

# **DOES TOP MANAGERS' SKILLS MODERATE THE DEBT-STOCK RETURNS RELATIONSHIP IN MALAYSIA?**

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## **ABSTRACT**

Traditional theorists recognize that stockholders benefit from top managers' decisions; but, top managers' skills are not explicitly analysed in their theoretical model. This article examines the moderating effects of top managers' skills on the debt-stock return relationship. The two-step system generalized method of moments results show top managers skills positively moderate the book debt and stock return relationship. Moreover, top managers' skills have direct positive effect on stock returns. The results are robust using an alternative measure of debt, as top managers' skills positively moderate the market debt and stock returns relationship. The findings suggest that top managers' possessing strong skills maximize tax-shield benefits of debt and they increase stockholders' returns.

**Keywords:** Debt; Managerial skills; Stock returns; Upper-echelon theory; M-M Theory; Malaysia

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## **1. INTRODUCTION**

The global increase in the risk premium and stockholders' returns during and after the recent financial crisis is partly caused by inability of some top managers to maintain a sustainable debt level that maximizes stockholders' returns. A high debt increases financial risk, especially during an economic downturn. Therefore, stockholders demand a higher return to compensate them for the added financial risk (Modigliani & Miller, 1963), henceforth M-M. M-M recognizes that stockholders benefit from top managers' decisions; however, top managers' skills are not explicitly analysed in their theoretical model.

Recognizing the importance of top managers, the Eleventh Malaysia Master Plan 2016-2020 has identified human capital, of which top managers are a subset, as one of the drivers for transforming Malaysia into a high-income economy. Furthermore, the Malaysian Companies Act 1965

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(Revised 1973, Section 124) that governs the appointment of top-managers on the board state that the firm should be governed by effective top managers. The meaning of what constitutes effective top-managers on the board in terms of qualification and experience seems not clearly defined. Despite the fact that Malaysian companies' law stated that the firm should be governed by qualified personnel at the top management, but some top managers appear not to utilize debt to enhance stockholders' returns. Moreover, corporate debt exceeds earnings growth in Malaysia (The Edge Markets, 2017), an indication that some top managers are not effectively utilizing debt to enhance stockholders' returns. Thus, investigating how top-managers' skills moderate the debt-stockholders' returns relationship in Malaysia is an important subject matter.

Top managers give more attention to the debt component of capital structure because it is a double-edge sword that increases returns during good economic times but lowers returns during bad economic times. Moreover, debt requires periodic payments of fixed interest and excessive debt increases the likelihood that top managers may be unable to repay principal amount plus fixed interest, especially during bad economic times (Pozzo & Paolone, 2017). Also, researchers generally acknowledge that top managers make important strategic decisions, such as deciding on the optimal debt-equity mixes that maximize the debt interest tax-shield to enhance stockholders' returns. Despite the fact that debt increases the financial distress risk, some top managers use more debt because interest on debt is tax-deductible, and debt interest tax-shield may increase returns. Prior studies have recognized the importance of top-manager's expertise. Chen et al (2017) find that managers who worked as industry analyst demonstrate superior stock-picking skills, while managers with a background as macro analyst time the market better. Likewise, Custodio and Metzger (2014) report that financial expert managers hold less cash, use more debt and they influence corporate performance. However, they use a dummy variable approach to control for the financial expertise of the top managers. This paper focuses on the moderating effects of top managers' skills on the debt-stock return relationship within the M-M (1963) risk-return theoretical framework. Precisely, the paper examines the moderating effects of top managers' skills on the debt-stock return relationship in Malaysia. Malaysia is ranked as number 4 out of 144 countries in terms of financial market development (World Economic Forum, 2015). Similarly, Malaysia is ranked as number 4 out of 189 countries in terms of investor protection (World Bank, 2015). In the presence of functioning bond (debt) market that lower transaction costs, Malaysian top managers could easily raise debt capital needed to maximize stockholders' return.

The contributions of this study are threefold. Firstly, unlike some prior studies that tie increases in returns to the top managers' expertise or use dummy variable (shift in intercept) approach to directly control for the effects of managerial expertise on returns; this article quantifies and develops index (average) measure of top managers' skills. Top managers' skills are proxy by an index (an average measure of the top managers' experience). This index allows us to determine the effects of top managers' skills (through the slope) on stock returns. Secondly, our article takes a refined approach by allowing top managers' skills to moderate the Modigliani and Miller's risk-return relationship. Third, the article integrates the upper echelons theory from management literature with the M-M (1963) and trade-off theories to explain the moderating effects of top managers' skills on the relationship between debt and stock returns. As top managers with strong skills maximize the benefit of an interest tax shield, as implied in Modigliani and Miller's (1963) theoretical model, they can increase stockholders' returns.

