STOCK MARKET LIBERALISATION AND COST OF EQUITY: FIRM-LEVEL EVIDENCE FROM MALAYSIA

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ABSTRACT

This study extends the stock market liberalisation literature by conducting a firm-level analysis on the emerging economy of Malaysia. Using a finer measure of foreign ownership, we explore the association between liberalisation and cost of equity for public listed firms on Bursa Malaysia over the sample period of 2002-2009. We find strong support for our hypothesis that total foreign ownership is negatively and significantly associated with cost of equity. Further disaggregate analysis suggests foreign institutions that trade through direct accounts are driving the lower cost of equity. When the model is extended to include interaction term, we find that an effective board of directors further strengthens the negative relationship between foreign institutions and cost of equity. Our empirical results consistently support the corporate governance channel in which foreign institutions play an active monitoring role.

Keywords: foreign ownership, cost of equity, investor heterogeneity, corporate governance, Malaysia

INTRODUCTION

One of the most important developments in the late 1980s and early 1990s for emerging market economies is the gradual removal of restrictions on cross-border financial transactions, which include the opening of stock markets for foreign

investors to purchase shares of publicly listed companies. To provide policy feedback, academicians have conducted thousands of studies to evaluate the associated costs and benefits of financial liberalisation, especially in the context of emerging markets (see the survey papers by Bekaert and Harvey, 2003; Kearney, 2012). We find that economic growth constitutes the largest portion of this voluminous literature (see the survey papers by Henry, 2007; Kose, Prasad, Rogoff, & Wei, 2009). However, the empirical evidence on its growth benefits is still inconclusive, triggering vigorous discussions on the desirability of full financial liberalisation. To reconcile the literature, Henry (2007) advocates a departure from the broad capital account liberalisation to a narrow focus on stock market liberalisation.

In empirical analysis, it is crucial for researchers to choose the best proxy for stock market liberalisation. Chang (2012) provides a summary of existing indicators for stock market liberalisation, which we reproduce his Table 1 in this paper. The author also provides a lengthy discussion on these indicators, and advocates the use of foreign ownership in empirical research of stock market liberalisation. We hereby summarise the extensive review of Chang (2012). The first generation of papers focuses on developing systematic methods to date the openings of emerging stock markets. However, official stock market opening dates might not be able to fully capture the liberalisation effect because the removal of individual restrictions in many developing countries takes place gradually over several years or even decades. As a result, the literature witnesses the development of continuous indicators to capture the extent and evolution of stock market liberalisation over time. However, the above de jure measures have been criticised in favour of *de facto* indicators because the law is insufficient in deterring/attracting capital flows (see references cited in Chang, 2012). In the first case, many countries have strict capital controls but still report large portfolio equity flows, mainly because of weak law enforcement. In the second scenario, there are countries that struggle to attract equity inflows because foreign investors take into account indirect investment barriers apart from an open stock market.

According to Chang (2012), the use of aggregate country-level measures in Table 1 may underestimate the effect of stock market liberalisation. In the category of *de jure* measures, even if firms in a liberalised economy are free from country-level restrictions, they are still subject to corporate bylaws, corporate charters or industry limitations on foreign investment. The same applies to *de facto* aggregate measures, since it is possible for small-size public listed firms to have zero foreign ownership despite the country receives large equity inflows. At the firm-level, the *de facto* foreign ownership is more appealing relative to the *de jure* investable weight because the latter is based not only on the statutory limits on foreign ownership, but also the screening criteria of minimum size and

liquidity (for details, see Li, Nguyen, Pham, & Wei, 2011). In fact, Bekaert and Harvey (2000) acknowledge that foreign ownership is the best indicator because it measures the actual presence of foreign investors across different firms within the same country over time.

Table 1
Existing indicators for stock market liberalisation

	De jure indicator	*De facto* indicator
Country level	1. Official stock market opening dates (Bekaert & Harvey, 2000; Henry, 2000; Kim & Singal, 2000) 2. Degree of stock market openness (Edison & Warnock, 2003; Kaminsky & Schmukler, 2008; Schindler, 2009).	Investable weight (Standard & Poor's Emerging Markets Database)
Firm level	1. Portfolio equity flows (International Financial Statistics, IMF) 2. Stocks of portfolio equity assets and liabilities (Lane & Milesi-Ferretti, 2007)	Foreign ownership

Source: Chang (2012)

This paper extends the stock market liberalisation literature by conducting a firm-level analysis on the emerging economy of Malaysia using foreign ownership. The Malaysian stock exchange presents an interesting case study because the participation of foreign investors has been a subject of policy concern since the country gained independence in 1957. Among the developing economies, Malaysia is one of the earliest that actively pursued financial liberalisation, which could be traced back to as early as 1970 (for details, see Chang, 2012). Further opening up of the stock market has been undertaken in the 2000s, with more sweeping changes in June 2009, all aim to boost foreign investments and put Bursa Malaysia on the radar screen of international fund managers. From the foreign ownership statistics tabulated by Chang (2012) covering all stocks listed on Bursa Malaysia over the period 2002-2009, foreign investors hold around 15% of the total outstanding shares in the local stock exchange. It is expected that the foreign shareholdings will increase following further liberalisation of the stock market in June 2009.

