Firm Size, Book to Market Equity, and Security Returns: Evidence from the Indonesian Shariah Stocks

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Abstract

Capital market is one of indicators which may give measurement on economic growth of a country, including Indonesia. In the country, main reference for any investment decisions which related with Islamic capital market instruments is based on Shariah Securities List (SSL) issued by Bapepam-LK. Investors who put funds in the Indonesian Shariah Stocks can make investment decisions by monitoring the performance of these stocks. This can be done through using return measurement methods such as Capital Asset Pricing Model (CAPM) proposed by Sharpe (1964). However, Fama and French (1992) argue that size, EPR, debt-to-equity and book-to-market ratio have explanatory power to stock returns. Further, Fama and French (1993) find that the most significant variables among those mentioned above in explaining the stock returns are size, book-to-market ratio, and market beta. This study finds that the market beta alone is not sufficient to describe the variation in average equity returns for Indonesian Shariah Stocks over the period of 14 September to 25 September 2009. Additionally, this study also finds that even though size and value premia exists in the Indonesian Shariah Stocks; the market factor is still most important factor among the Fama & French Three Factors Model.

I. INTRODUCTION

1.1. Background

Recent global financial crisis has brought more dynamic challenge not only for the US capital market, but also for stock markets in emerging economies. Investors are more required to thoroughly analyze many portfolio components before finally coming up with their decision. Likewise, companies as well as individuals are also challenged to carefully calculate cost of capital prior to important managerial

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decisions making, such as on capital budgeting and cost-benefit analysis. Equally-essential capability in measuring asset pricing is needed in making other economic problems demanding information of the relation between risk and return.

The most popular and one of the earliest asset pricing models is Capital Asset Pricing Model (CAPM) proposed by Sharpe (1964) and supported by Lintner (1965). CAPM has offered pleasurable forecast with regard to asset pricing and has been used as the main stock return estimation method thought in most schools of finance. This also evident from a survey conducted by Graham and Harvey (2001) that 73.5% of 392 CFOs in the U.S. relies on the CAPM when they estimate the cost of equity. CAPM states that there is a linear relationship between the expected return of individual assets with their systematic risk which can be measured by market beta. CAPM, more specifically, explains that expected returns of various assets may vary only because their market betas are different.

Several prior studies, such as those which conducted by Black, Jensen, and Scholes (1972) and Fama and MacBeth (1973), support the CAPM. However, when significant contribution of CAPM had invited many researchers to conduct study using this technique, some anomalies started to be discovered during 1980s and 1990s. The anomalies, such as earnings-price ratio, size, leverage, and book-to-market ratio, showed that market beta is not sufficient to explain expected stock returns (Lam, 2005).

Basu (1977) finds that expected returns on stocks with high earning-price ratio are higher than what are predicted by CAPM. While, Banz (1981) discovers that stocks with low market value earn higher return as compared to what are predicted by CAPM. Moreover, Bhandari (1988) proves that leverage, which measured by book value of debt over market value of equity, has positive relationship with expected returns. Additionally, Fama and French (1993, 1996) come with the same conclusion as previously-mentioned studies that market beta only is not sufficient to explain stock returns. They find in their researches on stocks listed in NYSE, NASDAQ, and AMEX during 1963 to 1992 that there are three factors which can better explain the expected stock returns. Those three factors include market beta itself, size, and book-to-market ratio. Afterward, these three factors when used in formula are well-known as Fama and French Three-Factor Model. A number of studies find that this model is one of the most popular models which found to be complimentary of CAPM in estimating expected stock returns in many countries. Gokgoz (2007) discovers that both CAPM and Three-Factor Model are applicable and viable for assessing prices of

assets which included on basic indices of Istanbul Stock Exchange within 2001-2006. However, he finds that the latter model is more valuable as compared to the former in assessing excess returns of Turkish financial assets. Furthermore, Connor and Sehgal (2001) who conducted a study on stock included on CRISIL-500, a broad-based and value-weighed stock market index in India, from June 1989 to March 1999. Their study obtains evidence for pervasive market, size, and book-to-market factors in Indian stock returns. They also find that cross-sectional mean returns are explained by exposures to these three factors, and not by the market factor alone. In line with the previous findings, a study by Drew and Veeraraghavan (2002) on Australian stock returns from June 1985 through June 2000 find that CAPM alone maybe incomplete in evaluating performance of fund managers.

