

Managerial Overconfidence and Debt Decision: Evidence from Malaysia

Irene Wei Kiong Ting^{a,*}, Noor Azlinna Binti Azizan^{b,*}

^a Department of Finance and Economics, College of Business Management and Accounting, Universiti Tenaga Nasional, Sultan Haji Ahmad Shah Campus, 26700 Muadzam Shah, Pahang, Malaysia, ^b Center of Entrepreneurship, Univerisiti Malaysia Pahang, Malaysia

*Corresponding author Tel.: +6094552020 ext. 3308
E-mail address: irene@uniten.edu.my

Abstract

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This paper investigates the impact of managerial overconfidence and firm's debt decision. Dynamic panel models are employed to examine the relationship between managerial overconfidence and debt decision of publicly listed companies in Malaysia for the period of 2002-2011. The objective of this study is to investigate the relationship between managerial overconfidence and firm debt decisions from three perspectives based on MARS model. The findings are as follows. (1) When CEOs are motivated, their overconfidence is significantly and positively related to debt; (2) CEOs' ability is significantly and positively related to debt; (3) Younger CEOs are taking more risk than older CEOs in Malaysian firm. (4) CEO who implement dual leadership structure tends to choose less debt; (5) Female CEOs are more confident and prefer more debt in Malaysian firms; (6) Firm debt is lower when CEO is also the founder. This study adds to the literature on behavioural finance by examining managerial overconfidence and its impact to debt decision. The study also makes the methodology contribution by employing dynamic panel model to test the effect of managerial overconfidence and corporate debt decision.

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1 Introduction

Generally, most of the existing empirical researches rely on three main traditional theories (Trade off theory, Pecking order theory and Market timing theory) in identifying firm debt decision. Little empirical evidence linking other potential determinants, particularly from the human point of view. Logically, individual managers may play a role in firm financing choice [1]. Accordingly to Friend and Hasbrouck [2], managers with their high proportions of personal wealth invested in company's shares will tend to be more conscious in reducing firm's bankruptcy risk. Zwiebel [3] argues that manager's choice in financing decision is a fact

that cannot be denied. Recent empirical papers generally emphasize more on the corporate governance and capital structure's relationship. Furthermore, recent empirical papers generally emphasize more on the corporate governance and capital structure's relationship. Hasan [4] states that most of the corporations implement corporate governance to entail processes and structure. With that, it helps to facilitate the creation of shareholder value. Thus, corporate governance practices would definitely have some direct or indirect impact on a company's strategic decision, including external financing decision.

On one hand, from conventional perspective, Jurevičienė, Bikas [5] emphasize that financial contracts and investment behaviour arise from the interaction between managers and investors. They believe that in the theory of corporate finance, managers should make unbiased forecasts of future events and use them in making decisions that best suit their own interests [6]. On the other hand, from modern perspective, corporate finance business executives and investors act rationally when taking financial decisions. If the assumption of rational behaviour is correct, managers can expect that capital markets are efficient, implying that stocks and bonds are priced correctly at every given moment (stock prices correctly reflect the public information about their fundamental value).

The objective of this paper is to identify firm debt decision from behavioral perspective by examining the relationship between managerial overconfidence and corporate financing structure in Malaysia. The study will examine the preference of overconfident managers in their corporate debt decision, either more towards debts or equities.

This paper contributes to the financial literature as follow. First, this is the first study that empirically examines the impact of managerial overconfidence behavior as a main independent variable on corporate debt decision for Malaysian firms. Specifically, this study adds to the literature on behavioral finance by examining managerial overconfidence, proxied by several CEO characteristics and its influence on corporate debt decision. Second, we make the methodology contribution by employing dynamic panel model to test the impact of managerial overconfidence and corporate debt decision.

The remaining sections of this study are arranged as follows. Section 2 is a literature review. Section 3 reports data collection and research methodology. Section 4 presents the empirical findings and analysis. Section 5 concludes the paper and proposes some future potential studies.

