Determinants of cost of equity: The case of Shariah-compliant Malaysian firms

Shafaai, Shafizal and Masih, Mansur

INCEIF, Malaysia, INCEIF, Malaysia

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Shafizal Bin Shafaai[1] and Mansur Masih[2]

Abstract

Firm-level analysis of the cost of equity is essential for many financial decision makings, capital structure choice, capital budgeting analysis, performance assessment and firm valuation. This study aims to shed some light on the determinants of cost of equity by analyzing Shariah compliant firms based in Malaysia. A list of potential determinants is identified and is divided into accounting-based and market-based variables. Pooled, fixed-effect, random-effect, and dynamic difference- and system-GMM panel models were employed to investigate determinants of cost of equity. The results show that for the full sample, the cost of equity is determined by debt-to-equity ratio (DE), earnings per share (EPS), total asset turnover ratio (TAT), firm size (SIZE) and stock liquidity (SL). Consistent with the literature, a significant positive relationship with cost of equity was found for DE and EPS, while a negative relationship with TAT and SIZE was exhibited. The study is also extended to seven subsectors, namely construction, consumer products, industrial products, plantation, properties, technology and services, to observe the sectoral effects on the cost of equity determinants. For the individual sectors, SIZE is significant for most of the sectors and is consistently negatively related to cost of equity. The results for other variables show that the determinants differ across different sectors, highlighting the importance of sectoral analysis. Firm based implication includes assisting firms to review their cost of equity estimates and optimizing capital allocation, while the government could fine-tune its policies based on the sectoral effects on the cost of equity determinants.

[1] Shafizal Bin Shafaai, Graduate student at INCEIF, Lorong Universiti A, 59100 Kuala Lumpur, Malaysia.

[2] **Corresponding author**, Professor of Finance and Econometrics, INCEIF, Lorong Universiti A, 59100 Kuala Lumpur, Malaysia. Phone: +60173841464 Email: mansurmasih@inceif.org

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1.0 Introduction

Cost of equity refers to the expected minimum return as compensation for the capital invested by the common stockholders of a firm. Accurate estimation of the cost of a equity is vital for making many financial decisions, for example, capital structure choice, capital budgeting analysis, performance assessment, and firm valuation. This study aims to investigate the determinants of cost of equity.

Malaysia's open trade policies and high rates of investment have seen the country achieving impressive growth and continuous economic transformation in the 1990s.Exports and imports of goods averaged 90 percent of Gross Domestic Products (GDP)while non-factor services averaged 91 percent of GDP. Nevertheless, high tariff protection in some agricultural sub-sectors and in the automobile industry in addition to the access restrictions on foreign investors to much of the services sector have reduced competition and impaired the potential efficiency for the sectors. In a trade policy review of the World Trade Organization (WTO) for Malaysia released in December1997, the report (para. 6) stated"... Malaysia's recent growth has largely been based on increases in the volume of capital rather than in its efficient allocation. Total factor productivity growth has slowed, with adverse implications for resource allocation." It seems that the WTO has the view that Malaysia is lacking efficiency in resource allocation.

In 1997, Malaysia was struck by the financial crisis, resulting in u severe deterioration in its economic performance in 1998. The WTO’s 2001 trade policy review, under the secretariat’s report summary (para. 2), it is reported that *"... both capital and total factor productivity (TFP) growth had dropped markedly (from an annual average rate of 2.4% in 19 90-1995 to 0.9% in 1995-2000), perhaps reflecting over investment, if not an increasingly inefficient allocation of capital*". Besides total factor productivity, it is evident from the 1997 and 2001 reports that inefficient allocation of capital is a major concern to Malaysian firms. In this regard, the efficiency of capital allocation is very much dependent on how money is allocated. Each action whether it is research and development investment, stock buyback or new equipment procurement is likely to benefit the firms differently. For a firm, the challenge is to allocate the capital so that it generates as much wealth as possible for its stockholders. In corporate finance, capital allocation is essentially related to the issue of cost of capital.

This study focuses on exploring the determinants of cost of equity for Shariah compliant Malaysian firms. Cost of equity is one of the two key components in estimating cost of capital (the other one is cost of debt). This study focuses on cost of equity instead of cost of debt because estimating the former is more complicated and controversial than the latter. According to Beck et al. (2008), equity is one of the preferred choices of external financing after bank and supplier credit for Malaysian firms.

1.1 COST OF EQUITY - DEFINITION AND MEASUREMENT

Capital is the money used by firms to run their businesses. Capital can come in two forms - debt and equity. When a firm borrows or secures loans from others (normally financial institutions), it is known as debt. When the capital comes from investors who invest in the firm's common stocks, it is known as equity. Therefore, cost of equity can be defined as the rate of return required by investors for investing in a firm‘s common stock. Sometimes, it is also referred to as the required rate of return, minimum return or hurdle rate.

Cost of equity is an important term in corporate finance as it is part of the core of Weighted Average Cost of Capital (WACC). Since funds are made available to firms in the form of debt and equity, a firm's WACC is the weighted average of the after-tax cost of debt and the cost of equity for any given year. The WACC is the discount rate that is used to discount a firm's expected free cash flows to estimate firm value. It can also be viewed as a firm's opportunity cost of capital, which is the expected return that the firm's investors forgo from alternative investment opportunities with equivalent risk. Since the firm's investors forgo other equivalent risk investment opportunities when they purchase its bonds or shares of stock, they give up the return that could have earned by investing in say, another firm. Therefore, firms regularly track their WACC and use it as a benchmark when evaluating new investment projects, in capital budgeting analysis, in deciding capital structure choice and when evaluating their own performance using Economic Value Added (EVA).

Since the ultimate goal of any firm is to maximize shareholders, wealth, each investment decision needs to be made with utmost care and precision. This includes getting an accurate estimation of the firm's cost of capital. While cost of debt is typically made known to firms in the form of interest paid on borrowed funds, the cost of equity is the more difficult estimate one has to make in order to obtain a firm's cost of capital. This is due to the fact that common stockholders are the residual claimants of a firm's earnings. They get what is left after all other claimants have been paid. Therefore, there is no pre-specified return as in the case with bondholders or preferred stockholders whereby their interests are governed by a financial contract. Given that the relevant cost of equity is the expected return of investors from investing in a firm's common stocks and this return normally comes in the form of cash dividends and cash proceeds from the sale of the stock, the conventional way of estimating cost of equity has been done using the Discounted Cash Flow (DCF) approach.

1.2 COST OF EQUITY ESTIMATION IN EMERGING MARKET

Despite considerable history of research on emerging markets, much of the current work was initiated as a result of the World Bank Conference on Portfolio Investment in Developing Countries, held in Washington in late 1993. Some of the ideas presented at the conference motivated much of the research on emerging markets over the next five years. Among the goal of the conference was to think about best practice, in the issue of assets valuation in emerging markets and to explore new research and practical methodologies. One of the most pressing problems professional firm appraisers face in cost of equity valuation in emerging market is the availability of accurate reliable information. Empirical evidence shows that emerging equity market information tends to be scarce and unreliable. Not only that, financial efficiency of emerging markets is also highly debatable. These are relevant problems, because traditional valuation techniques including DCF work best when applied to the valuation of stocks of large public firms, which operate within highly efficient markets in developed economies.

Higher volatility and large price changes in emerging markets are an established fact (Harvey, 1995; Salomons and Grootveld, 2003). Also, distributions of emerging market equity returns are highly non-normal. Harvey (1995) rejected the null hypothesis of normality for 14 of the 20 emerging markets but normality cannot be rejected for any I of the three developed markets (namely U.S., U.K. and Japan) in his test. Bekaert and Harvey (1997) also rejected the normality of stock returns in 15 out of 20 emerging markets included in their study while De Santis and Imrohoroglu (1997) detected a considerably larger kurtosis for emerging markets than developed markets. The observation that emerging stock returns are not normally distributed and the existence of significant skewness and kurtosis in returns have important implication not only for the financial models popularly applied in developed markets such as the CAPM and Markowitz's (1952) portfolio theory but also for the relevance of commonly used measure of risk, that is, the beta.

Theory may suggest that in an integrated capital market, the expected return is determined by the beta with respect to the world market portfolio multiplied by the world risk premium. On the contrary, in a segmented market, the expected return is the product of the local beta and the local market risk premium. However, with the onset of capital market liberalization in the 1990s, some emerging markets have become partially integrated into world capital markets (Bekaert el at. 2005). When considering the risk exposure in a market, it is important to I consider the level of market integration. In fully integrated markets, the common factor with which risk is priced is the covariance of market returns with the world market portfolio returns. The other extreme is the perfectly segmented market, where market returns move independently of the world market. In this scenario, the relevant factor will be the assets' exposure to factors specific to the segmented market. As emerging markets lie within the continuum of full integration on one end and full segmentation on the other end, one would need to consider appropriate risk measures that can capture the dynamic risk-return relationship in transitional economies.

To sum up, many of the critical assumptions behind traditional asset pricing models are violated where emerging markets are concerned. As opposed to developed markets, stocks of emerging markets have prices that are more volatile, and returns that are non-normal with excessive skewness, or fat tails, or both. As a result, it is essential to know the factors or determinants that affect the cost of equity, especially for Shariah compliant firms as the literature is rather limited on this particular area..

1.3 SHARIAH COMPLIANT FIRMS

The Shariah Advisory Council (SAC) of the Securities Commission Malaysia (SC) is responsible to advise on matters pertaining to the Islamic capital markets. The SAC of Bank Negara Malaysia (BNM), on the other hand, is responsible to advise on matters in relation to Islamic banking and takaful businesses. Consisting of prominent Shariah scholars, jurists and market practitioners, members of the SAC are qualified individuals who can present Shariah opinions and have vast experience in banking, finance, economics, law and application of Shariah, particularly in the areas of Islamic economics and finance.

