tangibility**

The fixed assets or tangible assets are factored as an important determinant of capital structure in literature. As suggested by trade-off theory, creditors deem tangible assets as collateral to serve debt in the case of bankruptcy. Therefore, firms with high tangibility are more likely to obtain debt at favorable terms [40]. Tangibility is found to have positive impact leverage ratio [26, 40, 41].

#### **2.4.8 Financial Slack**

Myers [43] argue that under pecking order behavior, firms restrain themselves by building up a current financial slack using equity to avoid risky funds in the future. Therefore, firms resort to financial slack to finance their investment outlays. Implying that, leverage ratio is predicted to be negatively associated with financial slack. As suggested by Myers [43], financial slack is the liquid assets or cash balance and marketable securities.

#### **2.4.9 Stock Price Performance**

In literature, the change in stock price is used as evidence on market timing behavior of capital structure. However, market timing theory is consistent with pecking order theory to a certain degree. The main assumption of pecking order is that the information asymmetry and adverse selection between managers and investors lead to underpricing the newly issued share [43]. In addition, Myers [43] suggests that when the information asymmetry disappears from time to time, the firms should issue stock at that time. Therefore, pecking order theory predicts lower debt level when the stock price of the firm increases.

### III. Methodology and Models

#### 3.1 Data and Variables

The study uses a data of nonfinancial firms listed in Bursa Malaysia for the period of 2012-2015. The firms with incomplete data for the period of study have been excluded, results in a final sample of 407 firms (1628 firm-years observations). The data of ownership are collected manually from the firms' annual reports. The financial data is sourced from Thomson Return Worldscope database. In order to investigate the financial strategy applied among the identities of ownership, the final sample is divided into four subsamples based on the identity of the controlling blockholders.

Firms are defined as family firms when the family members hold the majority of shareholding in the firm. Firms are defined as managerial when the executive board members hold the majority of shareholding in the firm. Firms are defined as foreign-owned firms when the majority of shareholdings are held by foreign shareholders. Firms are defined as government-owned firms when the majority of shareholdings are held by government or any of its agencies.

In the regression models, two measurements of capital structure have been used as a dependent variable. The market value of leverage ratio is defined as the ratio of total liabilities to the market value of firm (the total liabilities plus market value of equity). The second is the change in debt level which is defined as the change in the amount of liabilities outstanding. Researchers argue that the market value of leverage using liabilities is more relative to the shareholders. That is because it reflects the residual for shareholders out of firm value after redeeming all obligations [60].

The independent variables in the regression models are measured as follows:

**Table no1: Measurements of independent variables**

Growth Opportunity	GO	Liabilities plus market value of equity to total assets
Profitability	ROA	Net income to total assets
Firm Size	SIZE	Log of Total assets
Corporate Risk	RISK	The volatility of stock return
Effective tax rate	ETAX	Tax expenses to earnings before tax
Non-debt Tax shields	NOND	Depreciation and mortaziation to total assets
Tangibility	TANG	Fixed assets to total assets
Financial Slack	FSLAK	Cash balance and marketable securities to total assets
Stock Price Performance	SM	The ratio of average stock price for the current year to the preceding two years.

#### 3.2 Models and selection method

In order to examine the determinant of capital structure based on trade-off and pecking order theories, panel data fixed effect approach has been used. First, a regression model is performed to identify the significant effects of firms' specific characteristics according to these theories:

$$Lev_{it} = \beta_0 + \beta_1 GO_{it} + \beta_2 ROA_{it} + \beta_3 RISK_{it} + \beta_4 TANG_{it} + \beta_5 NOND_{it} + \beta_6 SIZE_{it} + \beta_7 ETAX_{it} + \beta_8 FSLACK_{it} + \beta_9 SM_{it} + \epsilon_{it} \dots \dots \dots (1)$$

Since the objective of this study is to test the applicability of trade-off and pecking order theory, the study follows Shyam-Sunder and Myers [23] models. To determine the speed of adjustment toward the optimal capital structure based on trade-off theory for all type of firms' identity of ownership, the study utilizes the target adjustment model as following

$$Lev_{it} - Lev_{it-1} = \lambda_{SOA} (Lev_{it}^* - Lev_{it-1}) + \epsilon_{it} \dots \dots \dots (2)$$

Where Lev is the capital structure as measured by firms' leverage ratio, Lev\* is the optimal level of leverage ratio, and λ<sub>SOA</sub> is the speed of adjustment toward the optimal level. The majority of previous studies have identified the optimal capital structure as a function of specific characteristics of the firms [6, 48, 49, 55].

$$Lev_{it}^* = \varphi X_{it} \dots \dots \dots (3)$$

Where  $X_{it}$  is a vector of variables that are related to the cost and benefits of debt and have shown a consistent correlation with capital structure. The fitted values are estimated first, and then it has been used in Equation (2) to determine the speed of adjustment.