1.0 Literature Review

Existing empirical evidence presents no consistent pattern in between the relationship of managerial overconfidence and firm debt decision. Majority of the psychology studies confirm that people could be irrational while making decision and this includes the leader of the company. This incomplete characteristic includes managerial overconfidence. Hilary and Hsu [7] explain that 'static' overconfidence has been shown to be a common type of cognitive bias. Kraemer, Nöth [8] report that overconfident people always believe that they are more accurate their decision making based on their private information than it actually is, and hence accord it too much weight. Boubaker and Mezhoud [9] emphasize as human beings, their beliefs and preferences may affect the process of decision making when they are not completely rational. Generally overconfident CEOs will either overestimate or underestimate the return to their investment projects and the consequences of insufficient internal funds is they curb their investment [10]. Hambrick and Cannella [11] summarize that the major implications of overconfidence managers in their decision making are as follows. Firstly, they will tend to invest more; Secondly once they invest, they will issue more debt and; Thirdly, they face more default risk. On the other hand, mild managerial biases will contribute to firm performance as they help to overcome conflict of interest between bondholders and shareholders in positive way.

Malmendier and Tate [12] confirm that the financing preference of overconfident managers may choose to go for internal financing, debt financing and then only equity financing. This is mainly due to overconfident managers may overestimate their abilities to improve firm's value, and thus overestimate the investment project's future cash flows.

Almeida, Ferreira [13] test the top corporate managers to evaluate whether their personal characteristics will bring significant impacts to their investment decision from a unique panel of 7,000 observations. They interview US firms' CFOs and the findings show that overconfident CFOs tend to invest more and use more long term debt. Hambrick and Cannella [11] also find out that irrational managers choose more debt than rational managers. They recommend firms to appoint more overconfident managers as they are better at shaping and communicating a vision for the firm. Furthermore, Abor [14] follow Malmendier and Tate [12] to investigate the relation between managerial overconfidence and corporate debt decisions. By using 2939 forecasts listed Taiwanese companies as sample and he concludes that optimistic CEOs tend to create more debt issue and financing deficit as compared to non-optimistic managers.

Graham, Harvey [15] make a comparison to distinguish the differences in between US managers and non-US firms' personality characteristics. The study adopts a different approach in which they gauge managers' personality traits and attitudes to measure peoples' attitudes. They agree with previous studies and conclude that overconfident CEOs will use more short term debt in their financing decision. Consistently, Fosberg [16] supports the argument that overconfident

entrepreneurs will choose short term debt contracts, while rational entrepreneurs will choose long term debt contracts. Wei, Min [17] carry out the same study by investigating 3969 corporations listed in Shanghai and Shenzhen stock exchange from 2002 to 2006. The findings again support that managerial irrationality, especially overconfidence does have an effect on the financing decisions of firms. They conclude that CEOs who are older, longer tenure, higher education and not the chairman concurrently, these groups of CEO would have weaker managerial overconfidence level. Wang, Chen [18] compare post-financing stock performance for debt-issuing and equity-issuing portfolio in Taiwan. They also conclude that managerial optimism does affect firm's choice between debt and equity and poor post-financing performance. In Heaton [19] model, optimistic managers will overvalue thus invest and expand the project and firm. Lin, Hu [10] carry out the same study in Taiwan too. They investigate a sample of 8711 forecasts released by 1386 CEOs in 869 different companies listed on Taiwan Stock Exchange for the period from 1985 to 2002. The findings indicate that overconfident managers tend to have higher investment-cash flow sensitivity than non-overconfident managers.

Contrary to it, Jing, Hao [20] have found a different finding from their study. They conclude that overconfidence of entrepreneur may lead to lower corporate value, and it may also make the venture enterprise with a negative return from their investment.

The impact of managerial overconfidence on firm debt decision is an important issue for Malaysia and more generally in the transition literature. However, existing evidence on the relationship between managerial overconfidence and leverage

decision is rich; however, the results are mixed and do not show a consistent pattern. In other words, there is no consensus view about the overall effect of managerial behavior on debt decision. Therefore, we attempt to extend this line of enquiry, to examine whether managerial overconfidence plays any significant role in influencing the debt decision.

