

Impact of Managerial Overconfidence and Government Intervention on Firm Leverage Decision: A MARS Model Approach

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Abstract: *This paper investigates the impact of managerial overconfidence and government intervention on a firm's leverage decision. The Motivation, Ability, Roles and Situation Factors (MARS) model is employed to examine its impact on leverage decision. Dynamic panel models are applied to examine the relationship between managerial overconfidence, government intervention and leverage decision of publicly listed companies in Malaysia for the period 2004-2013. The findings are as follows. (1) When CEOs are motivated, their overconfidence is significantly and positively related to debt; (2) The CEOs' ability is significantly and positively related to leverage decision; (3) The CEOs' role is significantly and negatively related to leverage decision. (4) Government ownership moderates the relationship between managerial overconfidence and firm leverage decision. (5) Malaysian public listed firms adjust debt towards an optimal level and the speed of adjustment is approximately 21% to 26% per annum. The findings also pave the way for further study of antecedent conditions in predicting the extent of firm leverage decision from the behavioural perspective.*

Keywords: Dynamic Panel Model, leverage decision, MARS model, overconfidence

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1. Introduction

The issue of financial leverage decision in Malaysia is not just the separation of management and control which is commonly experienced by most industrialised nations, but the dominating big shareholders who exercise their control rights and putting minority shareholders at higher risks (Haniffa & Hudaib, 2006). Malan, Salamudin, and Ahmad (2012) report that stockholders of firms in Malaysia with high concentrated ownership prefer issuing debt than equity. This also reflects the agency problem that big shareholders have incentives to pursue their own interests (Agrawal & Knoeber, 1996). The agency problem also creates scepticism about the ability of boards (Claessens, Djankov, & Lang, 2000). This is because large controlling shareholders are alleged to expropriate corporate wealth to the detriment of the corporations, minority shareholders and creditors. According to Friend and Hasbrouck (1988), majority top executives or managers with their high proportions of personal wealth invested in the firm's common stocks will try to reduce the bankruptcy risk. Thus, a leverage decision which is voluntarily chosen by the leader of the firm, is a fact that cannot be denied (Zwiebel, 1996). A leader who is either CEO or Managing Director in a firm plays a role in making decisions and inspires others to perform well. They set and lead others to achieve goals and finalise the decisive action even in difficult situations. Hence, a leader has an influencing power in firm leverage decision.

Apart from that, there are other evidences which indicate a firm's leverage decision is determined by the management rather than the shareholders' optimisation consideration. On one hand, some corporate leaders indicate that they consider not issuing more debts as it is riskier. Hackbarth (2008) shows that theoretically, overconfident managers choose higher debt levels and issue more new debts. On the other hand, the logical interpretation is that the management is concerned about the increased risk of loss of control which happens when there are higher debts. In other words, managements with high control motivation would definitely prefer to choose debt financing and maintain authority in their firm's decision making. Hence, managers play a crucial role in determining the firm's leverage decision.

Jiang, Xiao, and You (2011) argue that the understanding of behavioural perspective in financing decision are based on the rational hypothesis of people, especially managers. They further emphasise people are not completely rational. Human beings fall prey to irrationality while making decisions. It is termed as bounded rational and this produces cognitive biases that make them irrational (Li & Hung, 2013; Li & Tang, 2010). When they are irrational, they tend to overestimate or underestimate their corporate decisions. Overestimate is closely related to personal behaviour

and this characteristic is associated with overconfidence. Nofsinger (2003) suggests that the general level of overconfidence in society affects a financial decision-maker's mood and can lead to market phenomenon. Overconfidence leads corporate managers to make more corporate investments, debt financing and acquisitions. An overconfident society is more willing to take on additional debts and increase spending. Furthermore, Bertrand and Mullainathan (2004) highlight that managers are not homogenous and their personal characteristics may influence their financial decisions. Nevertheless, there is very little empirical research conducted to determine if a relation exists between management overconfidence and leverage decisions. Thus, this paper aims to show how managerial overconfidence influences leverage decisions.

This paper contributes to the existing literature by adding a proxy for government ownership in the empirical models, which is another particular quality of Malaysian firms. The Government-linked Companies (GLCs) have undoubtedly been a major element in contributing to Malaysia's economic development. Hence, it is believed that government ownership plays a significant monitoring role in the firm. Demsetz and Lehn (1985) report that the concentrated equity position and control of management, including the firm's historical presence, give the ownership structure an advantageous position in monitoring firm. With that, the Malaysian government might provide a control mechanism to discipline the management's self-interested behaviour so that such behaviour better accords with a company's objectives and hence improves its performance (Razak, Ahmad, & Joher, 2011). This study intends to provide information relevant to market players on the accountability and transparency of GLCs and how these aspects of corporate governance play a role as a control mechanism in firm leverage decision.

