

CEO's CHARACTERISTICS AND FIRMS' SPECIFIC FACTORS ON OPTIMAL LEVERAGE IN MALAYSIA

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Abstract: *This study conducted to investigate the CEO's characteristics and firms' specific factors on optimal leverage in Malaysia by employing 472 observations and 50 listed companies (non-financial firms) for 11 years period, 2008-2018. This study pays attention to the dynamic aspect of capital structure which is a relatively new area in the finance literature. The objective of this study is to investigate managerial (CEOs) characteristics and firm's factors in optimal leverage by applying dynamic model consistent with dynamic capital structure nature. By employing dynamic panel data, this study analyses the data through two-step system GMM introduced by Blundell & Bond (1998) consistent with past empirical studies. This finding shows that CEOs characteristics and the firm's specific factors significantly impact optimal leverage in Malaysia' companies. Hence, we accept alternate hypotheses in this study. This study would contribute to actual practise on identifying determinants of optimal leverage in proper forecasting and take action on controlling/managing all the significant variables to meet the optimal leverage in their practice. Meanwhile, the future researcher will gain more understanding of dynamic model and allow them to apply this finding as a comparison with their future study by supporting their literature review.*

Keywords: *Optimal leverage, CEO characteristics, Dynamic model, Capital structure, Malaysia*

Introduction

Researchers extensively researching the observed leverage ratio and assumed it as optimal in the static model. However, it is may not necessarily optimal. Changes in capital structure are costly implements as point out by Myers, (1977). According to Fama & French (2002) stated that the target leverage ratio is not observable. Hence, the observed leverage ratio at any point in time may essentially vary from its optimal ratio.

Furthermore, the static model unable to explain the nature of the dynamic aspect of capital structure and only applicable for short-run determinants. In contrast, the dynamic model can supply extra insights into the long-run capital structure determinants and most importantly,

capital structure decisions are dynamic by nature. According to Clark et al. (2009) highlight that contrary to the static model, which assumes that firms are always at their target capital structures, the dynamic model does not assume firms being in symmetry. Rather it depends on the more realistic assumption of partial or incomplete adjustment. Referring to these arguments, we apply this dynamic model to investigate the unobservable leverage ratio in non-financial firms using Upper Echelon Theory for managerial characteristics.

Optimal leverage decision making is one of the most crucial financial decision made by Finance manager makers (T. Mukherjee & Wang, 2013). This short-term desideratum leads this research to focus on the trend in optimising the capital structure by analysing the various internal and external variables influencing the capital structure. In the corporate finance empirical studies, there is an extensive debate on whether the company have an optimal capital structure and, if they do, how do they converge to this optimum leverage ratio; target leverage (Buvanendra, Sridharan, & Thiyagarajan, 2018; Fama & French, 2002; Leary & Roberts, 2010). Numerous papers suggest that companies' financing decisions nudge them towards target leverage ratios. Corporate governance and the firm's specific variables are tools to optimise target leverage in the capital structure (Buvanendra, Sridharan, & Thiyagarajan, 2017). This study was focusing on corporate governance which is CEO characteristics and firm's control variables. CEO heterogeneity needs to be examined by focusing on three potentially essential characteristics such as CEO's gender, age and tenure. At the same time, the firm's variables in this study are profitability, tangibility and the firm's size.

Previous studies were extensively researching optimal leverage in the context of a developed market (developed country). However, they are neglecting the studies on optimal leverage in the emerging country resulting in minimal studies on emerging economies context and place it in a nascent stage (Buvanendra et al., 2017). Kuo, Wang did past studies in U.S's companies found that firm factors have an impact on financial leverage. Besides, there are a large number of studies on capital structure, focussing on the country to country variations among companies in developed countries. Such as Wald (1999) compared the capital structure of firms in the U.S. with those in the United Kingdom (U.K.), Germany, France and Japan. They found that the legal and institutional differences do influence capital structure and Nguyen, Rahman, & Zhao (2017) investigate CEO's characteristics and duality on firm valuation in Australia's companies. Found leverage has a relationship with corporate governance. On the contrary, developing countries, have rarely been the subject of research in this field, as mentioned by Buvanendra et al. (2017). Factors affecting capital structure in an emerging market might differ from those developed market, hence this study investigating Malaysia to close the gap by contributing more findings in the emerging market /country.

Institutions with good governance are institutions that adhere to the principles of justice, transparency and accountability (Al & Saad, 2017). Behavioural differences in CEO characteristics have been studied widely in psychology and other fields, but only a few being studied in corporate finance. CEO competency is unobservable factors. Thus, this study fit well with a dynamic model for unobservable leverage ratio. Therefore, this study aims to fill the gap by investigating corporate governance such as CEO's characteristic and firms' specific variables as a determinant on optimal leverage in Malaysia. Next section will be elaborating more on upper echelon theory and states the hypotheses.

Literature Review and Hypotheses development

Upper Echelon Theory - Corporate governance

The idea that top managements observe their situations through their own highly personalised lenses is known as upper echelon theory (D. C. Hambrick & Mason, 1984). Top management psychological constructs are difficult to observe. Thus upper echelon theory suggests that managerial characteristics can be used as proxies for their cognitive base and value (Hiebl, 2014). Upper Echelon Theory stated that managerial characteristics (CEO) likewise affect firm performance either directly or mediated by strategic choice (Carpenter, Geletkancz, & Sanders, 2004; D. C. Hambrick & Mason, 1984; Hiebl, 2014; Nielsen, 2010). According to Donald C. Hambrick (2007), the core of the Upper Echelon Theory repose on the premise that the interpretations that executives improve the situations they face, and because of their actions, are greatly influenced by their personalities, values and experiences. The constitution of the top management team of an organisation consequently affects the prospective performance of the organisation governing (Moreno-Gómez, Lafuente, & Vaillant, 2018). CEO characteristics are derived from top management characteristics according to upper echelons theory (D. C. Hambrick & Mason, 1984). This study is focussing on three major talented CEOs characteristics such CEO age, gender and tenure.