Despite the active participation of foreign investors in the local stock market, Chang (2012) highlights the lack of published Malaysian study that examines the effects brought by the relaxation of foreign ownership restrictions.

Instead, the author finds that foreign investors have been subject to intense scrutiny in other Asian stock markets, and he provides a summary discussion of those selected studies for China (Chan, Menkveld, & Yang, 2007; Gul, Kim, & Qiu, 2010), Indonesia (Dvořák, 2005; Agarwal, Faircloth, Liu, & Rhee, 2009), Japan (Kang & Stulz, 1997; Bae, Yamada, & Ito, 2006), Korea (Kim & Wei, 2002; Choe, Kho, & Stulz, 2005), Sri Lanka (Samarakoon, 2009, 2010), Taiwan (Chen, Johnson, Lin, & Liu, 2009; Huang & Shiu, 2009), and Thailand (Bailey & Jagtiani, 1994; Bailey, Mao, & Sirodom, 2007). The main reason, according to Lim, Hooy, Chang and Brooks (2016), is the absence of complete Malaysian ownership data from listed companies' annual reports or commercial databases. These authors are able to obtain the commercial ownership data "End of Year Shareholdings by Type of Investor", which permits them to pioneer the research on foreign investors in Bursa Malaysia. Lim et al. (2016), among others, find that foreign investors who trade through nominee accounts are elite processors of public market-wide and firm-specific news in the Malaysian stock market. In a companion study, Lim, Thian and Hooy (2015) find that the relationship between total foreign ownership and stock liquidity is non- monotonic, suggesting that the improvement in liquidity reverses when foreign shareholdings exceed the threshold level. Both studies report insignificant results for foreign institutions and foreign individual investors who trade through direct accounts, suggesting that foreign nominees are playing important informational and liquidity roles in the Malaysian stock market.

The objective of this study is to complement the pioneering work of Lim et al. (2015, 2016) to provide more policy feedback on the participation of foreign investors in Bursa Malaysia. We explore the relationship between foreign ownership and cost of equity, as the latter is the focus area of those first generation stock market liberalisation papers (Bekaert & Harvey, 2000; Henry, 2000; Kim & Singal, 2000). Their interest is motivated by the theoretical prediction of neoclassical model, in which stock market liberalisation is expected to cause a permanent fall in the cost of equity, with the attendant effects on aggregate investment and economic growth (for details, see Henry, 2003, 2007). The above-cited studies infer the reduction of cost of capital from stock price increases because both are inversely related, or changes in dividend yields via the present value model. For example, Bekaert and Harvey (2000) address the impact of liberalisation on the cost of capital in 20 emerging markets. They document an average fall in dividend yields of 5 to 75 basis points after liberalisations, which is interpreted as a drop in the cost of capital. Henry (2000) reports an abnormal return associated with liberalisation as high as 3.3% per month in real dollar term for 12 emerging equity market indices. Kim and Singal (2000) record a sharp rise in stock prices after the opening of 20 emerging markets. The literature on stock market integration also predicts, via international asset pricing models, that when a local market becomes more integrated with the world markets, it brings about

an improvement in risk sharing and thus contributes to the reduction of the cost of capital (see Errunza & Miller, 2000; de Jong & de Roon, 2005).

Our research framework differs from those first generation stock market liberalisation papers in four significant ways. First, Edison and Warnock (2003) argue that the degree of stock market openness should be taken into account when evaluating the impact of liberalisation on cost of capital. Our use of *de facto* firm-level measure addresses this concern because foreign ownership captures the actual presence of foreign institutional investors across different firms within the same country over time. Second, instead of using long time-series of ex-post realised stock returns or dividend yields, we follow recent literature to compute ex-ante cost of equity from stock prices and expected future cash flows implied in analyst forecast data. Hail and Leuz (2006) argue that changes in realised return or dividend yield not only capture differences in cost of capital, but they can be driven by shocks to firms' growth opportunities or changes in expected growth rates. Mishra and O'Brien (2005) contend that ex-ante expected return is a more direct measure than realised return because risk-return theory relates to ex ante expectation and not to realised return. Moreover, prior studies (see for example, Fama and French, 1997; Elton, 1999) suggest that historical realised return is a poor proxy for expected return due to imprecise estimates of factor risk premium and risk loading, and thus affect the cost of equity estimates indirectly. Third, with the use of firm-level data, we are able to explore the moderating role of board characteristics in the foreign ownership-cost of equity relationship. Last but not least, the Bursa ownership dataset allows us to address within-country foreign investor heterogeneity, given that the existing literature generally treats foreign investors as a homogeneous group or focuses solely on foreign institutions.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Even though our literature survey is unable to find published study that examines the direct link between foreign ownership and cost of equity, there are empirical findings to support a lower cost of equity attributable to foreign participation through the channels of strong corporate governance and higher stock liquidity.

