# Controlling Shareholders and the Implied Cost of Equity of Malaysian Firms

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**Abstract:** This study examines the impact of concentration of ownership on implied cost of equity capital of Malaysian listed firms over the 2004-2009 period. We analysed the impact of a higher degree of voting rights by the controlling shareholders, the identity of the controlling shareholders, and the moderating effect of controlling shareholders' involvement in management. Our results show that a higher ownership concentration by controlling shareholders reduces the implied cost of equity capital. The result shows that foreign firms significantly underperformed against firms controlled by other types of controlling shareholders, including government and family firms. In addition, we found that involvement in management can further increase the implied cost of equity capital if foreign controlling shareholders controlled above 50 per cent of voting rights, while the implied cost of equity capital of family and government controlled firms is not affected by their presence in company's top management.

**Keywords:** Controlling shareholders, implied cost of equity, involvement in management, ownership identity
**JEL classification:** G32

## 1. Introduction

This study examined whether a stronger concentration of ownership by controlling shareholders is associated with lower implied costs of equity capital, and whether different types of controlling shareholders have a differential impact on the implied cost of equity capital of listed firms. We further analysed the moderating effect of controlling shareholders' involvement in management on ownership concentration and the implied cost of equity capital, as well as on the different identities of controlling shareholders in their impact on the implied cost of equity capital. Our study adds value to two streams of research that investigate the effect of ownership. The first stream is corporate governance studies that focus on whether shareholder concentration explains the variation in firm performance (e.g., Claessens *et al.* 2000; La Porta *et al.* 1999; Wiwattanakantang, 2001). The second stream is corporate finance studies that examine how the ownership issue affects cost of equity capital (e.g., Cheng *et al.* 2006; Boubakri *et al.* 2012). To date, only a few recent studies (Laeven and Levine 2008; Attig *et al.* 2008; Chen *et al.* 2009) have investigated the effect of corporate governance on implied cost of equity capital with the first two studies focusing on the impact of multiple blockholders, while the latter addresses the impact of a list of country level and firm level governance indexes, but both do not account for ownership

concentration. In the context of East Asia, the theoretical conjectures underlying ownership concentration is that a stronger concentration reduces agency risks and contributes to higher firm value, especially family controlled firms. In this paper, we infer that stronger ownership concentration by controlling shareholders will further reduce the implied cost of equity capital. This conjecture lacks empirical evidence in the context of East Asia.

An examination of the association between corporate ownership and cost of equity capital from the viewpoint of controlling shareholders is needed in the context of the emerging markets of East Asia because their public listed firms are dominated by controlling shareholders (Claessens *et al.* 2000). These controlling shareholders prefer indirect ownership or through intermediary private entities, rather than simple direct ownership. Hence, the examination of the said relationship in corporate finance studies which commonly focus on direct ownership might not be appropriate. There is a need to trace the controlling shareholders with indirect shareholdings to add depth to the study on ownership and cost of equity capital. The concentrated firm ownership structure found in Malaysia offers a good platform to examine this issue.

Our study seeks to make several contributions by investigating the relationship between controlling shareholders and the implied cost of equity capital of firms in Malaysia that have different types of controlling shareholders. First, we examined whether ownership concentration reduces or improves the implied cost of equity capital. There are both pros and cons when the voting power is concentrated in the hand of the controlling shareholders, and the outcome depends on whether the marginal benefits of ownership concentration exceed its marginal costs. In the context of Malaysian firms, the marginal benefit is expected to outweigh the marginal cost as the listed firms are predominantly controlled by family owners. With a strong sense of stewardship, the cost of equity capital of family firms is believed to be more competitive than other types of controlling shareholders.

Second, we also addressed the possible non-linearity impact of ownership concentration. The non-linearity test is driven by the theory of alignment and entrenchment effects. The change of the two effects along ownership concentration is expected to be the reason for non-linearity. There is also strong empirical evidence from corporate governance literature documenting non-linearity of ownership-performance relations. This raises our interest to examine the issue from the angle of ultimate ownership and the implied cost of equity capital.

Third, we examined whether different identities of controlling shareholders will lead to different levels of cost of equity capital, and which type of controlling shareholder outperforms the others. Ownership identity might have a different effect on firm performance as a different identity of the controlling shareholders could have an impact on interest towards the firm (Anderson and Reeb 2003; Andres 2008). Previous studies on cost of equity capital in developed markets do not provide any insight on the effect of ownership identity because most of the corporations in developed markets are widely held. This however, is not the case of emerging markets. This issue is revisited in the context of Malaysia along with another investigation stated in the next objective on how different identities of controlling shareholders affect the implied cost of equity capital through their involvement in management.

Finally, as documented in corporate governance literature, the impact of ownership concentration often depends on the interaction between entrenchment and alignment effect.

Thus, in the context of implied cost of equity, we examined whether the involvement of controlling shareholder management affects this tradeoff. Both DeAngelo and DeAngelo (1985) and Wiwattanakantang (2001) found a negative impact of controlling shareholder involvement which leads to evidence of stronger type II agency problem due to entrenchment by the principle. However, whether the presence of controlling shareholders in top management actually induces agency cost and affects cost of equity capital has yet to be comprehensively investigated. In our results on firms in Malaysia, we found that in terms of controlling shareholders' involvement in management, the agency conflict only prevails in foreign firms at a very high level of control but there is no evidence of such a problem at a lower level of ownership or in other types of controlling shareholder firms.

The rest of this paper is structured as follows: the development of our research hypotheses is found in the next section based on the literature review. Section 3, which follows the literature review, discusses our empirical model and data. Section 4 reports the results and findings of our analyses, and the final section concludes the paper.

## 2. Literature Review and Hypothesis Development

### 2.1 Ownership Concentration and Cost of Equity Capital

The cost of equity capital represents the cost of a firm's external source of finance. It is one of the two elements in the firm valuation model together with expected firm performance; firm performance is the numerator that is often proxy for expected cash flow of the firms, while the cost of capital is the denominator that decides the value of firm performance at its present value. The literature reveals that the external cost element of firm value is driven by agency and information problems (Attig *et al.* 2008). In fact, concentrated ownership is believed to be the cause of information problems which results in firms paying a higher cost of financing (La Porta *et al.* 2002). The concentration of ownership opens the threat of potential extraction of private benefits and rent seeking behaviour by the controlling shareholders (self-dealing, tunneling and propping behaviour) which will prompt the minority shareholders to lower their valuation of the firm in response (Dyck and Zingales 2004). The presence of these agency problems represents a non-diversifiable component that contributes to increased systematic risk exposure. External investors thus have to incur extra monitoring cost and demand a higher required rate of return (Chen *et al.* 2009; Boubakri *et al.* 2010). Ultimately, the share price of the firm will be depressed, leading to a higher cost of equity capital.

However, in corporate governance studies, both theory and evidence exist on the benefit of concentrated ownership. Jensen and Meckling (1976) theorise that controlling shareholders with high ownership are likely to be dominated by the alignment effect, while Shleifer and Vishny (1986) argue that high voting power allows the controlling shareholders to run the firm more effectively even if they are not involved in the top management. Their view is supported by many empirical studies, including the recent work by Kim and Nofsinger (2007). An interesting consensus is that the controlling shareholder in family firms is able to reduce agency costs and increase firm value relative to those in other types of firms (Wiwattanakantang 2001; Anderson and Reeb 2003; Andres 2008).

Given the costs and benefits of ownership concentration discussed above, as to whether the implied cost of equity capital will be higher or lower eventually is an empirical issue. The

implied cost of equity capital will be lower if the marginal benefits exceed the marginal costs of ownership concentration and vice-versa. In the context of Malaysian firms, we are more likely to get positive outcomes given the fact that most of the firms with ownership concentration are family firms controlled by individuals and family owners, and which are expected to perform according to the stewardship theory. Thus our first hypothesis is:

**Hypothesis 1:** Ownership concentration is related to cost of equity capital. A higher level of ownership concentration leads to a decline in cost of equity capital.

