A Comparative Analysis of the Firm Specific Determinants of Syariah Compliant Versus Non-Syariah Compliant Firms in Bursa Malaysia

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Abstract

This paper aims at investigating two issues. Firstly, whether there is a significant difference in returns between Syariah compliant and non-Syariah compliant firms listed on the Malaysian stock exchange, Bursa Malaysia; and secondly, whether both types of firms react differently to the same selected firm specific variables. Using panel data techniques, we analyse three hundred (300) firms in Bursa Malaysia for the period from 2000 to 2006. The determinants of stock returns used are market capitalisation, market-to-book ratio, price-earnings ratio, market risk and total debt. The results indicate that there is no significant difference between Syariah compliant firms and their counterparts. In addition, using three (3) different models for estimation (i.e. fixed effect, pooled and random effect models), it is found that the fixed effect model is the best model that fits the data. For Syariah compliant firms, it is found that size and market-to-book ratios are the most significant variables explaining returns. However, for non-Syariah compliant firms, market-to-book ratio and market risk (beta) are the most significant variables influencing returns.

Keywords: Firm Specific, Fixed Effect, Panel Data, Syariah Compliant

JEL Classification: G11, G12

1. Introduction

The stock market is a place for investors to invest and earn attractive returns from their investment. Theoretically, the value of any stock is profoundly determined by the present value of a firm's expected future cash flows,

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which in turn is influenced by macroeconomic factors such as interest rate, inflation rates and economic growth. Accordingly, the majority of stock market indices, irrespective of whether they are Islamic or conventional stock market indices, are sensitive to changes in these microeconomic and macroeconomic variables. This notion is also supported by the fact that the major difference between Islamic indices and conventional stock indices is purely the selection criteria for enlisting or delisting of stocks in the Islamic indices. In Malaysia, the criteria are designed by the Syariah Supervisory Board (SSB) which is guided by the tenets of Syariah in recommending the inclusion or exclusion of a firm from the index.[1]

A rational investor maximises his utility by maximising his wealth and minimising the risk. A rational investor who wants to maximise his utility will choose the highest possible return for a given level of risk, which can be achieved by constructing a well-diversified portfolio. This applies to both Syariah and non-Syariah investment. However, Rudd (1981), Teper (1991), Johnson and Neave (1996), and Langbein and Posner (1980) argue that compared to non-Syariah compliant investment, the expected return from Syariah investment is lower. Besides having less diversified portfolio, Syariah investment is more expensive to administer and monitor than non-Syariah investment. For example, not all stocks listed on the stock exchanges are permissible for Muslims to invest. Investing in Syariah compliant stocks is different from the conventional stocks as Syariah compliant stocks are heavily based on the Islamic principles of transactions (Mu'amalat). This shows that the investment has to go through a strict screening process. Whether the stringent screening process affects the relative return on investments in Syariah compliant securities is an interesting research topic that this study explores empirically.

1.2 Rationale of the study

In Malaysia, the Syariah Supervisory Board excludes all firms that are non-Syariah compliant from the Islamic index. Since portfolios should be well diversified, the exclusion of certain firms narrows the pool of stocks that an investor can use to diversify against unsystematic risks. Therefore,

[1] Firms are excluded if they deal with *Riba*, indulge in gambling, manufacturing or selling products forbidden by Islam, and involve an uncertainty (*Gharar*) element in their transactions. In addition, firms dealing in conventional insurance and non-Syariah approved securities are also excluded. However, firms with both Islamically permissible and non-permissible activities are scrutinised as follows: The core activity of the firm must be permissible. The public perception of the firm must be good. The element of non-permissibility activities, if any, is small and involves things such as common plight and custom, and the firm in general serves the benefit (*Maslaha*) of the Muslim community.

investors in only Syariah compliant firms may face the under diversification issue and yield lower returns and face higher risk compared to their counterpart (Johnson & Neave, 1996). Comparatively, the non-Syariah compliant index is well diversified. Since the screening criteria is theorised to cause Syariah firms to yield lower returns and higher risk, the reaction of Syariah firms may be influenced differently by the same firm specific factors as the non-Syariah firms. Therefore, this study has two objectives. Firstly, to examine whether there is a significant difference in returns between Syariah and non-Syariah firms in the same stock market. Secondly, to examine whether Syariah and non-Syariah firms react differently to the same selected firm's specific factors. Based on these two (2) objectives, the following research questions are developed:

(1) Is there a significant difference in stock market returns between Syariah and non-Syariah firms?

(2) Do the returns on Syariah stocks and non-Syariah stocks react differently to the selected firm-specific factors?

The findings of this study will help investors to decide firstly, whether there is a difference in returns between these firms. Secondly, the findings will indicate what factor each investor should consider when selecting firms to invest in. Thirdly, the findings of this study will be compared with previous studies conducted in developed and developing markets on the reaction of returns to each factor. Moreover, this study will show whether the screening criteria employed in Malaysia has any effect on the significance of these factors. In addition, to the best to our knowledge, this is the first study that examines firm specific factors influencing non-screened firms and to compare them to their counterpart.

The study is organised in the following manner. The next part discusses the existing literature on the impact of firm specific variables on non-screened investments. Section 3 describes the methodology, the sampling, the definition of the variables, the hypotheses and the model. Section 4 presents the empirical results of the study. Finally, section 5 concludes.

2. Literature review

Many studies have investigated the factors affecting the cross-section of stock market returns, most of which were conducted in the developed countries (Fama & French, 1992, 1993 and 1996; Chan, Hamao, &

Lakonishok, 1993; and Berkowitz & Qiu, 2001); however, few were done in emerging markets (Claessens, Dasgupta, & Glen, 1995; Chui & Wei, 1998; and Fama & French, 1998). The most commonly used factors in these studies were *size*, *book-to-market ratio*, *price-earnings ratio* and *turnover*. In some studies, some factors proved significant; among which the most significant factors were *size* and *book-to-market ratio*. This section discusses the studies conducted in both developed and developing markets.