It is well-established that effective corporate governance helps to reduce agency problem by protecting the interests of minority shareholders from self-serving managerial behavior. One effective mechanism is through credible information disclosure that improves financial reporting quality and mitigates information asymmetry between the firm and its shareholders. The extant theoretical models predict that investors demand lower expected returns on their equity capital for firms with lower monitoring cost of management (Lombardo &

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Pagano, 2002), higher quality of accounting information (Lambert, Leuz, & Verrechia, 2007) and increased public disclosure of information (Diamond & Verrecchia, 1991). These theoretical predictions receive strong empirical support as evidence shows that firms with greater corporate disclosure (Francis, Khurana, & Pereira, 2005; Botosan, 2006; Fu, Kraft, & Zhang, 2012) and improved corporate governance (Cheng, Collins, & Huang, 2006; Guedhami & Mishra, 2009; Zhu, 2014) are associated with lower cost of equity. Notably, the recent survey paper by Claessens and Yurtoglu (2013) on corporate governance acknowledges the above cost of equity benefit for emerging market firms. Another strand of literature explores the link between foreign ownership and corporate governance. Covrig, De Fond and Hung (2007), Leuz, Lins and Warnock (2009) and Kim, Eppler-Kim, Kim and Byun (2010), among others, find that firms with strong governance indicators attract more equity participation from foreign investors. The latter have been found by Ferreira and Matos (2008) to engage in monitoring firms worldwide and thus reduce agency risk. Aggarwal, Erel, Ferreira and Matos (2011) show that foreign institutional investors play an active role in improving corporate governance mechanisms and outcomes. An (2015) finds that foreign investors improve the reporting quality of Korean firms through their active monitoring role that mitigates managerial opportunism. Putting the two research streams into perspective, we can infer that foreign investors promote good corporate governance of their invested firms, which in turn lead to lower cost of equity financing.

Apart from the channel of corporate governance, foreign participation is hypothesised to improve stock liquidity which translates into a lower cost of equity capital. In the theoretical model of Diamond and Verrecchia (1991), public disclosure of information reduces the cost of equity because the former improves the liquidity of a firm's securities. Empirically, Lang, Lins and Maffett (2012) confirm liquidity is a significant channel through which greater transparency is associated with lower cost of equity capital for their international sample of firms from 46 countries. The direct path from liquidity to cost of equity is first established by the theoretical model of Amihud and Mendelson (1986), who predict that cost of equity is higher for securities with wider bid-ask spreads because risk-averse investors demand higher expected returns as compensation for bearing illiquidity costs. Following their seminal work, the literature witnesses the development of liquidity-based asset pricing models (Acharya & Pedersen, 2005; Liu, 2006). Empirical evidence abounds showing expected stock returns fall with increases in liquidity, supporting illiquidity risk as a significant determinant for cost of equity (see references cited in Amihud and Mendelson, 2000).

Having established the link between stock liquidity and cost of equity, our literature search then explores the liquidity role of foreign investors. Previous

papers generally find that stock market liberalisation improves stock liquidity (Levine & Zervos, 1998; Bekaert, Harvey, & Lumsdaine, 2002; Vagias & van Dijk, 2012). Given the increasing availability of quality firm-level data in emerging markets, a number of recent studies utilise direct foreign shareholdings when exploring the liquidity effect. Wei (2010) collects eight years of foreign institutional ownership from the FactSet/LionShares database for stocks traded in 20 developed and 20 developing countries. His large sample result shows that stocks with increased foreign shareholdings exert a causal effect on domestic stock liquidity, and the improvement operates through enhanced competition among informed traders and greater liquidity trading. Ng, Wu, Yu and Zhang (2015) also address similar issue with an international coverage of 27,828 firms from 39 countries. The key result in Ng et al. (2015) consistently shows that foreign direct investors reduce liquidity in local equity markets, whereas foreign portfolio investors contribute significantly to liquidity improvement. For the Malaysian stock market, Lim et al. (2015) find that the relationship between total foreign ownership and stock liquidity is non-monotonic, suggesting that the improvement in liquidity reverses when foreign shareholdings exceed the threshold level. Since foreign investors are expected to improve stock liquidity, the theoretical and empirical studies predict a reduction in cost of equity for liquid stocks.

Building on the above literature, we state our first hypothesis in alternative form as follows:

H1: Firms with higher total foreign ownership have lower cost of equity.

In the corporate governance channel, foreign investors have been found to play active monitoring role in their invested firms. However, the group of foreign investors in these empirical studies is confined to foreign institutions (see Ferreira and Matos, 2008; Aggarwal et al., 2011; An, 2015). In another strand of literature, the liquidity benefits documented by Wei (2010) and Ng et al. (2015) also come from foreign institutional investors. However, in the context of Malaysia, Lim et al. (2015, 2016) demonstrate the importance of incorporating foreign investor heterogeneity in which they disaggregate total foreign ownership into foreign institutions, foreign individuals, and foreign nominees. Both studies find that only the participation of foreign nominees improves the price efficiency and liquidity of Malaysian stocks. Given the unique Malaysian setting, we proceed with the second hypothesis:

H2: The foreign ownership-cost of equity relationship differs according to the types of foreign investors.