In executing its duties and responsibilities, the SAC examine and endorse the validity of application of Shariah in Islamic financial products which are submitted by Islamic financial institutions. The SAC would also issue Shariah resolutions and decisions relating to their relevant jurisdictions from time to time. The SAC also continue to monitor the activities of all companies listed on Bursa Malaysia on periodic basis based on availability of information to determine their status from the Shariah perspective.

The SAC has applied a standard criterion in focusing on the activities of the companies listed on Bursa Malaysia. As such, subject to certain conditions, companies whose activities are not contrary to the Shariah principles will be classified as Shariah-compliant securities. On the other hand, companies will be classified as Shariah non-compliant securities if they are involved in the following core activities:

a) Financial services based on riba (interest)
b) Gambling and gaming
c) Manufacture or sale of non-halal products or related products

d) Conventional insurance; Entertainment activities that are non-permissible by Shariah
f) Manufacture or sale of tobacco-based products or related products
g) Stockbroking or share trading in Shariah non-compliant securities
h) Other activities deemed non-permissible according to Shariah

The SAC also takes into account the level of contribution of interest income received by the company from conventional fixed deposits or other interest bearing financial instruments. In addition, dividends received from investment in Shariah non-compliant securities are also considered in the analysis carried out by the SAC. For companies with activities comprising both permissible and non-permissible elements, the SAC considers two additional criteria:

a) The public perception or image of the company must be good
b) The core activities of the company are important and considered maslahah (benefit in general) to the Muslim ummah(nation) and the country, and the non-permissible element is very small and involves matters such as `umum balwa (common plight and difficult to avoid), `uruf(custom) and the rights of the non-Muslim community which are accepted by Islam.

To determine the tolerable level of mixed contributions from permissible and non-permissible activities towards turnover and profit before tax of a company, the SAC has established several benchmarks based on ijtihad (reasoning from the source of Shariah by qualified Shariah scholars). If the contributions from non-permissible activities exceed the benchmark, the securities of the company will be classified as Shariah non-compliant. The benchmarks are:

i) The five-percent benchmark
This benchmark is used to assess the level of mixed contributions from the activities that are clearly prohibited such as riba (interest-based companies like conventional banks), gambling, liquor and pork.

ii) The 10-percent benchmark
This benchmark is used to assess the level of mixed contributions from the activities that involve the element of "`umum balwa" which is a prohibited element affecting most people and difficult

to avoid. An example of such a contribution is the interest income from fixed deposits in conventional banks. This benchmark is also used for tobacco-related activities.

iii) The 20-percent benchmark

This benchmark is used to asses the level of contribution from mixed rental payment from Shariah non-compliant activities such as the rental payment from the premise that involved in gambling, sale of liquor etc.

iv) The 25-percent benchmark

This benchmark is used to assess the level of mixed contributions from the activities that are generally permissible according to Shariah and have an element of maslahah to the public, but there are other elements that may affect the Shariah status of these activities. Among the activities that belong to this benchmark are hotel and resort operations, share trading, stockbroking and others, as these activities may also involve other activities that are deemed non-permissible according to the Shariah.

2.0 Motivation of the Study

There is a lack in research exploring for determinants of cost of equity, particularly at the sectoral level. Considering the studies of Collins and Abrahamson (2006) and Hearn and Piesse (2009) that observed a wide dispersion in cost of equity estimates I across sectors, the determinants of cost of equity might differ across lector as well. Given the importance of accurate cost of equity estimation in achieving effective strategic decision making and firm performance evaluation, an examination on the determinants of cost of equity would assist firms in reviewing their cost of equity estimates.

Given the importance of cost of equity for making financial decisions and the amount of work that has been dedicated to find appropriate asset pricing models for its estimation, it is essential to determine the factors that affect cost of equity. As there could be many factors that might influent cost of equity, the scope of this review is narrowed to prominent issues or events in the 1990s that have triggered research on the effect of these phenomena on cost of equity. This section is also dedicated to review the influence of the fundamentals, specifically the firm-related accounting variables and market-related variables on cost of equity.

To the best of our knowledge, there is little understanding on the factors that determine the cost of equity of Shariah compliant Malaysian firms. As such, we would like to make a humble attempt to explore the determinants of cost of equity for Shariah compliant Malaysian firms, particularly to look at the issue from the viewpoint of local investors and policy makers.

3.0 Literature Review – Determinants of Cost of Equity

The outbreak of international diversifications and cross-listing activities in the 1990s led to research interest in exploring the effect of these activities on cost of equity (Foerster and Karolyi, 1993; Doukas and Switzer, 2000; Singh and Nejadmalayeri, 2004). The extensive survey of studies on cross listings provided by Karolyi (1998), for instance, concluded that the effect of listing decisions can result in a net reduction of approximately 126 basis points in cost of equity. This is due to a significant decrease in domestic market risk while only a slight increase in global market risk and foreign exchange risk. Higher degree of international diversification also resulted in lower cost of capital as evident in the study of Singh and Nejadmalayeri (2004). Using a sample of 90 French firms from 1996 to 1999, the effect is observable even after controlling for other variables such as debt, equity risk, firm size and asset structure.

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Another closely related area to international diversifications and cross-listings is the effect of capital market liberalization on cost of equity. The intuition is that in a segmented capital market, cost of equity is related to variability in the local market returns. On the other hand, in an integrated capital market, cost of equity is related to covariance with the world market returns. Since local market returns are normally more volatile, as capital markets open up or liberalize and the covariance with the world capital market increases, their cost of equity should decrease. A number of studies documented evidence that capital market liberalization reduces cost of equity (Bekaert and Harvey, 2000; Henry, 2000; Chari and Henry 2004). Taking a step further, Ameer (2007) tested the effect of stock market liberalization at the firm level and found that there was significant difference in the decline of cost of equity among firms once firm heterogeneous characteristics were taken into account. In a recent study, Li (2010), using sector-level data for 19 emerging markets and 18 developed countries from 1980 to 2000, provided evidence that sectors that were highly dependent on external funding seemed to grow faster after liberalization. This supports the hypothesis that capital market liberalization results in lower cost of equity.

A series of financial scandal outbreaks in the 1990s might have motivated studies on the effect of legal institutions and securities regulation (Daouk et al, 2006; Hail and Leuz, 2006), as well as disclosures and corporate governance (Botosan, 1997; Eaton et al, 2007; Chen et al., 2009; Guedhami and Mishra, 2009) on cost of equity. It was argued that a well-functioning legal system reduces monitoring and enforcement costs to investors, which may result in investors demanding a lower return on their capital. Testing on a sample consisting of 35,118 firm-year observations from 40 countries spanning from 1992 to 2001, Hail and Leuz (2006) found that firms in countries with effective legal institutions had lower cost of equity than they do in countries with weak legal systems. Based on four different models of implied cost of equity used by Hail and Leuz (2006), Guedhami and Mishra (2009) reported that excess control negatively affects firm value, and this is reflected in the firm's discount rate. In addition, consistent with the findings of Hail and Leuz (2006), they found that legal institutions have significant influence on cost of equity too.

The discussion so far involves studies on events related to international investment, capital market liberalization and financial scandals. On the other hand, there are also studies which focus on the fundamentals, especially financial statements of firms. Data from financial statements were found to be value relevant to public listed firms (Barth et al. 2001; Kothari, 2001). The importance of financial statement increases as a firm matures and its financial position become increasingly associated with its equity value (Hand, 2005). Nevertheless, in most studies, exploring financial statement data as potential determinants of cost of equity is not the core objective, but a peripheral product of the analysis on the impact of other factors such as legal institutions and securities regulation (Hail and Leuz, 2006), financial liberalization (Ameer, 2007), and corporate governance (Chen et al., 2009; Guedhami and Mishra,
2009) on cost of equity. Gebhardt et al. (2001) and Gode and Monhanram (2003) indirectly explored the determinants for cost of equity through implied risk premium. Gebhardt et al. (2001) examined the relationship of implied risk premium with various risk categories which can be grouped into market volatility, leverage, liquidity and information environment, variability and predictability of earnings, and other pricing anomalies. Controlling for industry effect, they found three variables to consistently assign a higher risk premium to firms with higher book-to-market ratio , higher forecasted growth rate and lower dispersion in analysts forecasts. Surprisingly, beta had a weak relationship with risk premium and therefore, they concluded that

beta has limited importance in the market assessments of a firm s systematic risk. Applying variables similar to those of Gebhardt et al. (2001), Gode and Monhanram (2003) reported that the association of risk premium with the variables is as expected and thus conforming to the results documented in Gebhardt et al (2001).

Francis et al. (2004) examined the relation between cost of equity and seven attributes of earnings, namely, accrual quality, earnings persistence, predictability, smoothness, value relevance, timeliness and conservatism. They categorized the first four as accounting-based attributes while the last three as market-based attributes. Their research is based on a relation between cost of equity with firm-specific information and earnings are a primary source of these information. It is assumed that investors will use earnings information as a reflection of a firm's current situation or probably as a projection of the firm's future direction. Since there is a positive association between information quality and cost of equity, their results showed that firms with the least favourable values of each attribute experienced higher cost of equity than firms with the most favourable values. Larger effects on cost of equity were observed for accounting based attributes.

Investors were shown to assign higher risk premium for certain sectors (Gebhardt et al., 2001; Gode and Monhanram, 2003), resulting in higher cost of equity for those sectors. Nevertheless, studies exploring the effect of financial statement data on cost of equity are very rare. The only one is the study by Omran and Pointon (2004) where they explored determinants for cost of equity at the sectoral level for 119 Egyptian firms. Using two different models, the inverse of the price-earnings ratio and a modified Gordon growth model for estimating cost of equity, a similar set of determinants were found. Both models showed, for the whole sample of the study, reserves, earnings growth, firm size and active trading were significant determinants except that reserves were not reflected in the modified Gordon growth model. When breaking down the analysis to individual sectors, both models showed that liquidity is an important determinant for the food sector. In the heavy industries, the first model showed that variations in cost of equity were determined by income gearing (times interest earned), capital gearing (long-term debt/total investment) and firm size. As for the contracting and real estate sector, the most important factors were fixed asset backing, income gearing, earnings growth and firm size. Only one key variable was found for the services sector, which was the tax ratio. Clearly, it is evident in their study that determinants of cost of equity differ across sectors.