1.2. Research Problem

Capital market is one of indicators which may give measurement on economic growth of a country. After the recent global financial crisis reached its culmination point, the World Bank noted that only three countries, including Indonesia, experienced positive economic growth. In Indonesia, capital market condition can be observed through movement of the Indonesia composite index. Most of investors, domestic and foreign ones, who put their funds in the Indonesia Stock Exchange (IDX) can make their investment decision by make a monitoring on the performance of this index, while also analyze both fundamental and technical aspects of the targeted investee companies. To support this analysis, many estimation methods especially with regard to stock returns have been found.

In addition, those who concern with investing in Shariah-compliance securities can base their analysis on Shariah Securities List (Daftar Efek Syariah) issued by the country's Capital Market and Financial Institutions Supervisory Agency (Bapepam-LK). However, until this research is being conducted, there is no study focusing on finding which of the return estimation methods is most suitable to be used for estimating securities returns of companies listed in the SSL.

Prior studies which conducted to assess validity of CAPM in IDX were conducted mainly for conventional indices. Husnan (1993) uses same model as Black, Jensen, and Scholes (1972) and finds that market beta calculated in the study are statistically significant and CAPM is found invalid to be applied in Jakarta Stock Exchange (JSX)[1]. More importantly, he finds that zero-beta CAPM is valid to be used in JSX. This result is consistent with what was found by Sumanto (1993) who observe

[1] Jakarta Stock Exchange and Surabaya Stock Exchange were merged in 2008 became Indonesia Stock Exchange as known today.

monthly return of 120 individual stocks listed in Surabaya Stock Exchange from 1991 to 1993. Karambe and Tandelilin (2003) discover that market beta is not the only factor which can predict the return of stocks listed in IDX from the period of January 1992 to June 2000. They suggest that Arbitrage Pricing Theory is more valid in explaining the stock returns. Saputra (2008) conducted a study on portfolio return variation of stocks listed on LQ45 from period of February 2000 to July 2007. By utilizing CAPM and Fama and French Three-Factor Model, the study suggests that the CAPM was able to provide better explanation about the variation in returns than that of the latter model.

The above studies reveal that returns of the stocks listed in IDX can be explained by different model at different time. Moreover, from the study which specifically measure on shariah-compliant stock is also lacking. Thus, this study is an attempt to address this issue. More specifically, the study attempts to examine validity of two estimation methods, CAPM and Fama & French Three-Factor Model, in estimating returns of the stocks listed in the SSL for the period ranging from 14 September to 25 September 2009. Finally, and perhaps, most importantly, the study will identify which of the two methods is better as compared to another. It is hoped that findings of the study can be beneficial for investors, issuing companies, and other stakeholders in making investment-related decision.

II. LITERATURE REVIEW

2.1. Capital Asset Pricing Model (CAPM)

The CAPM introduced by Sharpe (1964) and supported by Lintner (1965) provides a foundation of asset pricing theory. In general, it is able to give important information on how expected returns can be determined and that asset prices are influenced by their risks. This model was developed based on a model of portfolio selection introduced by Markowitz (1959). Based on the assumptions used by Markowitz in his model, CAPM was then developed into an equation which presented as follows:

$$E(R_i) = R_f + \beta_i\left(E(R_m) - R_f\right) \qquad (1)$$

where: *E (Ri)* is expected return (or cost of equity) on asset i; *Rf* is risk-free rate; *E (Rm)* is expected return of market portfolio; and *βi* is systematic risk of an asset i which calculated by using formula of $\frac{cov\,(R_i,R_m)}{var(R_m)}$ or slope in the regression of excess return $R_i - R_f$ on market's excess return $R_m - R_f$.