The objective of this paper is to evaluate a behavioural perspective by studying the relationship between managerial overconfidence and corporate financing structure in Malaysia. This paper also identifies whether government intervention plays a significant role in moderating corporate financing decision in relation to managerial overconfidence behaviour. Many studies discuss managerial overconfidence and government ownership on leverage decision separately. However, to the best of our knowledge, there is not much empirical research conducted to study a systematic link between managerial overconfidence, government intervention and leverage decision. This paper attempts to bridge that gap. Many studies have been conducted to compare traditional theories in firm leverage decision. However, the literature implies that firms leverage decision could result in an optimal capital structure by maximizing its value. This explains that firms target their leverage and amend their financing following temporary deviations from target towards its optimal

level (Ebrahim, Girma, Shah, & Williams, 2014). By employing a traditional panel model, the adjustment of leverage is instantaneous, albeit incompatible with real-life situation. In contrast, dynamic panel models are able to incorporate a gradual process of adjustment. Hence, this paper intends to identify the dynamic relationship by adding a lagged dependent variable (LEVEt-1) to leverage decision.

The current research contributes to the growing body of knowledge in behavioural financial theory specifically on the antecedents of firm leverage decision in several dimensions. First, this is the first study that empirically examines the impact of managerial overconfidence behaviour as a main independent variable on firm leverage decision for Malaysian firms. Six measures of managerial overconfidence behaviour are classified based on Motivation, Ability, Roles and Situation Factors (MARS) model and are employed in this study to examine its impact on corporate leverage decision. Second, the study makes the first attempt to test the moderating effect of government ownership on the relationship between managerial overconfidence and leverage decision. It provides direct evidence suggesting that government is an important class of investor that would control managerial overconfidence and monitor managerial performance in publicly listed firms. Third, following suggestions made in the literature (Ebrahim et al., 2014; Flannery & Hankins, 2013; González, Guzmán, Pombo, & Trujillo, 2013), this study will contribute to firms' leverage decisions by estimating the mean reversion towards target which is absent specifically in the Malaysian context. It is hoped that the findings of this study would serve as an indicator in assessing the impact of managerial overconfidence on corporate financing decision for public listed companies in Malaysia. This study may shed light on the risk management policies of Malaysian public companies.

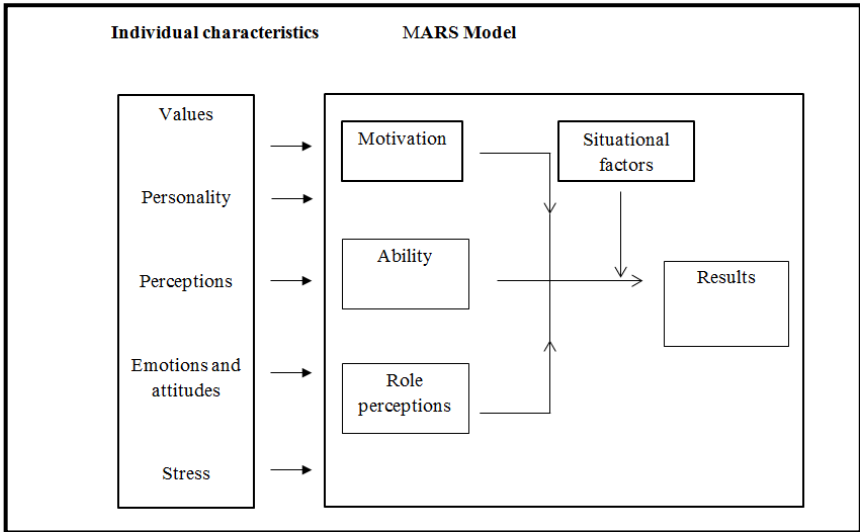
The remaining sections of this study are organised as follows: Section 2 is a literature review while Section 3 reports on data collection and research methodology. Section 4 presents the empirical findings and analysis while Section 5 concludes the paper and suggests some policy implication. It also proposes future studies to expand on this topic.