According to pecking order model, the change in capital structure is the result of fluctuations in internally generated cash flow and investment outlays [43]. Shyam-Sunder and Myers [23] developed a simple model to test pecking order hypothesis as follow:

$$\Delta D_{it} = \beta_0 + \beta_{PO} FD_{it} + \varepsilon_{it} \dots\dots\dots (4)$$

Where  $\Delta D_{it}$  is the change in the amount of debt outstanding, and  $FD_{it}$  represents the firms' financing deficit or surplus. Following Frank and Goyal [30], the financing deficit is calculated as

$$FD_t = Div_t + \Delta WC_t + Inv_t - OC_t \dots\dots\dots (5)$$

Where Div represents the cash dividends,  $\Delta WC$  represents the change in working capital, Inv represents the net cash flow from investment activities, and OC is the cash generating from operation activities after adjusting for the non-cash items in the income statement.

### IV. Results

#### 4.1 Summary Statistics

Table 2 reports basic statistics for the variables under analysis in this study. Financial leverage ratio of sampled firms, on average, is 36%, and the mean growth opportunity is 1.002. The firms' profitability ranges between 19% and 1.4% with a mean of 7%. The sampled firms have market risk on average 0.763, whereas their tangible assets range between 0% and 99% with an average of 35%. The mean of the non-debt tax shields is 2.3%, whereas the mean for the firms' size and effective tax rate are 13.43 and 19% respectively. The financial slack ranges between 0 and 99% with an average of 16% and the stock price performance record an average of 1.21.

**Table no 2: Summary Statistics**

	Lev	GO	ROA	RISK	TANG	NOND	SIZE	ETAX	FSLACK	SM
Mean	0.36	1.002	0.07	0.763	0.350	0.023	13.43	0.190	0.161	1.21
S.DIV	0.224	0.640	0.047	0.542	0.232	0.022	1.474	0.272	0.134	0.350
Min	0.004	0.37	0.014	-0.577	0	0	10.30	-4.519	0	0.760
Max	0.941	2.900	0.19	2.811	0.996	0.331	18.57	4.64	0.999	2.107

The pairwise correlations have been tested for all variables and reported in Table 3. The highest correlation value is 64.4% between profitability and growth opportunity. Therefore, the multicollinearity appears to be not an issue in the model as no one of the correlation coefficients peaks the 80%.

**Table no 3: Correlation Matrix**

	Lev	GO	ROA	RISK	TANG	NOND	SIZE	ETAX	FSLACK	SM
Lev	1.000									
OG	-0.606	1.000								
ROA	-0.535	0.644	1.000							
RISK	0.068	0.041	0.081	1.000						
TANG	-0.034	0.011	-0.113	-0.133	1.000					
NOND	-0.113	0.239	0.140	-0.007	0.221	1.000				
SIZE	0.116	0.060	-0.089	0.056	0.137	0.024	1.000			
ETAX	-0.031	-0.005	-0.034	-0.019	-0.166	-0.007	0.015	1.000		
FSLACK	-0.430	0.224	0.308	0.008	-0.329	0.036	-0.130	0.068	1.000	
SM	-0.198	0.302	0.374	0.370	-0.091	0.041	-0.105	-0.006	0.062	1.000

#### 4.2 Regression Analysis

##### The Market Leverage Ratio

Table 4 reports the results of equation (1) using Fixed Effect regression (FE) to investigate the significance of firms' specific factors in predicting the financial strategy. The model has been conducted five times based on the identity of controlling shareholders. From the results, the explanatory variables among different categories contribute to leverage variance at 42.36%, 46.83%, 47.63%, 48.91%, and 38.72% for all firms, family, managerial, government and foreign firms respectively.

Among the firms' specific factors effective tax rate, non-debt tax shield, tangibility, growth opportunity, risk, and firm size are used to examine the majority shareholders motive to pursue a trade-off behavior on their financial strategy. On the contrary, the variables financial slack, growth opportunities,

profitability, firm size, and stock price performance are used to examine the motive of controlling shareholders to pursue a pecking order behavior on their financial strategy.