2.1 Developed markets

The most cited study that investigated the multifactor model of stock returns was that of Fama and French (1992). It was not the first to question the validity of the Capital Asset Pricing Model (CAPM). However, it was among the first to include size, book-to-market ratio and price-earnings ratio factors collectively. The researchers also investigated a longer interval of data in the United States (U.S.), i.e. data from 1963 to 1990 of firms listed on the New York Stock Exchange (NYSE), American Stock Exchange (AMEX) and National Association of Securities Dealers Automated Quotations Systems (NASDAQ). Using size, book-to-market ratio, beta, leverage ratio and price-earnings ratio with return, they concluded that beta did not explain any variation in the returns. In addition, size and book-to-market ratio were the most significant factors in explaining the variations in returns. On the other hand, price-earnings ratio and leverage ratio impact became insignificant when size and book-to-market ratio were included in the model; and thus, concluding that size and book-to-market were the most relevant variables explaining stock returns.

Fama and French (1993) studied the common factors in both stock and bond returns from 1963 to 1991 on a monthly basis. Grouping stocks according to size differences and book-to-market ratio differences resulted in twenty five (25) portfolios to study. They chose three (3) factors to explain the stock returns and two (2) for the bond returns. They applied statistical analyses such as multiple regressions on various models, with varying variables to check the robustness of their model and to ensure that there was no misspecification in the variables included. After various regressions, they concluded that three (3) factors related to stock returns and two (2) factors related to bond returns explained the variation in the stock returns collectively. However, most of the variations were explained by size, book-to-market ratio and bond factors. In the bond market, they found that only unexpected change in the interest rate and default risk explained most of the variation in the bond returns. Only in the low-grade bond, they found that the same factors explaining stock returns were also explaining bond

returns. The previous relationship of negative effect of size and positive effect of book-to-market ratio on the stock returns was confirmed.

One of the comprehensive studies done was by Fama and French (1996) where they examined many issues concerning the CAPM model. Applying Fama and French (1993)'s three-factor model, they examined market beta, size, book-to-market ratio, price-earnings ratio, sales growth, long term past returns and price to cash flow effects in explaining the variation in stock returns. In addition, they investigated the existence of long run reversal and short run continuation of returns. At the end, they concluded that all the factors affect stock returns. Further, they found that there was a reversal effect, but not a continuation effect in stock returns.

Another work by Fama and French (1998) re-examined whether there was a value premium in thirteen (13) developed and sixteen (16) emerging markets from 1975 to 1995 and 1987 to 1995 respectively. They used several variables to formulate their portfolios including book-to-market ratio, price-earnings ratio, cash flow to price and dividend yield. They used two (2) models, namely, CAPM and ICAPM (inter-temporal CAPM or two-factor Arbitrage Pricing Model) and compared between their results. They found that value premium existed in both markets and ICAPM was better in explaining the variation in the stock returns.

However, contrary to Fama and French (1998)'s findings, Loughran (1997) who investigated why the value and growth firms did not exhibit impressive performance difference between AMEX, NYSE and NASDAQ stocks found that (a) when using value weighted returns, growth firms outperformed value firms by huge difference; and (b) value firms performed the best in the month of January. This was justified by the rebalancing hypothesis and microstructure considerations. The explanation for the microstructure was that value firms have lower stock prices; thus, they were under higher risk of miscalculations between bid and ask prices. However, the reasoning behind the rebalancing hypothesis or window dressing was that fund managers of value firms reinvested the end of the year tax loss[2] selling proceeds to rebalance their portfolios at the beginning of the year (i.e. January), and as a result of this reinvestment, the value firms received a boost. Moreover, Loughran (1997) found that when the month of January was excluded, the size and the book-to-market ratio did not explain the variation in the stock returns. Size had no impact on returns when the month of January was excluded from the analysis. However, according to Loughran (1997), small growth firms earned lower returns

[2] Tax-loss selling was a process of selling securities at a loss to offset a capital gains tax liability.

because they were characterised as being heavily listed in NASDAQ, newly listed, being highly de-listed, and had poor performance.

Elfakhani, Lockwood and Zaher (1998) studied the relationship between returns and market beta, firm size and book-to-market ratio in the Canadian stock market from 1975 to 1992 with the effect of turn of the year, and in two (2) sub-periods to test the tax-loss selling hypothesis. It was typically used to limit the recognition of short-term capital gains which were normally taxed at higher federal income-tax rates than long-term capital gains. The rationale behind dividing the period into two (2) sub-periods was because taxes on capital gains were reduced in 1985 (Elfakhani et al. (1998). Utilising Fama and French (1992)'s model, Elfakhani et al. (1998) created twenty five (25) portfolios by crossing beta with the firm size. Elfakhani et al. (1998) concluded that there was no significant market beta effect on returns while size and book-to-market were significantly related to returns. In addition, Elfakhani et al. (1998) found the January effect in firm size for all the periods; however, the returns fell post-1984, and this was contrary to the tax-loss selling hypothesis where returns would increase when tax was decreased. On the other hand, book-to-market effect was only apparent post-1984.

The results in Elfakhani et al. (1998) were contrary to the findings by Berkowitz and Qiu (2001) where they studied the common risk factors from bond and equity markets on the stock returns by applying the Fama and French (1993)'s model in the Canadian stock market. They found that market beta, size and book-to-market ratio were the strongest factors affecting returns while the two (2) bond market factors did not have explanatory power on stock returns. However, when dividing the firms by industries, it was concluded that market beta was the strongest and the most significant factor in explaining returns followed by size premium where it was negative for some industries and positive in the others. Surprisingly, book-to-market ratio and the bond market factors did not appear to explain much of the variation in the stock returns.