If foreign ownership is negatively associated with cost of equity through the channel of corporate governance, then an effective board of directors should further strengthens this inverse relationship. More specifically, the board of directors plays an important role in monitoring and controlling managers' performance. The effects of various board characteristics on firm performance has been the subject of investigation in recent studies. For instance, empirical evidence shows that board independence has positive effect on firm performance (Li et al., 2015) whereas board size exerts negative impact (Liang, Xu, & Jiraporn, 2013). On the other hand, greater board activeness and board member's experience may suggest higher perceived monitoring ability of the board.

> H3: An effective board of directors strengthens the negative relationship between foreign ownership and cost of equity.

METHODOLOGY AND DATA

Estimates of Implied Cost of Equity

Earlier empirical research commonly uses ex-post realised stock return or dividend yield as proxies for cost of equity. As highlighted in Introduction, the above measures have been subjected to heavy criticism. It is now an accepted practice in the empirical literature to compute ex-ante cost of equity from current stock prices, future cash flows and growth potential of the firm.

In the study, we use the ex-ante or implied cost of equity, which is assumed 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. Our implied cost of equity estimate is based on Ohlson and Juettner-Nauroth (2005), identified by the subscript K_{OJ}:

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

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 the nominal year Malaysia's 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 tth year from the estimation year.

$FEPS_{T+t}$ = I/B/E/S median earnings forecast.

When examining the relationship between foreign ownership and cost of equity, we need to control for other cost of equity determinants to isolate the marginal effect of foreign ownership. These control variables are proven in previous studies to have significant influence on cost of equity. More specifically, we control for: (1) firm size (SIZE), measured by logarithm of total assets; (2) 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; (3) financial leverage (LEVERAGE) as measured by the ratio of total debt to book value of total assets; (4) stock liquidity (LIQUIDITY), we follow Lesmond (2005) to calculate the proportion of non-zero returns days in the nominal year instead of bid-ask spreads as the latter are often not available for Malaysia and most emerging markets; (5) firm risk, represented by firm market beta (BETA) which is derived from the Capital Asset Pricing Model (CAPM) by regressing the weekly individual stock returns against the local market index within the nominal year; (6) analyst coverage (ANALYST), denoted by the natural logarithm of one plus the number of analyst providing earnings forecasts for the firm; and last but not least (7) 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.

Model Specification

For H1 and H2, we formulate the following baseline model to determine the relationship between foreign ownership and cost of equity:

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

where the dependent variable $K_{OJ,it}$ is the implied cost of equity capital for firm i over time t. The key independent variable of foreign ownership is represented by the variable of FO. For H1, we enter total foreign ownership (Foreign) as the proxy for FO in the baseline model. For H2, FO is represented by foreign institutions ($F^{Institution}$), foreign individuals ($F^{Individual}$), and foreign nominees ($F^{Nominee}$), with each entering the model separately. The control variables are SIZE, BM, LEVERAGE, LIQUIDITY, BETA, ANALYST, and BIAS representing firm size, book-to-market ratio, debt-to-equity ratio, proportion of

non-zero returns, firm annual CAPM beta, analyst coverage, and earning forecast bias of analyst, respectively. The symbol of α represents the intercept whereas ε denotes the regression residual.

To determine the moderating role of board characteristics as stated in Hypothesis 3, we extend the baseline model to include an interaction term:

$$K_{OJ,it} = \alpha_0 + \alpha_1 FO_{it} + \sum_{j=1}^{J} \beta_j CONTROL_{j,it} + \sum_{k=1}^{K} \beta_k BOARD_{k,it} + \sum_{l=1}^{L} \sum_{k=1}^{K} \beta_l \left(FO_{it} * BOARD_{k,it} \right) + \varepsilon_{it} \tag{3}$$

where $FO_{it} * BOARD_{k,it}$ accounts for the interaction effect of board characteristics on the relationship between foreign ownership and cost of equity.

Data

The ownership data for our empirical analysis come from Bursa Malaysia's "End of Year Shareholdings by Type of Investor" dataset. Share ownership is computed as the fraction of total shares outstanding held by each type of investors in each firm at year end. This formula is used to compute total foreign ownership (Foreign), foreign institutions ($F^{Institution}$), foreign individuals ($F^{Individual}$) and foreign nominees ($F^{Nominee}$).

We include five types of board characteristics in the model, namely CEO duality (Duality), board independency (BIndep), board size (BSize), board activeness (BActive) and board member's experience (BExp). The data for all five variables are extracted from the annual reports of our sample firms.

In terms of control variables, we download the data from Thomson Datastream for firm size (SIZE), book-to-market ratio (BM), debt-to-equity ratio (LEVERAGE). Datastream also provides the raw data required to compute stock liquidity (LIQUIDITY) and CAPM Beta (BETA). As standard in the literature, we obtain analysts data from Institutional Brokers Estimate System (I/B/E/S) for computing the implied cost of equity capital. The two control variables of analyst coverage (ANALYST) and earning forecast bias of analyst (BIAS) are also extracted from I/B/E/S.