2.0 Data and Methodology

3.1 Sources of Data

To form the sample, we choose the sample based on the following criteria: (1) The firm is listed in Bursa Malaysia before 2002. (2) The firm has a complete data of 10 years period from 2004 to 2013. (3) The firm has a complete report on CEO personal characteristics needed (profile photo, duality information, educational background, previous experience, gender, tenure, age, information on founder or non-founder, network, previous performance and remuneration) as measure of managerial overconfidence's proxies. After removing the unavailable data, the final sample is 183 firms.

3.2 Variables Measurement

To group the variables, we follow MARS model by McShane and Travaglione [21] to classify CEO characteristics in group. The summary of the variables measurement is as follows:

Variables	Description
<i>Explanatory variables</i>	
<i>Motivation</i>	
PP	Is as dummy variable, one point if the CEOs photo in the annual report, and zero point if there is no photo of CEO.
NET	It is a dummy variable by setting 1 if CEO is also the member of corporate boards (other than the CEO's own firm) and trustee or

	board member of nonprofit organizations, otherwise, 0.
PERF	It is calculated as the ratio of operating cash flow and total assets. Ratio takes value of 0 if it does not correspond to current CEO's tenure
REM	It is measured as the ratio of average remuneration of the top 3 managers divided by the average remuneration of all top managers
<i>Ability</i>	
EDU	Is a dummy variable to distinguish the education level of CEO, if CEO's education is above undergraduate, 1; otherwise, 0.
EXP	Is a dummy variable for CEO experience which code as 1 if he or she served as a chief officer level executive or a vice president in another firm before he or she joined the firm under the study and 0 if otherwise.
TEN	It is numeric variable which express number of years while CEO has served the analysed company.
AGE	The scale ranges from 1 to 3 to measure CEO age as follows: 1 (CEO age is less than 46 years old); 2 (CEO age is between 46 to 59 years old); and 3 (CEO age is more than 59 years old).
<i>Roles</i>	
DUA	Is a dummy variable, assigned 1 if the CEO additionally occupies the position of the chairman of the board, or otherwise, 0.
GEN	It is dummy variable, which code as 1 if firm male-owned and 0 if otherwise.
FOUND	We set dummy_founder as 1 if the CEO of the firm is also a founder, otherwise, 0.
<i>Control variables</i>	
OC5	It is calculated by dividing the sum of shares held by the largest five shareholders by the top 30 shareholders shares
ROA	It is measured as the ratio of earnings before interest and taxes to total assets.
SIZE	It is measured by the natural log of sales
TANG	It is the ratio of tangibility assets (the sum of fixed assets and inventories) to total assets
GROWTH	It is measured as 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

3.3 Regression models

In order to examine the relationship between managerial overconfidence and firm debt decision, the study employs dynamic panel models. Many economic and finance issues are dynamic by nature and use the panel data structure to understand adjustment. Furthermore, empirically understanding debt decision arguably requires the use of firm fixed effects to control for unobserved, time-invariant differences across firms. Yet, uncorrected coefficient estimates for a dynamic relationship by the presence of a lagged dependent variable among the regressor can be severely biased. Dynamic panel data allows for dynamic in the underlying process may be crucial for recovering consistent estimates of other parameter. The dynamic relationships are characterized by the presence of a lagged dependent variable among regressors.

$$\begin{aligned}
 LEVE_{it} = & \alpha_0 + \alpha_1 LEVE_{i,t-1} + \alpha_2 PP_{it} + \alpha_3 NET_{it} \\
 & + \alpha_4 PERF_{it} + \alpha_5 REM_{it} + \alpha_6 EDU_{it} \\
 & + \alpha_7 EXP + \alpha_8 TEN_{it} + \alpha_9 AGE_{it} \\
 & + \alpha_{10} DUA_{it} + \alpha_{11} GEN_{it} + \alpha_{12} FOUND_{it} \\
 & + \alpha_{13} OC5_{it} + \alpha_{14} ROA_{i,t} + \alpha_{15} SIZE_{i,t} \\
 & + \alpha_{16} TANG_{i,t} + \alpha_{17} GROWTH_{i,t} \\
 & + \sum \alpha_i Year_i + \sum \alpha_i Industry_t + \varepsilon_{it}
 \end{aligned} \quad (1)$$