Testing Fama and French's three-factor model (1993) augmented by the momentum variable on the Canadian stock market, L'Her, Masmoudi and Suret (2004) investigated, in addition to the explained variation by these four (4) factors, the turn of the year effect and market environment (i.e. the up and down market, and the monetary policy effect). They concluded that size, book-to-market ratio and momentum were positive and significant variables in explaining returns variations. In term of the January effect, they found that it was pronounced in market beta and size variables. In addition, they noted that book-to-market ratio was influenced by the up

and down market, whereby it was positive and significant in the down market while it was negative and insignificant in the up market. The rest of the variables' reaction was positive for both size and momentum in both timing, while market beta was positive in the up market and negative in the down market. Lastly, in terms of reaction to monetary policy, it was found that size and book-to-market were positive and significant in the expansive monetary policy while momentum was positive and significant in the expansive as well as restrictive monetary policy.

2.2 Developing and emerging markets

Claessens, Dasgupta and Glen (1995) researched cross-section of stock returns in nineteen (19) emerging markets[3] by investigating variables such as size, price-earnings ratio, dividend yield, turnover, book-to-market ratio and exchange rate from 1986 to 1993. Using between estimator methodology, they concluded that size and price-earnings ratio were significant in ten (10) of the countries studied; foreign exchange and turnover were significant in nine (9); and book-to-market ratio was significant in six (6); while dividend yield was significant in five (5) countries. The results were mixed. However, contrary to studies in developed countries, the results suggested that size was positively related to returns in most of the countries.

Another study in the emerging markets was by Chui and Wei (1998) on the effect of size, book-to-market ratio, and turn of the year effect in Malaysia, Thailand, Taiwan, Hong Kong and Korea. Monthly data was used from 1977 to 1993 to investigate the effect of these variables on the returns. Following Fama and MacBeth (1973)'s regression model, they concluded that in terms of size and book-to-market ratio, the expected signs were negative and positive respectively; however, they were not statistically significant in the five (5) countries. In addition, the beta does not explain any of the variation in the returns. On the other hand, concerning the turn of the year effect (or January effect) and non-January effect, the results were as follows. In terms of portfolio, negative relationship of size and positive relationship of book-to-market ratio with returns were dominant in almost all countries for both groups. The beta still did not have any explanatory power in both groups. Similarly, for individual stocks, the results were almost the same for beta, size and book-to-market ratio variables for both groups. January effect was found only in Hong Kong and Korea. In addition,

[3] Brazil, Chile, Colombia, Greece, Indonesia, India, Jordan, Korea, Malaysia, Mexico, Nigeria, Pakistan, Philippines, Portugal, Taiwan, Thailand, Turkey, Venezuela, and Zimbabwe.

it was found that large firms had large January effect in Hong Kong, while in Korea small firms had large January effect.

Drew and Veeraraghavan (2003) investigated two (2) issues in their research. Firstly, whether beta in the CAPM was the only risk explaining the variation in the average stock returns; and secondly, whether the multifactor model developed by Fama and French (1996) explained the variation in average stock return better than the CAPM. Using data from four (4) Asian countries, namely, Hong Kong, Korea, Malaysia and the Philippines, Drew and Veeraraghavan (2003) developed six (6) main portfolios by the intersection of two (2) size levels and three (3) categories of book-to-market ratio. They ran the CAPM and the multifactor model and compared them to conclude which model was best to explain the variation in the average stock returns. They arrived at four (4) conclusions. Firstly, small and high book-to-market ratio firms generated higher returns compared to that of the big and low book-to-market equity firms. Secondly, the multifactor model explained more variation in the average stock returns than the CAPM. Thirdly, the absolute pricing error measured by the intercept was lower in the multifactor model than the CAPM. Lastly, the multifactor model should be considered when choosing a portfolio in the studied markets.

In the same vein, Drew and Veeraraghavan (2002) applied the Fama and French (1993)'s model in Malaysia. They concluded that the multifactor model was robust and explained the variation in stock returns better than the CAPM. They found size and value premium affected the Malaysian stock market. In addition, they tested and rejected the hypothesis that there was turn of the year effect or January effect.

On the other hand, Drew, Naughton and Veeraraghavan (2003), using the Fama and French (1993)'s multifactor model, investigated whether the multifactor model can explain the variation in the stock market returns better than the CAPM in the Shanghai stock market. Their conclusion was different. They concluded that firstly, the multifactor model explained more variation in the stock returns than the CAPM; and secondly, growth firms generated higher returns than big and value firms, while value firms did not generate higher returns as predicted in Drew and Veeraraghavan (2002)'s study of the Malaysian stock market. They offered two (2) possible reasons for such results. Firstly, they suggested that investors had over-exploited the opportunity that value shares were mispriced, therefore invested heavily on them causing them to yield lower returns. Secondly, they suggested that Chinese investors were 'quasi rational', i.e. the investors were unable to process information adequately and this had caused them

to act more like noise traders. Drew et al. (2003) also argued that a huge per centage of the shares in the Shanghai Stock Exchange were not tradable due to government regulations.

However, Wong, Tan and Liu (2006) in investigating the relationship between stock returns in the Shanghai Stock Exchange and four (4) variables, found that size and book-to-market ratio were the significant variables in explaining the variation in the stock returns. Beta and the tradable shares of firms were insignificant in the full regression model. Size and book-to-market ratio were negatively and positively related to stock returns respectively. Therefore, small and value firms yielded higher returns compared to that of the big and growth firms. In addition, the January effect was in existence in the Shanghai stock market.

In Malaysia, Pandey (2001) studied the returns of the Malaysian listed firms and their common effecting factors. Variables such as beta, size, book-to-market ratio, price-earnings ratio, dividend yield, leverage and dividend payout of two hundred and forty seven (247) firms with returns annually from 1993 to 2000 were used. Pooling time series data with cross sectional data to reach a set of data so that panel data techniques could be applied, it was concluded that in the univariate analyses, size, book-to-market ratio, price-earnings ratio and dividend yields were significant and positive. However, size was negatively related to returns. In the multivariate model, beta, size, price-earnings ratio and dividend yield were significant. Book-to-market equity power disappeared when size was included.