The rest of the article is organized as follows: Section 2 reviews relevant literature, section 3 describes data and method, section 4 discusses the results, and section 5 concludes the paper.

## 2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Upper echelons theory argues that attributes such as years of experience among top managers' influences their strategic decisions (Hambrick and Mason, 1984; Hambrick, 2007; Bany-Ariffin et al., 2014). Furthermore, upper-echelon theorists suggest that firm's top managers are a critical resource for its success due to significant influence that top managers have on strategic decisions and performance (Driesch et al., 2015; Escriba-Esteve, 2009; Hambrick & Mason, 1984). Within the framework of Modigliani and Miller (1963) theory with taxes, this article argues that top managers with strong skills maximize the benefits of debt interest tax-shield and they can increase stockholders' returns. Returns increase because top managers are allowed to deduct interest on debt before taxes are paid (Modigliani & Miller, 1963, Bhandari, 1988); fewer taxes mean more stockholders' returns. Therefore, top managers' skills positively moderates the debt-stock returns relationship. All other things being equal, we assume that experienced managers seek external finance via debt.

In related studies, Chen et al (2017) examine the relationship between mutual fund managers' past professional backgrounds and their portfolio performance in china. Chen et al (2017) find that managers who worked as industry analysts demonstrate superior stock-picking skills, while managers with a background as macro analysts time the market better. Custodio and Metzger (2014) examine how Chief Executive Officers (CEOs) with career backgrounds in finance affect firms' financial policies. Using panel estimations and dummy variables (shift in intercept) approach to measure CEOs' experience, they find that a firm who's CEOs have financial expertise generally use more debt and influence financial policies. Custodio and Metzger (2014) conclude that such CEOs' risk tolerance level explains why they use more debt in their capital structure. Similarly, top managers' ability is recognized by Ishikawa and Takahashi (2011) who test whether managers have the ability to time the market. They find that firms conduct share repurchases programs when the stock prices fall in previous month and firms engaging in market share repurchase program, outperform the market over the subsequent months. Ishikawa and Takahashi (2011) conclude that managers are skilful at detecting mispricing in the stock market.

In an earlier study, Bertrand and Schoar (2003) note that research in finance and economics has given little consideration to how top managers influence corporate performance. Bertrand and Schoar (2003) study the effect of managerial characteristics on investment to cash flow sensitivity, and the effect of managerial characteristics on investment to Tobin Q sensitivity, among others. They specify a model that facilitates interaction between managerial characteristics and cash flow and interaction between managerial characteristics and Tobin's Q. They find that MBA graduates on average respond more to Tobin's Q and less to cash flow availability when making investment decisions. Unlike Bertrand and Schoar (2003), this article argues that the top managers' skills positively moderate the debt-stock returns relationship within the M-M theoretical framework. Moreover, our article applies the two-step system generalized method of moments that resolve endogenous problem using efficient instrumental variable techniques.

Upper echelons theory identifies top managers as an important human resource that formulates effective strategy that increases returns. Thus, upper echelons theory complements the M-M (1963) and trade-off theories because top managers formulate effective strategies, such as an optimal capital structure mix that maximizes the benefits of debt interest tax-shield. Debt tax-

shield raises earnings; therefore managers' usage of optimal debt should increase stockholders' returns. Carmeli and Tishler (2006), apply the upper echelons theory to investigate the effect of the skills of the top management team on the performance of industrial firms. Carmeli and Tishler (2006) find that top managers' managerial skills affect firm performance (return on assets) and that their impact is more than the impact of size and age on firm performance. They apply the upper echelons theory to management research. Conversely, our study integrates insights from the upper echelons theory and the M-M (1963) and trade-off theories to explain the moderating effect of top managers' skills on the debt-stock return relationship.

Does top managers' skills have a moderating effect on the debt-stock returns relationship? This study attempts to answer this research question. The M-M (1963) theoretical model with taxes establishes positive relationship between debt and returns on common stock but top managers' experience is not explicitly analysed in their theoretical model. Extending the Modigliani-Miller (1958; 1963) theoretical model, Bhandari (1988) documents a positive relationship between debt and stock returns. They argue that the debt-equity ratio is a natural proxy for financial risk, and it should have a positive relationship with equity risk and stock returns. Bhandari's (1988) results show that debt is positively related to stock returns, after including firm size as control variables in his empirical model. Our study also builds on the M-M theory with taxes and extends their cross-sectional model to dynamic panel model. Moreover, our modelling approach allows top managers' experience to moderate the M-M debt-return relationship.