2. Model Discussion and Literature Review

Greenberg and Baron (1995) define leadership as the process whereby one individual influences other group members towards the attainment of a defined group or organisational goals. They further describe a leadership's personality as a unique and relatively stable pattern of behaviour whereby motives, abilities, roles and situational factors affect their decision making.

These characteristics could be explained by using the MARS model developed by McShane and Travaglione (2007) in Figure 1.

Figure 1: MARS model



Source: McShane and Travaglione (2007).

2.1 Motivation

Robinson (2001) defines motivation as a set of processes that arouses, directs and maintains human behaviour towards attaining some goal and decision making. The study believes CEOs' remuneration will allow them to work hard, build up their confidence level, and hence influence their decision making to produce positive results. Bryan, Hwang, and Lilien (2000) conclude that the remuneration structure would be able to balance the personal interest between stockholders and debtholders. In addition, Paredes (2004) argues that high compensation is more salient than other possible measures of a CEO's success. John and Qian (2003) report that top managers with less incentives in terms of equity tend to choose higher debt to equity ratio. Additionally, a CEO's network with friends and other organisations may provide a good opportunity to be more self-confident and therefore, influence a firm's decision. Liu (2014) explains that the role of network could induce agency problem or gather information from other companies. This paper adopts the MARS model by evaluating a CEO's network and remuneration in order to identify if a firm leader is motivated, and whether it will affect leverage decision of the firm.

2.2 Ability

As for a CEO's ability, Rule and Tskhay (2014) argue that inferences of leadership ability and personality have been based on appearances and associated with a leader's efficacy across multiple domains. Intellectual abilities such as a CEO's educational level and experience enhance his or her capacity to perform various cognitive tasks. Lichtenstein and Fischhoff (1977) suggest that education may affect people's decision making process. Rakhmayil and Yuce (2011) explain that higher education levels and more work experience are positively related to a firm's financial leveraging. Hence, we believe that when a leader has a higher ability in performing the tasks, he tends to display a higher confidence level.

2.3 Roles

In terms of a leader's roles, Greenberg and Baron (1995) further define roles as the typical behaviour that characterises a person in a specific social context, specifically leaders. A CEO's duality (task-oriented roles) will initiate him or her to recommend new solutions to group decision. Fosberg (2004) suggests that a dual leadership structure is effective in increasing the amount of debt in a firm. Adams, Almeida, and Ferreira (2005) report that if a CEO is also the chairman of the board of directors, the dual leadership structure will increase the managerial overconfidence level. Hence, the CEO is overconfident and tends to be more aggressive by increasing his or her debt level. Furthermore, Anderson, Duru, and Reeb (2009) conclude that founder management usually seeks private benefits at the cost of other shareholders. Thus, the present study uses the MARS model to represent a leader's role as one of the measurements of managerial overconfidence.

2.4 Situational factors

Based on the MARS model, Hersey's and Blanchard's (1976) situational leadership theory suggest that the most effective style of leadership is determined by the level of the follower readiness. In this study, a follower refers to ownership identity. As the level of ownership identity changes, the amount of leader task and relationship behaviour should change to match the level of ownership identity. Leader task and relationship behaviours match ownership identity and the "effectiveness" of this behaviour will be manifested in a firm's decision. Kassim, Ishak, and Manaf (2012) agree that CEOs who are aware that they are being monitored and are assessed closely by the board will perform better. In addition, Li, Griffin, Yue, and Zhao (2011) confirm that state ownership has a stronger effect on leverage and short term debt in less developed regions, while they observe a much

stronger effect on firm's access to long-term debt in better developed regions. This paper adopts the MARS model by adding government ownership to represent situational factors.

2.5 Lagged leverage and leverage

There are empirical evidences that show firms set leverage targets and adjust the targets following deviations. In Malaysia, Haron (2014) investigates the existence of target capital structure, speed of adjustment and factors affecting speed of adjustment for 790 non-financial listed firms. The finding indicates that firms adjusted at their target from time to time with a considerably rapid speed of adjustment. This is consistent with Ebrahim et al's (2014) finding who use the dynamic partial adjustment model to conclude that leverage is estimated to adjust to target at a rate of approximately 28% annually.

However, Abdeljawad, Mat-Nor, Ibrahim, and Abdul-Rahim (2013) show that Malaysian firms adjust their leverage to the target but at a slow rate of 12.7%. Piaw and Jais (2014) point out that while Malaysia has successfully sustained the firm's leverage to a lower level, it has not been successful in ensuring speedy adjustment given its rigorous institutional settings and access to financial and capital market during the 1997 Asian Financial Crisis.