Lam (2002) studied Hong Kong stock market returns and its relation to seven (7) variables[4] using Fama and MacBeth (1973)'s model. He used one hundred (100) listed firms from 1980 to 1997. Lam (2002) concluded that in the overall period and in both the sub-periods, size, book-to-market ratio and price-earnings ratio were the most significant variables explaining the variations in the stock returns while beta was insignificant. In addition, after performing tests to check whether there was turn of the year effect or January effect, it was concluded that this did not occur. However, the relationship between stock returns and size was found to be positive in all the regressions performed. Nevertheless, no justification was provided for the positive sign.

Kim (1997) using Fama and MacBeth (1973)'s model investigated four (4) variables effect on the stock returns variation from 1963 to 1993, both on monthly and quarterly basis. He found that market beta was very significant and strong in explaining the variations in the stock returns

[4] The seven (7) variables are size, book-to-market ratio, book leverage, market leverage, price-earnings ratio, price-earnings ratio dummy and beta.

followed by book-to-market ratio and price-earnings ratio while size was marginally significant in the monthly estimation and insignificant in the quarterly estimation.

To study the determinants of returns in twenty one (21) emerging markets, Serra (2002) used a set of financial, macroeconomic and price attributes for Latin American and Asian markets. The main findings revealed six (6) factors which affected returns and were common among the markets. These factors were lagged prices, price-earnings ratio, book-to-market ratio, dividend yield and liquidity (i.e. size, and price per share). Although these factors were common, they were not correlated; suggesting markets were segmented. Lastly, it was found that the factors effecting returns were local factors (Serra, 2002).

In short, all the previous studies focused mainly on the non-screened firms and the factors that influenced them. There was no known prior study on screened firms even though there were some previous researches (such as Hussein & Omran, 2005; Bauer, Otten, & Rad, 2005; and Albaity & Ahmad, 2008) on screened investment portfolios. These studies focused on the performance of screened investment portfolio and their counterpart, and found that there was no significant difference in returns between screened and non-screened investment portfolios.

There is no compelling conclusion whether firms in both conventional and Islamic stock indices can be chosen following the same firm specific factors. The screening criteria may result in the Syariah index yielding lower returns and higher risk and therefore, the reaction of screened firms may be influenced differently by the same firm specific factors as the non-screened firms. Being classified as Syariah compliant firms may affect their reaction to firm specific factors. Therefore, this study aims to investigate whether there is a difference in returns between screened and non-screened firms. The second objective is to investigate whether both screened and non-screened firms react similarly to the same selected firm specific variables.

3. Data and methodology

In this section, the factors or determinants of the firm's returns are discussed. The pioneers in this realm are Fama and French (1992, 1993, and 1995) who did several studies on the determinant of stock returns using time series data on mostly developed countries and one (Fama & French, 1998) on emerging markets. Some of the papers that discussed the Malaysian

stock market determinants among other countries are Chui and Wei (1998), and Drew and Veeraraghavan (2002, and 2003). One of the studies that discussed solely the Malaysian stock market determinants is Pandey (2001). Pandey (2001) used panel data of more than two hundred and forty (240) firms for eight (8) years. Following the work of these researchers, the variables in our regression models ranged from size-related variables to performance-related variables.

Our data comprised of two (2) sets of stocks, i.e. Syariah stocks which have been consistently listed on the Kuala Lumpur Syariah Index (hereafter KLSI); and other stocks that did not comply with the Syariah criteria and thus were not listed in the KLSI. Hence, the first set represented Syariah compliant stocks and the second set represented non-Syariah compliant stocks. This study pertains to their respective stock market returns and whether they react differently to the specific variables. Thus, it is pertinent to select the sample firms. The selection procedure and the models used to examine the relationship between the selected variables and firms are discussed in this section.

3.1 Selection and matching process

The most widely used matching criteria are by industry and size. However, in our study, it was difficult to match firms based on industries because some industries were not allowed into the Syariah index due to their products or activities e.g. liquor or gambling industries. Therefore, it was impossible to match hotels from both indices as well as finance firms. The criteria used for matching was size. To match firms based on size, either the beginning point or the ending point of the period of the study could be chosen. In this study, the ending point was chosen for matching, namely, 2006. The matching was done as follows: starting with all the firms listed on the KLSI in 2006 then moving back towards 2000 in order to determine the number of firms that represented the non-Syariah firms. Then, the matching by size was done for both types of firms based on fiscal year end 2006. The year 2006 was chosen as the cut-off point because the KLSI was replaced by FTSE Bursa Malaysia EMAS Shariah Index in 2007. The FTSE screening criteria was different from the KLSI. This should not affect the validity of the results since the purpose of this study was to examine whether there was any significant difference between Syariah and non-Syariah compliant firms in terms of their stock returns and reaction to the same selected firm specific variables.

3.2 Dependant variable

3.2.1 Firm's stock returns

The stock returns were calculated on annual basis using the closing prices at year-end on daily basis for each firm. Since the fiscal year was not consistent among firms, the fiscal year end provided by DataStream database was adopted to find the stock closing prices. The daily stock closing prices were downloaded, and then the returns on a daily basis were calculated using compounded returns formula for each fiscal year. After the returns were calculated the average was taken for each fiscal year for each firm. The compounded returns formula used was as follows:

$$R_{it} = 1n \left(\frac{P_{i,t}}{P_{i,t-1}} \right) * 100 \qquad (1)$$

Where R_{it} is the return for index i at time t; $P_{i,t}$ is the price for index i at time t; and $P_{i,t-1}$ is the price of index i at time t-1.

3.3 Independent variables

Since the model used in this study was the stock valuation model and it was difficult to include all the variables that influence stock returns, this study focused on the most important variables that were included in previous studies for the past two (2) decades for example, Fama and French (1995 and 1998), Chui and Wei (1998), Drew et al. (2003), Park (2000), Perez-Quiros and Timmermann (2000), Campbell and Shiller (1988a, 1988b, 1998 and 2000) and Spiess and Affleck-Graves (1999). These variables were: size, book-to-market ratio, market risk, price-earnings ratio, and total debt.