Hambrick & Mason (1984) on his Upper Echelon Theory's study stated that older CEOs are more conservative and swing toward heedful strategies. CEO age shapes a CEO's financing decisions and attitudes towards risk hence improved firm performance (Cronqvist, Makhija, & Yonker, 2012; Malmendier, Tate, & Yan, 2011). Older CEO gain more experience that may assist them to improve the firm's operations in their career; they also lean toward risk-averse and are prone to defending the circumstances (Kokeno & Muturi, 2016). Child (as cited in Nguyen et al. 2017) pointed out that "there is a strong relation between youthful management and firm growth in assets, sales and profits". Younger CEO employ more considerable physical and mental effort, thus exacting the status quo and encourage for changes and growth in their companies. Prior theoretical work predicts that CEOs age impacts his/her risk preferences and risk-taking behaviour, but predictions are mixed. Wegge conducted a field study (as cited in Kokeno & Muturi, 2016) found that age heterogeneity improved the ability of the CEO to solve tasks with high complexity such as issues of debt and equity financing. Therefore, age has a positive relation with leverage. On the contrary, Viviani (2008), Hall, Hutchinson, & Michaelas (2004), and Črnigoj & Mramor (2009) found that there is not enough evidence to conclude the existing relationship between leverage and CEOs age.

H_1 : There is a significant impact between CEO's Age towards optimal leverage.

Senior executives with high gender diversity (having mix males and females) in firms are positively and significantly correlated with high earnings quality (Krishnan & Parsons, 2008). Male CEOs are more aggressive and tend to engage in mergers and acquisitions in line with investments aspects, hence leading to an increase in the firm's leverage. This consecutively leads to the minor return of acquisitions and shorter firm endurance period and causing significant positive relationship with leverage (J. Huang & Kisgen, 2013). Martin, Nishikawa, & Williams (2009) reveals that firms run by female CEOs are less aggressive by nature and tend to stay in safety zone which leads to engaged less in merger and acquisitions in term of investment, thus leading the firm with lower leverage. Supported by Faccio, Marchica, & Mura (2012) reiterate that firms manage by female CEOs have lower leverage, less volatile earning and have a higher chance of firm's endurance period and concluded female CEO has a

significant negative relationship with leverage. However, a few studies found that there is a lack of scientific evidence of the possible positive correlations between gender diversity of the upper echelons managerial characteristics and business performance (Moreno-Gómez et al., 2018). Shao and Liu, (2014) reveal that on average CEO gender has no significant effect on firm performance. Following the division of firms in their sample by their risk levels, nevertheless, the outcomes no significant difference in firm performance between male and female CEOs even though the firms are categorised as high risk or low-risk firms.

H_2 : There is a significant impact between CEO's Gender towards optimal leverage

Upper Echelon Theory points out that executives improve the situations they face and their personalities, values and experience greatly influence their actions. The longer the tenure, the higher the experience they would gain. CEOs longer tenure could lead to substantial conservatism and state of affairs bias. Musteen, Barker, & Baeten (2006) reveals that the longer CEO tenure tends to lead CEOs to become less receptive to changes in the management, hence causing significant positive relationship with leverage. Although there are definite potential drawbacks to longer CEO tenure, however, there is possibility of counterbalance benefits from more considerable experience and knowledge of the firm arising from longer tenure reducing the adverse effects, thus indicating a significant negative relationship with leverage (P. Nguyen et al., 2017). Henderson, Miller, & Hambrick (2006) stated that longer CEO tenure could be valuable in a stable environment. However, it becomes detrimental when business conditions are fast changing. Henderson et al. (2006) reveal that CEO tenure is positively related to firm profitability in the food industry, but is negatively associated with firm profitability in the computer industry. However, McClelland, Barker, & Oh (2012) stated that the negatives outweigh the positives for firms facing a more uncertain and a rapidly changing environment, therefore no significant relationship with leverage.

H_3 : There is a significant impact between CEO's Tenure towards optimal leverage.

Firms specific factors

The reducing of financing cost and lever returns of corporate governance of the company by constructing an optimal mix of debts (long term debt and short-term debt) may resultantly the value of the company. However, optimality is not observable directly and static according to the dynamic trade-off theorists. Three variables from firms' specific factors have been chosen in this study to support managerial characteristics on the optimal leverage ratio, which are firms' profitability, tangibility and size. Past studies such as Gul (2013), Haron, Ibrahim, Nor, & Ibrahim (2013) Al-Ajmi et al. (2009) and Zhang (2010) conducting investigations on factors affecting the capital structure and found profitability positively significant with leverage. Flannery and Hankin (2007) stated that positive free cash flow from profitable investments mitigates the cost of external funding which may affect the level of debts (internal funding). In contrast, Kayo & Kimura (2011) and Tariq, Majed, & Muhammad (2011) reveals that profitability is negative significantly correlated with leverage in their studies in optimal capital structures. Zhang et al. (2012) stated that the low leverage puzzle from the corporation efficiency perspective by stating a negative correlated exponential relationship between the corporation efficiency and leverage, which indicate that the more efficient the company is, the lower leverage it employs. Meanwhile, Frank and Goyal (2009), Chakraborty (2010), and Arvanitis et al. (2012) and Amjed (2016) found that there is not enough evidence to conclude that profitability has a significant relationship with optimal leverage ratio in their studies on factors affecting optimal leverage.

H_4 : There is a significant impact between Profitability towards optimal leverage.

Tangibility is the most critical determinant for the level of leverage chosen by the firm in its capital structure (D. T. Nguyen, Diaz-Rainey, & Gregoriou, 2012). Empirical studies conducted by Nunkoo & Boateng (2010) and Cortez & Susanto (2012) on optimal capital structures found a significant positive relationship between tangibility and optimal leverage ratio. On the opposite line, S. Mukherjee & Mahakud, (2010) report there is a negative relation between leverage and tangibility, it is because firms with lower collateralizable assets tend to have higher levels of debt to avoid any kind of management privileges. Past empirical studies such as Karadeniz, Kadir, Balcilar, & Onal (2009) and Ahmed Sheikh & Wang (2011) argue that there are no relations between tangibility and leverage

H_5 : There is a significant impact between Tangibility towards optimal leverage.