The sample period for our study is from 2002 to 2009, mainly because this is the coverage for the "End of Year Shareholdings by Type of Investor" dataset. Lim et al. (2015, 2016) also cover similar time period in their analysis of price efficiency and liquidity for Malaysia stocks. However, our sample size is smaller than the 600 firms in both studies. This is constrained by the unavailability of data for computing the implied cost of equity capital, which

limits our sample size to 76 Malaysian firms. The descriptions for all the variables in this study are provided in Table 2.

Table 2
Variable description

Variable Name	Variable Description
Dependent Variables	
K_{OJ}	Implied cost of equity capital of Ohlson and Juettner-Nauroth (2005) for firm i over time t.
Control Variables	
Firm size (Size)	Natural logarithm of total asset of firm i in year t.
Financial Leverage (Leverage)	Total debt over total asset of firm i in year t.
Book-to-Market ratio (BM)	Ratio of market to book value of equity of firm i in year t.
Liquidity	The proportion of non-zero daily returns days of firm i in year t
Firm Risk (Risk)	Firm market beta
Analyst	Natural logarithm of one plus the number of analyst providing earnings forecasts for firm i in year t.
Bias	Medium forecasted earnings for the first year minus the actual earnings for the forecast date, and scaled by the former for firm i in year t.
Main Variables of Interest	
Foreign	Percentage of total foreign ownership for firm i in year t.
$F^{Institution}$	Percentage of foreign institutional ownership for firm i in year t.
$F^{Individual}$	Percentage of foreign individual ownership for firm i in year t.
$F^{Nominee}$	Percentage of foreign nominee ownership for firm i in year t.
Duality	Dummy variable which equals to one if CEO and Board Chairman is the same person for firm i in year t.
BIndep	Percentage of independent directors on the board for firm i in year t.
BActive	Dummy variable which equals to one if all board members attend all board meetings for firm i in year t.
BSize	Total number of directors on the board for firm i in year t.
BExp	Dummy variable which equals to one if the average age of all board members exceeds 60 for firm i in year t.

Note: This table describes all the variables used in the empirical analysis.

EMPIRICAL RESULTS

Preliminary Analysis

Table 3 presents the descriptive statistics for all the variables. Our dependent variable, the implied cost of equity, has a mean of 15.54% with a standard deviation of 7.35% for the sample firms. Browsing through the existing cross-country studies, Guedhami and Mishra (2009) report a lower implied cost of equity capital of 8.9% for 72 Malaysian firms in the year of 1996. Hail and Leuz (2006) record a higher 10.65% for Malaysian firms during their sample period of 1992–2001. Our estimation indicates that the cost of equity has increased further to 15.54% over the next 8 years from 2002–2009. On the other hand, the key independent variable of total foreign ownership has a mean of 23.72%. Decomposing the types of foreign ownership into three categories, we find that foreign nominees has the highest percentage, with an average of 14.53%. The Malaysian case represents a unique institutional setting given that the largest foreign investor group in most stock markets is either foreign institutions or foreign individuals who trade through direct accounts.

The correlations for all the variables are tabulated in Table 4. The first column represents univariate regression of implied cost of equity against all the explanatory variables. Against our prior expectation, our key independent variables of total foreign ownership (Foreign), foreign institutions ($F^{Institution}$) and foreign individuals ($F^{Individual}$) are positively associated with cost of equity. Only the variable of foreign nominees ($F^{Nominee}$) has the expected negative sign. However, it is premature to draw inference for our hypothesis based on the univariate analysis. As for the correlations between explanatory variables, Table 4 shows that the values are all less than 0.5, and we thus rule out the concern of multicollinearity. The only exception is the correlation between Foreign and $F^{Institution}$, with their value of 0.78 indicates that both variables should not be included in the same model.

Table 3
Descriptive statistics

Variable	Mean	25 percentile	50 percentile (Median)	75 percentile	S.D.	Min	Max	N
K_{OJ}	15.5414	11.0284	13.7295	18.4919	7.3480	4.5935	66.5306	412
Size	14.5273	13.5282	14.3642	15.4007	1.3522	11.9289	18.0833	456
Leverage	0.4182	0.2730	0.3981	0.5643	0.1847	0.0347	0.9158	456
BM	0.9024	0.4608	0.7326	1.2122	0.6720	0.0303	5.0000	456
Liquidity	67.9324	61.5385	69.6154	75.4789	10.5377	30.6513	87.4046	450
Risk	0.9672	0.4821	0.8920	1.3561	0.6319	−0.6411	3.6895	450
Analyst	2.1058	1.6094	2.0794	2.9444	0.9462	0.0000	3.8712	436
Bias	0.5699	−0.1732	−0.0111	0.1699	12.5934	−14.4790	264.3333	453
Foreign	0.2372	0.0521	0.1435	0.3446	0.2364	0.0024	0.8830	450
$F^{Institution}$	0.0858	0.0002	0.0013	0.0126	0.1932	0.0000	0.7272	450
$F^{Individual}$	0.0061	0.0012	0.0029	0.0080	0.0080	0.0002	0.0577	450
$F^{Nominees}$	0.1453	0.0277	0.0954	0.1940	0.1581	0.0008	0.8813	450
Duality	0.1709	0.0000	0.0000	0.0000	0.3770	0.0000	1.0000	316
BIndep	0.4303	0.3333	0.4286	0.5000	0.1244	0.0000	0.8000	408
BActive	0.1009	0.0000	0.0000	0.0000	0.3015	0.0000	1.0000	456
BSize	8.7917	7.0000	9.0000	10.0000	2.3299	4.0000	18.0000	408
BExp	0.2566	0.0000	0.0000	1.0000	0.4372	0.0000	1.0000	456

Note: The descriptions for all the variables listed above are given in Table 2.