Obviously, for all type of firms, the results show an insignificant effect of effective tax rate (ETAX) on the capital structure, and this result is inconsistent with the trade-off hypothesis. The same results have been found in other studies [39, 56, 57]. As for the rest of the variables, the tangibility (TANG) of assets and non-debt tax shield (NOND) are found to be significant for the overall sampled firms and firms that dominated by family or managers, but not significant for firms that are controlled by the government or foreign shareholders. This implies that the family and managers dominated firms consider the alternatives of tax deduction when they set their target capital structure. Therefore, they use lower debt when they enjoy a higher level of non-debt tax shields. Similarly, only firms dominated by family and managers use tangible assets as collateral against bankruptcy to obtain debt. The results of tangibility and non-debt tax shields support the trade-off behavior of family and managerial firms but not for government and foreign firms.

The corporate risk (RISK) is found to be strongly significant for overall sampled firms and significant at level of 10%, 5%, and 5% for family, managerial and foreign firms respectively but not significant for firms dominated by government. The negative sign of corporate risk supports the trade-off theory, which suggests that firms with higher bankruptcy risks use lower debt. The close relationship between government and creditors decrease the significance of risk.

Growth opportunity (GO) and firm size (SIZE) are strongly significant and consistent with the assumption of trade-off theory for all types of ownership identity firms, Where growth opportunity is found to be negative, and firm size is found to be positive. However, these results are consistent with the pecking order theory too.

Profitability (ROA) reveals inconsistent prediction with the trade-off theory suggestion. The negative effect on firms' capital structure supports the interpretation of pecking order theory which suggests that with high asymmetric information, firms tend to depend on internally generated funds instead of external funds. However, profitability has appeared not to be significant for firms that are dominated by government or foreign shareholders. Financial slack (FSLACK) is found to have a negative effect, and it is strongly significant for all types of firms. In the context of pecking order theory, firms tend to draw down the equivalent cash and cash balance before resorting to debt funds [43]. Therefore, the negative effect of financial slack supports the firms' pecking order behavior. The stock price performance (SM) is found to be negative and strongly significant for all type of firms. This implies that firms tend to use equity funds when the firm's stock price is overpriced in the stock market.

**Table no4:** Results of FE regression for the determinants of Market leverage ratio Eq(1)

Independent Variables	Dependent Variable: capital structure				
	All Firms	Family	Managerial	Gov	Foreign
GO	-0.1128*** (0.000)	-0.0871*** (0.000)	-0.0942*** (0.000)	-0.1608*** (0.000)	-0.0706** (0.000)
ROA	-0.0019*** (0.007)	-0.0026** (0.000)	-0.0026*** (0.164)	-0.0007 (0.618)	-0.0003 (0.812)
RISK	-0.0158*** (0.001)	-0.0125* (0.060)	-0.0129** (0.019)	0.0017 (0.854)	-0.0155** (0.053)
TANG	0.0624*** (0.000)	0.1256*** (0.001)	0.0979*** (0.001)	0.0455 (0.184)	0.0170 (0.593)
NOND	-0.4571*** (0.000)	-1.648** (0.023)	-1.975*** (0.000)	0.5975 (0.159)	0.2246 (0.436)
SIZE	0.0559*** (0.000)	0.0677*** (0.000)	0.0908*** (0.000)	0.0708*** (0.000)	0.0892*** (0.000)
ETAX	0.0014 (0.840)	-0.0297 (0.195)	0.0104 (0.402)	0.0022 (0.368)	-0.0133 (0.519)
FSLACK	-0.1061*** (0.001)	-0.1402*** (0.009)	-0.1745*** (0.000)	-0.1629** (0.032)	-0.1552** (0.016)
SM	-0.0671*** (0.000)	-0.0979*** (0.000)	-0.0948*** (0.000)	-0.0343** (0.058)	-0.0781*** (0.000)
N. Obs	1628	791	1127	337	455
R <sup>2</sup> %	42.36	46.83	47.63	48.91	38.72
P-value	0.000	0.000	0.000	0.000	0.000

\*, \*\*, \*\*\* Significant at 10%, 5% and 1% level respectively.

### Change on Debt Level

Table 5 summarizes the results of FE regression tests for the target adjustment model (equation 2) and pecking order model (equation 3) as suggested by Shyam-Sunder and Myers [23] for all type of firms' identity of ownership. Panel A provides the results of the target adjustment model. The targets are the fitted values that are estimated by regressing the leverage ratio against the firms' characteristics that are included in Eq (1). The

results show that the deviations from the target ( $Lev^* - Lev$ ) are strongly significant. The speed of adjustment ( $\lambda_{SOA}$ ) for overall firms is 18.9%, which is relatively greater than 12.7% found by Abdeljawad and Mat Nor [26], however, it is much smaller than 40% found by Nejad and Wasiuzzaman [61] for a sample of Malaysian firms. As for the controlling shareholders' identity, the speed of adjustment shows variation among identities. Whereas the firms dominated by manager adjust their leverage faster at 20.5%, foreign firms have the lowest speed of adjustment toward the target (14.4%). Family and government firms have speed of adjustment 18.4% and 17.1% respectively. The coefficient of determination ( $R^2$ ) of target adjustment model for all type of firms are relatively small (15.6%, 17.4%, 18.6%, 13.1% and 11.8% for all firms, family, managerial government, and foreign respectively).