Most studies that investigate how debt relates to returns report mixed results. Ahmad et al. (2012) examines the effect of debt on returns for Malaysian firms within the framework of Modigliani and Miller theory and applying panel ordinary least squares method. Ahmad et al. (2012) findings indicate that debt is positively related to returns. Likewise, Matemilola et al. (2012) tests the impact of debt on return using panel generalized method of moments' estimation (GMM). The authors' empirical results indicate that long-term debt and total debt are positively related to shareholder required returns for South African listed firms. They argue that debt is positively related to returns because debt increases financial risk. Therefore, stockholders' demand higher returns to compensate them for added financial risk. Similarly, Ahmad et al. (2013) analyse the co-determinants of debt and stock returns applying a generalized method of moments (GMM). Ahmad et al. (2013) results indicate that both debt and stock returns affect each other but that debt has a dominant effect on stock returns.

Conversely, Dimitrov and Jain (2008) find that debt has a negative relationship with stock returns. They study changes in debt level and show that debt is negatively related with current and future adjusted returns. Likewise, George and Hwang (2010) results reveal that the negative relationship between default risks disappears after controlling for debt. The authors claim that their result is consistent with the hypothesis that the risk of bearing financial distress costs is priced, and that firms with greatest exposure to these costs avoid debt. In this article, we argue that top managers with strong skills maximize the benefit of an interest tax shield, as implied in Modigliani and Miller's (1963) theoretical model, they can increase stockholders' returns. Therefore, the article put forward the following hypothesis in  $H_0$  (Null) form: top managers' skills do not positively moderate the debt-stock returns relationship. A rejection of the null hypothesis will support the alternative hypothesis that top managers' skills positively moderates the debt-stock returns relationship.

### 3. DATA AND METHODOLOGY

#### 3.1. Data

The data set consists of firms listed on Bursa Malaysia from 2008 to 2012. The data starts in 2008 and ends in 2012 due to data availability for the top managers' experience (our main independent variable). Thus, the article uses published data on top managers' skills (i.e. experience) for five years. The data on top managers' skills are manually collected from the annual report of each firm, every year, covering five years period.

The paper includes top managers that have information on their experience recorded in the annual report. The other data were extracted from the Datastream databases. The initial sample is 930 firms, but companies without information on the top managers' experience in the annual reports are excluded from the sample. These criteria significantly reduce the sample size. As part of the data sampling process, financial firms are also excluded as their financial statement differs significantly from that of non-financial listed firms. Moreover, the article excludes regulated firms because their debt ratio is usually higher than other non-financial firms. The final sample firms comprise 621 (based mainly on data availability for top managers' experience) listed firms on Bursa Malaysia. Listed firms are chosen because valuation is attached to listed firms' stocks. The industries included in our sample are hotels, constructions, consumer, industrial, services, property, and plantation. The article applies winsorization technique to mitigate the effects of extremes values of some data on the estimated parameters. Similar to Gomes and Schmid (2010), the return is the ratio of stock return at time  $t+1$  to stock return at time  $t$ .

In order to measure expertise, Custodio and Metzger (2014), in the area of finance research, measure expertise using dummy variable (dummy variable equal to 1 if CEO has banking, investment or finance-related experience and zero otherwise). Unlike Custodio and Metzger (2014), we measure expertise or skills by the total number of years (years since the date top managers on the board were appointed on the board) the top managers' work within the firm and the number of years they work outside the firms. Then, an index (average measure) of top managers' skills is developed for each firm, every year.