In summary, the literature documents that certain firm's characteristics and macroeconomic conditions have a significant positive or negative relationship in determining a company's leverage policy based on the traditional capital structure theories. However, to the best of our knowledge, there has been no study conducted on the possible effect of managerial overconfidence and its effects on leverage adjustments speed. Therefore, we attempt to investigate this relationship on Malaysian firms with the updated data and improved methodology. The study hopes to bridge this research gap and shed some light on this topic, specifically in the Malaysian context.

3. Data and Methodology

3.1 Sources of data

The sample covers all corporations listed in the Main Board of Bursa Malaysia as at 30 September 2012. Finance, insurance and unit trust companies are excluded due to differences in regulatory requirement. From the 793 companies, we then screen sample using the following criteria: (1) The firm has been listed in Bursa Malaysia before 2002. (2) The firm has a

complete data of 10 years from 2004 to 2013. (3) The firm has a complete report on its CEO's personal characteristics (network, remuneration, education, experience, duality and founder) as a measure of managerial overconfidence's proxies. (4) The firm has full information of 30 largest shareholders' list in the annual reports to identify the government ownership structure. After removing unusable data, the final sample totalled 183 firms.

3.2 Variables measurement

To group the variables, the study follows the MARS model developed by McShane and Travaglione (2007) to classify CEO characteristics into groups. Due to the inconsistency in usage of the title of "CEO" to represent a leader of a firm, other titles such as managing director or executive director are treated as "CEO" as long as they represent the leader of the firm. The summary of the variables measurement is as follows:

Table 1: Summary of variables measurement

Variables	Description
<i>Explanatory variables</i>	
<i>Motivation</i>	
NET	A dummy variable by setting 1 if CEO is also a member of corporate boards (other than the CEO's own firm) and trustee or board member of non-profit organisations, 0 otherwise.
REM	The ratio of average remuneration of the CEO divided by average remuneration of the top 3 managers.
<i>Ability</i>	
EDU	A dummy variable to distinguish the education level of CEO. If CEO's education is above undergraduate, it is = 1; 0 otherwise.
EXP	A dummy variable for CEO experience, assigned as 1 if he or she served as a CO-level executive (e.g., CEO, CFO, COO or CIO) or a vice president in another firm before he or she joined the firm under the study and 0 otherwise.
<i>Roles</i>	
DUA	A dummy variable, assigned as 1 if the CEO additionally occupies the position of the chairman of the board, 0 otherwise.
FOUND	It is a dummy variable, assigned as 1 if the CEO of the firm is also a founder, 0 otherwise.

Table 1: (Continued)

<i>Moderating variable</i>	
<i>Situational factors</i>	
GVO	The percentage of ownership of a firm by government institutions, agencies and GLCs.
<i>Control variables</i>	
OC5	The sum of shares held by the largest five shareholders divided by the top 30 shareholders shares.
ROA	The ratio of earnings before interest and taxes to total assets.
SIZE	The natural log of sales.
TANG	The ratio of tangibility assets (the sum of fixed assets and inventories) to total assets.
GROWTH	The annual percentage change in total sales.
<i>Dependent variables</i>	
LEVE	The ratio of total debts to total assets.
LEVE2	The ratio of total debts to total equities.

Source: McShane and Travaglione (2007).

3.3 Hypotheses and equation

Six hypotheses are developed to evaluate the relationship between managerial overconfidence and leverage decisions.

Hypothesis 1: *CEO with better network has higher firm's leverage.*

Hypothesis 2: *CEO with higher remuneration tends to choose more debt.*

Hypothesis 3: *The higher the CEOs' educational level, the higher the firm's leverage.*

Hypothesis 4: *CEO's previous experiences positively relates to the leverage decision of firms.*

Hypothesis 5: *CEO duality positively relates to the leverage decision of firms.*

Hypothesis 6: *Founder CEO tends to choose less debt.*

To assess the role of government ownership as moderating effect to the relations above, we have hypothesis 7.