The theoretical ground for the impact of ownership concentration depends on the tradeoffs between alignment and entrenchment effects (King and Santor 2008). This topic has been of long-standing interest to corporate finance researchers since the research of Jensen and Meckling (1976). Empirical studies also document evidence of a non-linear ownership-performance relationship for Asian emerging markets. However, whether ownership concentration is non-linearly related to cost of equity capital has yet to be addressed. We hypothesise that there could be a non-linear relationship between controlling shareholders and cost of equity capital based on the same explanation of the alignment-entrenchment tradeoff. When the controlling shareholders do not have strong voting rights on hand, they tend to be dominated by the alignment effect as they face a higher risk of extracting private benefits. Hence, the marginal cost of expropriation of corporate assets is higher than the marginal benefits. The controlling shareholders will hence prefer to maximise firm value which leads to a lower cost of equity capital. In contrast, when the controlling shareholders have high voting rights, especially when they are in absolute control with more than 50 per cent voting rights, the entrenchment effect prevails because they are free from other internal monitoring forces and external discipline. When the marginal benefits from extracting private benefits are higher than the marginal costs and risks incurred, agency problem is likely to prevail (Davies *et al.* 2005). On corporate performance studies, Short and Keasey (1999) reported that firm value declines when ownership increases to 25 per cent but improves thereafter. Wiwattanakantang (2001), however, reported that for Thai firms, firm value declines at 25 per cent to 50 per cent of managerial ownership and only improve after 75 per cent managerial ownership. There are also other findings, such as W shape or S shape kind of non-linear pattern. Clearly, there is no strong consensus in empirical studies. In this paper, we do not intend to pursue this issue in great detail, but are just interested in seeing whether non-linearity is possible. So, we only tested for a quadratic relationship with a squared term of the concentration measure. We hypothesise that:

**Hypothesis 2:** Ownership concentration is non-linearly related to cost of equity capital. The higher the level of control, the higher or lower the cost of equity capital.

*2. 2 Ownership Identity and Cost of Equity Capital*

In Malaysia, we can classify major block-holders into three groups, namely, family (inclusive of individual), government, and foreign. This classification is used in this study to divide our controlling shareholders accordingly. Since the identity of the controlling shareholders has an impact on firm governance structure and performance, each type of controlling shareholder might have a different incentive to expropriate firm resources, leading to a different firm value and a different cost of equity capital.

Much of the literature suggests that family controlled firms in Asia are associated with a pyramidal structure and cross-shareholdings and tunneling which often results in value

discount, higher liquidity cost and asymmetric information (Claessens *et al.* 2002; Almeida and Wolfenzon 2006; Villalonga and Amit 2006; Attig *et al.* 2006). Family controlled shareholders also abuse their controlling power to set policies that hurt firm performance (La Porta *et al.* 1999) and conduct entrenchment activities when they are involved in management (Morck and Yeung 2003). However, firms may also benefit from the presence of family control if the owner is the founder and is involved in the management. They are able to reduce information asymmetry and opportunistic behaviour (Mallin 2007), have superior responsibility (Wiwattanakantang 2001), a better sense of stewardship (Anderson and Reeb 2003), and strong incentives to monitor the management (Andres 2008).

For government controlled firms, the bureaucrats that run the firm might not be interested in maximising the firm's wealth in the most efficient way (Tian and Estrin 2008). However, they have the obligation to fulfill their social call in securing employment and social projects (Razak *et al.* 2008) and so they should have no reason to extract private benefits (Lau and Tong 2008). In Malaysia, government firms actually have higher value due to their exclusive access to public projects, cheaper cost of financing and other advantages (Sulong and Mat Nor 2008; Ang and Ding 2006; Lau and Tong 2008).

Foreign controlled shareholders are believed to be superior in capital and managerial expertise. They are able to bring up the management quality by implementing international standards of governance in order to standardise with their other foreign subsidiaries. Hence foreign controlled firms often enjoy superior technological know-how which leads to better performance (Boardman *et al.* 1997). Further, both Suto (2003) and Sulong and Mat Nor (2008) agree that foreign investors tend to be selective in investment, focusing only on well-established firms which have better disclosure and less information asymmetry problems. Nevertheless, foreign-controlled firms are not without shortcomings. According to Hymer (1976), foreign firms have the liabilities of newness and foreignness and thus they often need to handle many challenges with their presence in the host market. They need to bear higher costs of establishment and operation in the host market because they are not used to the local business environment and culture. Wiwattanakantang (2001) further adds that CEOs in foreign-controlled firms are mostly professionals that do not have a stake in the firms so their commitment might not be towards maximising firm profitability.

Although all types of controlling shareholders have their advantages and disadvantages, their effects on cost of equity capital differ. Since the legal corporation framework in Malaysia is not as strong as those in developed countries, the controlling shareholders tend to maintain a higher level of control to protect their rights. The liabilities of newness and foreignness in conjunction with weak legal protection are expected to contribute to weaker foreign firm performance which is likely to be overtaken by other types of firms. Between government and family controlled firms, we do not possess insight from the literature as to which type of ownership is able to achieve a lower cost of equity capital. Thus, we only seek to examine the following:

**Hypothesis 3:** Different types of controlling shareholders have different levels of cost of equity capital

*2.3 The Moderating Effect of Involvement in Management*
As discussed in the previous section, concentration of ownership and different identities of controlling shareholders could have a significant effect on firm performance and ultimately

lead to different levels of cost of equity capital. However, the impact of ownership concentration depends very much on the interaction between the entrenchment and alignment effects, but the trade-off between these two effects might be influenced by various factors. One of these is whether the controlling shareholders are involved in management. This issue is scarcely discussed in the literature of corporate governance as the usual focus is on CEO duality or the so-called managerial ownership. While the impact of managerial ownership is quite established in corporate governance literature, the involvement in management of the controlling shareholders is yet to receive much research attention. We managed to find only two: DeAngelo and DeAngelo (1985) found that high controlling shareholder involvement leads to a decrease in firm performance due to the entrenchment effect, while Wiwattanakantang (2001) also found that controlling shareholder involvement is negatively related to firm performance in Thailand.

In this study, our focus is slightly different. We examined whether the involvement of controlling shareholders in management moderates the impact of ownership concentration as well as ownership identity in the context of cost of equity capital. Their involvement in management could be a two-edged sword; if the controlling shareholders aim to enhance firm value, involvement in management allows them to monitor and control the firm's decision-making process in an even more effective and efficient manner, leading to a further reduction in cost of equity capital; However, if the controlling shareholders aim to expropriate the firm's resources, their presence in management will lead to a higher cost of equity capital. Thus, our hypothesis states that involvement in management magnifies the impact of ownership concentration.

**Hypothesis 4:** Involvement in management magnifies the impact of controlling shareholders on cost of equity.

We also expect different controlling shareholders to have a different grasp of managerial involvement. We hypothesise that family and government controlling shareholders could better exploit the benefit of managerial involvement than foreign controlling shareholders. They might have better resources and information to run the company than their foreign counterparts. Foreign controlling shareholders who are involved in management often have less competitive advantage when it comes to the local business environment, especially the rules and regulations in the local industry, as well as managing local employees and human capital. Our hypothesis is stated as below:

**Hypothesis 5:** Shareholders of local controlled firms could play a better role when they are involved in management than shareholders of foreign controlled firms

## 3. Data and Methodology

### 3.1 Estimates of the Implied Cost of Equity Capital
Empirical research on cost of equity capital commonly uses ex-post realised returns as a proxy for cost of equity capital. However, recent literature suggests that realised returns are a poor proxy for the cost of equity (Fama and French 1997; Elton 1999). Other recent studies suggest that ex-ante expected returns which is implied by the current market value, future cash flows and growth potential of the firm provide a good measure of the cost of equity capital of firms (Botosan and Plumlee 2005; Dhaliwal *et al.* 2006; Guedhami and Mishra 2009; Hail and Leuz 2006). In this paper, we estimated the ex-ante or implied cost of equity

that is believed to be the true rate that discounts the present value of expected future cash flows per share equal to the share price of the firm.[1] Our implied cost of equity estimates is based on Ohlson and Juettner-Nauroth (2005) which is identified by the subscript $K_{OJ}$.

$$K_{OJ} = A + \sqrt{A^2 + \frac{FEPS_{T+1}}{P_T}[g_2 - (y-1)]} \qquad (1)$$

where $A = \frac{1}{2}\left((y-1) + \frac{D_{T+1}}{P_T}\right)$ and $g_2 = \frac{FEPS_{T+2} - FEPS_{T+1}}{FEPS_{T+1}}$, and $y$ is a constant that is equal to 1 + long-term growth rate fixed at Malaysia's nominal year inflation rate.

$K_{OJ}$ = cost of equity estimate of the model

$P_T$ = I/B/E/S market price at the statistics release date for the estimation year

$D_{T+1}$ = I/B/E/S median dividend forecast for the $t$th year from the estimation year

$FEPS_{T+t}$ = I/B/E/S median earnings forecast for the $t$th year from the estimation year

*3.2 Measures for Ownership Concentration and Identity*
Ownership concentration is measured by the voting rights of the controlling shareholders taking into account both their direct and indirect shareholdings. We used the method of La Porta *et al.* (1999) to trace the controlling shareholders from the list of substantial shareholders in company annual reports; if we found the largest shareholder to be an individual, the tracing would end there. However, if the largest shareholder was a listed firm, the tracing continued to the annual report of that listed firm. The process continued until the identity of the controlling owner was revealed. If the largest shareholder was a privately-held firm, we checked the notes stated under list of substantial shareholders. For cases where we failed to discover the controlling owner, the firm was excluded.