$$\begin{aligned}
 LEVE2_{it} = & \beta_0 + \beta_1 LEVE_{i,t-1} + \beta_2 PP_{it} + \beta_3 NET_{it} \\
 & + \beta_4 PERF_{it} + \beta_5 REM_{it} + \beta_6 EDU_{it} \\
 & + \beta_7 EXP + \beta_8 TEN_{it} + \beta_9 AGE_{it} \\
 & + \beta_{10} DUA_{it} + \beta_{11} GEN_{it} + \beta_{12} FOUND_{it} \\
 & + \beta_{13} OC5_{it} + \beta_{14} ROA_{i,t} + \beta_{15} SIZE_{i,t} \\
 & + \beta_{16} TANG_{i,t} + \beta_{17} GROWTH_{i,t} \\
 & + \sum \beta_i Year_i + \sum \beta_i Industry_t + \varepsilon_{it}
 \end{aligned} \quad (2)$$

where subscripts i and t represent the firm and time respectively. α_i and β_i , $i = 1$ to 17, are coefficients of the respective independent and control variables; ε_{it} is error term.

4.0 Results and discussion

4.1 Descriptive Statistics

Table 4.1 shows the descriptive statistics for firm debt and the explanatory variables. With respect to the LEVE and LEVE2 measure of firm debt, 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 44.90% of total assets value for the sample of Malaysian firms studied. As for LEVE2, it indicates that RM0.317 of firm's liability is covered by RM1 of equities. The univariate result also shows that Malaysian public listed firms use more equities as compared to debt. In terms of CEO personal characteristics, averagely, Malaysian CEOs do not disclose their profile photos or no photo of CEOs in company's annual report. In terms of dual leadership structure, with the mean of 0.226, it implies that majority of the Malaysian CEOs do not hold two positions. They are only the CEO of the company but not the chairman at the same time. This could be due to the Malaysian Code of Corporate Governance (2000) has established a new set of best-practice guidelines that recommend that companies avoid

duality to ensure proper checks and balances at the level of the top leadership of corporations. Although compliance with best practices is voluntary, in recognizing the importance of corporate governance in the context of the global capital market, the Bursa Malaysia has taken a leading role in enhancing the standard of Malaysian corporate governance practices of listed issuers.

The descriptive statistics with the education level's mean of 0.646 also shows that Malaysian CEOs have earned at least undergraduate degree as their minimum education level. About 60.7 per cent of CEOs served as a CO level executive. Moreover, the statistics also identifies majority of the Malaysian CEOs are males and only 2.3 per cent CEOs are females. Other than that, generally they have been holding the CEO position for 10 to 11 years in the same company. In terms of age group, majority of Malaysian CEOs are in group 2 which is averagely in between 46 to 59 years old. The finding also reveal that most of the Malaysian CEOs are not founder of the company he or she served. In terms of network, observed CEO serves at least as a corporate board other than the CEO's own firm or nonprofit organizations. The mean for operating cash flow and total assets as a measure of CEO performance is -4.737 and it is relatively low. This indicates that majority of Malaysian CEOs do not perform well as compared to previous year. As for remuneration, the mean of 0.812 reveals that 81.2% of the total directors' remuneration is paid for CEO and the other top 2 directors. Furthermore, the descriptive statistics also indicates the five largest shareholders are holding 69.3 per cent of the company's shares in average and the samples are considered as having high ownership concentration. The mean ROA of 0.046 indicates that 4.6 per cent of profit is generated from total assets. Firm size of 12.231 shows that sales of firm is RM12.231

million in average. About 52.0 per cent of firm's total assets are made up of fixed assets. Finally, firm average growth for the observed period is about 0.3 percent.