Wally and Baum (1994) argue that observable attributes such as experience shape the values and beliefs of top managers and can be seen as a valid proxy for their underlying cognitive ability (assumption about future events and consequences attached to alternative decisions). Our article argues that top managers with strong skills maximize the benefit of an interest tax shield, as implied in Modigliani and Miller's (1958; 1963) theoretical model, they can increase stockholders' returns. Thus, top managers' skills should positively moderate the debt-stock returns relationship. Debt is either measured in terms of book-value debt or market-value debt (Gomes & Schmid, 2010; Chong & Law, 2012; Matemilola *et al.*, 2015). In accordance with previous literature, our paper focuses on book-value of debt. The book value of debt is not affected by stock price changes compare with the market value of debt. The book-value debt is the ratio of total debt to book-value of total assets, and the ratio of long-term debt to book-value of total assets. Total debt is a broader measure that encompasses the total of all liabilities and ownership claims on a firm. As a robustness test, the paper also uses the market-value of debt as in Gomes and Schmid (2010). The market-value debt is the ratio of book-value of total debt to market-value of equity plus book-

value of total debt, and the ratio of book-value of long-term debt to market-value of equity plus book-value of long-term debt. Debt is expected to be positively related to stock returns due to the substantial benefit of the interest tax shield. Size is log of total assets and it should be positively related to returns because bigger firms are more stable and less likely to go bankrupt (Bany-Arifin et al., 2016; Gomes & Schmid, 2010).

Book-to-Market-Equity (BM) is the ratio of book-value of equity to market-value of equity. Fama and French (1992), identify book to market equity as a proxy for financial risk which they argue is related to financial distress costs. The paper expects a positive relationship between book-to-market equity and stock returns because book-to-market equity captures relative earning prospects. Thus, high-book-to-market equity ratio should increase returns. Tax (effective tax rate) is the ratio of tax liability to taxable income. Paying taxes increase costs, in which case it should lower returns (Mironov, 2013). Effective tax rate is expected to be negatively related to returns because as more taxes are paid, returns should decrease.

The control variables are those established in the literature and they are good traditional predictor of returns (e.g. Mironov, 2013; Gomes & Schmid, 2010; Fama and French, 1992; Modigliani and Miller, 1963). The industry where firms operate affect returns and it is generally considered as an important risk factor. In their classic paper, Modigliani and Miller (1958) use industry where a firm belongs to represent a risk class. As in Gormley and Matsa (2013), the study uses industry dummy to control for industry effects on stock returns. Macroeconomic factors such as interest rate and inflation affect stock returns (Khan et al., 2015). The article uses time dummy to control for the effects of macroeconomic factors on stock returns.

The study follows the framework of M & M (1963) with modification as shown below:

$$\begin{aligned} Returns_{it} = & (1 - \alpha)Returns_{it-1} + \alpha(\beta_1 + \beta_2 D_{it} + \beta_3 MS_{it} + \beta_4 (D * MS)_{it} + \beta_5 Size_{it} + \beta_6 BM_{it} + \beta_7 Tax_{it}) \\ & + \theta_i + \lambda_t + \mu_{it} \end{aligned} \quad (1)$$

Where  $Returns_{it}$  is the stock returns in current period.  $Returns_{it-1}$  is the stock returns in previous period.  $D$  is debt.  $MS$  is the top managers' experience.  $BM$  is the book-to-market equity.  $Tax$  is effective tax rate.  $\alpha$  is adjustment parameter.  $\eta_i$  is the unobserved firm-specific effects.  $\lambda_t$  is the year fixed effects.  $\theta_i$  captures industry effects.  $\mu_{it}$  is the error term, subscripts 'i' and 't' represent firm and time period, respectively.

The study follows the framework of M-M (1963) with modification. M-M (1963) specify static model and apply ordinary least squares to investigate the relationship between debt and return on common stock. Conversely, this article specifies a dynamic model and apply Blundell and Bond (1998) two-step generalized method of moment. The article applies the two-step system generalized method of moments because previous year stock returns can affect current year stock returns (Flannery & Hankins, 2013). Moreover, system generalized method of moments resolves the potential endogeneity problem pertaining to the managerial skills and other explanatory variables using efficient instrumental variable techniques (Flannery & Hankins, 2013). Moreover, the ordinary least squares method is not applied because it provides inconsistent estimate of the parameter of a dynamic panel model specification with lagged dependent variable and fixed effects.

The reasons why ordinary least squares cannot be applied are: (1) possibility that the unobservable firm-specific effects are correlated with other explanatory variables, (2) possibility that all the explanatory variables are not exogenous. If the explanatory variables are not all exogenous, conventional ordinary least squares method cannot be applied because it has violated one of the main assumptions of the classical linear regression model that all the explanatory variables should be exogenous (Flannery & Hankins, 2013, Ahmad et al., 2016).