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[1]  Of late, accounting literature has developed four kinds of equity valuation models to calculate the implied cost of equity capital. Besides the one we employed here by Ohlson and Juettner-Nauroth (2005), the others are by Gebhardt *et al.* (2001), Claus and Thomas (2001)and Easton (2004). Some of the recent literature on cost of equity suggests the  use of the arithmetic average of the four measures. We decided to apply the latest measure suggested by Ohlson and Juettner-Nauroth (2005), due to data limitation on Malaysian firms, to calculate implied cost of equity capital of Gebhardt *et al.* (2001) and  Claus and Thomas (2001) which requires a 5-year forecast on earnings, dividends, and book value. This would have limited our sample firms to only 52 firms. Hence we followed Cheng *et al.* (2006) to employ only one measure.

We categorised firms in our sample into three types of controlling shareholders: (1) family or individual, (2) foreign investors, and (3) the government. We detected the presence of other types of ownership such as firms owned by a political party, but since they were very small in number, we excluded them. For family firms, we combined the shares of all family members as revealed in the annual report because a coalition in voting rights was likely (Wiwattanakantang, 2001). We also combined the shares of individuals who were the founders and still jointly owned the firm. For government firms, we defined both federal and state government ownerships as government firms. Finally, for foreign firms, we included ownership by foreign individuals, families, and corporations.

*3.3 Control Variables*
When examining the relationship between ownership concentration and cost of equity, we controlled for other costs of equity determinants to isolate the marginal effect of ownership concentration. These control variables have been proven in previous studies to have significant influence on cost of equity. Specifically, we controlled for: (1) firm size (SIZE), measured by logarithm of total assets; (2) firm age (AGE), represented by the number of years since the firm was incorporated; (3) the book-to-market ratio (BM), calculated as the natural logarithm of the ratio of the book value of equity to the market value of equity; (4) financial leverage (LEVERAGE) as measured by the ratio of total debt to book value of total assets; (5) stock liquidity (LIQUID), we used the new approach suggested by Lesmond (2005) to calculate the proportion of non-zero returns days in the nominal year instead of bid-ask spreads as the data are often not available for Malaysia and most emerging markets; (6) firm risk, represented by firm market beta (BETA), was derived from CAPM model by regressing the weekly individual stock returns with the local market index within the nominal year; and also two other popular control variables in the recent finance and accounting literature, especially in cost of equity capital studies; (7) analyst coverage (ANALYST), denoted by the natural logarithm of one plus the number of analysts providing earnings forecasts for the firm; and lastly, (8) forecast bias (BIAS), defined as the medium forecasted earnings for the first year minus the actual earnings for the forecast date, and scaled by the former.

The cost of equity capital is expected to be negatively related to firm size as bigger firms are able to enjoy economies of scale and higher profitability. The general consensus in the literature is that firm size reduces the implied cost of equity capital (Botosan 1997; Botosan and Plumlee 2002; Easton 2004; Gebhardt *et al.* 2001; Gode and Mohanram 2003; Cheng *et al.* 2006; and Chen *et al.* 2009). While previous literature used market value to proxy for size, a more recent study by Boubakri *et al.* (2012) on 1248 firms from 26 developed and emerging countries used total asset and also reported a negative and significant estimate on size impact.

Firm age is generally perceived to have a positive impact on firm performance but in the area of implied cost of equity, only Boubakri *et al.* (2012) have tested this variable. They found a positive impact on implied cost of equity capital in their full but not sub-sample analysis. However, they did not provide any insight on the outcome of the estimates as firm age was not their research focus. In this paper, we thus expect firm age to have a positive impact on implied cost of equity. The reason being that a corporate governance problem

may be more pervasive in old firms in an emerging market as the market corporate governance regime is less established to protect the minority shareholders, such as in Malaysia.

The book-to-market ratio is expected to be positively associated with cost of equity capital because a higher BM ratio means firms earn higher ex-post returns (Fama and French 1992), and have fewer growth opportunities (Botosan and Plumlee 2005; Easton 2004; Gebhardt *et al.* 2001). Since the hallmark study on implied cost of equity by Gebhardt *et al.* (2001), empirical studies have consistently documented a positive impact of BM on developed markets. More recently, Chen *et al.* (2009) studied 280 firms from 17 emerging markets over the 2001-2002 period. They also documented a significant positive estimate of BM ratio on implied cost of equity measure.

A higher leverage denotes higher credit risk. Most empirical studies on cost of equity capital that include financial leverage as a control variable generally document a positive association with cost of equity capital (Fama and French 1992; Botosan 1997; Botosan and Plumlee 2002; 2005; Easton 2004; Gebhardt *et al.* 2001; Gode and Mohanram 2003, Dhaliwal *et al.* 2006; Cheng *et al.* 2006; Attig *et al.* 2008; Boubakri *et al.* 2012).

Amihud and Mendelson (1986) suggest that expected returns are positively related to stock liquidity due to higher transaction costs. On the implied cost of equity capital, Chen *et al.* (2009) found insignificant estimates but Boubakri *et al.* (2012) found some cases of negative and significant impact of liquidity using country level liquidity measure proxied by stock market to traded value over GDP.

The literature on asset pricing predicts that the cost of equity is positively associated with market beta. Empirical studies based on implied cost of equity capital measure have also documented a consistent and significant effect of beta on implied cost of equity measures (Botosan 1997; Easton 2004; Gebhardt *et al.* 2001; Gode and Mohanram 2003; Cheng *et al.* 2006; Chen *et al.* 2009).

Financial analysts are important information intermediaries in modern capital markets. Dempsey (1989) and Shores (1990) found that market impact of earnings announcements tends to be lower for firms with greater analysts following. A number of papers have investigated the impact of analyst coverage on information content of earnings announcements. For example, recently Chen *et al.* (2010) showed that analyst research complement corporate disclosures. On corporate finance, Diamond and Verrecchia (1991) theorised that information asymmetry among investors adversely affects the cost of raising equity capital. Using this information, Bowen *et al.* (2008) hypothesised that higher analyst coverage reduces information asymmetry among investors and thus lowers the cost of equity capital. Indeed, Boubakri *et al.* (2012) documented a negative impact of analyst coverage on implied cost of equity, and thus we expect the variable to have a negative sign in our estimate.

The variation of analysts' forecasts is expected to be positively related to cost of equity capital simply because firms with higher earning variability induce a higher cost of equity capital (Gebhardt *et al.* 2001; Gode and Mohanram 2003). Among the different measures of dispersion available include the measure of forecast error employed by Chen *et al.* (2009), and the measures of forecast dispersion and forecast bias applied recently by Boubakri *et al.* (2012). However, the empirical estimates on the sign of forecasts variation are rather mixed and less consistent.

## 3.4 Model Specifications

We set up two models to test for ownership concentration and cost of equity capital in answering Hypothesis 1 and Hypothesis 2, respectively. Model (1) is our baseline model while Model (2) added UO² to test for the non-linear relationship:

$$K_{OJ,it} = \alpha_0 + \alpha_1 UO_{it} + \sum_{j=1}^{J} \beta_j CONTROL_{j,it} + \varepsilon_{it} \tag{1}$$

$$K_{OJ,it} = \alpha_0 + \alpha_1 UO_{it} + \alpha_2 UO_{it}^2 + \sum_{j=1}^{J} \beta_j CONTROL_{j,it} + \varepsilon_{it} \tag{2}$$

where the dependent variable $K_{OJ,it}$ is the implied cost of equity capital of Ohlson and Juettner-Nauroth (2005) for firm $i$ over time $t$. The subject variable UO representing control rights of the controlling shareholders, which is the percentage of ownership of the largest shareholder based on his/her voting rights. The control variables are SIZE, AGE, BM, LEVERAGE, LIQUID, BETA, ANALYST, and BIAS representing firm size, firm age, book-to-market ratio, debt-to-equity ratio, non-zero returns ratio, firm annual CAPM beta, analyst coverage, and earning forecast bias of analysts, respectively. The symbols $\alpha$ and $\varepsilon$ represent the intercept and regression residual respectively.