Huang & Song (2006) combine four variables to determine their relationships with capital structure and finds a positive relationship between size and level of debt for the firms in China. Abobakr & Elgiziry, (2015), Gul, (2013) and Haron et al. (2013) refuted that the determinants of capital structure like firm size have positive significant effect on corporate leverage as larger firms are expected to have a higher debt capacity and can be more highly geared. However, Titman & Wessels (1988), Hall, Hutchinson, & Michaelas (2004) and Chakraborty (2010) found a significant negative relationship between a firm's size and leverage in optimal capital structures. They stated that small size firms have limited access to the equity capital market, thus tend to rely heavily on bank loans for their funding requirements.

H_6 : There is a significant impact between a firm's size towards optimal leverage.

Methodology

Data Collections

This study applied quantitative data using panel data system GMM in Stata software. Subjecting to non-financials firms samples in this study, firms from the financial sector such as banks, insurance and finance corporations are rule out from the samples. This is purely caused by the different accounting categories and rules practised by financial and non-financial firms. This practice is consistent with Rajan & Zingales (1995) and de Jong, Kabir, & Nguyen (2008). Other than that, firms which did not has completed data for the past 11 years period (2008-2018), and did not has the same year-end annual report in the financial statements are excluded as well. Therefore only 50 companies selected after the filtering process out of top 100 index ranking listed in Bursa Malaysia and 472 observations have been observed. Source of firms' financial data are from Thompson Reuters (Datastream) and bursa Malaysia in line with Ali (2019). CEO's details are obtained from the company's annual report in the director's profile section. This data period offers excellent opportunity to study capital structure determinants after the Global Financial Crisis 2007-2008 along with the up and downs of volatile economic conditions throughout the period.

Variables Definition and Proxy

The use of book value leverage or market value leverage for measurement of ratio in the company remains explicit. Fama & French (2002) argued one should use book value leverage because it does not affect by external factors, not under the company's direct control. Devos, Rahman, & Tsang (2017) state that market leverage is better in representing the agency problem

between equity holders and creditors. Subjecting to CEO's characteristics, nature is based on financial statement data, and it could have an impact on leverage. Thus this study applies book value leverage in measuring the debt ratio. Thus, this study uses total debts ratio as leverage proxy consistent with by Lemma & Negash, (2014), R. Ahmad & Etudaiye-Muhtar, (2017) and Amjed, (2016).

CEO's age (AGE) is measure as the age of CEO from the corporate profile referred to an empirical study by Kumar et al., (2017). CEO's gender (GEN) is measured as applying a dummy variable which code 0 for female and 1 for male supported by Moreno-Gómez et al., (2018). CEO's Tenure (TENURE) is measure as a period working in a current position consistent with the past study done by Nguyen, Rahman, & Zhao, (2017). Profitability used in this study is the return on assets, ROA (Garba, Aminu Ibrahim, & Ibrahim Kassim, 2016) which measure as net income divided by Total assets (PROF) supported by Flannery & Rangan, (2006). Tangibility is measure as Fixed Assets divided by Total assets (TANGI) consistent with Kayo & Kimura (2011) empirical study. Last but not least, Size of company is measure as Ln of sales (revenue) following past empirical study by Chen et al., (2014). Summarise of proxy and empirical evidence presented in Table 1.

Table 1: Variable's Term & Proxy

Variable	Proxy	Terms	Empirical Evidence
Leverage	Total Debt / Total Assets	TDTA	Amjed (2016), and Haroon, Ibrahim, Nor & Ibrahim (2016)
CEO's Age	Age of CEO from director's portfolio	AGE	Buvanendra et al. (2018) and Gyapong, Monem, & Hu, (2016)
CEO's Gender	Apply the dummy variable. If female code as 1 and 0 for man.	GEN	Kumar et al. (2017) and Moreno-Gómez et al., (2018)
CEO's Tenure	the working period in the field as CEO	TEN	Miller, (1991) and Nguyen et al. (2017)
Profitability (ROA)	Net Income /total assets	PROF	Flannery & Rangan (2006), and P. Nguyen et al. (2017)
Tangibility	Fixed Assets /Total Assets	TANGI	Kayo & Kimura (2011) and Feidakis & Rovolis (2007)
Firm's size	Ln (Sales)	SIZE	Haron et al. (2013b) and Chen et al. (2014).

Source: Proxy Variables are Collecting from Past Empirical Studies By Author

Dynamic regression model

In the dynamic capital structure framework, the very first step to estimate the factors that influence the optimal leverage is to estimate the target leverage ratio. Past studies include the corporate's specific factors as the determinants to estimate the corporate target leverage ratio or TDR. Though the studies adopted the determinant of previous studies, unlike other studies, this study includes a set of CEO demographic characteristics as the determinants for target leverage ratio as well. The model is written as below:

$$LEV_{it}^* = \sum_{j=1}^L \beta_j X_{jit} \quad (1)$$

Where LEV_{it}^* represent the total debt ratio, X_{jit} is a vector of corporate variables and CEO characteristics variables. In this study, the target leverage ratio is estimated as follow:

$$LEV_{it}^* = \beta_0 + \beta_1 AGE_{it} + \beta_2 GEND_{it} + \beta_3 TEN + \beta_4 PROF_{it} + \beta_5 TANGI_{it} + \beta_6 SIZE_{it} + \varepsilon_{it} \quad (2)$$

The frictionless market situation with no adjustment cost on information asymmetries and transaction cost, the $LEV_{it} = LEV_{it}^*$ due to the firms are instantly responding with complete adjustment to variations in the independent variables by varying its current leverage ratio to equalise its optimal leverage (Haron et al., 2013). Meanwhile, according to (T. Mukherjee & Wang, 2013) in firms actual practice, they are bound to bear all these costs. Thus it leads to delay for firms to fully adjust their actual capital from the previous period to the present target. Therefore, as a result, the $LEV_{it} - LEV_{it-1} \neq LEV_{it}^* - LEV_{it-1}$. The deviation is represented by γ . Therefore the partial adjustment model is written as below equation:

$$LEV_{it} - LEV_{it-1} = \gamma_{it}(LEV_{it}^* - LEV_{it-1}) + \mu_{it} \quad (3)$$