Table 4
Correlation matrix

	K_{ω}	Size	Leverage	BM	Liquidity	Risk	Analyst	Bias	Foreign	F^Institution	F^Individual	F^Nominees	Duality	BIndep	BActive	BSize	BExp
K_{ω}	1.00																
Size	0.08	1.00															
Leverage	0.01	0.27	1.00														
BM	−0.04	−0.06	0.03	1.00													
Liquidity	−0.07	0.38	0.23	−0.01	1.00												
Risk	0.33	−0.03	0.00	0.00	0.00	1.00											
Analyst	0.02	0.37	0.02	−0.45	0.13	−0.02	1.00										
Bias	0.14	0.05	0.01	−0.01	−0.03	0.19	−0.08	1.00									
Foreign	0.23	0.00	−0.07	−0.19	−0.01	0.15	0.25	−0.05	1.00								
F^Institution	0.25	−0.22	−0.03	−0.16	−0.26	0.17	0.07	−0.03	0.78	1.00							
F^Individual	0.07	−0.29	−0.23	0.07	−0.01	0.07	−0.09	−0.05	0.27	0.21	1.00						
F^Nominees	−0.10	0.16	0.05	−0.06	0.00	0.11	0.14	−0.06	−0.14	−0.18	−0.13	1.00					
Duality	0.05	−0.05	0.00	−0.04	0.04	0.08	0.05	−0.03	0.15	0.21	0.00	0.00	1.00				
BIndep	−0.07	−0.02	0.08	0.03	0.04	0.00	0.12	−0.03	0.02	0.04	−0.01	0.13	0.29	1.00			
BActive	0.00	−0.03	−0.03	0.02	−0.04	0.04	0.02	−0.04	0.02	0.03	0.03	0.02	0.03	0.06	1.00		
BSize	−0.02	0.05	0.10	0.02	0.05	0.02	−0.10	−0.02	−0.08	−0.13	0.04	−0.01	−0.17	−0.28	−0.25	1.00	
BExp	−0.11	0.04	0.04	0.01	0.05	0.04	−0.01	−0.03	−0.13	−0.16	−0.11	0.12	0.02	0.23	0.00	−0.04	1.00

Note: The descriptions for all the variables listed above are given in Table 2.

Foreign Ownership and Cost of Equity

Table 5 reports the estimation results for our baseline model (2) to determine the relationship between foreign ownership and cost of equity capital. We pooled the firm data across the eight years to conduct OLS regression. To ensure robust statistical inferences, we follow the suggestion of Petersen (2009) to account for the presence of time and/or firm effect in the model through different treatments for the standard errors, namely firm-clustered (Column 1), time-clustered (Column 2), and double-clustered by firm and time (Column 3). Generally, we can see that the sign and magnitude of the estimates are stable across the different adjustments. This implies that within-cluster correlation does not affect our statistical inference, which is consistent with Lim et al. (2015, 2016) for a larger sample of Malaysian firms. More importantly, the consistent results across the different adjusted standard errors ensure robustness and increase confidence.

Adding further credence to our baseline results is the significance of the included control variables, which are important determinants for cost of equity in previous studies. With the exception of analyst coverage (ANALYST), all control variables have the expected sign and are statistically significant at the conventional level. The insignificant role of ANALYST is consistent with Lim et al. (2015, 2016), which they attribute to the small number of security analysts covering Malaysian stocks. Turning to our key variable of total foreign ownership (Foreign), Columns (1) to (3) consistently show that the variable is highly significant across different treatments of standard errors. The negative coefficient supports hypothesis H1, implying higher total foreign ownership is associated with lower cost of equity capital. Such benefit of foreign participation can be driven by their influences on corporate governance or stock liquidity.

When we decompose total foreign ownership according to investor type, Column (4) shows that only foreign institutions play a significant role in driving the lower cost of equity for Malaysian public listed firms, which supports the foreign investor heterogeneity hypothesis of H2. This runs contrary to the key result in Lim et al. (2015, 2016) as both studies find that only foreign investors who trade through nominee accounts contribute to higher price efficiency and stock liquidity of Malaysian stocks. We offer two explanations to rationalise these contradicting results. First, even though Lim et al. (2015) report an insignificant relationship between foreign institutional ownership and stock liquidity, the former can still affect cost of equity through the corporate governance channel. Second, Lim et al. (2015) find that the relationship between foreign nominee and stock liquidity is non-monotonic, suggesting that when the ownership level exceeds certain threshold, the documented positive liquidity effect becomes negative. Thus, if the shareholdings of foreign nominees are large, the invested firms become illiquid and this increases the cost of equity.