Since we have three types of identities of controlling shareholders, we constructed two dummy variables to represent government and foreign controlled firms. Model (3) is constructed to test out Hypothesis 3:

$$K_{OJ,it} = \alpha_0 + \delta_1 DGOV_{it} + \delta_2 DFOR_{it} + \sum_{j=1}^{J} \beta_j CONTROL_{j,it} + \varepsilon_{it} \tag{3}$$

where DGOV and DFOR are binary variables showing the firm is controlled by the government or foreigner, respectively. Thus our reference group is the firm with family controlling shareholders.

To examine Hypothesis 4, that is, whether involvement in management by the controlling shareholder moderates the impact of ownership concentration and identity on cost of equity capital, a dummy variable DIM was created, taking the value of 1 if the controlling shareholders and or related members held a position in the top management, such as managing director, CEO, or executive director. For foreign controlling shareholders, following Claessens et al. (2000), we also took into account the possibility of at least one nominee director or employee of the foreign controlling corporation holding any position in the top management. The same applied for government firms. The involving panel models are listed as follows:

$$K_{OJ,it} = \alpha_0 + \delta_1 UO_{it} + \delta_2 DIM_{it} + \sum_{j=1}^{J} \beta_j CONTROL_{j,it} + \varepsilon_{it} \tag{4}$$

$$K_{OJ,it} = \alpha_0 + \delta_1 UO_{it} + \delta_2 DIM_{it} + \delta_3 DGOV_{it} + \delta_4 DFOR_{it} + \sum_{j=1}^{J} \beta_j CONTROL_{j,it} + \varepsilon_{it} \tag{5}$$

where Model (4) was set to examine whether $\delta_1$ the coefficient of UO was moderated or changed when DIM was added, while Model (5) was set to investigate the similar moderating effect of DIM on UO in the setting of ownership dummies.

We further examined the interaction effects of DIM with the DGOV and DFOR dummies to test for Hypothesis 5. Basically, this extended Model (5) to the following setting:

$$K_{OJ,it} = \alpha_0 + +\delta_1 UO_{it} + \delta_2 DIM_{it} + \delta_3 DGOV_{it} + \delta_4 DFOR_{it} + \delta_5(DGOV_{it} \times DIM_{it})$$
$$+ \delta_6(DFOR_{it} \times DIM_{it}) + \sum_{j=1}^{J} \beta_j CONTROL_{j,it} + \varepsilon_{it} \qquad (6)$$

where $\delta_5$ the coefficient for (DGOV x DIM), allowed us to state the impact of involvement in management by the government controlling shareholder, while $\delta_6$ the coefficient for (DFOR × DIM), was the interaction term that implied whether cost of equity capital differed for foreign firms when their controlling shareholders were involved in management.

In addition to the above settings, we decided to conduct robustness tests to see whether the estimates of Model (6) differed with different definitions of controlling shareholders. We decided to set three different level of minimum control rights, that is 25 per cent based on the case of Thailand in Wiwattanakantang (2001). Under 20 per cent minimum voting rights, we had actually created a new reference group with controlling shareholders of less than 25 per cent control rights. This type of controlling shareholders are regarded as weak controlling shareholders as they might not have the final say in a firm's decision-making process when other large block-holders could monitor their action by forming coalitions to compete for corporate control (Bennedsen and Wolfenzon 2000) or they could form coercive voting under the alignment-of-interest hypotheses (Winton 1993; Kahn and Winton 1998). This type of firm shall be called the widely-held firm in weak sense. We also set the minimum controlling threshold at 33 per cent following Bursa Malaysia's Main Market Listing Requirements, and finally we also set the minimum controlling at 50 per cent to see the impact of having shareholders with absolute control. The reference group was controlling shareholders of less than 33 per cent control rights and 50 per cent control rights, respectively. While the former reference group is considered a strong-controlling firm, the latter is an absolute-controlled firm. These new ownership identity dummies were interacted with DIM to see if involvement in management of different definitions of controlling shareholders differed in their implied cost of equity capital. The robustness tests also allowed us to revisit all our hypotheses as they addressed non-linearity on ownership concentration, ownership identity, and the moderating effect of involvement in management in a non-linear sense.

### 3.5 Data and Sample Selection

With a sample of 76 firms over the 2004-2009 period, our panel data covered 383 firm-year observations. The firms were selected from the main market of Bursa Malaysia. The small number of firms and year covered was due to the limited coverage of I/B/E/S database on Malaysian firms which was used to calculate the implied cost of equity (see footnote 1). We also had to match with availability of data on controlling ownership which was hand collected from the annual reports of individual firms. The accounting data were obtained from DataStream database. We excluded firms in the finance sector as their income measuring rules are different from firms in other sectors (Short and Keasey 1999).

## 4. Results and Discussion

### 4.1 Data Description and Correlation

Table 1 reports the descriptive statistics. The average implied cost of equity for our sample firms is 15.54 per cent with a standard deviation of 7.35 per cent. From the percentile analysis, we can see that the implied cost of equity capital for almost half of our sample firms are within 10-20 per cent, and about 1 per cent of our sample firms have higher than 40 per cent extreme implied cost of equity capital. Another subject variable of our study is UO, where the mean is 50.57 per cent, which is higher than the 28.32 per cent reported in Claessens *et al*. (2000). As our data are much more comprehensive and up to date, this might also indicate that Malaysian firms are experiencing a heavier concentration of ownership over time. We also present the correlation matric of the explanatory variables; the highest being the pair of BETA and LIQUID which is 0.58. Overall, we could rule out multicollinearity problems among the explanatory variables.

### 4.2 Effects of Ownership Concentration and Ownership Identity on Implied Cost of Equity

To identify the effect of ownership concentration on implied cost of equity, we began our estimates with the baseline model with the control variables only, followed by the estimates for Model (1) to Model (3); then adding ownership concentration UO, followed by the square of ownership concentration $UO^2$, and finally adding ownership ownership identity dummies DGOV and DFOR. The baseline model allowed us to see whether the effects of each control variable were consistent with the literature and whether they contributed significantly to the implied cost of equity capital of the Malaysian firms. For all the three models, three different estimates are reported to examine whether controlling for firm and year effect matters for the signs and significances of all the loadings of the estimates. These estimates are reported in Table 3.

The results show that there is a need to control for firm effect as the signs, magnitude and significance of most estimates change when we control for the unobserved firm heterogeneities. However, controlling for the year effect does not really improve the estimation as all the standard errors, signs, magnitudes and significance of the explanatory variables remain quite the same, with only one exception; AGE becomes insignificant. This outcome is acceptable since our sample covers only a 6-year period (2004-2009) and within this short span of time, there was no major structural changes in the Malaysian economy, except for the late 2008 sub-prime crisis which originated from the US but did not really affect Malaysian firm performance until financial year 2009. Firm age is a variable that increases per unit annually and this is similar to the usage of trend dummy; thus it is not surprising that AGE becomes insignificant when we incorporated the year effect. For the discussion that follows, we will focus only on Model (b) of each estimate.

For the baseline model, after we removed the unobserved firm heterogeneities, except for size and age, the sign of the control variables were all according to our expectations, that is, cost of equity capital was positively related to SIZE, AGE, BM, LEVERAGE, and BETA but negatively related to LIQUID, ANALYST and BIAS. The signs for SIZE and AGE were negative before we accounted for firm effect, which is consistent with estimates of many previous studies. Nevertheless, they turned positive after firm effect was incorporated. Among the eight, only AGE, LIQUID BETA and BIAS significantly explain cost of equity

**Table 1.** Descriptive statistics for the variables used in regressions

The descriptive statistics of all the variables employed in the panel estimation of cost of equity capital on ownership concentration and ownership identity are reported in this table. The complete number of firm-year observations for 76 firms over the period 2004-2009 is 456 points. However, many of the variables have a few missing values. The dependent variable $K_{OJ}$ is implied cost of equity based on Ohlson and Juettner-Nauroth (2005). The control variables are firm size (SIZE), firm age (AGE), book-to-market ratio (BM), financial leverage (LEVERAGE), stock liquidity (LIQUID), firm risk (BETA), analyst coverage (ANALYST), and forecast bias (BIAS). The subject variable UO is the total control rights consisting of direct and indirect shareholdings of the controlling shareholders as defined in La Porta *et al.* (1999).