#### **4. RESULTS AND DISCUSSION**

Table 1 contains mean, standard deviation and correlation results. Correlations between the independent variables affect efficiency of the estimated coefficients. The correlation coefficients between the independent variables are generally low, suggesting that multicollinearity is not a problem. Tables 2 and 3 present the two-step system GMM results. The second-order serial correlation test and difference-in-Hansen test confirm that the instruments are valid. Thus, the two-step system generalized method of moment (GMM) estimation is appropriate. Moreover, there is an absence of second-order serial correlation in the models. The two post estimation tests indicate that the models are correctly specified. The coefficient of the interaction terms is the main focus and it indicates how much the effect of debt changes as top managers' skills change one unit. The co-efficient of the interaction-terms (book debt\* top managers' skills) and top managers' skills alone are significant and positively related to stock returns (see Table 1, Models 1 and 2 results). Models 1 and 2, where book debt is interacted with top managers' skills are the main results. The advantages of focusing on the models that interact book debt (ratio of total debt to book value of total assets and the ratio of long-term debt to book value of total assets) with managerial skills are that the book value of debt ratio is not affected by price changes, and the book value of debt ratio is close to the value of a distressed firm (Graham & Harvey, 2001). Similarly, as a robustness tests, the co-efficient of the interaction-terms (market debt\* top managers' skills), and top managers' skills alone are statistically significant, and positively related to stock returns (see Table 2, Models 3 and 4 results). Models 3 and 4 are estimated to check the robustness of the findings to alternative model specifications. In other words, the reason for estimating models 3 and 4 is to confirm the robustness of our findings to alternative measures of debt ratio (market value measures of debt ratio) commonly use when conducting capital structure research.

The results suggest that top managers' skills positively moderate the relationship between book debt and stock returns, and top managers' skills directly affect stock returns. As a robustness check, top managers' skills positively moderate the relationship between market debt and stock returns, and top managers' skills directly affect stock returns. Intuitively, the results suggest that top managers with strong skills maximize the benefits of debt interest tax- shield; they can increase stockholders' returns. In other words, top managers with strong skills choose optimal capital structure where tax benefits of debt outweigh the costs of financial distress. The results are consistent with the Chen et al (2017) who examine the relationship between mutual fund managers' past professional backgrounds and their portfolio performance in china. Chen et al (2017) find that managers who worked as industry analysts demonstrate superior stock-picking skills, while managers with a background as macro analysts time the market better. Similarly, the results are consistent with Demerjian et al (2013) who estimated managerial ability using data

envelopment analysis. They report evidence that managerial ability positively affects earning quality.

Moreover, in accordance with Ahmad et al. (2012), Matemilola et al. (2012) and Bhandari (1988) empirical findings, debt is positively related to returns in the main models (models 1 and 2), and the models 3 and 4 as robust check. They argue that debt is positively related to returns because debt increases the financial risk. Therefore, stockholders demand higher returns to compensate them for added financial risk. Conversely, these results are inconsistent with George and Hwang (2010) empirical findings. They find that debt is negatively related to stock returns. In order to explain the negative effect of debt on stock returns, George and Hwang (2010) argue that in the presence of market imperfection, firms with high costs choose low debt in order to avoid financial distress, but they retain exposure to the systematic risk of bearing financial distress costs in low states or during economic downturn.

As control variables, book-to-market equity is statistically significant and positively related to stock returns in the main models (models 1 and 2), and the models (models 3 and 4) used as a robust checks. Book-to-market equity measures relative earning prospects and it is related to financial distress factors (Chan & Chen, 1991). This result is consistent with Gomes and Schmid (2010) and Fama and French (1992) who document evidence that book-to-market equity are positively related to stock returns. The result is also consistent with Chan and Chen's (1991) findings that book-to-market equity is positively related to returns. They argue that book-to-market equity relates to earning prospects of the firm and it captures risk factors (financial risk) in returns. Turning to tax variables, tax is negatively related to stock returns in the main models (models 1 and 2), and the robust check models (models 3 and 4) because taxes are expenses to firms which should lower returns. The results are consistent with Mironov (2013) findings. They argue that paying taxes increase costs, in which case it should lower returns. Furthermore, size show mixed results in the main models (models 1 and 2) and size has insignificant effects on stock returns in the robust check models. Previous studies also report mixed results for size variable. Matemilola et al. (2012) document positive effect of size on returns. Conversely, Fama and French (1992) report negative effect of size on returns. Amihud (2002) find that size has no effect on returns. He argues that investors have realized that smaller firms are capable of outperforming bigger firms in the stock market. Therefore, smaller firms were no longer constantly under-valued.