Two (2) main multiple regressions were used to test the return difference and the relationships between these variable and stock returns. Using panel data analysis, the first model tested whether there was a significant difference in returns between Syariah and non-Syariah compliant firms. This was done by including a dummy variable which was assigned the value of one (1) if the firm was Syariah compliant firm and zero (0) if otherwise. The first model was as follows:

$$R_{i.t} = \omega_0 + \beta_1 MC_{i,t} + \beta_2 PER_{i,t} + \beta_3 MTB_{i,t} + \beta_4 BETA_{i,t} + \beta_5 DEBT_{i,t} + \beta_6 D_{i,t} + \varepsilon_{i,t}$$

Where

$R_{i,t}$ is the firm's stock returns,[5]

$MC_{i,t}$ (The firm size) $= P_t * N_t$,

$$PER_{i,t} \text{ (Price-earnings ratio)} = \frac{\text{Market value per share}_t}{\text{Earnings per share}_t} ,$$

$$MTB_{i,t} \text{ (Market-to-book ratio)} = \frac{\text{Market value of the firm}_t}{\text{Book value of the firm}_t} ,$$

$BETA_{i,t}$ (Market risk) $= R_{it} - R_{ft} = \alpha_i + \beta_i (R_{mt} - R_{ft}) + \varepsilon_{it}$,[6]

$DEBT_{i,t}$ (Total debt) = Long term debt$_t$ + short term debt$_t$,

$D_{i,t}$ is dummy variable which equal 1 if the firm is Syariah compliant and 0 if not, t=2000….20006 and i=1,2,3….300.

ω_0 is a constant

β_1, β_2, β_3, β_4, and β_5 are coefficients.

For this model, the following hypothesis was tested

> H_{0a}: *There is no significant difference in returns between Syariah and non-Syariah firms.*

The second model, which used two (2) sub-samples of firms based on the matching process explained earlier, was used to test and examine the relationship between the selected variables and stock returns in Syariah and non-Syariah compliant firms. The second equation was as follows:

$$R_{i.t} = \omega_0 + \beta_1 MC_{i,t} + \beta_2 PER_{i,t} + \beta_3 MTB_{i,t} + \beta_4 BETA_{i,t} + \beta_5 DEBT_{i,t} + \varepsilon_{i,t}$$

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[5] Refer to the definition of the dependent variable above.

[6] where R_{it} is returns of firm i for week t; R_{ft} is the KLIBOR for t; R_{mt} is market index returns or EMAS index returns on weekly basis; where i=1,2,3…..300 and t=1,2,3,4…t; ε_{it} is an error term; and α and β are the regression coefficients.
The estimation was done by regressing the individual returns on the market for the first year to get the beta for that year. This process was repeated seven times to get the beta for the seven years.

Therefore, five (5) hypotheses were tested using this model as follows:

H_{0b}: *There is no significant relationship between stock returns and market capitalisation.*

H_{0c}: *There is no significant relationship between stock returns and market-to-book ratio.*

H_{0d}: *There is no significant relationship between stock returns and market risk.*

H_{0e}: *There is no significant relationship between stock returns and price-earnings ratio.*

H_{0f}: *There is no significant relationship between stock returns and total debt.*

The first regression was estimated using pooled panel estimation where all the firms were pooled together regardless of time and cross section. This was because the main goal of this regression was to see whether being a Syariah compliant firm would affect returns or not. The second regression, however, aimed at investigating how these firms reacted to the same selected firm's specific variables. Three (3) estimated equations were presented, namely as pooled, fixed effect and random effect. Therefore, three (3) estimations were presented for each sub-sample of firms.

4. Results and analysis

This study is aimed at investigating whether there is a significant difference in returns between Syariah and non-Syariah firms, and whether Syariah and non-Syariah firms react similarly to the same variables. The data is collected from Bloomberg database and DataStream database. Following the selection and matching process explained in section 3, only three hundred (300) firms with complete data are available for this study. There are one hundred and fifty (150) firms in each sub-sample for seven (7) years with one thousand and fifty (1050) observations for each sub-sample. The dependent variable is the individual stock return (R) while market capitalisation (MC), price-earnings ratio (PER), market risk (BETA), total debt (DEBT) and market-to-book ratio (MTB) are the independent variables from year 2000 to 2006. This section reports and interprets the results of the firm-specific variables and market returns from Syariah and non-Syariah compliant firms. The results of the two (2) sub-sample firms are reported in different tables. Since the other variables are in ratio form, market

capitalisation and total debt are expressed in the natural log to ensure consistency of measures.

4.1 Series characteristics

Table 1 displays the properties of the whole sample consisting of three hundred (300) firms expressed in per centage form on yearly basis. The mean of the return is at -0.05 per cent, while the market capitalisation and total debt have an average growth rate of 19 per cent and 17 per cent respectively. The market risk mean is at 0.203, which is below one (1). This indicates that the firms are defensive. The average growth rate of price-earnings ratio is 2.1 per cent. The reason for the low PER might be because there are negative and zero (0) values in the data extracted from DataStream. Some studies exclude the negative and zero (0) values of PER. Since this study's objectives are to investigate whether there is any significant difference between the Syariah and non-Syariah compliant firms, it is preferable to include negative and zero (0) values to see their effect on both types of firms.