Hypothesis 7: *Government ownership moderates the relationship between managerial overconfidence and leverage decision of firms.*

This study employs the dynamic panel model whereby the equation is:

$$\begin{aligned}
 LEVE_{it} = & \lambda_0 + \lambda_1 LEVE_{it-1} + \lambda_2 NET_{it} + \lambda_3 REM_{it} + \lambda_4 EDU_{it} + \lambda_5 EXP_{it} + \lambda_6 DUA_{it} + \lambda_7 FOUND_{it} \\
 & + \lambda_8 GVO_{it} + \lambda_9 OC5_{it} + \lambda_{10} ROA_{i,t-1} + \lambda_{11} SIZE_{i,t-1} + \beta_{12} TANG_{i,t-1} + \lambda_{13} GROWTH_{i,t-1} \quad (1) \\
 & + \lambda_{14} (NET * GVO)_{it} + \lambda_{15} (REM * GVO)_{it} + \lambda_{16} (EDU * GVO)_{it} + \lambda_{17} (EXP * GVO)_{it} \\
 & + \lambda_{18} (DUA * GVO)_{it} + \lambda_{19} (FOUND * GVO)_{it} + \sum \lambda_7 Year_t + \sum \lambda_7 Industry_t + \varepsilon_{it}
 \end{aligned}$$

In where subscript i and t represent the firm and time respectively. λ_i , $i = 1$ to 19, are coefficients of the respective independent and control variables. $LEVE_{it}$ = leverage of firm i at time t ; $LEVE_{i,t-1}$ = leverage of firm i at time $t-1$; NET_{it} = CEO network of firm i at time t ; REM_{it} = CEO remuneration of firm i at time t ; EDU_{it} = CEO education level of firm i at time t ; EXP_{it} = CEO experience of firm i at time t ; DUA_{it} = CEO duality level of firm i at time t ; $FOUND_{it}$ = CEO founder or non-founder of firm i at time t ; GVO_{it} = government intervention of firm i at time t ; $OC5_{it}$ = the five largest shareholding of firm i at time t ; $ROA_{i,t-1}$ = return of asset of firm i at time $t-1$; $SIZE_{i,t-1}$ = the natural logarithm of sales of firm i at time $t-1$; $TANG_{i,t-1}$ = the ratio of tangibility assets of firm i at time $t-1$; $GROWTH_{i,t-1}$ = growth of firm i at time $t-1$; Year = Year dummy; Industry = industry dummy; ε_{it} is error term.

4. Results and findings

4.1 Descriptive statistics

Table 2 shows the descriptive statistics for all variables. The reported means for LEVE and LEVE2 are 0.449 and 0.317 respectively. The mean of total debts to total assets (LEVE) reveals that the average liabilities are about 44.9% of total assets value. As for LEVE2, it indicates 31.7% of total equities value. In terms of network, observed CEO serves at least as a corporate board other than the CEO's own firm or non-profit organisations. As for remuneration, the mean of 0.812 reveals that for every RM1 of average remuneration for the top 3 managers, RM0.812 is paid for CEO's remuneration. The mean of education level shows that 65% Malaysian CEOs possess at least an undergraduate degree as their minimum education level. About 60.7% of CEOs served as a CO level executive before. In terms of dual leadership structure, it implies that majority of the Malaysian CEOs do not hold two positions. The finding also reveals that most of the Malaysian CEOs are not founder of the company he or she is serving.

There is about 42.9% government ownership in the companies. Furthermore, the five largest shareholders account for 69.3% of the company's shares on average and the samples are considered as having high ownership concentration. The mean ROA of 0.046 indicates that 4.6% of profit is generated from total assets. Firm size of 12.231 shows that sales of firm is RM12.231 million on average. About 52% of firm's total assets are made up of fixed assets. Finally, a firm's average growth for the observed period is about 0.3%.

Table 2: Descriptive statistics

Variable	Mean	SD	Minimum	Maximum
LEVE	0.449	0.329	0.010	0.992
LEVE2	0.317	0.330	0.000	5.54
NET	0.792	1.305	0.000	1.000
REM	0.812	0.209	0.000	3.053
EDU	0.646	0.478	0.000	1.000
EXP	0.607	1.164	0.000	19.000
DUA	0.226	0.418	0.000	1.000
FOUND	0.310	0.463	0.000	1.000
GVO	0.429	0.283	0.000	1.000
OC5	0.693	0.153	0.000	1.000
ROA	0.046	0.120	-1.390	0.723
SIZE	12.231	1.487	2.398	16.616
TANG	0.520	0.034	-0.633	0.990
GROWTH	0.003	0.040	-1.000	0.230