In a more recent study, Sung et al. (2008) examined the relation of implied cost of equity from earnings-based valuation models with a set of frequently-cited risk proxies. Seven risk proxies were chosen. They were market beta (beta), market value of equity (size), book-to-market ratio, debt-to-market ratio, idiosyncratic risk (measured as the variance of residuals from the regressions of market beta estimation), operating income volatility (measured as the standard deviation of operating income in past two up to five years scaled by average total assets) and dispersion of analysts, earning forecasts (measured as the standard deviation of one-year-ahead analysts' earning forecasts scaled by the absolute mean of these forecasts). A sample consisting of 415 firms listed in Korean Securities Dealers Automated Quotations or KOSDAQ from 2001 to 2006 was used in the study. They found that the average implied cost of equity was positively associated with beta, debt-to-market ratio and operating income volatility, while negatively related to size.

In the studies such as Hail and Leuz (2006), Ameer (2007), Chen et al (2009) and Guedhami and Mishra (2009), accounting-based variables and market-based variables were included as control risk variables. Hail and Leuz (2006), for instance, found a significant negative relation between cost of equity with firm size while book-to-market ratio and stock return volatility had significant positive relation with cost of equity. In another study, Ameer (2007) examined the effect of stock market liberalization and securities market development, along with a few other firm-specific risk factors on firm-level cost of equity. The firm-specific risk factors were book-to-market ratio, size, debt-to-equity ratio, price volatility and managerial efficiency. His results showed that in general, the coefficients of firm-specific risk factors had signs which are consistent with the literature. In the investigation on the effect of excess control and legal institutions on cost of equity, Guedhami and Mishra (2009) recorded significant relationship of debt-to-total capital, price volatility and market-to-book ratio with cost of equity and their signs were consistent with prior empirical research.

There is clearly a lack of studies on cost of equity determinants, in particular on sectoral basis. There is also scarcity of studies on cost of equity determinants for Shariah compliant firms despite a robust Islamic finance development. This study, in its humble attempt, aims to address the research gap.

4.0 Literature Review – Cost of Equity Model

4.1 VALUATION MODELS FOR EMERGING MARKET

When appraisers need to value securities in emerging markets, it is convenient to use the established or popular asset pricing models designed for the developed markets, for example, the Fama-French Three-factor Model (FF3F) and Arbitrage Pricing Model (APT), among others. Nevertheless, recent empirical evidence, for example, Grandes et al. (2010) concluded that both size and value premia were not generally statistically significant risk factors for the seven Latin American stock markets. With the exception of Brazil for some years, the FF3F also did not provide additional informational content to the local market portfolio in explaining stock returns. In addition, incomplete and extremely short time series with volatile movements dampened the attractiveness of the APT application for emerging markets since the model requires large macroeconomic data series. Not only that, consensus has not been reached regarding the risk factors to he used in the AP T. This has limited the use of the model for emerging markets.

The application of the traditional one-factor CAPM to emerging markets is a controversial venture. Despite that, Perciro (2002) felt that chances were, the model will continue to be used for many years to come and he listed three reasons. First, the availability of data for easy application of the CAPM model may entice analysts to continue using it for cost-benefit reason. Second, the popularity of the CAPM has made it a standard benchmark. In a buy-sell negotiation for example, an analyst may be at a disadvantage if he/she ignores the model since the other party is most likely to be using the CAPM. Third, some flaws of the CAPM can be, to some extent, lessen through specific modifications.

In the basic CAPM model, the cost of equity is acquired by plugging in local information, that is, local risk-free rate, beta (obtained by regressing firm returns against local market index returns) and local market returns into the model if the analyst believes that the market is segmented. On the other hand, for analysts who believe that the market is fully integrated, global risk-free rate, global beta (obtained by regressing firm returns against global market index returns) and global market returns would be used instead. In an emerging market setting, specific modifications are made to the standard one-factor CAPM, particularly, to account for country risk. Hence, it is not surprising to find majority of the models suitable for estimating cost of equity in emerging markets are CAPM-based variants although there are also a few which are non-CAPM based variants.

4.2 THE NON-CAPM COST OF EQUITY ESTRADA MODEL

Existing empirical evidence has questioned the validity of the classical CAPM for applications in emerging markets. For example, Harvey (1995) and Estrada (2000) showed that standard betas are not correlated with returns computed for the world market. In addition, the beta values seem to be too small to reflect cost of equity that most investors deem as reasonable. These problems have led some scholars to look for measures of risk beyond the realm of CAPM. One of such alternatives is offered in Estrada (2000, 2001).

In the application of the classical one-factor CAPM, beta coefficient is used as the only risk measure in the calculation of cost of equity. However, Estrada (2000, 2001) argued that the standard beta is not appropriate for estimating the cost of equity for emerging markets and suggested several risk variables such as total risk as measured by the standard deviation of returns, and downside risk as measured by the semi-deviation of returns and downside beta. The measures using standard deviation and semi-deviation of returns are discussed next.

Estrada (2000) commented that beta values seem to be too small to accommodate the figures for the cost of equity that most investors deem as reasonable, implying that beta does not accurately measure risk in emerging markets. If beta is maintained as a measure of risk, many emerging markets would have low investment risks. Recognizing the problem of beta especially when applied to emerging markets, Estrada (2000) proposed the downside risk measure, that is, semi-deviation or semi-variance, which he felt can perform better than beta in capturing expected returns of emerging markets. He argued that the downside risk models are preferable since they produce estimates of cost of equity that are halfway between the 1”rather low” figures produced by the systematic risk (beta) approach and the higher figures generated by the total risk method.
Besides providing more reasonable cost of equity estimates for emerging markets, the downside risk method has several attractive features (Estrada, 2000). Among the features are easy implementation of the method, ability to be applied to both market level and firm level analysis, it is not based on subjective measures of risk, it can be I adjusted to any desired benchmark return and most importantly, downside risk captures the portion of risk that investors want to avoid. Further support for downside risk measure is provided by Harvey (2000) who documented

that semi-deviation explains a substantial part of the variations in the stock returns of emerging markets. Estrada (2001) extended his test across industries in emerging markets and the results supported the semi-deviation as an appropriate measure of risk in emerging markets.

Downside risk, also referred to as lower partial moments, was first introduced by Roy (1952). He believed investors will prefer safety of principal first and will set some minimum acceptable return that will preserve the principal. Roy's concept became influential in the development of downside risk measures. Earlier studies such as those of Hogan and Warren (1974) and Bawa and Lindenberg (1977) have also proposed CAPM-like models based on downside risks. In their paper, Hogan and Warren (1974) suggested that given the strong support found for semi-variance (downside risk) as a more appropriate risk measure than variance, a CAPM based on semi-variance might provide superior explanation on capital market behaviour. However, compared to the standard risk measure, beta, downside risk has been tested less extensively.

5.0 Methodology

5.1 THE VALUATION MODELS FOR EXAMINING THE COST OF EQUITY

5.1.1 STANDARD DEVIATION OF RETURNS (TOTAL RISK)

From a local investor perspective, the general framework of Estrada's model can be given as:
Cost of Equity = (Risk-Free Rate) + (Total Risk Measure) x (Premium for Total Risk) or
$E(CE_i) = R_f + \sigma_i(R_m - R_f)$

The total risk for the stock returns of any particular firm is basically given by the simple standard deviation of the return series

$$\sigma_i = \sqrt{\frac{1}{T}\sum_{t=1}^{T}\left(r_{it} - \overline{r}_i\right)^2} \qquad (1)$$

where T is the total number of observations and

$$\overline{r}_i = \frac{1}{T}\sum_{t=1}^{T} r_{it} .$$

5.1.2 SEMI-DEVIATION OF RETURNS (DOWNSIDE RISK)

Using downside risk as risk measure is not a new concept. It was first suggested by Roy (1952) who believed investors will prefer safety of principal first and will set some minimum acceptable return that will preserve the principal. Roy’s concept became influential in the development of downside risk measures. The cost of equity measure for this model can be written as:

$$E(CE_i) = R_f + \delta_{R_{fi},i}\left(R_m - R_f\right)$$

Cost of Equity = (Risk-Free Rate) + (Downside Risk Measure) x (Premium for Downside Risk) or

The semi-deviation measures the average deviation of returns below zero:

$$\delta_{R_{fi},i} = \sqrt{\frac{1}{\mathrm{T}}\sum_{t=1}^{T}\left(\min r_{it}, 0\right)^2}$$

The $\delta_{R_{fi},i}$ measure obtained is then applied to equation (1) in replacement of σ_1 to calculate the firm-level cost of equity

5.2 THE PANEL MODELS FOR EXAMINING THE DETERMINANTS OF COST OF EQUITY

To investigate the determinants of cost of equity, a panel regression approach is more efficient and informative. A panel regression not only provides spatial and temporal dimension of the longitudinal data, it also has the capacity to handle larger sample size and therefore gives higher degrees of freedom, more precise estimators, and greater statistical test power. The specifications in panel regression also allows for greater flexibility to account for sophisticated behavioural effects and it imposes less restrictive assumptions compared to the usual linear regression. With panel setting, the spatial dimension of Malaysian firms as well as the time span dynamics over the sample period can be incorporated into a single model. Different panel models are considered and they are discussed below.

5.2.1 THE FIXED EFFECT MODEL

We can express our model for determinants of cost of equity in a panel structure as follows:

$$Y_{it} = \alpha_{it} = X_{it}\,\beta + \varepsilon_{it} \qquad i=1,\ldots,N \text{ and } t=1,\ldots,T$$

where Y_{it} denotes the cost of equity for firm i and year t, β is a vector of kx1 coefficients and X_{it} is a vector of kx1 determinant variables. The term ε_{it} is referred to as idiosyncratic or time varying error and it is assumed to capture all the unobserved factors that change over time and affect Y_{It}. The panel series in the above equation are stacked by firm as a unit of panel containing all the T observations. Pooling (stacking)the time series and cross-section data only raises little statistical complications to applying Ordinary Least Squares (OLS) estimators if the regression relationship is assumed to remain constant over space and time. OLS provides consistent and efficient scalar estimates of the common intercept and slope coefficient. This means we can run a simple regression on the panel dataset, preserving all the linear regression assumptions.