| Variable | Observation | Mean | Standard deviation | Minimum | Maximum | Percentile | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 25 | 50 | 75 | 99 |
| $K_{OJ}$ (%) | 412 | 15.5414 | 7.3480 | 4.5935 | 66.5306 | 5.7724 | 11.0182 | 13.7295 | 18.4935 | 41.6153 |
| SIZE | 456 | 14.5273 | 1.3522 | 11.9289 | 18.0833 | 12.1502 | 13.5272 | 14.3642 | 15.4018 | 17.9772 |
| AGE | 444 | 25.5676 | 13.0637 | 5 | 59 | 6.45 | 12 | 25 | 37 | 55.55 |
| BM | 456 | 0.9024 | 0.6720 | 0.0303 | 5.0000 | 0.0478 | 0.4608 | 0.7326 | 1.2158 | 3.4926 |
| LEVERAGE | 456 | 0.4182 | 0.1847 | 0.0347 | 0.9158 | 0.0696 | 0.2729 | 0.3981 | 0.5644 | 0.7890 |
| LIQUID (%) | 450 | 67.9324 | 10.5377 | 30.6513 | 87.4046 | 38.1756 | 61.5385 | 69.6154 | 75.5023 | 86.2069 |
| BETA | 450 | 0.9672 | 0.6319 | -0.6411 | 3.6895 | -0.1419 | 0.4818 | 0.8920 | 1.3562 | 2.9114 |
| ANALYST | 436 | 0.0211 | 0.8800 | -2.3204 | 1.7909 | -2.2693 | -0.4729 | 0.1568 | 0.6440 | 1.7309 |
| BIAS | 453 | 0.5699 | 12.5934 | -14.4790 | 264.3333 | -5.2475 | -0.1759 | -0.0111 | 0.1705 | 2.7645 |
| UO (%) | 456 | 50.5752 | 16.8795 | 11.6000 | 96.0400 | 15.9027 | 38.8700 | 50.8350 | 60.5275 | 94.0382 |

**Table 2.** Correlations matrix of explanatory variables

This table reports the correlation matrix of right-hand-side variables employed in the panel estimation of cost of equity capital on ownership concentration and ownership identity, comprising the control variables of firm size (SIZE), firm age (AGE), book-to-market ratio (BM), financial leverage (LEVERAGE), stock liquidity (LIQUID), firm risk (BETA), analyst coverage (ANALYST), forecast bias (BIAS), and the subject variable UO, measured by the total control rights consisting of direct and indirect shareholdings of the controlling shareholder as defined in La Porta *et al.* (1999).

| Variables | SIZE | AGE | BM | LEVERAGE | LIQUID | BETA | ANALYST | BIAS | UO |
|---|---|---|---|---|---|---|---|---|---|
| SIZE | 1 | | | | | | | | |
| AGE | 0.2463 | 1 | | | | | | | |
| BM | 0.0103 | 0.0426 | 1 | | | | | | |
| LEVERAGE | 0.3083 | -0.1624 | 0.0019 | 1 | | | | | |
| LIQUID | 0.3899 | 0.2035 | 0.0690 | 0.2335 | 1 | | | | |
| BETA | 0.1633 | 0.1116 | 0.1957 | 0.1358 | 0.5880 | 1 | | | |
| ANALYST | 0.0448 | 0.0230 | -0.4836 | -0.0713 | 0.0289 | -0.1213 | 1 | | |
| BIAS | -0.0584 | -0.0618 | -0.0032 | 0.0667 | 0.0712 | 0.1480 | 0.0048 | 1 | |
| UO | 0.3424 | 0.0051 | -0.1474 | 0.0565 | -0.2123 | -0.3461 | 0.0204 | -0.0635 | 1 |

capital for Malaysian firms, showing that firms in an emerging market might not be equally explainable by the determinants of implied cost of equity capital documented in the literature on developed markets. Among the four, BETA had the highest coefficient value of 3.4, implying for every 1 unit increase in market risk exposure, Malaysian firms are going to have about 3.4 per cent higher cost of financing. The magnitude of the other three control variables is inelastic.

We now turn to our subject variable UO in Model (1b). The adding of UO does not affect the estimate and significance of the other control variables. UO is found to be statistically significant at 5 per cent level with a -0.16 coefficient value, implying that concentration of ownership in the hand of controlling shareholders reduces cost of equity capital. This result provides support for Hypothesis 1. The significant effect of UO implies that when controlling shareholders have higher voting rights, Malaysian firms could actually benefit from the concentration of ownership to enjoy a lower cost of equity capital. With higher controlling power, the decision making process could probably become more efficient without much interference from other shareholders. If the controlling shareholders do not hold high enough voting rights, any management and investment decision will be subject to scrutiny by other large shareholders, and this could be even worse when there are many other large shareholders. One could argue that the potential agency problem and information asymmetry could equally raise firm cost of equity financing and destroy firm value, especially those in emerging markets with weak legal protection. However, in the case of Malaysian firms, such a possibility is less dominant given that most of the controlling shareholders in Malaysian firms are dominated by family business and thus the stewardship theory applies. So, if the controlling shareholders are effective in management and strategic planning, the concentration of ownership will allow them to carry out their planning more efficiently to obtain a lower cost of equity capital. This is likely to motivate them to work towards maximising the firm's profit.

In Model (2b) when we include $UO^2$, both UO and $UO^2$ became insignificant, and the coefficient for $UO^2$ is also very small. This shows that for cost of equity, the impact of ownership concentration is linear. This does not support Hypothesis 2. Thus, we only include UO in Model (3) on the identity of controlling shareholders.

The estimates for the two dummies on the identity of the controlling shareholders in Model (3b) imply that at 1per cent significance, foreign controlling shareholders lead to higher cost of equity capital of about 7 per cent compared to firms with family controlling shareholders, that is, the reference group. Government controlling shareholders do not show any significant difference from family controlling shareholders in terms of cost of equity capital. This outcome is consistent with Hypothesis 3. The unfavorable performance of foreign firms might be largely attributable to their foreignness in the business landscape of Malaysia.

*4.4 Moderating Effects of Controlling Shareholder Involvement in Management*
An effective way for controlling shareholders to ensure their interests are protected is to get themselves (or one of them) involved in the top management of the company. We thus examined whether the cost of equity capital will differ if the controlling shareholders are involved in the management, and also to see which type of controlling shareholders can really exploit using their presence in company management. The estimates of Model (4),

**Table 3.** The impact of ownership concentration and identity on cost of equity capital

This table reports panel modeling of cost of equity capital on ownership concentration and ownership identity. The sample consists of 383 firm-year observations from 76 firms over the period 2004-2009. The dependent variable $K_{OJ}$ is implied cost of equity based on Ohlson and Juettner-Nauroth (2005).We controlled for Firm size (SIZE), firm age (AGE), book-to-market ratio (BM), financial leverage (LEVERAGE), stock liquidity (LIQUID), firm risk (BETA), analyst coverage (ANALYST), and forecast bias (BIAS). Models (a), (b) and (c) represent different panel specifications of pooled, firm effect and year effect, respectively. Model (1) is the main model from Equation (1) to test the relationship between the degree of ownership concentration and cost of equity capital stated in Hypothesis 1. UO is the total control rights consisting of direct and indirect shareholdings of the controlling shareholders as defined in La Porta *et al.* (1999); Model (2) includes UO squared ($UO^2$) to test for non-linear impact of concentration stated in Hypothesis 2; Model (3) test examined whether identity of controlling shareholders affects cost of equity capital differently as stated in Hypothesis 3. DGOV and DFOR are dummy variables for firms with controlling shareholders who are a government and foreigner, respectively. The reference group is firms with family controlling shareholders. Firm clustered robust standard errors are reported in parentheses while *, **, and *** denote statistical significance at the levels of 10%, 5% and 1%, respectively.