4.2 Dynamic panel regression results

We employ two steps, namely Difference and System Generalized Method of Moments (GMM), to estimate the dynamic leverage decision model for all firms from 2004 to 2013. Difference GMM is applied because it can remove time-invariant fixed effect and it uses level of the lagged dependent variable to instrument the first difference of the lag (Arellano & Bond, 1991). System GMM is used to estimate the partial adjustment model to control for endogeneity which could arise in a dynamic model. Table 3 shows the dynamic panel model's results. Following Arellano and Bond (1991), the study conducts post estimation specification tests for over-identifying restrictions. The Sargan Test ($p > 0.05$) indicates that over-

identifying restrictions are valid. The presence of first order serial correlation and absence of second order serial correlation imply the model is consistent with the GMM theory. $LEVE_{t-1}$ is the coefficient for the lagged dependent variable and is significant at the 1% level. From the values of coefficient, 0.740 (Difference GMM) and 0.789 (System GMM), it indicates that Malaysian public listed firms adjust leverage towards an optimal level and the speed of adjustment is approximately 21% to 26% per annum.

Based on Table 3, from the motivation perspective, the positive coefficients for NET and REM show that CEOs with better network and higher remuneration will carry more debt. With regards to ability, the positive coefficients of EDU and EXP confirm that CEOs with higher education level and more experience will tend to hold more debts in their firms. This is consistent with Bantel and Jackson (1989) who agree that highly educated top managers are positively related to strategic change for a better firm's growth. In terms of roles context, the study finds some interesting findings for Malaysian public listed firms. CEOs with dual leadership structure prefer less debt. A Malaysian CEO who is also a chairman of the board of directors tends to be less aggressive in taking risks because the dual leadership structure will reduce his or her managerial overconfidence level.

The moderating effect of government ownership on the association between managerial overconfidence (CEO network and remuneration) and leverage decision is proven to be significant. The coefficient of interaction term of managerial overconfidence with GVO (NET*GVO and REM*GVO), which is negative and significant suggesting government intervention controls the overconfident CEO from taking more debts. To further safeguard against the models, the study performs omitted variable tests (Ramsey, 1969; Ramsey & Schmidt, 1976) which examine the joint significance of OC5, ROA, SIZE, TANG and GROWTH in the models. The formal diagnostic tests indicate that the omitted variables are systematically correlated with the main explanatory variables (p -value < 0.01), collaborating the inclusion of the variables in our regression models.

For robustness check, we re-estimate the model by replacing LEVE with LEVE2. The estimation results with two-step Difference GMM and two-step System GMM shown in Table 4 and remains qualitatively the same.

Table 3: Regression analysis: Main and moderating effect

Variables	Two Step-Difference GMM	Two Step-System GMM
Intercept	-2.552***(-4.86)	-2.181*** (-5.23)
LEVE _{t-1}	0.740***(17.13)	0.789***(17.61)
<i>Motivation</i>		
NET	0.045***(3.85)	0.028*** (2.32)
REM	0.072**(2.25)	0.064** (1.78)
<i>Ability</i>		
EDU	0.061(1.15)	0.087* (1.45)
EXP	-0.050(-0.70)	0.191*** (3.10)
<i>Roles</i>		
DUA	-0.183***(-3.82)	-0.199***(-4.28)
FOUND	-0.023(-0.32)	0.017 (0.24)
GVO	0.024*(-1.38)	0.076*** (-2.45)
OC5	0.209***(2.98)	0.205*** (3.34)
ROA	-0.575***(-7.02)	-0.645*** (-8.76)
SIZE	-0.118***(-5.01)	-0.076*** (-3.93)
TANG	45.397*** (15.68)	36.529*** (15.71)
GROWTH	0.626***(6.52)	0.514*** (6.02)
NET*GVO	-0.040**(-2.30)	-0.027** (-1.76)
REM*GVO	-0.184**(-1.65)	-0.264*** (-2.60)
EDU*GVO	-0.047(-0.58)	-0.050 (-0.63)
EXP*GVO	0.114*(1.32)	-0.070 (-0.90)
DUA*GVO	0.021(0.26)	0.017 (-0.21)
FOUND*GVO	-0.044(-0.48)	0.055 (0.59)
Year dummy	Yes	Yes
Industry dummy	Yes	Yes
Specification Test		
Sargan	45.765(0.105)	59.997(0.441)
AR (1)	-1.669***(0.095)	-1.696***(0.089)
AR (2)	1.187(0.235)	1.295(0.195)

Note: Dependent variable = LEVE; t-statistics in brackets, *, **, and *** denote the statistical significance at the 10%, 5% and 1% (one tail) test levels, respectively.