However, in setting the panel determinant model for cost of equity, it is only fair to assume that firms are behaving differently. The unobservable characteristics, such as brand name, patent rights, monopoly power, managerial competency and worker quality which are all constant over time, or at least in the short run, are likely to differ across firms. These time-invariant firm heterogeneity factors are likely to affect the cost of equity when we stack many firms as a panel series. They can be modeled as follows:

$$Y_{it} = \alpha_{it} + X_{it}\,\beta + \eta_i + \varepsilon_{it}$$

where η_i is the unobserved heterogeneity across firm i, but invariant over time t. In panel regression, these are called the fixed effects or unobserved effects. If these factors. If these factors are uncorrelated with the explanatory variables then we can safely apply the pooling method with OLS estimator on the above equation. However, if these factors are correlated with the explanatory variables, pooled OLS is biased and inconsistent. One way of getting rid of these fixed effects is to difference the data across years, as follows:

$(Y_{it} - Y_{it-1}) = (\alpha_{it} - \alpha_{it-1}) + (X_{it} - X_{it-1})' \beta + (\eta_i - \eta_i) + (\varepsilon_{it} - \varepsilon_{it-1})$

5.2.2 THE RANDOM EFFECT MODEL

Similar to the firm effect, the panel cost of equity equation is also likely to change across year (time) as the general business condition might be different from year to year. We incorporate a period-specific effect, specified as:

$Y_{it} = \alpha_{it} + X'_{it}\beta + \eta_i + \xi_t + \varepsilon_{it}$

where ξ_t captures the period effects. Adding the period effects is equivalent to adding dummy variables $D_t\xi_t$. This model is referred to as a two-way fixed effect model, henceforth. A one-way fixed effect model is referring to model with only firm effect or period effect.

If the unobservable firm heterogeneity is uncorrelated with any of the explanatory variables, then using the fixed effect transformation results in inefficient estimators. In this case, we can actually apply another type of model called the random effect model. Random effect model is basically an error decomposition model that treats firm and time heterogeneity η_i and ξ_t as part of the error terms. In other words, the random effect model assumes the firm and time intercepts as a function of a mean value plus a random error, and they must be uncorrelated with the regressors.

5.3 THE DYNAMIC PANEL MODEL WITH GMM ESTIMATORS

If there is autocorrelation in the cost of equity modeling, then a dynamic panel is necessary to deal with it. Although there are many types of autocorrelation in panel data, generally, a temporal autocorrelation on lags of the residuals can be used to infer on the autocorrelation problem. As in time series model, we can introduce the lagged dependent variable to take care of the autocorrelation problem but in panel setting, the autoregressive setting is a bit complicated.

A popular autoregressive panel model or the dynamic panel model is attributed to Arellano and Bond (1991). The Arellano-Bond dynamic panel model basically applies the GMM estimator with the instrumental variable approach, but one assumption of this model is the temporal span must be greater than the number of regressors in the model, which is suitable for the setting of the cost of equity equation we use.

Consider a panel model with a lagged dependent variable:

$Y_{it} = \mu_{it} + \alpha Y_{it-1} + \Sigma\ \beta X_{it} + v_{it}$

where $v_{it} = \eta_i + \varepsilon_{it}$ and $E\ [\eta_i] + E[\varepsilon_{it}] = E[\eta_i \varepsilon_{it}] = [\varepsilon_{it}\ \varepsilon_{js}] = 0$ for $i \neq j$ and $t \neq s$

We can then estimate the following the first-differenced equation to remove the firm specific heterogeneity:

$\Delta Y_{it} = \partial_{it} + \alpha \Delta Y_{it-1} + \Sigma\ \beta \Delta X_{it} + \Delta v_{it}$

The transformed error term however is now correlated with the lagged dependent variable. Also, there is a problem of dependence of Δv_{it} and $\Delta v_{it-1,}$ implying OLS estimates are inconsistent. A two-stage least square (2SLS) method with instrument variables that are both correlated with ΔY_{it-1} and orthogonal to Δv_{it} can produce a consistent estimator provided $T \geq 3$. When we have more than three time series observations, additional instruments are available. For example, for t=3, Y1i can be used as the instrument, but when t=4, both Yi1 and Yi2 can be used, and so on until t=T, the vector of $(Y_{i1}, Y_{i2},,\ldots,Y_{i,T-2})$ can be used.

When T>3 the model is over identified and the 2SLS is not asymptotically efficient even if the complete set of available instruments is used for each equation and the error terms are homoskedastic. Arellano and Bond (1991) shows that the Generalized Method of Moments (GMM) developed by Hansen (1982) can provide an asymptotically efficient estimator in this content. The GMM estimator uses all the past information of the dependent variable Y_{it} as instruments on the structure of the error term to obtain a consistent GLS estimator. GMM is favoured against OLS estimator because the OLS estimator suffers from several shortcomings; it has a mean reversion tendency, it is inefficient for non-normal distributions and it introduces significant biases when stocks are liquid. Conversely, the GMM estimator does not rely on the assumptions of normality, homoskedasticity and serial correlation as required by the OLS estimator.

Blundell and Bond (1998) shows that first-differenced GMM may be subject to a large downward finite-sample bias if the time period is small, making the GMM estimator poorly behaved because the lagged levels of the variables are only weak instruments, especially when the data is highly persistent in a small T panel setting. According to Arellano and Bover (1995) and Blundell and Bond (1998), if we assume the variables are mean stationary, then additional moment conditions can be exploited to form a system GMM to alleviate the weak-instrument problem. A simple rule of thumb is to check if a from the first-differenced GMM lies in between those estimated by the pooled estimator and the within estimator. If the GMM α is close to or below the within estimator, it is likely the GMM estimator is also biased downwards due possibly to weak instruments.

5.4 THE SYSTEM DYNAMIC PANEL MODEL WITH GMM ESTIMATORS

Following Arellano and Bover (1995) and Blundell and Bond (1998), a system GMM can provide much superior finite sample properties and thus a more efficient estimator. Basically the system GMM makes supplementary moment conditions exist for the equation in level. Consider augmentation on the first-differenced GMM with:

$E[v_{it}\ \Delta Y_{it-1}] = 0$ for t=3,…,T

This allows the use of lagged first differences of the series as instruments for the equations in levels. For strictly exogenous explanatory variables, the appropriate level moment conditions would be

$E[v_{it}\ \Delta X_{it-1}] = 0$ for t=3,…,T and all s

While for weakly exogenous explanatory variables, the appropriate level moment conditions would be

$E[v_{it}\ \Delta X_{it-1}] = 0$ for t=3,…,T and all s ≥ 1

The system GMM basically used these assumptions under a stacked system of (T-2)equations in both the first-differences and the levels. In other words, the system GMM estimator combines the first differenced equations with suitably lagged first differences as instruments. We can then apply a Sargan test to verify if there is any over-identification problem.

5.5 SPECIFICATION TESTS ON PANEL MODEL

A list of specification tests is available o find out which of the panel regression settings is suitable for the dataset employed. From pooled to fixed or random effect, we can rely on F-test and LM test, respectively. To compare fixed or random effect, we can refer to Hausman test. To see if a dynamic specification is suitable, then the first order and second order autocorrelation rests are needed. In addition, a Sargan test can be employed to examine the validity of instrumental variables used in estimators.

5.5.1 FIXED EFFECT MODEL VERSUS POOLED MODEL: F TEST

In order to decide whether a fixed effect specification is superior to the pooled regression specification, a simple F test is conducted. The hypothesis to be tested is:

H_0: Pooled regression model

H_1: Fixed effect model

If F_0 is significant, the fixed effect model is the preferred model. Alternatively, one can also perform the Chi-square test that is equivalent to the F test.

5.5.2 RANDOM EFFECT MODE! VERSUS POOLED MODEL: BREUSCH-PAGAN LM TEST

The Lagrange multiplier (LM) specification test proposed by Breusch and Pagan (1980) can be used to test for significance of random effects over the pool regression. The null hypothesis for one-way firm random effect is that the firm variance component is zero

For two-way random effects, the LM test combines both the LM statistics of both firm and period variance components and the null hypothesis is that they are zero as given in the following equation:

$$LM = LM\eta + LM_{\xi} \sim X^2{}_2 \text{ under } H_0$$

5.5.3 RANDOM EFFECT MODEL VERSUS FIXED EFFECT MODEL: HAUSMAN TEST

If the null hypothesis is rejected in favour of choosing the fixed effect model, the next step is to verify whether a random effect model is more superior. The specification test proposed by Hausman (1978) is used to test for orthogonality between the random effects and the independent variables. If $E(\varepsilon_{it} \backslash Z_{it}) \neq 0$, the GLS estimator becomes biased and inconsistent. The Hausman test statistics is given by

$$H = (\hat{\delta}_{Fixed} - \hat{\delta}_{Random})'[Var(\hat{\delta}_{Fixed}) - Var(\hat{\delta}_{Random})]^{-1}(\hat{\delta}_{Fixed} - \hat{\delta}_{Random})$$

where δ_{FIXED} is the estimator for the fixed model, δ_{RANDOM} is the estimator for the random effect model, and Var denotes the variance. The hypothesis to be tested is:

H_0: Random effect model

H_1: Fixed effect model

When T is large, both the fixed effect and GLS estimators should not be significantly different (Hsiao, 2003).