| | (a) | (b) | (c) | (1a) | (1b) | (1c) | (2a) | (2b) | (2c) | (3a) | (3b) | (3c) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Constant | 22.2977*** | -0.2222 | 1.2957 | 22.4953*** | 5.6506 | 7.6593 | 20.9589*** | -0.2172 | 2.1274 | 27.5278*** | 4.5208 | 5.6729 |
| | (5.9016) | (17.6380) | (15.9639) | (5.8541) | (16.3828) | (15.0453) | (7.3865) | (17.0090) | (15.7241) | (5.7179) | (16.2904) | (14.8810) |
| SIZE | -0.5966 | 0.6155 | 0.7374 | -0.7718* | 0.5886 | 0.7328 | -0.7389 | 0.6336 | 0.7664 | -1.1354*** | 0.5522 | 0.730 |
| | (0.4253) | (1.4434) | (1.3325) | (0.4603) | (1.4245) | (1.3196) | (0.4845) | (1.4146) | (1.3127) | (0.4373) | (1.4298) | (1.3200) |
| AGE | -0.0141 | 0.4522* | 0.3604 | -0.0135 | 0.5431** | 0.4448 | -0.0146 | 0.5294** | 0.4268 | 0.0142 | 0.5278* | 0.4332 |
| | (0.0313) | (0.2638) | (0.2734) | (0.0317) | (0.2661) | (0.2727) | (0.0331) | (0.2632) | (0.2697) | (0.0314) | (0.2675) | (0.2732) |
| BM | 6.9559** | 2.9308 | 2.4357 | 6.9994*** | 3.6366 | 3.0980 | 6.9519** | 3.8412 | 3.3468 | 8.0028*** | 4.1523 | 3.5310 |
| | (2.7341) | (5.1015) | (5.1926) | (2.6749) | (5.1245) | (5.2107) | (2.7041) | (4.9857) | (5.0716) | (2.5747) | (5.3705) | (5.4595) |
| LEVERAGE | 2.9113*** | 1.7435 | 1.5750 | 3.0093*** | 1.9123 | 1.7223 | 2.9961*** | 1.9473 | 1.7911 | 2.7921*** | 1.8999 | 1.6595 |
| | (0.5608) | (1.2164) | (1.3450) | (0.5902) | (1.2259) | (1.3707) | (0.5919) | (1.2026) | (1.3371) | (0.6030) | (1.2292) | (1.3682) |
| LIQUID | -0.0916 | -0.1407** | -0.1439** | -0.0840 | -0.1465** | -0.1528** | -0.0834 | -0.1445** | -0.1534** | -0.0927* | -0.1515** | -0.1546** |
| | (0.0573) | (0.0654) | (0.0659) | (0.0559) | (0.0625) | (0.0627) | (0.0558) | (0.0612) | (0.0614) | (0.0557) | (0.0630) | (0.0629) |
| BETA | 3.4643*** | 3.4319** | 3.4290** | 3.6064*** | 3.5166** | 3.5334** | 3.6166*** | 3.4962** | 3.5257** | 3.5133*** | 3.5281** | 3.5273** |
| | (1.1861) | (1.4082) | (1.4061) | (1.2257) | (1.4229) | (1.4239) | (1.2287) | (1.4054) | (1.4080) | (1.2221) | (1.4231) | (1.4195) |
| ANALYST | -0.2420 | -0.7474 | -0.8419 | -0.1862 | -0.8158 | -0.9523 | -0.1957 | -0.9532 | -1.0812 | -0.0782 | -0.8683 | -1.0334 |
| | (0.4865) | (0.8736) | (0.9075) | (0.4869) | (0.8371) | (0.8781) | (0.4882) | (0.8232) | (0.8640) | (0.4657) | (0.8442) | (0.8868) |
| BIAS | -0.0045 | -0.0328*** | -0.0364*** | -0.0023 | -0.0400*** | -0.0431*** | -0.0022 | -0.0380*** | -0.0407*** | 0.0006 | -0.0392*** | -0.0427*** |
| | (0.0077) | (0.0072) | (0.0076) | (0.0076) | (0.0075) | (0.0081) | (0.0077) | (0.0072) | (0.0079) | (0.0078) | (0.0075) | (0.0080) |
| UO | | | | 0.0290 | -0.1569** | -0.1608** | 0.0756 | 0.1170 | 0.1169 | 0.0222 | -0.1450** | -0.1472** |
| | | | | (0.0336) | (0.0639) | (0.0646) | (0.1387) | (0.2688) | (0.2701) | (0.0329) | (0.0645) | (0.0648) |
| $UO^2$ | | | | | | | -0.0005 | -0.0029 | -0.0030 | | | |
| | | | | | | | (0.0014) | (0.0028) | (0.0028) | | | |
| DGOV | | | | | | | | | | 1.6492* | 1.5753 | 1.5892 |
| | | | | | | | | | | (0.9597) | (1.6703) | (1.6821) |
| DFOR | | | | | | | | | | -1.7417 | 6.9192*** | 7.6868*** |
| | | | | | | | | | | (1.1442) | (1.9751) | (2.1064) |
| Firm effect | n o | yes | yes | n o | yes | yes | n o | yes | yes | n o | yes | yes |
| Year effect | n o | n o | yes | n o | n o | yes | n o | n o | yes | n o | n o | yes |
| Observations | 383 | 383 | 383 | 383 | 383 | 383 | 383 | 383 | 383 | 383 | 383 | 383 |
| R2 | 0.2399 | 0.1160 | 0.1276 | 0.2489 | 0.1329 | 0.1450 | 0.2489 | 0.1379 | 0.1501 | 0.2708 | 0.1383 | 0.1515 |
| Adjusted R2 | | 0.0971 | 0.0993 | | 0.112 | 0.1149 | | 0.1147 | 0.1178 | | 0.1127 | 0.1168 |

Model (5) and Model (6) are reported in Table 5. The signs, magnitude, and significance of the control variables are all in line with those reported in Table 3. Beginning with Model (4), the estimate of DIM is reported as -8.2287 but it is not statistically significant. The estimated coefficients for UO are also consistent in signs and significance but the magnitude increased slightly to -0.1597. Since the signs of both DIM and UO are the same, it shows support for Hypothesis 4 that if controlling shareholders are involved in management, it will magnify the impact of UO on cost of equity capital, although UO itself is not statistically significant.

The estimate for Model (5) is basically just Model (3b) with DIM added. It serves to show that adding DIM is not distorting our estimates as it is highly consistent with Model (3b), except that the coefficient for UO increased slightly to -0.1457 and the coefficients for the two ownership identity dummies dropped slightly. It is consistent that foreign controlling shareholders have about 7 per cent higher cost of equity capital than the rest at 1 per cent significance level. Our main focus is on Model (6) where DIM is interacting with the ownership identity dummies. The estimates in Model (6) show that none of the dummy variables are statistically significant even though the signs are still highly consistent with the previous estimates. This implies that Hypothesis 5 is not supported. However, the magnitude of UO is -0.1489; this is again slightly higher than the estimate in Model (3b) of -0.1489. This implies that DIM does have some moderating impact on ownership concentration on cost of equity capital. This again lends support to Hypothesis 4. We will revisit this issue with a robustness analysis on our definition of the level of control rights of the controlling shareholders.

*4.5 Robustness Check on Controlling Shareholders Holding More than 25, 33 and 50 per cent Control Rights*
In this section, we report our robustness checks on the definition of controlling shareholders by setting a minimum of 25, 33 and 50 per cent voting rights requirement in constructing our ownership identity dummies. These two additional requirements created one additional group of firms each besides the three controlling shareholders that we employed. Before proceeding to the panel estimations, we will take a look at Table 5, the tabulation of the implied cost of equity capital by the identity of controlling shareholders based on the different voting rights requirement and also tabulation of cost of equity capital by controlling shareholders' involvement in management. In panel A of Table 5, without setting minimum controlling rights, controlling shareholders are the most prevalent, representing 56.07 per cent of the distribution, followed by government and foreign controlling shareholders, which covers 26.21 per cent and 17.72 per cent of the sample, respectively.[2] On average, the implied cost of equity is highest (16.5%) for family controlled firms, followed by government firms (16.01%) and the lowest for foreign firms (11.82%). Out of the full sample, 42 per cent of the controlling shareholders were involved in management, while 58 per cent were not.

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[2] Our first sample of UO data covered 295 firms and the tabulation of family, government and foreign controlling shareholder were 72.17, 13.18, 14.65 per cent, respectively. The distribution is highly consistent with Claessens *et al.* (2002). Due to limited coverage of analysts on Malaysian firms, in calculating the implied cost of equity, only 76 firms from our list have analyst coverage. Fortunately, the distribution of family, government and foreign controlling shareholders with analyst coverage is still consistent with our original sample.