**Table 1: Descriptive Statistics**

| Panel A. Mean, Median and Standard deviation |                    |                    |       |       |       |        |        |       |       |
|--|--------------------|--------------------|-------|-------|-------|--------|--------|-------|-------|
|  | RETURN             | TDBV               | LDBV  | TDMV  | LDMV  | MS     | SIZE   | BM    | TAX   |
| Mean   | 1.076              | 0.465              | 0.367 | 0.370 | 0.207 | 28.228 | 12.566 | 0.019 | 0.069 |
| Minimum                                      | 0.108              | 0.009              | 0.071 | 0.010 | 0.008 | 2.400  | 0.693  | 0.204 | 3.939 |
| Maximum                                      | 9.705              | 1.000              | 0.542 | 0.747 | 1.000 | 44.670 | 19.334 | 2.259 | 9.982 |
| Std. Dev.                                    | 0.598              | 0.302              | 0.300 | 0.580 | 0.188 | 5.108  | 1.969  | 0.051 | 0.774 |
| Panel B. Correlation Results                 |                    |                    |       |       |       |        |        |       |       |
|  | RETURN             | TDBV               | LDBV  | TDMV  | LDMV  | MS     | SIZE   | BM    | TAX   |
| RETURN                                       | 1                  |                    |       |       |       |        |        |       |       |
| TDBV   | 0.110 <sup>a</sup> | 1                  |       |       |       |        |        |       |       |
| LDBV   | 0.201 <sup>a</sup> | 0.074 <sup>a</sup> | 1     |       |       |        |        |       |       |



|      | RETURN              | TDBV               | LDBV                | TDMV                | LDMV                | MS                 | SIZE               | BM                  | TAX |
|------|---------------------|--------------------|---------------------|---------------------|---------------------|--------------------|--------------------|---------------------|-----|
| TDMV | 0.103 <sup>a</sup>  | 0.263 <sup>a</sup> | 0.002               | 1                   |                     |                    |                    |                     |     |
| LDMV | 0.049 <sup>c</sup>  | 0.143 <sup>a</sup> | 0.020               | 0.057 <sup>a</sup>  | 1                   |                    |                    |                     |     |
| MS   | 0.059 <sup>a</sup>  | 0.181 <sup>a</sup> | 0.110 <sup>a</sup>  | 0.209 <sup>a</sup>  | 0.011               | 1                  |                    |                     |     |
| SIZE | 0.022               | 0.155 <sup>a</sup> | 0.093 <sup>a</sup>  | -0.061 <sup>c</sup> | 0.058 <sup>a</sup>  | 0.016              | 1                  |                     |     |
| BM   | 0.045 <sup>c</sup>  | 0.113 <sup>a</sup> | 0.050 <sup>c</sup>  | 0.104 <sup>a</sup>  | 0.197 <sup>a</sup>  | 0.067 <sup>a</sup> | 0.044 <sup>c</sup> | 1                   |     |
| TAX  | -0.106 <sup>a</sup> | 0.108 <sup>a</sup> | -0.109 <sup>a</sup> | -0.081 <sup>a</sup> | -0.059 <sup>a</sup> | 0.045 <sup>c</sup> | -0.021             | -0.057 <sup>a</sup> | 1   |

**Notes:** <sup>a</sup> Stock Returns is the ratio of stock returns in year t+k to stock returns in year t. TDBV is the ratio of total debt to book-value of total assets. LDBV is the ratio of long-term debt to book-value of total assets. TDMV is the ratio of book-value of total debt to market-value of equity plus book-value of total debt. LDMV is the ratio of book-value of long-term debt to market-value of equity plus book-value of long-term debt. MS is average years of experience of top managers in each firm, every year. Size is log of total assets. Book-Market Equity is the ratio of book-value of equity to market-value of equity. Tax is the ratio of tax liability to taxable income. <sup>a</sup> and <sup>c</sup> indicate correlation coefficient is significant at 1% and 5% levels, respectively.