5.5.4 GMM DYNAMIC PANEL SPECIFICATION: AUTOCORRELATION M_j TEST

For a first order dynamic panel specification where the lagged dependent variable is included as a regressor, if the errors in levels are serially independent, we can expect those in first differences will have first order serial correlation. However, in this case, second or higher order serial correlation should not occur. The m_j statistic proposed by Arellano and Bond (1 991)is employed. The autocorrelation m

m_j test is asymptotically distributed as N(0, 1) under the null or no autocorrelation. It is calculated from residuals in the first difference regression model. If the errors in level are uncorrected, we would expect m_1, the autocorrelation test of order one to be significant, but not m_2 the autocorrelation test for the second order.

5.5.5 VALIDITY OF GMM INSTRUMENTAL REGRESSION: SARGAN TEST

To test whether an instrumental regression is over identified, we may test the validity of the instruments by checking if the excluded instruments are uncorrelated with the error process. The null hypothesis is all instruments are uncorrelated with the error term. A strong rejection of the null hypothesis implies that the estimates are invalid, or the equation is over identified.

The Sargan test statistic is given as:

$$S = \hat{\varepsilon}'Z\left(\frac{1}{N}\sum_{i=1}^{N} Z_i'\hat{\varepsilon}\hat{\varepsilon}'Z_i\right)^{-1} Z_i'\hat{\varepsilon}$$

Basically $S = nR^2_{IV}$ is the number of observation and R^2_{IV} is the R^2 obtained from the regression of the residuals saved from the instrumental variable regression on all the exogenous variables, which include both instrumental and the control variables, S is distributed as X^2_{m-r} under the null hypothesis where m-r is the number of instruments or moment condition minus the number of endogenous variables or the parameter. Under GMM, the statistic will be identically zero for any exactly identified equation, and will be positive for over identified equations.

6.0 Data

6.1 DETERMINANTS OF COST OF EQUITY

After we identify the model to calculate the cost of equity, we proceed to investigate the potential determinant(s) of the firm's cost of equity on a sectoral basis. In general, firm specific factors can be categorized into two; variables measured based on accounting information only (accounting-based) and variables measured based on relations between market data and accounting data (market-based). These variables are actually financial ratios which are taken from a firm's income statement, balance sheet, or both. The use of financial ratios is popular because they enable interested parties to make relative comparisons of firms performance across different firms (cross-section analysis) or over time (time-series analysis).

Financial ratios are discussed in almost every basic finance textbooks and are divided into five basic categories for convenience. They are debt, activity, liquidity, profitability, and market ratios. Debt, activity and liquidity ratios mainly measure the risk factor of a firm. For example, debt ratios give indication on the debt position of a firm and the ability of the firm to service interest payments. Ratios under "liquidity" are often regarded as good leading indications of a firms cash flow. Low or declining liquidity could be a signal of financial distress and even precursor to bankruptcy. Last but not least, activity ratios show the efficiency of a firm in converting its various asset accounts, including inventory, into sales or cash. More often, activity ratios are used as a yardstick on the efficiency of a firm in allocating its resources.

On the other hand, ratios related to profitability are some measure of returns. The profitability ratios enable evaluation on a firm's profits with respect to sales, assets or its equity holders' investment. Appraisers will be able to gauge how well a firm makes investment and financing decisions. Market ratios are the only group in the five categories which capture both the risk and return factor of a firm. The market ratios also differ from the previous four groups of ratio in that they are market-based while the others are accounting-based. These market-based ratios provide insights into the assessment of investors in the marketplace on the firm performance in terms of risk and return. Should the firm's accounting ratios suggest that the firm has higher risk than its industry average, this information ought to be reflected in a lower stock price.

Since each debt, activity, liquidity, profitability, and market categories can be measured by few different financial ratios, we choose one ratio to represent each category. The selection is based on those previously used in the literature. As the number of potential determinants of cost of equity is overwhelming, we only choose the most cited or employed variable for each category. A total of seven potential independent variables have been identified. The additional two variables are firm size and stock liquidity which are shown to have a significant effect on the variations of cost of equity.

We consider seven variables where the first four variables (CR, DE, EPS and TAT) are characterized as accounting-based and the last three variables (MB, SIZE and SL) are characterized as market-based.

6.2 ACCOUNTING-BASED VARIABLES

a) Current Ratio, CR (positive/negative): Current ratio is normally used as an indication of the firm's ability to fulfil short-term obligations. Higher current ratio means the firm has more shorter term assets (cash, receivables and inventory) and hence is more capable to pay of its obligations as they are due. High liquidity also ensures that the firm is able to take on profitable investment when they become available. On the other , it could also mean inefficient use of funds. So it is debatable whether the sign should be positive or negative. Omran and Pointon (2004) found current ratio to be a significant factor in explaining cost of equity. Their results showed that higher current ratio is related to lower cost of equity. CR is defined as total current assets divided by total current liabilities.

b) Debt-to-Equity Ratio, DE (positive): Debt-to-equity ratio measures the amount of a firm's debt financing in relative to its equity financing. Modigliani and Miller (1958, 1963) established that cost of equity is a function of leverage (debt-to-equity ratio) and taxes (corporate and individual level). Expanding the study of Modigliani and Miller, Dhaliwal et al. (2006) provided evidence that cost of equity is negatively associated with corporate taxes but positively related to personal taxes. Ameer (2007) argued that the advantage provided by interest expense deduction diminishes after a certain point, and the additional financial risk associated with higher debt level outweighs the lower nominal cost of debt, thereby increasing the cost of equity. When a firm's financial risk increases, cost of equity also increases. DE is defined as total debt divided by common equity.

c) Earnings per Share, EPS (positive): Earnings per share have similar effect as dividend yield according to Fama and French (1988). The notion of using dividend yield to forecast returns is not new. Evidence to support the notion can be found in the study of Rozeff (1984) and Fama and French (1988). Their findings are in accord with the intuition that stock prices are low relative to dividends when discount rates (cost of equity) and expected returns are high. Therefore, a positive relationship between earnings per share and cost of equity is expected. EPS is defined as earnings available for common stockholder divided by number of shares outstanding.

d) Total Asset I urnover Ratio, TAT (negative): Ang et al. (2000) argued that asset turnover ratio measures the efficiency of management in utilizing assets. Firms with higher asset turnover ratio have lower cost of equity because it is a reflection of lower managerial agency problem. Their findings are supported by Singh and Nejadmalayei (2004) who suggested that managerial efficiency in utilization of firm resources has a positive effect on cost of equity. TAT is defined as total sales divided by total assets.

6.3 MARKET-BASED VARIABLES

e) Market-to-Book Ratio, MB (negative): Fama and French (1993) showed that book-to-market ratio is an important valuation measure for explaining average stock returns. The ratio may act as a proxy for distress risk factor since financially distressed firms are likely to have high book-to-market ratio. Gode and Mohanram (2003) also pointed out that higher book-to-market ratio reflects higher perceived risk. Ameer (2007) documented that book-to-market ratio is positively correlated to cost of equity. This study uses the market-to-book ratio available from Datastream. Following Guedhami and Mishara (2009), a negative relation is expected. MB is defined this the market value of the ordinary (common) equity divided by the balance sheet value of the ordinary (common) equity.

f) Firm Size, SIZE (negative): The well-known 'effect of a firm size on stock return variations is first embedded in Fama and French's (1993) three factor model. They found small firms have higher average returns than those of the large firms. Bloomfield and Michaely (2004) reported that analysts expect large firms to have slightly less risk and therefore there should be a negative relationship between size and the cost of equity. Hail and Leuz (2006) also found a significant negative relationship between firm size and the cost of equity. SIZE is defined as the natural logarithm of market value of a firm’s outstanding common stock at the end of each year.

g) Stock liquidity, SL (negative): Stock liquidity is an important attribute since highly liquid stocks can be bought and sold with minimal impact on stock prices. On the contrary, an illiquid stock will increase cost of trading because of the difficulty to trade the stocks. The influence of trading costs on investors, required returns was examined by Jacoby et al. (2000). Their studies indicate a direct link between liquidity and cost of equity. Following Chordia et al. (2001), the natural logarithm of annual trading volume is used as the proxy for SL.

6.4 DATA AND PROCEDURE

The sample for this study covers the period from 3 January 2005 to 31 December 2012. All data were collected from DataStream, which include the weekly prices of Shariah compliant stocks listed on the Main Board of Bursa Malaysia as well as the market indices. The choices of stocks were made based on

Shariah-compliant Securities list by the Shariah Advisory Council of the Securities Commission Malaysia.

We included Shariah compliant firms from seven sectors of the Main Board in Bursa Malaysia. After filtering out new firms which were listed after 2005 because they do not have a complete series of data for the full sample period, we have a total of 354 firms available for analysis. They are from Construction (28 firms), Consumer Products (54 firms), Industrial Products (129 firms), Plantation (21 firms), Properties (33 firms), Technology (12 firms) and Trading/Services (77 firms). Finance sector is excluded from the study because not all firm ratios will apply similarly to financial institutions. For example, a bank's strength is not gauged so much by its cash flow and debt-to-equity ratio but its tier 1 capital ratio and loan-to-deposit ratio.

For each variable that is to be used in the panel determinant regression, the eight year time series (2005-2012) for the 354 firms were stacked to construct pooled series. For the full sample, each of the pooled series contains 354 firms x 8 years = 2,832 observations. A similar procedure was used to stack the dependent variable, that is, the pooled cost of equity series.

Besides conducting panel regression analysis for the full sample, we also conduct the same analysis for all the seven sub-sectors. So we need to reconstruct a different set of pooled series. The length of the pooled series for each sector depends on the number of firms available. The following are the number of observations for the pooled series of each of the seven sectors for the panel regression analysis over 2005-2012:

1) Construction: 28 firms x 8 years = 224 observations
2) Consumer products: 54 firms x 8 years = 432 observations
3) Industrial products: 129 firms x 8 years = 1032 observations
4) Plantation: 21 firms x 8 years = 168 observations
5) Properties: 33 firms x 8 years = 264 observations
6) Technology: 12 firms x 8 years = 96 observations
7) Trading/Services: 77 firms x 8 years = 616 observations

All these pooled series were used for panel regression of both the static and dynamic models. These are three settings for the static panel model, that is, pooled model, fixed effect model, and random effect model. There are two settings for the dynamic panel regression, that is, GMM model and system GMM model. With eight sets of panel to be estimated, that is, for the full sample and for the seven sub-sectors, a total of 40 panel regression models were produced.