Whereas, LEV_{it} and LEV_{it-1} are the form of the firm's leverage in periods t and t-1, while γ_{it} represents the adjustment cost towards target leverage starts from previous year leverage ratios. The value of γ is based on the restriction $|\gamma| < 1$, which standing in a condition that LEV_{it-1} tends to LEV_{it}^* as $t \rightarrow \infty$ (Haron et al., 2013; T. Mukherjee & Wang, 2013). The $\gamma = 1$ when the adjustment is complete, it shows that the entire adjustment is made within one period and the firm at time t is at its target leverage level. If the $\gamma < 1$, then the adjustment is below than the target level at time t, however, when $\gamma > 1$, then the adjustment is over than the target level. The following equations can be derived from the combinations of equation 1 and 3 as below:

$$LEV_{it} = LEV_{it-1} + \gamma_{it}(LEV_{it}^* - LEV_{it-1}) \quad (4)$$

$$LEV_{it} = LEV_{it-1} + \gamma_{it} LEV_{it}^* - LEV_{it-1} \quad (5)$$

$$LEV_{it} = (1 - \gamma) LEV_{it-1} + \gamma_{it} (\sum_{j=1}^L \beta_j X_{jit} + \mu_{it}) \quad (6)$$

$$LEV_{it} = (1 - \gamma) LEV_{it-1} + \sum_{j=1}^L \gamma_{it} \beta_j X_{jit} + \gamma_{it} \mu_{it} \quad (7)$$

Written as :

$$LEV_{it}^* = \lambda_0 LEV_{it-1} + \sum_{j=1}^L \lambda_j X_{jit} + \omega_{it} \quad (8)$$

Where $\lambda_0 = 1 - \gamma_{it}$; $\lambda_j = \gamma_{it} \beta_j$ and $\omega_{it} = \gamma_{it} \mu_{it}$

This equation eight will be used to estimate the dynamic capital structure model (System GMM) consistent with prior studies done by Buvanendra et al. (2018) and S. Mukherjee & Mahakud (2010).

Estimation method

Back to the nature of the dynamic model, this study is using the Generalized System Method of moments (GMM) for this analysis. They are adjusted for heteroscedasticity. We also report the results of a Wald-test for the joint significance of all regressor variables. Most important, it can be shown that the coefficient estimates are only consistent if there is no second-order serial correlation in the differenced residuals. Past studies have shown that OLS yields biased and inconsistent estimators because it ignores time-invariant unobserved individual effect (η_i) and

the endogeneity of LEV_{it-1} . The FEM eliminates the η_i , but it also produces inconsistent parameters if T is fixed, regardless of the size of N because it does not deal with the endogeneity of LEV_{it-1} . Nguyen et al., (2017), if one uses FEM to estimate the dynamic panel data model (refer to equation 7), one would produce inconsistent estimators and bias due to the correlation between a time-invariant component of the error term and LEV_{it-1} . GMM is a normal practice in the statistical models where the parameters are infinite-dimensional.

Past researchers propose that the semi-parametric model yields robust results in the event of the unknown shape of the distribution function. Other than that, past researchers propose that GMM estimators are more efficient, consistent and asymptotically normal among the available linear and non-linear estimators, which did not apply extra information other than the moment conditions revealed in the data. Subjecting to the number of observations and suitable data, GMM estimators generate the best estimate of the actual parameters specialise for the dynamic model data. The use of system GMM (SYS-GMM) yields consistent and consistent parameters because it controls both the unobserved firm effect, and it is robust to the panel length. (Flannery & Hankins, 2011). Amjed, (2016) point out that system GMM is highly recommended approaches in the dynamic panel data model supported by other researchers who are using the system GMM as the estimation approaches such as Devos, Rahman, & Tsang (2017), Etudaiye-Muhtar & Ahmad (2015) and Mukherjee & Wang (2013).

Firstly, it is essential to understand the Difference GMM estimator before we explain further on the GMM method. Arellano & Bond (1991) introduced the Diff GMM estimator is an estimation used to remove the time-invariant fixed effect and displayed the lagged dependent variable's values (levels) constitute a legitimate instrument for the first difference variable, proved that the residuals are free from the second-order serial correlation. This estimation leads to the shortcoming as the estimators severely suffer from finite-sample bias and perform poorly on the highly persistent data due to weak instruments. Meanwhile, system GMM estimation which has been introduced by Blundell & Bond, (1998), where it takes the lagged first differences as the instrument in a non-transformed (levels) equation. In this case, lagged level explanatory variables can be employed as instruments in the first-differenced equation. In contrast, the lagged first differences can be used as the instrumental variables for the level equation (P. Nguyen et al., 2017). As a result and testified by Blundell & Bond, (1998), this system GMM is proved to be more efficient and less small-sample biased as well as to mitigate the influence of high persistence variables.

These research studies have an unbalanced panel and small-time period of the data as it is a part of capital structure explanatory variables which are serially correlated and have endogeneity issues (Antoniou, Guney, & Paudyal, 2008). Therefore, this study is using a two-step system GMM for the analysis to avoid a biased standard error. Several specification tests have to be implemented for the validity of system GMM in order to produce efficient and consistent estimators. These tests are the Wald test, Second-order serial autocorrelation of residuals test, and Sargan test (Etudaiye-Muhtar & Ahmad, 2015; Haron et al., 2013). Wald test is specifically for the joint significance test for all the coefficients with a null hypothesis that all the determinants of the target ratio are jointly equal to zero. This test is based on F distribution. Next test is second-order serial autocorrelation of residuals (AR(1) and AR (2)). This test follows a normal distribution, while a null hypothesis of no autocorrelation although by construction, there is a serial correlation in AR (1). Sargan test or Hansen statistics is an over-identifying restriction test, and it is asymptotically has χ^2 distribution with $(s - q)$ degree of freedom, where the s is the number of instruments and q is the number of regressors in the

original equation. The instruments in this null hypothesis under this test are exogenous, meaning that all the instrument are valid. According to Gujarati & Porter, (2009), we must not reject the null hypothesis for the validity of instruments because this may implies that the computed of chi-square must not exceed the critical chi-square value.