**Table 3:** Two-step System Generalized Method of Moments [Main Results]

| Independent Variables                              | Model 1           | Model 2           |
|--|-------------------|-------------------|
| Stock Returns <sub>it-1</sub>                      | 0.192*** (12.77)  | 0.195*** (17.11)  |
| TDBV   | 0.007*** (2.54)   | -                 |
| LDBV   | -                 | 0.002** (2.59)    |
| MS (Managerial Skills)                             | 0.006** (2.46)    | 0.003** (2.08)    |
| TDBV*MS  | 0.009*** (2.91)   | -                 |
| LDBV*MS  | -                 | 0.005*** (2.71)   |
| Size   | -0.004* (-1.82)   | -0.101 (-0.34)    |
| Book-Market Equity (BM)                            | 0.085** (2.12)    | 0.098** (2.51)    |
| Tax  | -0.003*** (-2.77) | -0.001*** (-2.71) |
| Industry dummy                                     | Yes               | Yes               |
| Year fixed effects                                 | Yes               | Yes               |
| 2 <sup>nd</sup> order serial correlation (p-value) | 0.205             | 0.202             |
| Difference-in- Hansen Test(p-value)                | 0.246             | 0.252             |

**Notes:** <sup>a</sup> Stock Returns is the ratio of stock returns in year t+k to stock returns in year t. TDBV is the ratio of total debt to book-value of total assets. LDBV is the ratio of long-term debt to book-value of total assets. MS is average years of experience of top managers in each firm, every year. Size is log of total assets. Book-Market Equity is the ratio of book-value of equity to market-value of equity. Tax is the ratio of tax liability to taxable income. Industry effect is a dummy variable equal to 1 if a firm belongs to a particular industry and zero otherwise. Year effect is a dummy variable equal to 1 for a specific time period and zero otherwise. <sup>b</sup> The numbers in parentheses are test statistics. <sup>c</sup> \*\*\*, \*\* and \* indicate coefficients are significant at 1 and 5 and 10 percent levels, respectively. <sup>d</sup> Second order serial correlation that has N (0, 1) distribution, but null uncorrelated with errors. Difference-in-Hansen over identification test and nulls that instruments are valid. N = 621, T = 5. Number of instruments are 68. Stock>Returns<sub>it-2</sub>, TDBV<sub>it-2</sub>, LDBV<sub>it-2</sub>, MS<sub>it-2</sub>, Size<sub>it-2</sub>, BM<sub>it-2</sub>, and Tax<sub>it-2</sub> are used as internal instruments. All the independent variables are treated as endogenous variables in the model specification.

**Table 3:** Two-step System Generalized Method of Moments [Robustness Tests Using Market Debt Ratios]

| Independent Variables                              | Model 3           | Model 4           |
|--|-------------------|-------------------|
| Stock Returns <sub>it-1</sub>                      | 0.190*** (12.50)  | 0.186*** (17.74)  |
| TDMV   | 0.006*** (4.64)   | -                 |
| LDMV   | -                 | 0.007** (2.16)    |
| MS (Managerial Skills)                             | 0.002*** (2.86)   | 0.002** (2.12)    |
| TDMV*MS  | 0.010*** (4.60)   | -                 |
| LDMV*MS  | -                 | 0.009*** (2.44)   |
| Size   | -0.009 (-0.37)    | -0.003 (-0.05)    |
| Book-Market Equity (BM)                            | 0.106*** (3.05)   | 0.070*** (2.50)   |
| Tax  | -0.007*** (-3.36) | -0.008*** (-2.90) |
| Industry dummy                                     | Yes               | Yes               |
| Year fixed effects                                 | Yes               | Yes               |
| 2 <sup>nd</sup> order serial correlation (p-value) | 0.217             | 0.221             |
| Difference-in-Hansen Test(p-value)                 | 0.140             | 0.210             |

*Notes:* <sup>a</sup> Stock Returns is the ratio of stock returns in year t+k to stock returns in year t. TDMV is the ratio of book-value of total debt to market-value of equity plus book-value of total debt. LDMV is the ratio of book-value of long-term debt to market-value of equity plus book-value of long-term debt. MS is the average years of top managers' experience in each firm, every year. Size is log of total assets. Book-Market Equity is the ratio of book value of equity to market value of equity. Tax is the ratio of tax liability to taxable income. Industry effect is a dummy variable equal to 1 if a firm belongs to a particular industry and zero otherwise. Year effect is a dummy variable equal to 1 for a specific time period and zero otherwise. <sup>b</sup> The numbers in parentheses are test statistics. <sup>c</sup> \*\*\* and \*\* indicate coefficients are significant at 1 and 5 percent levels, respectively. <sup>d</sup> Second order serial correlation that has N (0, 1) distribution, but null uncorrelated with errors. Difference-in-Hansen over identification test and nulls that instruments are valid. N = 621, T = 5. Number of instruments are 68. Stock>Returns<sub>it-2</sub>, TDMV<sub>it-2</sub>, LDMV<sub>it-2</sub>, MS<sub>it-2</sub>, Size<sub>it-2</sub>, BM<sub>it-2</sub>, and Tax<sub>it-2</sub> is used as instrument. All the independent variables are treated as endogenous variables in the model specification.