However, we do not observe a significant relationship between foreign nominees and cost of equity, possibly because they do not exert influence on the corporate governance process. In the Malaysian stock market, foreign nominees are ineligible to attend Annual General Meeting (AGM) and Authorised Nominees will monitor and manage corporate actions for securities kept in their custody. The active monitoring of management is expected to be taken up by foreign institutions who trade through direct accounts, and their large foreign shareholdings can lower cost of equity through the channel of corporate governance.

Table 5
Foreign ownership and cost of equity

This table shows the regression result for the baseline model (2):

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

where $CONTROL_{j,it}$ includes Size, Leverage, BM, Liquidity, Risk, Analyst and Bias. In column (4), total foreign ownership (Foreign) is further divided into foreign institutions ($F^{Institution}$), foreign individuals ($F^{Individual}$) and foreign nominees ($F^{Nominee}$).

	(1)	(2)	(3)	(4)
Constant	24.9537***	24.9537***	24.9537***	26.9313***
	(5.6749)	(5.2905)	(6.7519)	(8.0110)
Size	–0.7563*	–0.7563**	–0.7563*	–0.8685*
	(0.4126)	(0.2625)	(0.4087)	(0.4454)
Leverage	7.3654***	7.3654***	7.3654***	7.3115***
	(2.4275)	(1.1522)	(1.7748)	(1.8863)
BM	3.1178***	3.1178***	3.1178***	3.1073***
	(0.6315)	(0.6964)	(0.7418)	(0.7782)
Liquidity	–0.1071*	–0.1071*	–0.1071*	–0.1094
	(0.0563)	(0.0531)	(0.0616)	(0.0665)
Risk	3.3785***	3.3785**	3.3785***	3.3628***
	(1.0748)	(0.8793)	(0.9967)	(0.9542)
Analyst	0.2105	0.2105	0.2105	0.1848
	(0.5870)	(0.6617)	(0.7772)	(0.7882)
Bias	0.0277***	0.0277**	0.0277***	0.0273***
	(0.0103)	(0.0083)	(0.0093)	(0.0091)
Foreign	–3.4676**	–3.4676***	–3.4676***	
	(1.6849)	(0.4255)	(1.2792)	
$F^{Institution}$				–3.6564*
				(1.9306)
$F^{Individual}$				–45.2357
				(33.3482)

Table 5: (*continued*)

	(1)	**(2)**	**(3)**	**(4)**
$F^{Nominee}$				–2.134
				(2.6953)
Firm Cluster	Yes	No	Yes	Yes
Year Cluster	No	Yes	Yes	Yes
N	394	394	394	394
Adjusted R-Squared	0.2372	0.2372	0.2372	0.2358

Notes: The descriptions for all the variables listed above are given in Table 2. The dependent variable is cost of equity (K_{OJ}). Year dummies are included in the regressions but not reported for brevity. Figures in parentheses are standard errors with different adjustments namely firm-clustered, time-clustered, and double-clustered by firm and time. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Monitoring Role of Board Characteristics

We now turn to the moderating effect of board characteristics on the relationship between foreign ownership and cost of equity. Since only the variable of foreign institutions is statistically significant in Table 5, we thus use $F^{Institution}$ as a proxy for FO in Equation (3). Five types of board characteristics are introduced and entered into the model separately, namely CEO duality (Duality), board independency (BIndep), board size (BSize), board activeness (BActive) and board member's experience (BExp).

Table 6 presents the estimation results for the extended model with an interaction term. Overall, our estimates are quite consistent with Table 5 for the control variables and foreign ownership. However, out of the five interaction terms, only CEO duality (Duality) and board independency (BIndep) are statistically significant at the conventional level. In the first case of CEO duality, foreign institutional investors perceive the combined positions of CEO and board chairman to have greater influence in pushing the corporate governance agenda. However, the interaction term of $F^{Institution} \times$ BIndep has larger negative coefficient and is highly significant at the 1% level. This indicates that when the ratio of independent directors in a board is higher, the board has a better monitoring role in reducing agency problem. Both sets of results suggest that an effective board of directors further strengthens the relationship between foreign institutions and cost of equity, consistent with hypothesis H_3. This also lends support to our earlier conjecture that foreign institutions who trade through direct accounts can lower the cost of equity through the channel of corporate governance.

Table 6
Moderating role of board characteristics

This table shows the regression result for the extended model (3):

$$K_{OJ,it} = \alpha_0 + \alpha_1 F_{it}^{Institution} + \sum_{j=1}^{J} \beta_j CONTROL_{j,it} + \sum_{k=1}^{K} \beta_k BOARD_{k,it} +$$

$$\sum_{l=1}^{L} \sum_{k=1}^{K} \beta_l F_{it}^{Institution} * BOARD_{k,it} + \varepsilon_{it}$$

where $CONTROL_{j,it}$ includes Size, Leverage, BM, Liquidity, Risk, Analyst and Bias. The variable of $BOARD_{k,it}$ is proxied by Duality, BIndep, BActive, BSize and BExp, each entering the model separately.