Finally, after obtaining the results, the full sample estimates were compared with the estimates for the seven sub-sectors to examine the sectoral effects of the cost of equity determinants. The estimates produced at the sectoral level can also serve as a robustness check for the full sample panel estimates. If the coefficient of a determinant variable is statistically significant for more than two sub-sectors with the condition it is also statistically significant for the full sample, it can be concluded that the variable is an important determinant of the cost of equity of Malaysian firms.

7.0 Interpretations

The section presents the panel regression estimations for ascertaining the determinants of cost of equity for Shariah compliant firms listed in the Main Board of Bursa Malaysia. The analyses cover the full sample, as well as on sectoral basis. The cost of equity used in this section is based on the semi-deviation of returns (downside risk) approach, as it is found to have relatively better explanatory power than other alternative cost of equity measures in explaining the actual stock returns. This is also in line with the findings by Estrada (2000, 2001).

As a start, the properties of the list of the explanatory variables are examined. This is done in great details in Section 7.1 to 7.2, where the descriptive statistics on the explanatory variables are discussed, and four unit root tests are carried out to ensure all the panel series have stationary property to avoid the problem of spurious regression.

The panel regression estimations of the determinant models are reported in Section 7.3 and Section 7.4. Three different settings from static panel models, that is, pooled, fixed effect and random-effect models and two dynamic panel models, that is, difference-GMM and system-GMM are estimated. The panel regressions are repeated for the full sample and sub-sector panel series to check for robustness of relationship in order to draw conclusions on the determinants cost of equity for Malaysian firms. We summarise the results in Section 7.5.

7.1 DESCRIPTIVE STATISTICS

Table7.1 reports the summary of descriptive statistics for the pooled series for all the firms from the full sample (comprising of 199 firms) as well as by sector. The average cost of equity for the full sample is 24.03 percent with average standard deviation of 11.46 percent. Three sectors, namely, Construction, Industrial Products, and Properties have higher average cost of equity than the full sample. These sectors also have larger standard deviation, except for the Properties sector which has a slightly lower average standard deviation of 11.40 percent. The Plantation sector and Consumer Products sector have the two lowest costs of equity with an average value of 20.32 percent and 21.36 percent, respectively. Therefore, the Construction, Industrial Products, and

Properties are sectors with higher risk among all sectors while the Plantation and Consumer Products are the less risky sectors.

Table 7.1 : Descriptive Statistics for the Pooled Series for Full Sample and by Sector

Statistics	COE (%)	CR	DE	EPS (RM)	TAT	MB (RM)	SIZE	SL
Full Sample								
Mean	24.0324	2.6872	0.6292	0.1382	0.7363	1.4563	5.0946	9.9064
Std. Dev.	11.4690	3.4106	1.0442	0.2419	0.5099	0.9586	1.5589	1.8701
No. of Observations	2832	2832	2382	2832	2832	2832	2832	2832
Construction								
Mean	25.4076	2.0417	0.7911	0.1079	0.5623	1.5438	5.1757	10.5007
Std. Dev.	11.7963	2.8183	0.9429	0.1547	0.3026	1.0931	1.4827	1.9307
No. of Observations	224	224	224	224	224	224	224	224
Consumer Products								
Mean	21.3666	2.4922	0.4771	0.2209	1.0062	1.3176	5.1902	9.3573
Std. Dev.	10.3043	2.4071	0.5453	0.3932	0.4513	0.7885	1.6129	1.5079
No. of Observations	432	432	432	432	432	432	432	432
Industrial Products								
Mean	25.2794	2.7467	0.6362	0.1074	0.7743	1.4868	4.6041	9.4922
Std. Dev.	12.0837	3.2022	1.1039	0.1851	0.4913	0.8330	1.2880	1.7095
No. of Observations	1032	1032	1032	1032	1032	1032	1032	1032
Plantation								
Mean	20.3226	5.5115	0.2605	0.2167	0.3906	1.3362	6.0308	10.1262
Std. Dev.	10.1679	7.2979	0.3658	0.2734	0.3523	1.1081	1.5787	1.7962

No. of Observations	168	168	168	168	168	168	168	168
Properties								
Mean	26.6963	3.2144	0.6087	0.0675	0.3671	2.1386	4.9056	10.3373
Std. Dev.	11.4000	4.4788	0.8980	0.1058	0.3417	1.2947	1.0199	1.7892
No. of Observations	264	264	264	264	264	264	264	264
Technology								
Mean	23.9319	1.954	0.4283	0.1694	0.8862	0.8972	5.2463	10.3679
Std. Dev.	9.6666	1.0537	0.4410	0.2652	0.3959	0.499	1.2004	1.6233
No. of Observations	96	96	96	96	96	96	96	96
Trading/Services								
Mean	23.1986	2.0772	0.8059	0.1469	0.7757	1.2980	5.6217	10.4528
Std. Dev.	11.0439	1.8066	1.3904	0.2196	0.5895	0.9018	1.8685	2.1330
No. of Observations	616	616	616	616	616	616	616	616

Note: This table provides descriptive statistics of cost of equity (COE) measured by SMSTD (semi-deviation) and explanatory variables : CR is current assets divided by current liabilities; DE is total debt divided by common equity; EPS is earnings available for common stockholders divided by number of shares outstanding; TAT is total sales divided by total assets; MB is market value of the ordinary (common) equity divided by the balance sheet value of the ordinary (common) equity; SIZE is natural logarithm of market value of a firm's outstanding common stock at the end of each year; and SL is a natural logarithm of annual trading volume. % means the explanatory variable is measured in percentage and RM stands for Ringgit Malaysia.

CR, DE and TAT are ratios that measure the risk factor of a firm. Majority of the firms in the sectors have an average CR of 2.0 to 2.75 times. It means that for every RM1 of current liabilities, a firm holds at least RM2 of current assets. This is an indication of the firms' ability to satisfy claims from short-term creditors wholly with current assets. Interestingly, the Plantation sector has a much higher CR of 5.51 compared to other sectors, probably because the sector uses less debt as indicated by its average DE of 26 percent. For the full sample, DE is around 0.63, showing that Shariah compliant Malaysian firms generally use a larger portion of debt in relative to their equity financing. Ameer (2007) found the average debt-to equity ratio to be around 0.75, which suggests that firms in the Southeast Asian countries tend to have higher debt level in their capital structure. The effectiveness of firms in using their total assets in generating sales as measured by TAT for the full sample is 0.73 times. This indicates that RM1 worth of asset is needed to generate every 73 cents of sales. The findings seems to support the concerns over inefficient allocation of capital in Shariah compliant Malaysian firms.

EPS is the ratio used in this study to measure profitability or the return factor of a firm. This ratio represents the Malaysian ringgit earned on each common stock. For the full sample, the average EPS is about RM0.14. It means investors or commons stockholders are earning 14 cents for every common stock that they hold. Two sectors that provide higher earnings for their investors are the Consumer Products and Plantations. Their average EPS are RM0.22 and RM0.21, respectively. The reason could be that the return on these two sectors are less sensitive to the slow economic growth experiences by Malaysia during the sample period. It is not difficult to see why, Firms in the Consumer Products sector manufacture products such as textile, food and beverage, which are meant for consumer use and therefore their revenues are more likely to remain stable during different phases of the economy cycle.

MB is categorized under the market ratios in the five basic categories of financial ratios. It measures both the risk and return factor of a firm. Shariah compliant Malaysian firms have a tendency to trade at prices above its book value as indicated by the average MB ratio of RM1.45 forthe full sample. It means that investors are willing to pay RM1.45 for each RM1.00 of book value of the firm's stock. Consistent with the findings for Plantation where the sector shows lower risk and higher return, investors are willing to pay RM1.33 for eachRM1.00 of book value of the stocks. Nevertheless, the Technology sector which has been shown to have a lower DE, higher EPS and higher TAT than the full-sample average, has a MB ratio of 0.89. On the other hand, the Construction sector has a MB ratio of 0.89. On the other hand, the Construction sector has a MB ratio of 1.54 even though it has a higher DE, lower EPS and a lower TAT than the full-sample average. It seems that MB does not reflect well on what is suggested by the accounting ratios for some sectors.

The range of the other two variables, SIZE and SL, is not large among the sectors. For the full sample, SIZE has an average of 5.09 while the range across sectors is within 4.60-6.03. Firms under the Construction, Consumer Products, Plantation, Technology and Trading/Services sectors are generally larger in terms of market capitalization than the other sectors. The average for SL is 9.90. The Construction sector has stocks that are most liquid, with an average SL of 10.5. The SL figures for Plantation (10.12), Properties (10.33), Technology (10.36) and Trading/Services (10.45) are not much lesser than the Construction sector either. Even though the other two sectors, Consumer Products and Industrial Products, have a lower SL of 9.35 and 9.49, respectively, their figures are quite close to the full sample average. Basically, the sectors do not differ much in terms of their stock liquidity.

7.2 UNIT ROOT PROPERTIES OF THE POOLED SERIES FOR FULL SAMPLE AND ACROSS INDUSTRIES

The stationary properties of all the variables need to be established, before the panel regression models can be estimated. We conducted four unit root tests with two different model settings, namely model with intercept only, and model with intercept and trend. All the four tests have a null hypothesis of a unit root. The unit root test of Levin et al. (2002) is based on a common unit root in the cross section units. The tests of Im et al (2003) together with ADF Fischer and PP-Fischer tests which are proposed by Maddala and Wu (1999) and Choi (2001) respectively, allow each cross section units to have a varying unit root process.