## 5. CONCLUSION

Most of the prior studies tie increases in returns to the top managers' expertise and some prior studies use a dummy variable (shift in intercept) approach to control for the effects of managers' expertise on returns. Our article takes an approach different from prior studies by developing an index (average) measure of top managers' skills. The two-step system generalized method of moments' empirical results reveals that top managers' skills positively moderates the debt- stock returns relationship. Moreover, top managers' skills have a direct positive effect on stock returns. The results are robust to alternative measures of debt (market debt). Overall, our results indicate that top managers' skills strengthen the relationship between debt and stock returns. Thus, top managers' with strong skills maximize the tax-shield benefits of debt in order to increase stock returns.

The first implication of these empirical findings is that top managers with strong skills (i.e. experience) maximize the benefits of debt interest tax-shield and they can increase stock returns.

Top managers with strong skills make quality decisions such as capital structure mix to increase stockholders' returns. Secondly, stockholders' should carefully select top managers because they

strongly influence capital structure strategy that maximizes returns. In most cases, top managers with strong skills are more confident in their ability to accurately estimate risk and returns. Consequently, stockholders should employ top managers with strong skills in order to enhance the quality of the strategic decisions of their top management team. It is recognized from the upper-echelons perspective that the top managers' expertise affects their firm-financing decisions. Third, the article provides empirical input to encourage policymakers to further create an enabling environment for top managerial development. The outcomes of this research are in accordance with the Eleventh Malaysia Master Plan 2016-2020 which identified human capital, of which top managers are a subset, as one of the drivers for transforming Malaysia into a high-income economy.

The article contributes to empirical research on debt-return relationship in three ways. Firstly, the study quantifies and develops average measure of top managers' skills. Top managers' skills are proxy by average years of experience of the top managers' in each firm, every year. Secondly, our article takes a refined approach and model top managers' skills as an important factor that moderate the Modigliani and Miller's risk-return relationship. Third, the article integrates the upper echelons theory from management literature with the M-M theory with taxes and trade-off theory from finance literature to explain the moderating effects of the top managers' skills on the debt-stock returns relationship, using a large sample of Malaysian listed firms. One limitation of this study is that we use published data on top managers' skills (i.e. experience) for five years due to data available when the study was conducted. However, future research may manually collect the data on top managers' attributes from the annual report and extend the study period. Specifically, a study that extends this study focusing on how broad top managerial attributes (e.g. age, tenure, gender, and functional background) affect the debt-return relationship are encouraged. Future empirical research needs to place emphasis on the importance of top managers' skills factor on stock returns. Moreover, future research may use insights from other capital structure theories to explain relationship between top managers' skills and stock returns.

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## Appendix I

|                                       |   |  |
|---------------------------------------|---|--|
| Book value of total debt (TDBV)       | = | the ratio of short-term debt + long-term debt to total assets (property, plant and equipment).   |
| Book value of long-term debt (LDBV)   | = | the ratio of long-term debt to book value of total assets  |
| Market value of total debt (TDMV)     | = | the ratio of book value of total debt to market value of equity plus book value to total debt.   |
| Market value of long-term debt (LDMV) | = | the ratio of book value of long-term debt to market value of equity plus book value of long-term debt.   |
| MS (Managerial Skills)                | = | the average years of total experience of top managers in each firm, every year. The total years of experience is the number of years the top managers' work within the firm (the date a top manager is first appointed on the board up to 2012 reflects the years of experience within the firm) and the number of years they work outside the firm. |
| Stock Returns                         | = | the ratio of Stock Returns in year $t+k$ to stock returns in year $t$ .  |
| Size                                  | = | log of total assets, where assets are deflated by the GDP deflator.  |
| Book –Market Equity (BM)              | = | the ratio of book-market equity to market value of equity.   |
| Tax                                   | = | the ratio of tax liability to taxable income.  |
| Industry effect                       | = | dummy variable equal to 1 if a firm belongs to a particular industry and zero otherwise. The industries included in our sample are hotels, constructions, consumer, industrial, services, property, and plantation). Hotel industry is excluded from the estimation to avoid dummy variable trap.  |
| Year effect                           | = | dummy variable equal to 1 for a specific time period and zero otherwise. Year 2012 is excluded to avoid dummy variable trap.   |