Findings and Discussions

Descriptive Statistic and Pearson Correlation

Table 2 in this study presents the summary of statistic for all the variables used in the regressions. The average of total debt to total asset ratio is 23.91 per cent with 14.71 per cent of standard deviation. The use of minimum debt ratio is 0.02 per cent, and the highest debts use 70.24 per cent for the study samples in Malaysia. CEO age average is between 54 to 55 years old. The youngest CEO for most of the firms is 26 years old, while the oldest CEO's age is 74 years old. CEO gender is a dummy variable which almost 99.82 per cent of the samples are male CEO. The average tenure of CEO's period working in the firms is 7.5 years. The shortest period working as CEO is one year, and the most extended period is 36 years. Average of a firm's profitability ratio is 79.65 per cent with the lowest profitability is -1129.00 per cent, and the highest profitability is 772.00 per cent. The mean of firm's tangibility is 31.17 per cent. The lowest tangibility ratio is 0.3 per cent, and the maximum ratio is 87.1 per cent. We also found the firm's size with the average sales of RM3.14 million generated in the sample of this study. The lowest sales generated is RM0.88 million and the highest sales generated is RM4.67 million respectively.

Concerning to multi-collinearity among independent variables, Table 3 presents the Pearson correlations matrix of independents variables in this study. Overall correlations between independent variables are lower than 0.5 indicates no multi-collinearity problem arise in this sample. CEO age is insignificantly correlated with CEO gender but has a significant positive correlation with CEO tenure instead. CEO age also insignificantly correlated with a firm's profitability and firm's tangibility, while CEO age is significantly positively correlated with a firm's size. CEO gender is insignificantly correlated with CEO tenure, firm's profitability, tangibility and size, respectively. CEO tenure is insignificantly correlated with a firm's profitability and tangibility, while the significantly positive correlation with firm's size. Firm's profitability is insignificantly correlated with the firm's tangibility and size, respectively. Firm's tangibility is a significant positive correlation with firm's size.

Table 2: Descriptive Statistic

Variables	Mean	Std. Dev.	Minimum	Maximum
TDTA	0.2391	0.1471	0.0002	0.7024
AGE	54.4098	8.3418	26	74
GEN	0.9982	0.0427	0	1
TEN	7.5465	7.2152	1	36
PROF	0.7965	0.6042	-11.29	7.72
TANGI	0.3117	0.1978	0.003	0.871
SIZE	3.1434	0.7219	0.8808	4.6744

Note: Please refer Table 1 for variables terms

Table 3: Pearson Correlations

	AGE	GEN	TEN	PROF	TANGI	SIZE
AGE	1.0000					
GEN	0.0124	1.0000				
TEN	0.3992**	0.0388	1.0000			
PROF	-0.0201	0.0026	0.0046	1.0000		
TANGI	-0.0168	0.0014	-0.0457	0.0039	1.0000	
SIZE	0.1625**	0.0323	0.1597**	-0.0068	0.1615**	1.0000

Note: correlation marked with ** is significant at 0.01 level

Determinants on Optimal Leverage

Empirical results displayed in Table 4 shows the relationships between independent variables and dependent variables in Malaysia's firms. Lagged leverage (Lev (-1)) also known as the cost of adjustment in this sample is 0.3635 per cent indicates that firm lagged behind at least 36.35 per cent to achieve the target leverage (optimal leverage) and this optimal leverage is the significantly positive relationship to all the independent variables in this study.

CEO age shows as the significant negative relationship with optimal leverage in line with Upper Echelon Theory indicates that younger CEO tend to utilised more debts in their funding method compared to older CEO which is more conservative and tends to follow cautious strategies resulting in lower debt ratio (D. C. Hambrick & Mason, 1984). These findings are consistent with Kokeno & Muturi (2016) found that older CEO gain more experience that may assist them to improve firm's operations in their career, they also lean toward risk-averse and are prone to defending the circumstances, hence resulting in an inverse relationship with leverage.

Table 4: Determinants on optimal leverage (two-step system GMM).

TDTA	Coefficient		
Lev (-1)	0.3635***		
AGE	-0.0010***		
GEN	0.1824***	AR(1)	-3.4993***
TEN	-0.0010***	AR(2)	-0.6199
PROF	-0.1557***	Sargan test	41.83
TANGI	0.2718***	Wald (joint) χ^2	8025.90***
SIZE	0.0274***	No of observations	472
_Cons	-0.1331***	No of groups	50

Source: results are based on robust standard error.

Coefficients that marked with *** are significantly differenced from zero at 1% level.

CEO gender in this finding reveals a significant positive relationship with optimal leverage indicates that male CEO engaged with high debt in their management. This study consistent with J. Huang & Kisgen (2013) who reveals that male CEOs are more aggressive and tend to

engage in mergers and acquisitions in line with investments aspects, hence leading to the increase of firm's leverage. This consecutively leads to the minor return of acquisitions and shorter firm endurance period and causing inverse relationship with leverage compared to female CEO who are less aggressive by nature and tend to stay in safety zone which leads to engaged less in merger and acquisitions in term of investment, thus leading the firm with lower leverage (Faccio, Marchica, & Mura, 2016).

CEO tenure is a significantly negative relationship with optimal leverage, indicates that CEO longer tenure would lead to the reduction of financial leverage. This study is consistent with P. Nguyen et al. (2017) as they found that longer CEO tenure contributes to CEO more significant experience and knowledge in managing firm's affair and reducing the adverse effects, thus resulting in a significant inverse relationship with leverage in line with Upper echelon theory that point out that executives improve the situations they face. Their personalities, values and experience greatly influence Their actions.