**Table 4.** The moderating effect of involvement in management

This table reports the moderating effect of controlling shareholders' involvement in management (DIM) on ownership concentration and ownership identity on cost of equity capital. The sample consists of 383 firm-year observations from 76 firms over the period 2004-2009. The dependent variable $K_{OJ}$ is implied cost of equity based on Ohlson and Juettner-Nauroth (2005). We controlled for firm size (SIZE), firm age (AGE), book-to-market ratio (BM), financial leverage (LEVERAGE), stock liquidity (LIQUID), firm risk (BETA), analyst coverage (ANALYST), and forecast bias (BIAS). We also retained our subject variable UO. UO is the total control rights consisting of direct and indirect shareholdings of the controlling shareholders as defined in La Porta et al. (1999). In testing Hypothesis 4, Model (4) was estimated adding DIM to Model (2) where DIM is a dummy variable indicating 1 if the controlling shareholders are involved in management. To test for Hypothesis 5, that is, whether the moderating effects differ for different identities of controlling shareholders, we estimated Model (5) adding DIM to Model (3) where DGOV and DFOR are dummy variables for firms with controlling shareholders are a government and foreigner, respectively. The reference group is firms with family controlling shareholders; we also estimated Model (6) adding further the interaction of DIM with the identity dummies. All the reported estimates are controlled for firm effect as implied in Table 3. Firm clustered robust standard errors are reported in parentheses while *, **, and *** denote statistical significance at the levels of 10%, 5% and 1%, respectively.

| | (4) | (5) | (6) |
|---|---|---|---|
| Constant | 8.5763 (17.2006) | 5.4804 (16.9082) | 8.8992 (18.7533) |
| SIZE | 0.4622 (1.4429) | 0.5137 (1.4312) | 0.3327 (1.4629) |
| AGE | 0.5404** (0.2674) | 0.5281* (0.2679) | 0.5419** (0.2711) |
| BM | 3.9388 (5.2359) | 4.1786 (5.3814) | 4.2779 (5.3840) |
| LEVERAGE | 1.8888 (1.2328) | 1.8969 (1.2329) | 1.8843 (1.2458) |
| LIQUID | -0.1481** (0.0631) | -0.1519** (0.0634) | -0.1522** (0.0641) |
| BETA | 3.5044** (1.4251) | 3.5264** (1.4258) | 3.5192** (1.4322) |
| ANALYST | -0.8595 (0.8419) | -0.87 (0.8456) | -0.8564 (0.8579) |
| BIAS | -0.0402*** (0.0075) | -0.0392*** (0.0075) | -0.0396*** (0.0076) |
| UO | -0.1597** (0.0645) | -0.1457** (0.0648) | -0.1489** (0.0674) |
| DIM | -1.3222 (1.4457) | -0.4285 (1.5969) | -1.8099 (4.5378) |
| DGOV | | 1.3608 (2.0112) | 0.5397 (4.1566) |
| DFOR | | 6.7010*** (2.2787) | 5.8493 (4.4504) |
| DGOV x DIM | | | 0.7031 (4.3721) |
| DFOR x DIM | | | 3.5185 (4.6149) |
| Observations | 383 | 383 | 383 |
| R² | 0.1335 | 0.1383 | 0.1388 |
| Adjusted R² | 0.1102 | 0.1104 | 0.1061 |

Foreign controlling shareholders have the highest involvement in management, while family controlling shareholder surprisingly have very low involvement, with only around 13 per cent of them directly running the firm. In panels B, C and D, we set minimum controlling rights at 25, 33 and 50 per cent respectively to redefine the controlling shareholders. With a minimum level of control at 25 per cent, those under the minimum value were grouped together as widely held firms, while at 33 per cent and 50 per cent minimum value, the others were defined as non-absolute controlling firms. This resulted in four types of firms for all

three cases. At the 25 per cent and 33 per cent minimum control rights, the distribution (in percentage) of each groups is still consistent with the case without the minimum value, but at the 50 per cent minimum control rights, the percentage distribution changes significantly where almost half of the firms (46.84%) are categorised as non-absolute controlling firms. Similarly, the distribution of involvement in management for the 25 per cent and 33 per cent level does not change much but for 50 per cent level, a high percent of involvement in management goes to the non-absolute control group.

We report estimates for the three different definitions of controlling shareholders in Table 6. First, the signs, magnitude, and significance of the control variables are all in line with those reported in Table 3. The coefficient for UO is -0.1429 for the 25 per cent minimum requirement but increases to -0.2389 and -0.2130, respectively, at 5 per cent significant level for the 33 per cent and 50 per cent minimum requirements. The estimate of DIM remains insignificant. Most of the estimates are still highly consistent with the previous models, except for DFOR. We found DFPR to be weakly significant at 10 per cent level in Model (6b), and the interactive term (DFOR x DIM) was also weakly significant at 10 per cent in Model (6c).

The results on the dummies FGOV, DFOR and DFAM indicate that with more than 25 per cent control rights, the implied cost of equity capital is not affected by the identity of the controlling shareholders, while with more than 33 per cent control rights, foreign controlling shareholders are going to suffer a higher cost of equity at 6 per cent relative to the others. For the absolute control firms with more than 50 per cent voting rights, none of the controlling groups outperform the others. However, on the contrary, the estimates on the interactive terms show that for more than 25 per cent and 33 per cent control rights, none of the firms where the controlling shareholders are involved in management have outperformed the rest in terms of the level of cost of equity capital. However, for absolute control firms with more than 55 per cent control rights, foreign controlling shareholders actually under-performed compared to the others. In other words, foreign firms with 50 per cent and above control rights have higher cost of equity capital of 3.5 per cent than the other groups if they are involved in company management. This implies they might be dominated by entrenchment effect once their control goes beyond 50 per cent. As a whole, controlling shareholder involvement in management does not bring any impact on cost of equity capital, except for the case of foreign controlling shareholders. If the foreign controlling shareholders hold more than half of the voting rights of the firm and are involved in management, the cost of equity capital is very likely to rise relatively compared to other firms. Thus, we can conclude that involvement in management does moderate the relationship between ownership concentration and cost of equity capital for foreign firms, showing support for Hypothesis 5.

## 5. Summary and Conclusion

In this study, we examined the effect of ownership concentration on the implied cost of equity capital of listed firms in Bursa Malaysia over the 2004-2009 period covering a sample of 76 firms using panel regression analyses. The highly concentrated corporate ownership in Malaysia allowed us to estimate whether the implied cost of equity capital could be reduced with the concentration of ownership in the hand of the controlling shareholders,

**Table 5.** Implied cost of equity by different controlling shareholder definitions for different ownership identities and involvement in management
This table tabulates the implied cost of equity capital ($K_{OJ}$) for different types of controlling shareholders according to different definitions of controlling shareholders based on the criterion of minimum voting rights. We also separated out the case of controlling shareholders being involved in the company top management which is represented by DIM, a dummy variable indicating 1 if the controlling shareholders are involved in management. For robustness purposes, beside the definition of controlling shareholders used in the previous tables where we did not set any minimum voting rights, three additional sets of ownership identity dummies were constructed based on minimum voting rights of 25%, 33% and 50%, respectively. With minimum control rights of 25%, the new reference group representing firms with controlling shareholders less than 25% control rights are regarded as weak controlling firms, or widely held firms in weak sense. With minimum control rights of 33% and 50%, the new reference group is regarded as ordinary controlling shareholders while the 3 ownership identity dummies indicate more than 33% and 50% control rights which should be regarded as strong controlling shareholders.