4.2 Regression results

We use system GMM to estimate the dynamic debt decision model in equation (1) for all firms from 2002 to 2011. Table 2 shows the results of system GMM. Before performing our final system GMM, we perform some diagnostic tests. A multicollinearity test was conducted to check for correlation among the regressors. Setting the cut-off value for VIF at 5, we find no multicollinearity. The Sargan Test ($P > 0.05$) indicates that overidentifying restrictions are valid. The presence of first order serial correlation ($P < 0.05$) and second order serial correlation ($P > 0.05$) imply the model is in line with GMM. $LEVE_{t-1}$ is the coefficient for the lagged dependent variable and is significant at the 1% level. From the values of coefficient, 0.740 (one step) and 0.789 (two step), it indicates that Malaysian public listed firms adjust debt towards an optimal level and the spend of adjustment is approximately 21% to 26% per annum.

In the terms of managerial overconfidence based on motivation context, the coefficient of PP shows that CEOs who disclose their profile photo will choose more debt as their overconfidence level is higher. Other than that, the positive coefficients for PERF and REM show that CEO with better performance and higher remuneration which indicating higher confidence level will carry more debt.

With regards to ability, the positive coefficients of EDU and EXP confirm that CEOs with higher education level, more experience and longer tenure will tend to hold more debts for the firms. This could be explained as CEO with higher confidence level will prefer more debts when he or she obtains

at least undergraduate degree, more experience and longer service in the same firm. This is consistent with Bantel and Jackson [22] who agree that highly educated top managers, are positively related to strategic change for a better firm's growth. However, the empirical finding reveals that older CEOs prefer less debt. Vroom and Pahl [23] explain that older managers tend to be more risk

averse whereas young manager are more willing to undertake risky innovative growth strategies.

Table 1: Descriptive statistics

Variable	Mean	SD	Maximum	Minimum
LEVE	0.449	0.329	0.992	0.010
LEVE2	0.317	0.330	5.54	0.000
PP	0.239	0.426	1.000	0.000
NET	0.792	1.305	1.000	0.000
PERF	-4.737	2.687	58.880	-12.963
REM	0.812	0.209	3.053	0.000
EDU	0.646	0.478	1.000	0.000
EXP	0.607	1.164	19.000	0.000
TEN	10.199	8.080	40.000	0.000
AGE	2.038	0.621	1.000	3.000
DUA	0.226	0.418	1.000	0.000
GEN	0.977	0.160	1.000	0.000
FOUND	0.310	0.463	1.000	0.000
OC5	0.693	0.153	1.000	0.000
ROA	0.046	0.120	0.723	-1.390
SIZE	12.231	1.487	16.616	2.398
TANG	0.520	0.034	0.990	-0.633
GROWTH	0.003	0.040	0.230	-1.000

Besides that, in terms of roles context, the study finds some interesting findings for Malaysian public listed firms. CEOs with dual leadership structure prefer less debt. Other than that, female CEOs are more confident than male, thus, choose more debt in Malaysian firms. The finding also indicate that CEO who is also founder may use more time to reduce the potential bias in decision making, hence choose less debt.

As for robust check, we re-estimate the models by replacing LEVE with the ratio of total debt to total equities (LEVE2). The estimation results with two-step Difference GMM and two-step System GMM

in Table 3 remains qualitatively the same except for DUA.