This study found that the firm's profitability is a significantly negative relationship with optimal leverage, as presented in Table 4. The increase in profitability will reduce the company's debt financing method, indicates that the more efficient the company is, the lower the leverage it employs. This study consistent with Kayo & Kimura (2011) and Tariq, Majed, & Muhammad, (2011) following the pecking-order theory, they found a significant negative relationship between profitability and leverage in the optimal capital structure.

Empirical findings in Table 4 shows that the firm's tangibility is positive significantly related to optimal leverage. This indicates that tangible assets are less subject to informational asymmetries, and they have a higher value in firms' assets. Therefore, the higher proportion of tangible assets in balance sheets, lenders would be more willingly to supply loans to firms, hence resulting in higher leverage as firm engage more with debt. Following trade-off theory, these findings are consistent with Chakraborty (2010), Nunkoo & Boateng (2010) as they found tangibility is significantly positive with leverage.

Firm's size in this study is significantly positive with optimal leverage in line with trade-off theory propose that larger firms are expected to have a higher debt capacity and can be more highly geared because high revenue firms can borrow under better conditions thus leads to an increase in leverage. This finding is consistent with Abobakr & Elgiziry, (2015), Gul, (2013) and Haron et al. (2013) as they refuted that the determinants of capital structure like firm size have positive significant effect on corporate leverage. Next section will conclude the results together with recommendations for future study and actual practices.

Conclusion and Recommendation

Referring to this empirical finding, CEOs characteristics such as CEO age and tenure show significantly negative relationship with optimal leverage meanwhile CEO gender shows significantly positive correlated with optimal leverage. Firm's profitability shows a significantly negative relation with optimal leverage. Meanwhile, firm's Tangibility and Size shows positive significantly related to optimal leverage. Therefore, this study concludes that CEOs characteristics and firm's specific factors significantly influence optimal leverage in Malaysia' sample. Hence, we accept all alternates hypotheses in this study.

These findings have answered to the objectives of this study to investigate managerial characteristics and firm's factors in optimal leverage by applying dynamic model consistent

with dynamic capital structure nature. The facts that this study is investigating optimal leverage, we recommending future researcher to proceed with the investigation until the speed of adjustment level by identifying determinants speed of adjustment on optimal leverage in an emerging country. Other than that, we recommend future researcher to add on more factors in determinants capital structure as mentioned by Buvanendra, Sridharan, & Thiyagarajan (2018) stated that corporate leaders must continuously consider factors such as industry dynamics, government regulations, capital market condition, the economy and firm's related factors on optimal capital structure determinants.

Implication of Findings

Finally, this study contributing to the future researcher by applying this finding as a comparison with their study and supporting their literature review. Meanwhile, this study will contribute to actual practise on identifying determinants of optimal leverage in proper forecasting and take action on controlling/managing all the significant variables to meet the optimal leverage in their practice.

References

- Abobakr, M. G., & Elgiziry, K. (2015). The Effects of Board Characteristics and Ownership Structure on the Corporate Financial Leverage. *Accounting and Finance Research*, 5(1), 1–14. <https://doi.org/10.5430/afr.v5n1p1>
- Ahmad, R., & Etudaiye-Muhtar, O. F. (2017). Dynamic Model of Optimal Capital Structure: Evidence from Nigerian Listed Firms. *Global Business Review*. <https://doi.org/10.1177/0972150917692068>
- Ahmed Sheikh, N., & Wang, Z. (2011). Determinants of capital structure: An empirical study of firms in manufacturing industry of Pakistan. *Managerial Finance*. <https://doi.org/10.1108/03074351111103668>
- Al-Ajmi, J., Abo Hussain, H., & Al-Saleh, N. (2009). Decisions on capital structure in a Zakat environment with prohibition of riba: The case of Saudi Arabia. *Journal of Risk Finance*. <https://doi.org/10.1108/15265940911001376>
- Al, R., & Saad, J. (2017). *Governance of Non-Profit Organizations : A Case of Zakat Institutions in Governance of Non-Profit Organizations : A Case of Zakat Institutions in Malaysia*. (February 2018).
- Ali, N. A. M. (2019). *Factors Affecting Stock Price of Malaysian*. 22–32.
- Amjed, S. (2016). Dynamics of Financial Structure Adjustments and Firms ' Financial Performance. *Dissertation*, (Unpublished doctoral dissertation).
- Antoniou, A., Guney, Y., & Paudyal, K. (2008). The Determinants of Capital Structure: Capital Market-Oriented Versus Bank-Oriented Institutions. *Journal of Financial and Quantitative Analysis*, 43, 59–92. <https://doi.org/10.1017/S0022109000002751>
- Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies*. <https://doi.org/10.2307/2297968>
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115–143. [https://doi.org/10.1016/S0304-4076\(98\)00009-8](https://doi.org/10.1016/S0304-4076(98)00009-8)
- Buvanendra, S., Sridharan, P., & Thiyagarajan, S. (2017). Firm characteristics, corporate governance and capital structure adjustments: A comparative study of listed firms in Sri Lanka and India. *IIMB Management Review*, 29(4), 245–258. <https://doi.org/10.1016/j.iimb.2017.10.002>
- Buvanendra, S., Sridharan, P., & Thiyagarajan, S. (2018). Determinants of Speed of Adjustment