| | No DIM | | | | DIM=0 | | | | DIM=1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Obs | % | Mean | Min | Max | Obs | % | Mean | Min | Max | Obs | % | Mean | Min | Max |
| **Panel A: No minimum voting rights** | | | | | | | | | | | | | | | |
| Government | 108 | 26.21 | 16.01 | 4.59 | 55.55 | 82 | 19.90 | 15.72 | 5.49 | 55.55 | 26 | 6.31 | 16.93 | 4.59 | 38.08 |
| Foreign investor | 73 | 17.72 | 11.82 | 6.51 | 20.38 | 60 | 14.56 | 11.51 | 6.51 | 20.38 | 13 | 3.16 | 13.23 | 7.51 | 19.48 |
| Family | 231 | 56.07 | 16.50 | 5.13 | 66.53 | 30 | 7.28 | 16.80 | 5.13 | 32.70 | 201 | 48.79 | 16.45 | 5.75 | 66.53 |
| Total | 412 | 100 | | | | 172 | 42 | | | | 240 | 58 | | | |
| **Panel B: Setting minimum voting rights at 25%** | | | | | | | | | | | | | | | |
| Government | 100 | 24.27 | 16.29 | 4.59 | 55.55 | 74 | 17.96 | 16.06 | 5.49 | 55.55 | 26 | 6.31 | 16.93 | 4.59 | 38.08 |
| Foreign investor | 72 | 17.48 | 11.72 | 6.51 | 20.38 | 59 | 14.32 | 11.39 | 6.51 | 20.38 | 13 | 3.16 | 13.23 | 7.51 | 19.48 |
| Family | 225 | 54.61 | 16.42 | 5.13 | 66.53 | 26 | 6.31 | 15.84 | 5.13 | 31.90 | 199 | 48.30 | 16.49 | 5.75 | 66.53 |
| Widely held | 15 | 3.64 | 15.80 | 8.99 | 32.70 | 13 | 3.16 | 16.29 | 8.99 | 32.70 | 2 | 0.49 | 12.62 | 10.89 | 14.35 |
| Total | 412 | 100 | | | | 172 | 42 | | | | 240 | 58 | | | |
| **Panel B: Setting minimum voting rights at 33%** | | | | | | | | | | | | | | | |
| Government | 97 | 23.54 | 16.35 | 4.59 | 55.55 | 72 | 17.48 | 16.14 | 5.49 | 55.55 | 25 | 6.07 | 16.94 | 4.59 | 38.08 |
| Foreign investor | 64 | 15.53 | 11.54 | 6.51 | 20.38 | 59 | 14.32 | 11.39 | 6.51 | 20.38 | 5 | 1.21 | 13.32 | 9.37 | 15.76 |
| Family | 185 | 44.90 | 16.29 | 5.13 | 66.53 | 21 | 5.10 | 16.86 | 5.13 | 31.90 | 164 | 39.81 | 16.22 | 5.75 | 66.53 |
| Widely held | 66 | 16.02 | 16.14 | 6.84 | 41.98 | 20 | 4.85 | 14.81 | 8.77 | 32.70 | 46 | 11.17 | 16.71 | 6.84 | 41.98 |
| Total | 412 | 100 | | | | 172 | 42 | | | | 240 | 58 | | | |
| **Panel C: Setting minimum voting rights at 50%** | | | | | | | | | | | | | | | |
| Government | 80 | 19.42 | 16.22 | 4.59 | 55.55 | 57 | 13.83 | 15.76 | 5.49 | 55.55 | 23 | 5.58 | 17.34 | 4.59 | 38.08 |
| Foreign investor | 54 | 13.11 | 11.25 | 6.51 | 17.50 | 53 | 12.86 | 11.23 | 6.51 | 17.50 | 1 | 0.24 | 12.42 | 12.42 | 12.42 |
| Family | 85 | 20.63 | 16.25 | 5.13 | 66.53 | 9 | 2.18 | 12.88 | 5.13 | 19.66 | 76 | 18.45 | 16.64 | 5.75 | 66.53 |
| No-absolute control | 193 | 46.84 | 16.15 | 6.14 | 47.21 | 53 | 12.86 | 16.50 | 8.77 | 32.70 | 140 | 33.98 | 16.02 | 6.14 | 47.21 |
| Total | 412 | 100 | | | | 172 | 42 | | | | 240 | 58 | | | |

**Table 6.** Robustness checking with 20%, 33% and 50% minimum controlling level on the identity of controlling shareholders

This table reports our robustness tests to see whether estimates of final Model (6) differ with different definitions of controlling shareholders. This also allows us to revisit four of our main hypotheses in terms of non-linearity: whether there is a non-linear impact of ownership concentration on cost of equity capital (Hypothesis 2 basically); whether the impact of controlling shareholder identity is non-linear; and whether the moderating effect of involvement in management is non-linear. The sample consisted of 383 firm-year observations from 76 firms over the period 2004-2009. The dependent variable $K_{OJ}$ is implied cost of equity based on Ohlson and Juettner-Nauroth (2005). We controlled for firm size (SIZE), firm age (AGE), book-to-market ratio (BM), financial leverage (LEVERAGE), stock liquidity (LIQUID), firm risk (BETA), analyst coverage (ANALYST), and forecast bias (BIAS). Setting a minimum level of voting rights created another group of ownership identity dummies, hence Models (6a), (6b) and (6c) added a family dummy DFAM, representing family controlling shareholders, and an interactive term (DFAM x DIM). In Model (6a), with minimum control rights of 25%, the new reference group represents firms with controlling shareholders less than 25% control rights which we regard as weak controlling, or widely held firms in weak sense. In Models (6b) and (6c), the minimum control rights are set at 33% and 50% respectively, which normally are regarded as a strong controlling firm; so the reference group for model (6b) and (6c) represent firms with ordinary controlling shareholders with less than 33% and 50% control rights, and the ownership identity dummies indicate strong controlling shareholders that hold more than 33% and 50% control rights, respectively. All the ownership identity dummies were interacted with DIM to see if involvement in management of different controlling shareholders differed in determining the cost of equity capital. All the reported estimates were controlled for firm effect as implied in Table 3. Firm clustered robust standard errors are reported in parentheses while *, **, and *** denote statistical significance at the levels of 10%, 5% and 1%, respectively.

|  | 25% (6a) | 33% (6b) | 50% (6c) |
|---|---|---|---|
| Constant | 2.4265 (18.7893) | 9.9161 (18.2266) | 8.7378 (19.2322) |
| SIZE | 0.8036 (1.4971) | 0.3682 (1.4718) | 0.7123 (1.4647) |
| AGE | 0.5107* (0.2755) | 0.5273* (0.2672) | 0.4783* (0.2562) |
| BM | 4.0607 (5.3053) | 2.7388 (5.2182) | 2.7755 (5.2076) |
| LEVERAGE | 1.7895 (1.2427) | 1.8907 (1.2396) | 1.9005 (1.2310) |
| LIQUID | -0.1516** (0.0646) | -0.1463** (0.0607) | -0.1492** (0.0633) |
| BETA | 3.4721** (1.4441) | 3.4611** (1.3738) | 3.4387** (1.4217) |
| ANALYST | -0.9919 (0.8652) | -1.0658 (0.8464) | -0.672 (0.8263) |
| BIAS | -0.0387*** (0.0082) | -0.0371*** (0.0075) | -0.0319*** (0.0093) |
| UO | -0.1429** (0.0623) | -0.2389** (0.0952) | -0.2130** (0.0955) |
| DIM | -1.6138 (4.2600) | 1.7023 (2.5256) | -2.1243 (1.9484) |
| DGOV | 1.3052 (4.3055) | 5.4337 (3.4368) | 0.1002 (3.0829) |
| DFOR | 6.104 (4.1954) | 6.0765* (3.4288) | 1.5286 (1.2163) |
| DFAM | -3.3615 (4.1237) | 5.8046 (4.8561) | -0.2675 (2.8567) |
| DGOV x DIM | 0.7741 (4.3410) | -4.7692 (2.9289) | -0.5464 (2.5026) |
| DFOR x DIM | 3.2132 (4.2917) | -2.7522 (3.2807) | 3.5706* (2.0759) |
| DFAM x DIM | 4.4105 (4.2722) | -2.7324 (4.6126) | 5.174 (3.3552) |
| Observations | 383 | 383 | 383 |
| R² | 0.141 | 0.1427 | 0.1515 |
| Adjusted R² | 0.1034 | 0.1052 | 0.1144 |

and whether the said relationship is different across family, government and foreign controlled shareholders. In addition, we also examined whether involvement in management by controlling shareholders, that is, ownership concentration, has an effect on the cost of equity capital.

We document evidence that ownership concentration is negatively and linearly related to the cost of equity capital. The results support the fact that higher voting rights of controlling shareholders can create value and lower the cost of equity capital showing support to the stewardship theory. There is strong statistical evidence to show that such stewardship sense does not happen to foreign firms, where their cost of equity capital is found to be relatively higher than the others. Nevertheless, we failed to obtain any statistical evidence that involvement in management matters until we conducted robustness tests. For our robustness test, we verified our investigation on ownership concentration on implied cost of equity capital with different definitions of controlling shareholders, setting the minimum control of 25, 33 and 50 per cent voting rights. We obtained consistent results for the other hypotheses but found that when foreign controlling shareholders hold more than 50 per cent voting rights and were involved in management, the cost of equity capital tends to become high, implying that agency conflict emerges in foreign firms when absolute controlling shareholders are involved in management.

The last result is particularly vital for policy making. We showed that at a very high level of ownership, foreign controlling shareholders are likely to extract the firm's resources. Why are foreign controlling shareholders willing to sacrifice firm value when they hold the absolute voting rights? There could be a few possibilities. First, because of home bias, foreign controlling shareholders have a tendency to give more priority to their business in the home country; hence when they are in absolute control, it is not uncommon to see resources of their foreign subsidiaries being extracted back to their home country. Second, in a developing country such as Malaysia, foreign firms are exposed to higher risk of expropriation and possible policy bias due to their liability of being foreign. So when they have absolute control, they are tempted to extract private benefits to safeguard their interest and investment in the host country. Last but not least, foreign investors can leave Malaysia anytime, and given the fact that the anti-corruption mechanisms in emerging markets like Malaysia is weak, the risk of detection is lower. In short, due to the above reasons, the marginal benefit of the entrenchment effect might outweigh the marginal cost, causing foreign firms to have higher cost of equity capital relative to other local firms when the foreign controlling shareholders have absolute controlling power.

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