Basu (1975) indicated high PER stocks performed better than the low PER stocks. However, Campbell and Shiller (2001) found that the higher the PER, the lower the future stock prices would be. Pandey (2001) who studied the Malaysian stock market found positive relationship between

Table 1: Descriptive statistics

	R	PER	MTB	MC	DEBT	BETA
Mean	-0.045	2.068	-0.122	19.297	17.399	0.203
Median	-0.026	2.293	-0.174	19.010	18.055	0.157
Maximum	1.910	8.740	3.304	24.428	24.527	4.680
Minimum	-1.920	-1.609	-2.659	16.074	6.908	-3.29
Std. Dev.	0.390	1.323	0.722	1.496	3.443	0.601
Skewness	-0.097	0.051	0.603	0.770	-1.560	0.164
Kurtosis	4.806	3.721	4.683	3.212	5.877	7.95
Jarque-Bera	289***	46***	375***	211***	1577***	1855***
Observations	2100	2100	2100	2100	2100	2100

Note: R is the average return, PER is price-earnings ratio, MTB is market-to-book ratio, MC is market capitalisation, DEBT is the total debt, and BETA is the market risk calculated using CAPM.
*** Significant at 1% level.

returns and PER, i.e. high PER stocks performed better than the low PER stocks.

Market-to-book, which is calculated using the natural log, has a growth rate of -0.122 as reported in Table 1. This means that these firms' stocks are undervalued on average. In other words, there is a low demand on these shares in the Malaysian stock market. The standard deviation is the highest for debt followed by market capitalisation and PER. This gives an indication that debt is the most risky variables among the selected factors. In contrast, market-to-book ratio, beta, and returns have the lowest deviation. All the variables are positively skewed except for returns and total debt. The negative (positive) skewness indicates that there is a greater probability of large decrease (increase) in each variable than increase (decrease). All the variables have kurtosis of more than three (3) indicating leptokurtic distribution. All the variables seem to fail the Jarque-Bera (J-B) test of normality indicating that the variables are not normally distributed.

Tables 2a and 2b report the descriptive statistics for both non-Syariah (referred to by subscript n) and Syariah compliant firms (referred to by the subscript s). The means returns for both firms are negative, but the returns of Syariah compliant firms are higher than non-Syariah compliant firms' returns. The minimum as well as the maximum returns of Syariah compliant firms are higher than those of non-Syariah compliant firms. The standard deviations of both returns indicate that both firms are not facing

Table 2a: Descriptive statistics for conventional firms

	Rn	PERn	MTBn	MCn	DEBTn	BETAn
Mean	-0.061	2.252	-0.198	19.039	17.640	-0.138
Median	-0.035	2.322	-0.236	18.714	17.979	-0.124
Maximum	1.408	8.740	2.657	24.288	22.959	4.68
Minimum	-1.920	-0.916	-2.040	16.475	6.908	-3.29
Std. Dev.	0.394	1.251	0.650	1.381	2.315	0.546
Skewness	-0.356	0.207	0.704	1.138	-1.326	0.824
Kurtosis	4.340	4.936	4.774	4.193	6.968	17.646
J-B	100.7***	171***	244***	288***	996***	9504***

Note: Rn, PERn, MTBn, MCn, DEBTn, and BETAn are non-Syariah firms' average returns, price-earnings ratio, market-to-book ratio, market capitalisation, total debt, and market risk respectively.
*** Significant at 1% level.

Table 2b: Descriptive statistics for Syariah firms

Rs	PERs	MTBs	MCs	DEBTs	BETAs
-0.030	1.884	-0.046	19.556	17.157	0.544
-0.019	2.241	-0.083	19.415	18.165	0.488
1.910	8.136	3.304	24.428	24.527	2.99
-1.515	-1.609	-2.659	16.074	6.908	-0.922
0.384	1.367	0.78	1.56	4.268	0.438
0.189	-0.001	0.46	0.46	-1.305	0.553
5.235	2.785	4.453	2.776	4.096	4.405
224***	2.03	129.4***	39.3***	351***	140***

Note: Rs, PERs, MTBs, MCs, DEBTs, and BETAs are Syariah firms' average returns, price-earnings ratio, market-to-book ratio, market capitalisation, total debt, and market risk respectively.
*** Significant at 1% level.

the same risk exposure. The Syariah compliant firms are less risky than the non-Syariah compliant firms. The financial theory indicates that the higher the risk, the higher the compensation in term of returns would be. Here, however, the results indicate the opposite where Syariah compliant firms have higher returns but lower risk compared to non-Syariah compliant firms. On the other hand, the means for PER and debt are higher for non-Syariah compliant firms, while market-to-book ratio, beta and market capitalisation are higher for Syariah compliant firms. The higher debt in non-Syariah compliant firms can be explained from the point of view that one of the screening criteria of Syariah compliant firms is to exclude firms dealing with interest, gambling and conventional insurance. In other words, the screening act of removing firms that have activities that are not approved by Syariah principles could be the reason for the lower debt in Syariah compliant firms. Interestingly, Syariah compliant firms seem to have higher maximum growth rate than non-Syariah compliant firms but their minimum growth rates are the same. The high PER in non-Syariah compliant firms is not in line with its mean returns. The returns (price-earnings ratio) for Syariah compliant firms are higher (lower) than non-Syariah compliant firms. Based on previous literature, PER can be a poor predictor of stock prices change. Fisher and Statman (2000) indicated that PER was not a good measure of future stock prices change. Market risk or beta for non-Syariah compliant firms is negative indicating that their assets'

returns generally move opposite the market's returns. This is popularly referred to as a counter-cyclical movement of stock returns.