The results of pecking order model is presented in table 5 panel B. The coefficients of determination ( $R^2$ ) are relatively higher compared to target adjustment model in panel A for all type of firms (15.6%, 51.4%, 53%, 14.37% and 32.37% for all firms, family, managerial government, and foreign respectively) which means that pecking order theory explains the change on firms' capital structure better than target adjustment model. However, the coefficients of financial deficit ( $\beta_{PO}$ ) are significantly lower than the prediction of 100% by pecking order model [23] (71%, 61%, 67%, 71% and 70% for all firms, family, managerial government, and foreign respectively).

**Table 5:** Regression results for speed of adjustment model Eq (2) after calculating the fitted values of optimal debt level based on Eq (3) and the results for Financial Deficit Model Eq(4)

Independent Variables	Dependent Variable: change on debt level				
	All Firms	Family	Managerial	Gov	Foreign
Panel A: Target adjustment model Eq(2)					
$(Lev^* - Lev), \lambda_{SOA}$	0.1895*** (0.000)	0.1849*** (0.000)	0.2053*** (0.000)	0.1719*** (0.000)	0.1446*** (0.000)
$R^2\%$	15.62	17.45	18.62	13.19	11.83
P-value	0.000	0.000	0.000	0.000	0.000
Panel B: Pecking order model Eq(4)					
FD, $\beta_{PO}$	0.7113*** (0.000)	0.6145*** (0.000)	0.6700*** (0.000)	0.7183*** (0.000)	0.7006*** (0.000)
$R^2$	15.66	51.42	53.00	14.37	32.37
P-value	0.000	0.000	0.000	0.000	0.000
N. Obs	1628	791	1127	337	455
*, **, *** Significant at 10%, 5% and 1% level respectively.					

The results mutually corroborate the findings of previous studies that report evidence for the favor of both models, confirming that they are not mutually exclusive [8, 51,62]. Apparently, as far as the change in debt level is concerned, the pecking order behavior increases the cost of adjustment toward the targets. For firms that are dominated by government and foreign shareholders, the pecking order behavior is more pronounced in their financial strategy ( $\beta_{PO} = 0.71$  and  $0.70$ ) and this, in turn, is reflected on slower speed of adjustment ( $\lambda_{SOA} = 17\%$  and  $14\%$ ). Similarly, regarding for the determinant of leverage ratio (table 4, Eq (1)), some variables that are predicted by trade off theory, like tangibility and non-debt tax shields are found not to be significant for firms dominated by government and foreign shareholders, but they are strongly significant for family and managerial firms. Therefore, trade-off behavior is more pronounced in firms that are dominated by family and managerial shareholders. This might refer that the direct engagement of managerial and family shareholders in firms' management reduces the level of information asymmetry. Therefore, the trade-off between the costs and benefits of external finance is more factored than how it will be used.

### V. Conclusion

In this study, the key determinants of capital structure based on trade-off and pecking order theories are examined. The main objective is to investigate which theory is more applicable to Malaysian firms based on the identity of controlling shareholders. The overall sample of 407 firms has been divided into four subsamples according to the identity of dominated shareholders (managers, families, foreigners, and government) and this enables to examine the differences in financial decision process among different ownership identities. Overall, the results of multiple regression show evidence in favor of both theories. The negative relation between financial slack, profitability, and stock price performance with leverage ratio supports the pecking order predictions. The positive effect of tangibility and non-debt tax shields and the negative effect of risks support the trade-off predictions. Growth opportunities and firm size status are consistent with predictions of both theories.

The major violation observed for sub-samples concerns an insignificant effect of tangibility and non-debt tax shields for foreign-owned and government-owned firms. In addition, the risk for government firms has



shown an insignificant effect. These results suggest that pecking order theory provides better explanations of financial choices for firms dominated by foreign and government shareholders.

The study also utilizes the target adjustment and financial deficit models as developed by Shyam-Sunder and Myers [23] to test whether the changes in debt level are explained better by pecking order or trade-off theory. Overall, the pecking order model has greater confidence than the target adjustment model for all types of ownership identities. However, the target adjustment model seems to perform well. When the financial deficit has a higher coefficient (for government and foreign firms), the target adjustment model shows slower speed for the same firms.

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