- (SOA) toward Optimum Capital Structure: Evidence from Listed Firms in Sri Lanka. *Journal of Asia-Pacific Business*, 19(2), 46–71. <https://doi.org/10.1080/10599231.2018.1453742>
- Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*. <https://doi.org/10.1016/j.jm.2004.06.001>
- Chakraborty, I. (2010). Capital structure in an emerging stock market: The case of India. *Research in International Business and Finance*. <https://doi.org/10.1016/j.ribaf.2010.02.001>
- Chen, Y., Zhang, X., & Liu, Z. (2014). Manager Characteristics and the Choice of Firm “ Low Leverage ”: Evidence from China. *American Journal of Industrial and Business Management*, 4(October), 573–584.
- Clark, P. U., Dyke, A. S., Shakun, J. D., Carlson, A. E., Clark, J., Wohlfarth, B., ... McCabe, A. M. (2009). The Last Glacial Maximum. *Science*, 325(5941), 710 LP – 714. <https://doi.org/10.1126/science.1172873>
- Cortez, M. A., & Susanto, S. (2012). The Determinants of Corporate Capital Structure: Evidence from Japanese Manufacturing Companies. *Journal of International Business Research*.
- Črnigoj, M., & Mramor, D. (2009). Determinants of capital structure in emerging European economies: Evidence from Slovenian firms. *Emerging Markets Finance and Trade*. <https://doi.org/10.2753/REE1540-496X450105>
- Cronqvist, H., Makhija, A. K., & Yonker, S. E. (2012). Behavioral consistency in corporate finance: CEO personal and corporate leverage. *Journal of Financial Economics*, 103(1), 20–40. <https://doi.org/10.1016/j.jfineco.2011.08.005>
- de Jong, A., Kabir, R., & Nguyen, T. T. (2008). Capital structure around the world: The roles of firm- and country-specific determinants. *Journal of Banking and Finance*. <https://doi.org/10.1016/j.jbankfin.2007.12.034>
- Devos, E., Rahman, S., & Tsang, D. (2017). Debt covenants and the speed of capital structure adjustment. *Journal of Corporate Finance*, 45, 1–18. <https://doi.org/10.1016/j.jcorpfin.2017.04.008>
- Etudaiye-Muhtar, O. F., & Ahmad, R. (2015). Empirical Evidence of Target Leverage, Adjustment Costs and Adjustment Speed of Non-Financial Firms in Selected African Countries. *International Journal of Economics and Financial Issues*, 5(2), 482–488. Retrieved from <https://ideas.repec.org/a/eco/journ1/2015-02-20.html>
- Faccio, M., Marchica, M.-T., & Mura, R. (2012). CEO Gender, Corporate Risk-Taking, and the Efficiency of Capital Allocation. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2021136>
- Faccio, M., Marchica, M. T., & Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of Corporate Finance*. <https://doi.org/10.1016/j.jcorpfin.2016.02.008>
- Fama, E. F., & French, K. R. (2002). Testing Trade-Off and Pecking Order Predictions About Dividends and Debt. *Review of Financial Studies*, 15(1), 1–33. <https://doi.org/10.1093/rfs/15.1.1>
- Feidakis, A., & Rovolis, A. (2007). Capital structure choice in European Union: Evidence from the construction industry. *Applied Financial Economics*. <https://doi.org/10.1080/09603100600749311>
- Flannery, M. J., & Hankins, K. W. (2011). Estimating Dynamic Panel Models in Corporate Finance. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1108684>
- Flannery, M. J., & Rangan, K. P. (2006). Partial adjustment toward target capital structures.

- Journal of Financial Economics*. <https://doi.org/10.1016/j.jfineco.2005.03.004>
- Garba, S., Aminu Ibrahim, N., & Ibrahim Kassim, S. (2016). *the Effect of C2C Cycle on the Profitability of Listed Nigerian Conglomerate Companies*. 65–78.
- Gujarati, D. N., & Porter, D. C. (2009). Basic Econometrics (5th ed.). In *Basic Econometrics*.
- Gul, S. (2013). *Corporate Governance and Financing Decisions of Listed Firms in*. 5(23), 74–81.
- Gyapong, E., Monem, R. M., & Hu, F. (2016). Do Women and Ethnic Minority Directors Influence Firm Value? Evidence from Post-Apartheid South Africa. *Journal of Business Finance and Accounting*, 43(3–4), 370–413. <https://doi.org/10.1111/jbfa.12175>
- Hall, G. C., Hutchinson, P. J., & Michaelas, N. (2004). Determinants of the capital structures of European SMEs. *Journal of Business Finance and Accounting*. <https://doi.org/10.1111/j.0306-686X.2004.00554.x>
- Hambrick, D. C., & Mason, P. A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *Academy of Management Review*. <https://doi.org/10.5465/amr.1984.4277628>
- Hambrick, Donald C. (2007). Upper echelons theory: An update. *Academy of Management Review*. <https://doi.org/10.5465/AMR.2007.24345254>
- Haron, R., Ibrahim, K., Nor, F. M., & Ibrahim, I. (2013). Factors Affecting Speed of Adjustment to Target Leverage: Malaysia Evidence. *Global Business Review*, 14(2), 243–262. <https://doi.org/10.1177/0972150913477469>
- Henderson, A. D., Miller, D., & Hambrick, D. C. (2006). How quickly do CEOs become obsolete? Industry dynamism, CEO tenure, and company performance. *Strategic Management Journal*, 27(5), 447–460. <https://doi.org/10.1002/smj.524>
- Hiebl, M. R. W. (2014). Upper echelons theory in management accounting and control research. *Journal of Management Control*, 24(3), 223–240. <https://doi.org/10.1007/s00187-013-0183-1>
- Huang, G., & Song, F. M. (2006). The determinants of capital structure: Evidence from China. *China Economic Review*. <https://doi.org/10.1016/j.chieco.2005.02.007>
- Huang, J., & Kisgen, D. J. (2013a). Gender and corporate finance: Are male executives overconfident relative to female executives? *Journal of Financial Economics*, 108(3), 822–839. <https://doi.org/10.1016/j.jfineco.2012.12.005>
- Huang, J., & Kisgen, D. J. (2013b). Gender and corporate finance: Are male executives overconfident relative to female executives? *Journal of Financial Economics*. <https://doi.org/10.1016/j.jfineco.2012.12.005>
- Karadeniz, E., Kandir, S. Y., Balcilar, M., & Onal, Y. B. (2009). Determinants of capital structure: Evidence from Turkish lodging companies. *International Journal of Contemporary Hospitality Management*. <https://doi.org/10.1108/09596110910967827>
- Kayo, E. K., & Kimura, H. (2011). Hierarchical determinants of capital structure. *Journal of Banking and Finance*. <https://doi.org/10.1016/j.jbankfin.2010.08.015>
- Kokeno, S. O., & Muturi, W. (2016). Effects of Chief Executive Officers' Characteristics on the Financial Performance of firms listed at the Nairobi Securities Exchange. *International Journal of Economics, Commerce and Management United Kingdom*, IV(7), 307–318.
- Krishnan, G. V., & Parsons, L. M. (2008). Getting to the bottom line: An exploration of gender and earnings quality. *Journal of Business Ethics*. <https://doi.org/10.1007/s10551-006-9314-z>
- Kumar, S., Colombage, S., & Rao, P. (2017). Research on capital structure determinants: a review and future directions. *International Journal of Managerial Finance*, 13(2), 106–132. <https://doi.org/10.1108/IJMF-09-2014-0135>
- Kuo, H.-C., Wang, L.-H., & Lin, D. (2014). CEO Traits, Corporate Performance, and Financial