Beta, market-to-book ratio and market capitalisation are higher in Syariah compliant firms. The high market-to-book ratio indicates that the shares are undervalued compared to the non-Syariah compliant firms. This may be because Syariah compliant firms are on average larger than non-Syariah compliant firms. This is supported by a higher growth rate of Syariah compliant firms compared to that of non-Syariah compliant firms while the opposite is true in terms of the lower growth rate. Market risk or beta for Syariah firms is less than one (1) indicating that these firms are defensive rather than volatile and also are less sensitive to market risk. Syariah compliant firms enjoy a higher mean growth rate in market capitalisation of 19.56 per cent yearly; whereas non-Syariah compliant firms mean growth rate is at 19.04 per cent yearly. Similarly, the maximum growth rate of market capitalisation is higher in Syariah compliant firms, while the minimum growth rate is lower for Syariah compliant firms. In terms of skewness, total debt is negatively skewed for both Syariah and non-Syariah compliant firms; while returns are only negatively skewed in non-Syariah compliant firms and PER is negatively skewed for Syariah compliant firms. The negative (positive) skewness of non-Syariah compliant firms (Syariah compliant) returns indicates that there is a greater probability of large decrease (increase) in returns. All the variables have kurtosis of more than three (3) indicating leptokurtic distribution except for Syariah compliant firms' market capitalisation and PER, which have kurtosis of less than three (3) indicating a platykurtic distribution. The normality test, namely, Jarque-Bera (J-B) test indicates that all the variables in both sub-samples are not normally distributed.

4.2 Returns difference

Before running the pooled regression to determine whether there is a difference in mean between Syariah and non-Syariah compliant firms, it is necessary to run a unit root test to test the stationarity of the variables. Unit root is one of the problems in time series that if not taken care of could result in misleading inference. Table 3 shows the results for unit root in panel data for all firms in the sample. All the variables are stationary in the level. This means that all the variables have zero (0) mean and constant variance over the seven (7) years of the study.

Table 4 reports the results of weighted pooled Ordinary Least Squares estimator with a dummy variable to test whether there is a difference in returns between Syariah and non-Syariah compliant firms. The result

Table 3: Unit root test for all firms

Variable	Intercept	Intercept & time	None
R	-53.33***	-63.37***	-48.96***
BETA	-17.14***	-20.84***	-38.83***
MC	-23.75***	-64.61***	0.921
MTB	-35.17***	-301.1***	-6.03***
PER	-56.91***	-61.75***	-5.35***
DEBT	-84.35***	-782.2***	-0.214

Note: *** Significant at 1% level.

Table 4: OLS pooled regression of all the firms

Variable	Coefficient
PER	0.004 (0.913)
MC	-0.002 (-0.429)
MTB	0.03*** (3.44)
DEBT	-0.0037** (-2.14)
BETA	-0.014*** (-2.86)
DUMMY	-0.0119 (1.14)
C	0.067 (0.85)
F-test	6.65***
R^2	0.019
ADJ. R^2	0.016
D-W TEST	2.06

Note: *** and ** Significant at 1% and 5% levels respectively.

indicates that there is no difference in returns between firms. In addition, for the other independent variables, beta, debt and market-to-book ratio are the only significant variables. Market-to-book has a positive sign, indicating

positive impact on returns. The positive market-to-book ratio value indicates again that these shares are undervalued. In other words, if market-to-book ratio increases by 1 per cent the returns increase by 2.9 per cent on average. In addition, Fama and French (1993 and 1996) indicated that low book-to-market ratio or high market-to-book ratio leads to lower returns. Beta coefficient is negative and significant. This means that these firms are defensive and have counter-cyclical relation with the market portfolio return. The negative beta result is in line with Wong et al. (2006)'s study of the Shanghai stock market, Elfakhani et al. (1998) for the Canadian stock market, Claessens et al. (1995) for the Malaysia stock market, and Petkova and Zhang (2005) for the US stock market.

The negative beta is also referred to as growth beta that means that these firms are large on average. Total debt has a negative sign, which indicates that the higher the debt, the lower the returns. This can be explained by the investment growth hypothesis, which suggests that managers overinvest cash flow proceeds in negative net present value projects to serve their personal interests, and investors usually under-react to this, hence leading to the negative relation between stock returns and debt. This result is found in studies such as Daniel,Titman and Wei (2001), and Pandey (2001). R^2 and adjusted R^2 are 1.5 per cent and 1.3 per cent respectively. The data used here is only for seven (7) years but the cross section is three hundred (300) firms, therefore, this estimation is more concerned with cross sectional than time series and it is expected that the value of R^2 to be small or very low. In other words, the estimation done has no fixed or random effect restrictions. The low R^2 can be found in panel data studies such as Hecht and Haye (2009), Huang and Song (2006), Kim (1997), and Gaud, Hoesli and Bender (2007). The F value indicates that the model is a good fit and Darbin Watson (D-W) value points out that there is no problem of autocorrelation.

4.3 Individual firm return

Table 5 reports the results of the panel data estimation for both Syariah and non-Syariah compliant firms separately. There are three (3) reported estimations for each type of firms for comparison purposes. For non-Syariah compliant firms, the significant variables affecting returns are market-to-book ratio and beta. For Syariah compliant firms, PER and market cap are significant in fixed and random effect estimation respectively while market-to-book ratio is significant in all the estimated models. Market-to-book ratio is the only variable that consistently affects returns in both types of firms. Market-to-book has a positive sign that is not consistent with the theory

Table 5: Estimation models for both firms

Non-Syariah firms estimation				Syariah firms estimation			
Variable	Fixed Effect	Pooled	Random effect	Variable	Fixed effect	Pooled	Random effect
C	0.645	0.113	0.196	C	1.075	0.061	0.108
PER	0.001	0.004	0.002	PER	0.006	0.004	**0.017****
MC	-0.036	-0.003	-0.005	MC	**-0.056*****	-0.001	-0.007
MTB	**0.081*****	**0.030*****	**0.045*****	MTB	**0.104*****	**0.030****	**0.025***
DEBT	0.000	-0.004	**-0.008***	DEBT	-0.001	-0.003	-0.001
BETA	**0.069*****	**0.072*****	**0.089*****	BETA	-0.018	-0.024	-0.027
R^2	0.19	0.022	0.023	R^2	0.23	0.016	0.007
Adj. R^2	0.05	0.017	0.018	Adj. R^2	0.10	0.012	0.003
F-Value	1.34***	4.8***	4.92***	F-Value	1.72***	3.56***	1.51***
D-W	2.36	2.1	2.19	D-W	2.31	2.08	2.34
H_0: difference in coefficients not systematic 1.5 (Hausman test)				H_0: difference in coefficients not systematic 7.38 (Hausman test)			
H_0: no first-order autocorrelation 2.54 (Wooldridge)				H_0: no first-order autocorrelation 1.5 (Wooldridge)			