In other word, consistent with LEVE, the findings show that the coefficient of interaction term of managerial overconfidence with GVO (NET*GVO and REM*GVO) is negative and significant to LEVE2. Moreover, the results in Table 4 also indicate that government intervention moderates the relationship of CEOs with dual leadership and leverage decision.

Table 4: Regression analysis: Robust test (LEVE2 as dependent variable)

Variables	Two Step-Difference GMM	Two Step-System GMM
Intercept	0.392***(3.44)	0.584***(7.25)
LEVE2 _{t-1}	0.606***(13.48)	0.770***(24.84)
Motivation		
NET	0.084***(13.48)	0.041*** (6.19)
REM	0.118***(4.92)	0.111***(5.35)
Ability		
EDU	-0.58(-1.14)	0.103** (2.19)
EXP	-0.020(-0.80)	0.043** (2.10)
Roles		
DUA	-0.046**(-2.01)	-0.607***(-2.40)
FOUND	-0.022(-0.54)	-0.105***(-2.38)
GVO	0.025*(-1.39)	0.076*** (-2.45)
OC5	0.169***(2.12)	0.227*** (3.76)
ROA	-0.377***(-7.96)	-0.505*** (-8.44)
SIZE	-0.003(-0.45)	-0.014*** (-2.57)
TANG	-0.066(-0.11)	0.574(0.92)
GROWTH	0.495***(3.43)	0.503*** (3.65)
NET*GVO	-0.088***(-7.02)	-0.049*** (-5.21)
REM*GVO	-0.253***(-3.62)	-0.175*** (-3.05)
EDU*GVO	-0.137**(-1.94)	-0.047(-0.78)
EXP*GVO	-0.062(-1.17)	-0.165(-3.60)
DUA*GVO	0.081*(-1.49)	0.195***(-3.32)
FOUND*GVO	-0.071(-1.01)	0.011(0.17)
Year dummy	Yes	Yes
Industry dummy	Yes	Yes
Specification Test		
Sargan	56.396(0.124)	66.389(0.210)
AR (1)	-1.441***(0.049)	-1.462*(0.072)
AR (2)	-0.093(0.826)	-0.099(0.921)

Note: Dependent variable = LEVE2; t-statistics in brackets, *, **, and *** denote the statistical significance at the 10%, 5% and 1% (one tail) test levels, respectively.

As for another robustness check, the study replaces GVO with DUMGVO which is a dummy variable of government ownership. It is assigned as 1 if the company is government linked company, 0 otherwise. The results are presented in Table 5. Again, the moderating effect of government intervention on the association between managerial overconfidence and leverage decision is proven to be significantly negative. This finding noticeably infers that government ownership moderates the positive association between managerial overconfidence and leverage, supporting our hypothesis H7. In other words, larger government ownership in a firm

will reduce the positive effect of managerial overconfidence on leverage decisions.

Table 5: Regression analysis: Robust test (DUMGVO as dependent variable)

Variables	Two Step-Difference GMM	Two Step-System GMM
Intercept	-2.896***(-5.37)	-2.337*** (-5.63)
LEVE _{t-1}	5.192***(16.70)	4.229***(16.95)
Motivation		
NET	0.031**(2.21)	0.023** (2.09)
REM	0.052**(2.18)	0.056** (2.23)
Ability		
EDU	-0.034(-0.74)	0.075* (1.52)
EXP	-0.040(-0.66)	0.144** (2.31)
Roles		
DUA	-0.148***(-4.17)	-0.172***(-4.36)
FOUND	0.018(0.30)	0.075 (1.23)
GVO	0.044*(1.65)	0.084** (1.98)
OC5	0.197***(3.01)	0.181*** (2.78)
ROA	-0.578***(-6.96)	-0.623*** (-8.78)
SIZE	-0.109***(-4.67)	-0.074*** (-4.00)
TANG	47.033***(15.33)	37.513*** (15.19)
GROWTH	0.683***(7.13)	0.598*** (6.78)
NET*DUMGVO	-0.015(-1.10)	-0.022** (-1.70)
REM*DUMGVO	-0.146***(-2.97)	-0.196*** (-3.94)
EDU*DUMGVO	0.026(0.76)	-0.006 (-0.19)
EXP*DUMGVO	-0.153***(-3.33)	-0.140*** (-3.00)
DUA*DUMGVO	0.053*(1.30)	0.072* (1.64)
FOUND*DUMGVO	0.078**(2.14)	0.035 (0.90)
Year dummy	Yes	Yes
Industry dummy	Yes	Yes
Specification Test		
Sargan	45.237(0.115)	56.619(0.797)
AR (1)	-1.724**(0.042)	-1.726**(0.042)
AR (2)	1.008(0.313)	1.044(0.297)

Note: Dependent variable = LEVE for model 3; t-statistics in brackets, *, **, and *** denote the statistical significance at the 10%, 5% and 1% (one tail) test levels, respectively.