- Leverage. *International Journal of Economics and Finance*, 7(1), 68–86. <https://doi.org/10.5539/ijef.v7n1p68>
- Leary, M. T., & Roberts, M. R. (2010). The pecking order, debt capacity, and information asymmetry. *Journal of Financial Economics*. <https://doi.org/10.1016/j.jfineco.2009.10.009>
- Lemma, T. T., & Negash, M. (2014). Determinants of the adjustment speed of capital structure: Evidence from developing economies. *Journal of Applied Accounting Research*. <https://doi.org/10.1108/JAAR-03-2012-0023>
- Malmendier, U., Tate, G., & Yan, J. (2011). Overconfidence and Early-Life Experiences: The Effect of Managerial Traits on Corporate Financial Policies. *Journal of Finance*. <https://doi.org/10.1111/j.1540-6261.2011.01685.x>
- Martin, A., Nishikawa, T., & Williams, M. (2009). CEO gender: Effects on valuation and risk. *Quarterly Journal of Finance and ...*
- McClelland, P. L., Barker, V. L., & Oh, W.-Y. (2012). CEO career horizon and tenure: Future performance implications under different contingencies. *Journal of Business Research*, 65(9), 1387–1393. <https://doi.org/10.1016/j.jbusres.2011.09.003>
- Miller, H. J. (1991). Modelling accessibility using space-time prism concepts within geographical information systems. *International Journal of Geographical Information Systems*. <https://doi.org/10.1080/02693799108927856>
- Moreno-Gómez, J., Lafuente, E., & Vaillant, Y. (2018). Gender diversity in the board, women's leadership and business performance. *Gender in Management*, 33(2), 104–122. <https://doi.org/10.1108/GM-05-2017-0058>
- Mukherjee, S., & Mahakud, J. (2010). Dynamic adjustment towards target capital structure; evidence from Indian companies. *Journal of Advances in Management Research*. <https://doi.org/10.1108/09727981011085020>
- Mukherjee, T., & Wang, W. (2013). Capital structure deviation and speed of adjustment. *Financial Review*, 48(4), 597–615. <https://doi.org/10.1111/fire.12017>
- Musteen, M., Barker, V., & Baeten, V. (2006). CEO attributes associated with attitude toward change: The direct and moderating effects of CEO tenure. *Journal of Business Research*, 59, 604–612. <https://doi.org/10.1016/j.jbusres.2005.10.008>
- Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*. [https://doi.org/10.1016/0304-405X\(77\)90015-0](https://doi.org/10.1016/0304-405X(77)90015-0)
- Nguyen, D. T., Diaz-Rainey, I., & Gregoriou, A. (2012). Financial Development and the Determinants of Capital Structure in Vietnam. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2014834>
- Nguyen, P., Rahman, N., & Zhao, R. (2017). CEO characteristics and firm valuation: a quantile regression analysis. *J Manag Gov*, 22(2), 133–151. <https://doi.org/10.1007/s10997-017-9383-7>
- Nielsen, S. (2010). Top management team diversity: A review of theories and methodologies. *International Journal of Management Reviews*. <https://doi.org/10.1111/j.1468-2370.2009.00263.x>
- Nunkoo, P. K., & Boateng, A. (2010). The empirical determinants of target capital structure and adjustment to long-run target: Evidence from Canadian firms. *Applied Economics Letters*. <https://doi.org/10.1080/17446540802599671>
- RAJAN, R. G., & ZINGALES, L. (1995). What Do We Know about Capital Structure? Some Evidence from International Data. *The Journal of Finance*, 50(5), 1421–1460. <https://doi.org/10.1111/j.1540-6261.1995.tb05184.x>
- SHAO, L., & LIU, Z. (2014). CEO GENDER AND FIRM PERFORMANCE. *MASTER OF SCIENCE IN FINANCE*.

- Tariq, N. A., Majed, R., & Muhammad, Z.-R. (2011). Analysis of the determinants of Capital Structure in sugar and allied industry. *International Journal of Business and Social Science*, 2(1), 221–229. <https://doi.org/10.3969/j.issn.1000-386X.2011.09.029>
- TITMAN, S., & WESSELS, R. (1988). The Determinants of Capital Structure Choice. *The Journal of Finance*. <https://doi.org/10.1111/j.1540-6261.1988.tb02585.x>
- Viviani, J. L. (2008). Capital structure determinants: An empirical study of French companies in the wine industry. *International Journal of Wine Business Research*. <https://doi.org/10.1108/17511060810883786>
- Wald, J. K. (1999). How firm characteristics affect capital structure: An international comparison. *Journal of Financial Research*. <https://doi.org/10.1111/j.1475-6803.1999.tb00721.x>
- Zhang, X., Ni, L., & Chen, Y. (2012). Lower leverage puzzle in China's listed firms: An empirical study based on firm efficiency. *International Journal of Management and Enterprise Development*. <https://doi.org/10.1504/IJMED.2012.046793>