$R_{jt} = \alpha i + \chi i \beta etajt + \delta iMC_{jt} + \lambda iMTB_{jt} + \phi iPER_{jt} + \varphi iDEBT_{jt} + \mu_{jt} - - -$ *non-Syariah*

$R_{jt} = \alpha i + \chi i \beta etajt + \delta iMC_{jt} + \lambda iMTB_{jt} + \phi iPER_{jt} + \varphi iDEBT_{jt} + \mu_{jt} - - - -$ *Syariah*

Note: R is returns, PER is price-earning ratio MC is market capitalisation, MTB is market-to-book ratio, DEBT is the total debt, and BETA is the market risk.
*, **, and *** are significant at 10%, 5%, and 1% levels respectively.

that predicts a negative relationship between returns and market-to-book. Fama and French (1992) and Lam (2002), among others, found that book-to-market ratio has a positive relation with returns. This was interpreted in light of value firms having higher returns because their stocks are undervalued. Since market-to-book ratio is the inverse of book-to-market ratio, then the results in this study indicate that both are undervalued. However, Syariah compliant firms are more undervalued than non-Syariah compliant firms. Debt in the non-Syariah compliant firms has the predicted sign, which is negative, indicating that the higher the total debt a firm accumulates, the lower its returns due to its risk. Market capitalisation and PER for both types of firms follow the predicted sign whereby there is a negative effect of market capitalisation or size and a positive effect of PER. This means that as the size of the firm increases its returns decrease. This result confirms the results found by Drew et al. (2003), Wong et al. (2006) and Elfakhani et al. (1998).

On the other hand, beta is positive and significant in non-Syariah compliant firms and negative but not significant in Syariah compliant firms. This indicates that non-Syariah compliant firms are volatile while Syariah compliant firms are defensive. This is clear since any change in the market risk by 1 per cent will affect non-Syariah compliant firms by a positive number. However, a change in the market risk by less than 1 per cent affects Syariah compliant firms negatively.

For model specification, robust covariance estimators are employed based on White Cross-Section to control for heteroscedasticity across cross-sections. For autocorrelation, the Wooldridge test indicates that there is no first order autocorrelation. In terms of the best model to explain the effect of firms' specific variables on returns the Hausman test is used for both types of firms and it is concluded that the random effect is the best model. Since the Hausman test is also one of the specification tests, this result also indicates that there is no misspecification, i.e. fixed effects model and random effects model do not differ.

5. Conclusion and implications

This study examines whether there is a significant difference between Syariah and non-Syariah compliant firms in terms of their stock market returns. In addition, we examine the firm specific selected variables that influence Syariah compliant firms and non-Syariah compliant firms. Firstly, using data from the three hundred (300) firms, our results indicate that there is no significant difference between Syariah and non-Syariah compliant firms in terms of their returns. Thus, it is safe to say that investing in Syariah compliant firms does not carry any penalty. In addition, total debt, market risk and market-to-book ratio are the most significant factors affecting the sampled firms.

Secondly, when the sample is split, the significant variables explaining returns in non-Syariah compliant firms are market-to-book ratio, total debt and market risk. On the other hand, in Syariah compliant firms only market-to-book ratio and price-earnings ratio are the significant variables. These results suggest that three (3) variables explain the variation in non-Syariah compliant firms while only two (2) variables explain the variation in Syariah compliant firms. Market-to-book ratio which represents the growth of the firm is common in both types of firms. This means that an investor looking for Syariah compliant firm can use market-to-book ratio and price-earnings ratio to choose well performing firms. On the other hand, potential investors who intend to invest in non-Syariah compliant

firms need to evaluate the market risk, total debt and market-to-book ratio in order to choose well performing firms. It seems that the screening act has eliminated the market risk and the risk of debt automatically, although there is no specific criterion included in the KLSI on the level of debt that should be avoided for Syariah compliant firms.

An interesting result is about the market capitalisation or the size of the firm. Size of the firm is not only insignificant in affecting return but it has a negative sign. This indicates that the bigger the size of the firm, the lower the return. This is different from the mainstream theory that indicates that big firms normally yield high positive returns compared to the smaller firms. One of the criticisms on Syariah investment is that it excludes large firms and therefore its risks are concentrated on small firms where returns are usually low. However, in our study, smaller firms seem to have higher returns indicating that the critique on the size of the firm as being one of the issues against Syariah investment may not be valid. This result has two implications. Firstly, Syariah screening does not exclude large firms from its listing. Secondly, small firms yield higher returns compared to large firms. This means that value firms have higher returns than growth firms. Hence the distinction between these two types of firms is not due to the screening criteria but due to their overall performance. In conclusion, investors who are looking for better returns on their investment should invest in smaller firms rather than large firms.

The main limitation of this study is that it is confined to one market. The behaviour of screened and non-screened investment portfolio would have been interesting if different market such as Dow Jones Islamic Market and FTSE Islamic indices are compared. These two markets have extra screening criteria that go beyond product screening practiced in Malaysia. Dow Jones Islamic Market and FTSE Islamic indices follow activity screening which involve looking at the balance sheet of each firm for certain benchmarks in terms of debt and account receivable and the amount of interest it acquires. Another limitation is the time interval used in this study that is limited to six to seven years in terms of monthly and yearly data. A longer time horizon may give more insight into the dynamics of different variables that may affect stock returns. In addition, different firm specific variables can be used to investigate their impact on stock returns. Portfolio formation of Syariah and non-Syariah investments is another area that can be investigated. Lastly, it will be interesting to study the impact of the recent financial crisis of 2008-9 and whether the Islamic investments were affected as much as the non-Islamic investments during the crisis.

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