Empirical findings can be summarised as follows. From motivation perspective, (1) a CEO with better network tends to be more overconfident, thus preferring more debt which is consistent with Custódio and Metzger (2014) indicating CEOs prefer more debt with a network effect. (2) The positive impact of CEOs remuneration also explains that high remuneration

CEOs are associated with higher level of debt. Generally, CEOs will tend to be more overconfident when they are motivated, thus, more risk taking. It is consistent with prior studies (Lin, Hu, & Chen, 2005; Fairchild 2009; Wei, Min, & Jiaying, 2011). From the ability perspective, (3) Higher educated CEOs are more overconfident and more risk taking. (4) CEOs with more experience are more overconfident and thus, choose more debts. The result supports Wei et al's (2011) study. In terms of roles, (5) Malaysian CEOs with dual leadership structure will be less aggressive in taking risks. (6) Founder CEOs prefer less debt in their leverage decision. In addition, (7) government ownership significantly moderates the relationship between managerial overconfidence and leverage decision. This finding provides an initial indicator on the advantage of utilising government ownership in controlling agency problems in Malaysia. Moreover, (8) Malaysian public listed firms adjust debt towards an optimal level and the speed of adjustment is approximately 21% to 26% per annum.

5. Conclusions

This paper examines the relationship between managerial overconfidence and firm leverage decision in Malaysia for the period between 2004 and 2013. The study also evaluates the moderating effect of government ownership on the association between managerial overconfidence and firm leverage decision. The paper identifies the dynamic relationship by a lagged dependent variable ($LEVE_{t-1}$) to firm leverage decision. The findings confirm that managerial overconfidence does impact on a firm's leverage decision. Moreover, government ownership plays a role in moderating the relationship between managerial overconfidence and leverage decision. The result also supports the dynamic nature of the leverage decision and it is consistent with previous studies in this area (Ebrahim et al, 2014; Flannery & Hankins, 2013; Flannery & Rangan 2006). This has paved the way for an investigation of CEO personal characteristics in decision of leverage, as it is a new area of research especially for non-western countries. The findings also pave the way for further study of antecedent conditions in predicting the extent of firm leverage decision from behavioural perspective.

This research provided several important implications for firms. First, managerial overconfidence is confirmed as a determinant of firm leverage decision. The findings highlight the importance of selecting CEOs in an organisation in order to reduce the occurrence of high leverage position in the firm. Therefore, it may be beneficial for the firms to revisit their relevant policies and procedures specifically related to CEO selection in order to avoid financial distress condition for the firms. Organisations may

assess the CEO's background (network, remuneration, education, experience, duality and founder) as the findings provide evidence these characteristics play a role in deciding firm leverage decision. In order to achieve an optimal level of leverage decision, Malaysian firms and the boards should evaluate all the characteristics suggested in this research when selecting CEOs. Moreover, government intervention may be a good option to be adopted by public listed companies in Malaysia. The findings suggest that larger ownership of government in a firm will reduce the positive effect of managerial overconfidence on leverage decision. This finding also implies that governments play an important role in reducing the debt preferences by overconfident CEOs. To elaborate, the significantly moderated relationship suggests that government ownership could partly facilitate in occurrence of high gearing situation by overconfident CEOs in public listed companies in Malaysia. This paper provides a good reference for policy makers as to why government intervention is a key issue in concentrated ownership companies and why having higher government ownership has many benefits to firm leverage decision in Malaysia public listed companies.

However, it is particularly time-consuming to collect CEO's information from the annual reports of all sample companies. Due to the constraints, our final sample is left with 183 companies. Second, the sample of this research is derived from the Main Board of Bursa Malaysia and excluded companies that are not listed in the Bursa Malaysia. Hence, generalisations from the findings of this research to all companies in Malaysia cannot be made.

Future studies may consider examining the managerial overconfidence and leverage decision using primary data. Replication of this study with different ownership identity such as family firms and non-family firms as samples could be an interesting future study. Finally, further studies by using countries effect are open for debate.

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