	Duality	Independence	Activeness	Size	Experience
Constant	30.2742***	22.1606***	42.9115***	25.9463***	24.4179***
	(4.6541)	(4.1514)	(11.3465)	(3.9968)	(3.8642)
Size	–1.0047***	–0.7351***	–1.3187***	–0.9054***	–0.7024**
	(0.3146)	(0.2678)	(0.3072)	(0.2809)	(0.2857)
Leverage	8.5386***	8.9373***	6.6423**	8.2712***	8.2209***
	(2.3682)	(2.1711)	(2.7597)	(2.0486)	(2.0944)
BM	3.3115***	2.6656***	1.9614***	2.5311***	2.4715***
	(0.5970)	(0.6659)	(0.7395)	(0.6683)	(0.6990)
Liquidity	–0.1586***	–0.0993**	–0.0541	–0.0997**	–0.0968*
	(0.0611)	(0.0474)	(0.0692)	(0.0480)	(0.0496)
Risk	4.2563***	3.7961***	3.4255**	3.6269***	3.6423***
	(1.1802)	(1.0185)	(1.7322)	(1.0187)	(1.0283)
Analyst	0.3505	–0.8295**	–0.9606**	–0.7273*	–0.8231*
	(0.4889)	(0.4150)	(0.4701)	(0.4124)	(0.4348)
Bias	0.0224**	0.0253***	0.4747	0.0248***	0.0249**
	(0.0105)	(0.0094)	(0.5469)	(0.0093)	(0.0098)
$F^{Institution}$	–5.1454***	8.4570*	–17.336	–3.3821	–0.5725
	(1.6260)	(4.3977)	(19.3478)	(6.4262)	(2.6782)
Duality	–0.7674				
	(0.9124)				
Duality × $F^{Institution}$	–5.9723**				
	(2.5166)				
BInd		6.8719***			
		(2.5093)			
BInd × $F^{Institution}$		–25.7564***			
		(9.0506)			
BActive			–0.1114		
			(0.0967)		
BActive × $F^{Institution}$			0.148		
			(0.2047)		
BSize				0.2442	
				(0.1957)	

Table 6: (*continued*)

	Duality	Independence	Activeness	Size	Experience
BSize $\times$ F$^{\text{Institution}}$				–0.0336	
				(0.6812)	
BExp					0.0154
					(0.0187)
BExp $\times$ F$^{\text{Institution}}$					–0.0498
					(0.0524)
N	272	359	236	359	350
Adjusted R-Squared	0.2959	0.2732	0.2756	0.2662	0.2604

Notes: The descriptions for all the variables listed above are given in Table 2. The dependent variable is cost of equity (K_{OJ}). Year dummies are included in the regressions but not reported for brevity. Figures in parentheses are standard errors. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

CONCLUSION

Motivated by the bold liberalisation measures undertaken by the Malaysian government in the 2000s, this study evaluates the effect of stock market liberalisation on the cost of equity capital for public listed firms on Bursa Malaysia. Unlike previous studies that use stock market liberalisation indicators at the aggregate level, we use foreign ownership at the firm-level to capture the actual presence of foreign investors across different firms within the same country over time. Even though our literature survey is unable to find published study that examines the direct link between foreign ownership and cost of equity, we hypothesise a lower cost of equity attributable to foreign participation through the channels of strong corporate governance and higher stock liquidity.

Capitalising on the recently assembled ownership dataset 'End of Year Shareholdings by Type of Investor' by Bursa Malaysia, we find strong empirical support for all our three hypotheses. First, the key variable of total foreign ownership is negatively and significantly associated with cost of equity. Such benefit of foreign participation can be driven by their influences on corporate governance or stock liquidity. Second, when we decompose total foreign ownership into foreign institutions, foreign individuals and foreign nominees, we find that only the first type of foreign investors is significantly associated with lower cost of equity. This favours the corporate governance channel because foreign institutions have the expertise and resources to monitor management, which leads to lower agency risk, higher financial reporting quality and improved corporate governance. Third, we find that an effective board of directors further strengthens the negative relationship between foreign institutions and cost of equity, lending support to the corporate governance channel.

Our results further complement Lim et al. (2015, 2016) in that all three Malaysian studies point to significant benefits from foreign participation in terms of greater stock price efficiency, higher stock liquidity and lower cost of equity. While there are growing empirical support for the Malaysian government liberalization policy, the policy challenge lies not merely on removing statutory investment restrictions. Instead, regulators should devise measures to attract the right types of foreign investors to participate in the Malaysian stock market. At the micro-level, our results suggest that firms can influence their cost of equity by attracting more foreign institutional investors. Furthermore, firms that strive to enforce stronger corporate governance should leverage on the participation of foreign institutions, as the benefit of lower cost of equity is larger. Researchers can provide useful input in this aspect, for instance, by exploring the stock preferences of each foreign investor group.

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