Table 2: Regression result of Panel Data Analysis-Main effect

Variables	One-step System	Two-step System
	GMM	GMM
	Model 1	Model 1
Intercept	-1.961*** (-5.83)	-2.226*** (-5.55)
Debt_{t-1}	0.740*** (11.41)	0.789*** (17.83)
Motivation		
PP	0.031 (0.65)	0.051** (2.02)
NET	0.017 (1.21)	0.003 (0.31)
PERF	-0.002 (-0.78)	0.002*** (13.24)
REM	0.111** (1.83)	0.019*** (3.48)
Ability		
EDU	0.083* (1.42)	0.055* (1.33)
EXP	0.319*** (7.47)	0.236*** (5.17)
TEN	0.008*** (-2.98)	0.003* (-1.31)
AGE	-0.067*** (-2.89)	-0.016** (-1.75)
Roles		
DUA	-0.118** (-2.19)	-0.241*** (-12.39)
GEN	-0.319*** (-3.18)	-0.204** (-2.13)
FOUND	-0.179** (-2.29)	-0.059 (-1.01)
OC5	0.425*** (3.48)	0.176*** (3.33)
ROA	-0.107*** (-7.82)	-0.641*** (-8.81)
SIZE	-0.107*** (-7.82)	-0.073*** (-3.87)
TANG	39.763*** (10.33)	37.160*** (15.96)
GROWTH	0.3512** (1.81)	0.523*** (6.24)
Year dummy	Yes	Yes
Industry dummy	Yes	Yes
Specification tests		
Sargan	674.61 (0.4569)	578.887 (0.6422)
Autocorrelation 1		-1.623 (0.045)**
Autocorrelation 2		0.939 (0.348)

Note: Dependent variable = LEVE for model 1; t-statistics in brackets, *, **, and *** denote the statistical significance at the 10, 5 and 1 per cent levels, respectively.

Table 3: Regression result of Panel Data Analysis-Robust check

Variables	Two-step Difference	Two-step System
	GMM	GMM
	Model 2	Model 2
Intercept	0.253** (1.74)	0.559*** (5.01)
LEVE2_{t-1}	0.602*** (22.51)	0.748*** (24.74)
Motivation		
PP	0.046*** (2.85)	0.092*** (5.11)
NET	0.034*** (4.85)	0.011*(1.91)
PERF	0.009** (-2.02)	0.002*** (2.97)
REM	0.038*** (2.53)	0.068*** (4.43)
Ability		
EDU	0.133*** (3.79)	0.176***(5.92)
EXP	0.050*** (2.50)	0.081*** (3.46)
TEN	0.002** (1.83)	0.002 (1.54)
AGE	-0.001 (-0.18)	0.0045 (0.67)
Roles		
DUA	0.016* (1.48)	0.004 (0.03)
GEN	-0.117*** (2.56)	-0.166*** (3.28)
FOUND	-0.065** (-2.15)	-0.105*** (-3.44)
OC5	-0.185*** (-2.36)	-0.307*** (-4.69)
ROA	-0.372*** (-8.55)	-0.505*** (-9.41)
SIZE	0.004 (0.49)	-0.012* (-1.86)
TANG	-0.342 (-0.60)	0.041 (0.07)
GROWTH	0.531*** (3.68)	0.590*** (4.46)
Year dummy	Yes	Yes
Industry dummy	Yes	Yes
Specification tests		
Sargan	53.781 (0.221)	691.759 (0.695)
Autorcorrelation 1	-1.454** (0.046)	-1.459** (0.045)
Autorcorrelation 2	0.022 (0.982)	0.939 (0.348)
Note: Dependent variable = LEVE2 for model 2; t-statistics in brackets, *, **, and *** denote the statistical significance at the 10, 5 and 1 per cent levels, respectively.		

5.0 Conclusion

This study examines the relationship between managerial overconfidence and firm's debt decision for the period from 2002 to 2011. The findings can be summarized as follows. (1) When CEOs are motivated (profile photo disclosure, better performance and higher remuneration), their overconfidence is significantly and positively related to debt; (2) CEOs' abilities (higher education, more experience and longer tenure) are significantly and positively related to debt; (3) Younger CEOs are taking more risk than older CEOs in Malaysian firm. (4) CEO who implement dual leadership structure tends to choose less debt;

(5) Female CEOs are more confident and prefer more debt in Malaysian firms; (6) Firm debt is lower when CEO is also the founder.

Of course, our measurement of managerial overconfidence may have shortcomings. More direct measurements may be considered in the future. In addition, there may have been other incentives that we have not examined; we have shown that the most obvious (at least to us) possible CEO personal characteristics in determining debt decision. One obvious future empirical extension to this study is to explore the effect of CEO political background and CEO race on cost of debt. It was also particularly time-consuming to hand collect the CEO information

from the annual reports of our sample companies. on the annual reports of our sample companies.

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