Table 7.2 reports the unit root test results for the full sample. The results for the models with intercept only are reported in panel A, while the results for the models with intercept and trend are reported in panel B. For most part, the results indicate no unit root process. In panel A for models with intercept, all four tests consistently reject the null hypothesis of unit root except for one case, that is, the unit root test of Im et al. (2003) on SIZE. In panel B for models with intercept and trend, again the unit root test of Im et al. (2003) fails to reject the null hypothesis of individual unit root in four cases (CR, TAT and SIZE), while the ADF Fisher test do not reject the null hypothesis of individual unit root for DE and TAT. Taking into consideration all the results of the different settings, we can conclude that each of these panel series are stationary at level, implying they are all I(0) series in general.

Table 7.3 to 7.9 report the unit root test results for seven sectors. Overall, the unit root tests show a relatively weaker result against unit root as compared to the full sample. In panel B of most of the tables, the unit root tests of Im et al. (2003) and ADF Fischer fail to reject the null hypothesis of individual unit root for many variables. This is true for all sectors, except for Consumer Products and Industrial Products, to a lesser extent. For the common unit root test of Levin et al. (2002) with the model with intercept only, almost all of the sectoral panel series are found to be stationary. A few exceptions include EPS and SIZE in Table 7.6 for the Plantation sector, MB in Table 7.7 for the Properties sector and COE in Table 7.8 for the Technology sector. However, these panel series are all shown to be stationary when the model with intercept and trend is used. For the individual unit root tests, on all variables across all the seven sectors, at least one of the tests rejected the null hypothesis of individual unit root. The only exception is the Plantation sector, where EPS and SIZE do not show evidence of stationary under the individual unit root tests. However, both the series still show stationary property under at least one common unit root test setting. All in all, we still conclude that the panel series of each of the sectors is stationary at level, and they can be treated as I(0) series. The results allow for the use of variables in level for the regression analysis at the sectoral level.

7.3 ESTIMATES FOR STATIC PANEL REGRESSION MODELS

The three estimated static panel regression models (pooled, fixed-effect and random-effect) are reported in Table 7.10 for the full sample. The results for the different sectors are given in Table

7.11 to Table 7.17. For the full sample static panel regression, the sign of the coefficients estimated from all three static models are highly consistent. Most of the estimated coefficients from the three models are quite close in value. Both R^2 and adjusted R^2 suggest that all the static models have reasonably good explanatory power on the cost of equity of Shariah compliant Malaysian firms, but the fixed effect models has the strongest explanatory power among the trio. Based on adjusted R^2, the fixed-effect model explains about 59 percent of the variation of the cost of equity. The pooled and random-effect models only manage to produce an adjusted R^2 value of 27 percent and 18 percent, respectively.

The model selection tests show that the fixed-effect specification is the better model as compared to the simple pooled regression model and random-effect model. First, the test for redundant fixed effect rejects the null hypothesis suggesting the need of fixed effect over a simple pooled regression. Then, the Breusch-Pagan LM test also rejects the null hypothesis and shows that the random-effect model is also preferred over the pooled model. Finally, the Hausman test that compares fixed-effect against random-effect model rejects the null hypothesis of random effect model, suggesting that the fixed-effect specification is preferred.

The estimates of the three static panel models for the full sample show that five of the determinant variables are statistically significant at 1% level in the fixed-effect model, while all determinant variables are found to be statistically significant at the 1% level for the pooled model. As for the random-effect model, six statistically significant determinant variables are found including EPS which is significant at the 5% level.

The estimates of the three static panel models for the full sample show that five of the determinant variables are statistically significant at 1% level in the fixed-effect model, while all determinant variables are found to be statistically significant at the 1% level for the pooled model. As for the random-effect model, six statistically significant determinant variables are found including EPS which is significant at the 5% level.

The five coefficients that are statistically significant based on robust standard errors in the fixed-effect model are DE, EPS, TAT, SIZE and SL. At this point, we shall not draw any conclusion on whether these are the significant determinants for the cost of equity of Shariah compliant Malaysian firms. Instead we examine further the results from sectoral based estimation in Table 7.11 to Table 7.17 to obtain a more robust conclusion on the significance of the determinants using the static panel regressions.

The results reported by sector in Table 7.11 to Table 7.17 show some variations in the panel estimation, where the number of significant determinants varies from sector to sector, as well as the magnitude of the significant coefficients. In addition, the best model selected for each sector is also different. However, the fixed-effect model has consistently been able to explain 50 percent to 70 percent of the variation in cost of equity while the other two panel models, that is, the pooled and random-effect models explain less than 40 percent as indicated by the value of $R^2$and adjusted R^2. The results of the model selection tests are split between random effect and fixed-effect models. For four sectors, namely, Construction, Consumer Products, Properties and Trading/Services, random effect model is suggested by the model selection tests. On the other hand, fixed-effect model emerges to provide better specification for the Industrial Products sector, the Plantation sector and the Technology sector.

For the three sectors with the fixed-effect model, EPS is statistically significant at the 5% level and SIZE is statistically significant at 1% level for the Industrial Products sector. For the Plantation sector, CR and TAT, are statistically significant at the 10% level. The variables SIZE and SL for the Technology sector are statistical significant at the 5% level and 1% level, respectively. Among the significant variables, the sign for TAT and SL are not according to expectation.

For the other four sectors where the random effect model is selected, the determinant variables that are statistically significant vary according to sectors. The Construction sector has three significant determinants, that is, TAT, SIZE and SL. SIZE is significant at 1% level while TAT and SL are significant at the 10% level. The Consumer Products sector has four significant determinants and they are DE, TAT, SIZE and SL. Among them, SIZE and SL are significant at the 1% level, DE is significant at the 5% level and TAT is significant at the 10% level. Four significant determinants, namely CR, DE, SIZE and SL, are found for the Properties sector.

SIZE, SL and CR are significant at the 1% level, while DE is significant at the 5% level. The Trading/Services sector has five significant determinants (CR, DE, TAT, SIZE and SL). Except for CR which is significant at the 10% level, the rest are significant at the 1% level. All of the statistically significant coefficients have consistent sign across sector and the signs are according to expectation with the exception of SL.

7.4 ESTIMATES FOR DYNAMIC PANEL REGRESSION MODELS

The estimates of the GMM model are reported in Table 7.18 to Table 7.25. Generally, the cost of equity panel model can fit into a dynamic setting if at least one of the lagged dependent variables, that is, the lagged cost of equity is significant. We find this is true for the full sample and the dynamic panel model, for all the sectors. This suggests evidence of persistency in the cost of equity.

Since there are two model settings under the dynamic GMM method, a selection needs to be made. Three diagnostic tests, that is Arellano and Bond (1991) autocorrelation tests of first order and second order, and the Sargan test were considered. However, if both difference-GMM and system-GMM models passed all the three diagnostic tests, we shall refer to the results of the system-GMM that has superior finite sample properties, especially for the subsector analysis which involves a smaller number of firms.

For the full sample estimates reported in Table 7.18, both the two dynamic panel specifications, that is, the difference-GMM and system-GMM models, passed the diagnostic tests on autocorrelation of order one and order two. We can reject the absence of first order serial correlation (m_1) but do not reject the absence of second order serial correlation (m_2), which is consistent with our expectation. However, the Sargan test rejects the null hypothesis of no over-identification for both the models, implying over identification, and the estimates are not acceptable. Since both difference-GMM and system-GMM models are not acceptable, the fixed-effect model, selected as the best specification from the static models will be used for the full sample.

The sectoral estimates are reported in Table 7.19 to Table 7.25. The diagnostic test results are first examined. The autocorrelation tests of order one and order two are performing according to expectation. In all the tables, the absence of first order serial correlation (m1) is rejected while the absence of second order serial correlation (m2) is not rejected. For each of the sectors, the Sargan test does not reject the null hypothesis that all the instruments used are uncorrelated with the error, implying that the estimates from both the difference-GMM and system-GMM are valid and acceptable. As both the difference-GMM and system-GMM passed all the three diagnostic tests, the estimates from the system-GMM model shall be referred to. There is, however, one more criterion to be fulfilled. If at least one of the lagged dependent variables in the system-GMM model is significant, the estimated system-GMM model will be chosen. Otherwise, the best static model selected for each sector as reported earlier will be used for reference.

Based on the aforementioned criterion, significant lagged dependent variable(s) has (have) been identified for four sectors, which are Construction, Consumer Products, Plantation and Properties. For these sectors, the system-GMM model is selected. On the other hand, no significant lagged dependent variable is found for the Industrial Products sector, the Technology sector and the Trading/Services sector. For these sectors, the best static model selected earlier is the fixed-effect model for Industrial Products and Technology and the random effect model for Trading/Services.

7.5 SUMMARY OF THE DETERMINANTS OF COST OF EQUITY

Reconciling the results and findings from the static panel regression models in Section 7.3 and the dynamic panel regression models in Section 7.4, the estimated coefficients of the significant variables from the selected models for the full sample and each sector are reproduced in Table 7.26 so that a conclusion can be drawn on the overall significance of each of cost of equity determinants.

7.26: Summary of Analyses on Determinants of Cost of Equity

Sector	Full Sample	Construction	Consumer Products	Industrial Products	Plantation	Properties	Technology	Trading/ Services	Majority
Model	Fixed	System	System	Fixed	System	System	Fixed	Random	
Intercept	33.1146	ns	36.1235	47.5649	ns	ns	ns	29.8045	Positive
CR	ns	0.4515	ns	ns	ns	ns	ns	-0.3623	Mixed
DE	0.005	-0.0340	ns	ns	ns	ns	ns	0.0117	Positive
EPS	2.6426	ns	ns	4.9596	ns	ns	ns	ns	Positive
TAT	2.0697	-12.1568	ns	ns	ns	8.9611	ns	-4.7343	Negative
MB	ns	ns	ns	ns	ns	ns	ns	ns	ns
SIZE	-3.752	ns	-3.7746	-5.6267	-1.0911	ns	8.594	-3.6812	Negative
SL	1.0622	ns	ns	ns	ns	ns	3.5005	1.6693	Positive

Note: CR is current assets divided by current liabilities; DE is total debt as percentage of common equity; EPS is earnings available for common stockholders divided by number of shares outstanding; TAT is total sales divided by total assets; MB is market value of the ordinary (common) equity divided by the balance sheet value of the ordinary (common) equity; SIZE is natural logarithm of the market value of a firms' outstanding common stock at the end of each year; and SL is natural logarithm of annual trading volume.

For the full sample, the cost of equity is determined by DE, EPS, TAT, SIZE and SL. Consistent with the theory that higher debt is associated with increased financial risk, firms with higher DE are expected to have a higher cost of equity as indicated by the positive relationship between DE and COE. The sign for EPS is also as expected, indicating an increased cost of equity for firms with higher EPS. The negative coefficient for TAT suggests that firms with higher asset turnover ratio have lower cost of equity, thus supporting the framework of Ang et al. (2000). Managerial efficiency in utilizing firm resources seems to have a positive effect on the cost of equity. In line with the findings of Hail and Leuz (2006) and Chen et al. (2004). SIZE is found to be negatively related to cost of equity. Our result supports the view that larger firms are able to gain economies of scale in raising funds and thus should have a lower cost of equity compared to smaller firms. Nevertheless, our observation for SL is inconsistent with the literature and reveals unexpectedly that firms with higher stock liquidity have higher cost of equities. This could be due to the moderate collinear relationship between SL and SIZE, as the trading volume for firms with a larger SIZE tend to be higher. The other possible explanation is that higher trading volume tends to be associated with higher volatility that may increase perceived risks of the firms (Dichev et al., 2011).

For the individual sectors, the Trading/Services has the highest number of variables affecting cost of equity. Five variables, namely, CR, DE, TAT, SIZE and SL are to be important determinants for the cost of equity of the sector. Consistent with the finding of Omran and Pointon (2004). CR is negatively related to COE. It means that firms in healthier financial position to fulfill short-term obligations will have lower cost of equity. Obviously, liquidity is likely to be more important to the Trading/Services sector than others as customers are more likely to pay by cash since firms with businesses related to utility, newspaper, food and department stores are listed under this sector. In the Construction sector, the cost of equity is significantly determined by CR, DE and TAT. In contrast to the Trading/Services sector, the sign of CR for the Construction sector is positive, suggesting that higher liquidity is related to higher cost of equity. This result, nonetheless, seems to be supported by a negative sign for DE. Higher debt in a firm seems to be views favorably by investors, probably as an indication of higher future growth. Therefore, high CR in this case could indicate inefficient use of funds, which is also suggested by the variables TAT that has a negative relationship with COE.

SIZE is the only significant variable for the Consumer Products sector and the Plantation sector. Some of the firms listed under the Consumer Products sector are multinational corporations (MNCs) such as Nestle and Dutch Lady, all of which are large firms. Therefore, firm size could affect sustainability for other smaller local-based firms and the ability to borrow funds at lower cost. SIZE is also an important variable for the Technology sector along with SL. Estimates from the fixed-effect model reveal a positive sign for SL, which is not as expected. As technology firms are mostly viewed as risky, high SL could be interpreted as a negative signal. The only significant variable for the Properties sector is TAT, but the sign is not as expected. Higher managerial efficiency in utilizing firm's resources to generate sales is viewed unfavorably by investors for this sector as indicated by the positive sign for TAT. Contrary to the findings for the other sectors, EPS is found to be an important determinant for cost of equity in the Industrial Products sector apart from SIZE.

In general, with the exception of stock liquidity, the sign of the estimates produced by the full sample and across sectors is consistent with the expected sign for most cases as discussed earlier. Firm size is an important determinant for most of the sectors and its effect on cost of equity is consistently negative. In addition, the results in Table 7.26 show that the determinants of cost of equity are not necessarily the same across different sectors. This supports the findings of other studies (Bekaert and Harvey, 1995; Hardouvelis et al. 2007) which show that the sectoral effects are becoming more important.

8.0 Conclusions

Relatively few studies have focused on examining the effect of firm-specific risk factors on cost of equity. Empirical evidence show that relevant estimation models for cost of equity for emerging markets could be different from those of developed markets. Therefore, the determinants affecting the cost of equity in emerging market might differ from developed markets as well. This study enables inferences to be drawn on whether factors that were found to be affecting developed markets were also affecting cost of equity of firms in an emerging market.

From the list of potential determinants, debt-to-equity ratio, earnings per share, total asset turnover ratio, firm size and stock liquidity were found to have significant explanatory power on cost of equity. Their coefficient signs are also consistent with the literature except for stock liquidity. It is found that firms with higher liquidity have higher cost of equity. A possible explanation for the inconsistency could be due to a moderate collinear relationship between stock liquidity and firm size, as larger firms tend to have higher liquidity. The study also reveals some interesting findings on the relationship between cost of equity and its determinants at the sectoral level. It turns out that firm size is an important determinant for most for most sectors, followed by total asset turnover ratio.

Current ratio and debt-to-equity are important determinants in only two sectors, namely, the Construction sector and the Trading/Services sector while stock liquidity were found to be significant for the Technology sector and the Trading/Services sector. Significant effect of earnings per share on cost of equity was only found for one sector, which is the Industrial Products sector. Apparently, the number of important variables varies across sector. The relationship of the variables with cost of equity may also differ by sector, as shown in the case of current ratio, debt-to-equity ratio and total asset turnover ratio.

As a whole, the determinants for cost of equity of Shariah compliant Malaysian firms are debt-to-equity ratio, earnings per share, total asset turnover ratio, firm size and stock liquidity. From these five determinants, three of them, namely, debt-to-equity ratio, earnings per share, total asset turnover ratio, are accounting-based attributes. This suggests that accounting-based attributes are important factors for cost of equity.

9.0 Implications of the Study

Some of the results from this study might be useful to be taken into consideration in the design of an appropriate framework to support the Malaysian economic growth. One of which is the effect of firm size on cost of equity. A recent study by Abdul Karim (2010) found that investment spending of smaller firms is not only more sensitive to interest rates but also relied on internal fund as a cheaper source of financing. Our results provide empirical support to Abdul Karim's (2010) study. We found that cost of equity, which measures cost of external financing, is higher for smaller firms. Hence, smaller firms have to rely more on internal financing since it is cheaper and easier to obtain. Once internal fund is depleted, smaller firms may have to rely on external funding such as bank loans for their business agenda. Therefore, the government s monetary policy will have a bigger impact on smaller firms where interest rates are involved. Through monetary policy such as lowering interest rates during an economic slowdown would ensure continuous accessibility to sufficient funding that are even more important for smaller firms to remain stable and resilient. In addition, the policies that promote firm growth will lead to a healthier financial market.

Accounting-based attributes are found to be important determinants of cost of equity. These attributes are only as good as the accounting information provided by firms. Hence, the amendments to the Capital Market Services Act (CMSA) to strengthen the enforcement powers of the Securities Commission (SC) on corporate governance transgressions are deemed to be appropriate and timely. Under the Capital Markets and Services (Amendment) Act 2010, a person influencing, coercing, misleading or authorizing any person engaged in the preparation or audit of financial statements of a private limited firm to do anything which causes the financial statements or audited financial statements to be false or misleading is committing an offence. Upon conviction, the person may face up to ten years of imprisonment or fine of not exceeding ten million ringgit. On top of that, an independent Auditor Oversight Board was established through the tabling of amendments to the Securities Commission Act1993. Steps were taken by the authority to strive for better corporate governance with these amendments. Coupled with effective enforcement, these policies will ensure that investors have access to unbiased financial statements that would help them to make informed investment decisions.

An examination on the cost of equity determinants would assist firms in reviewing their cost of equity estimates. The accuracy of cost of equity estimates is vital in achieving effective strategic decision making and firm performance evaluation. It is found that larger firms are associated with lower cost of equity, since larger firms are usually in a better position to raise external funds on favourable terms. The benefit of acquiring funds at a lower cost is that, ceteris paribus, a better ability to achieve higher profit for the firm. Hence, it can be deduced that while managers are maximizing firm growth, they are also generating greater profits potentials for the firm. For that reason, constant communication with stockholders on the growth strategy for a firm is essential so that it can be viewed favourably by stockholders.

Last but not least, firms will benefit greatly if the government monitors the sector indicators in formulating their policy. For example, size is not shown to affect cost of equity for firms in the Construction sector and the Properties sector. Therefore, easing monetary policy may not benefit firms in these two sectors during economics lowdown. Other policies such as those to boost demand may be more beneficial for the Construction sector as it is shown that a higher turnover asset ratio is related to a lower cost of equity. While market-targeted policies are important, they need to also address the sectoral differences in order to maintain the dynamic balances of the different sectors in the stock exchange. Given the closeness and interdependence of the sectors, the failure of one sector to perform can affect the performance of the whole market.

10.0 Future Recommendations

The selection of the potential determinants is based on the literature as well as from the five categories of financial ratios, namely, liquidity, activity, debt, profitability and market ratios. As it is assumed in this study that all ratios in a category measure the same firm characteristic, only selected variables were included in the study. Considering that firms in different industries may use ratios that focus on aspects peculiar to their industry, different ratios could have been selected for each of the sectors. There are possibilities that the variables selected in this study may not represent all the sectors simultaneously.

The list of potential determinants selected from the five categories of firm financial ratios could be expanded for future research. The study could also be extended to other emerging markets to allow for a cross-country comparison and to test the robustness of the results in other emerging economies.

It might also be interesting to investigate further the relationship between stock liquidity and cost of equity for Shariah compliant and non Shariah compliant Malaysian firms. Conventional wisdom states that firms with highly liquid stocks should experience lower cost of equity because their stocks can be bought and sold easily. Nonetheless, with a positive relationship, it means that firms with highly liquid stocks have higher cost of equity. A possible explanation is that although these firms have high stock liquidity, they may actually be experiencing loss in their income statements. If that is the case, it might be worthwhile to check for possible churning activities. Whatever the case may be, it is a puzzle that is worth investigating.

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