The above equation has raised some contra-arguments and invited development of other asset-pricing models such as what had been done by Merton (1973) with Intertemporal CAPM (ICAPM), Ross (1976) with Arbitrage Pricing Theory (APT), and Fama and French (2002) with the three-factor model.

2.2. Fama & French Three-Factor Model

Based on the anomalies found with regard to the CAPM, Fama and French (1992) argue that there are some variables other than market beta which have explanatory power to stock returns. These variables are size, EPR, debt-to-equity ratio and book-to-market ratio. Further, Fama and French (1993) find that the most significant variables among those mentioned above in explaining the stock returns are size, book-to-market ratio, and market beta. Therefore, they propose a three-factor model for measuring expected stocks returns. This model is formulated as follow.

$$R_{pt} - R_{ft} = a_{pt} + b_p\left(R_{mt} - R_{ft}\right) + s_p SMB_t + h_p HML_t + e_{pt} \qquad (2)$$

where: *Rpt* is return of a certain portfolio; *Rft* is risk free rate; *Rmt* is return of market portfolio; *SMBt* is Small Minus Big is the difference between the average returns of the three small-stock portfolios (S/L, S/M, and S/H) and the average returns of the three big-stock portfolios (B/L, B/M, and B/H); *HMLt* is High Minus Low is the difference between the average returns of the two portfolios with highest BE/ME (S/H and B/H) and the average returns of the two portfolios with lowest BE/ME (S/L and B/L); and *αpt* is difference in expected return of the portfolio estimated from the time series with the expected return predicted by the Fama & French Three- Factor Model.

III. DATA AND METHODOLOGY

3.1 Data and Variables

The weekly closing stocks prices of 98 companies[2] which passed consistency test within the period of 14 September 2007 to 25 September 2009 were obtained from the Bloomberg Database. The starting period is chosen since the first SSL was issued at the date, while the end period is chosen because it was the date when the most-updated SSL was issued by the Bapepam-LK. In order to measure returns of the variables, the following equation is used.

[2] Formerly, there were 100 companies passed the data consistency test. However, due to fact that two companies (JASS IJ & PROD IJ) are currently suspended from trading, there is no pricing available for them. With regard to this concern, this study only uses 98 companies as sample.

$$R_{pt} = \ln\left(\frac{P_t}{P_{t-1}}\right) \quad (3)$$

The parameters for the equation can be explained as follows:

- R_{pt} : Weekly return (%) on stock "p" at "t" period
- P_t : Weekly closing price of the stock "p" at "t" period
- P_{t-1} : Weekly closing price of the stock "p" at "t-1" period

Afterward, for risk free rate, this study employs the weekly rate of Indonesian Government Bond with tenor of 10 years[3] which was taken from the Bloomberg Database. While, for market benchmark this study uses the weekly closing price of the JII. In order to measure returns of the weekly return of Government Bond, the following equation is used.

$$R_w = \left[(1 + r)^{\frac{1}{52}}\right] - 1 \quad (4)$$

The parameters for the equation can be explained as follows:

- R_w : Weekly return (%) of Government Bond
- r : Annually return (%) of Government Bond
- $\frac{1}{52}$: Numbers of week within one year

In order to perform analysis by using Fama & French Three-Factor Model, this study follows two additional factors other than excess return of market and risk-free instrument $(R_{mt} - R_{ft})$ as suggested by Fama and French (2003, 2006). These two other factors include:

a. Size of the companies, measured by market equity, (ME) which is calculated by multiplying the closing price with the number of shares outstanding.

[3] According to Damodaran (2006), some governments issued bonds with 30-year or even longer maturities. Additionally, he states that there is no reason why one cannot use these long-maturity bonds as risk-free instruments. However, there may be problems on estimating default spreads and equity risk premiums, since they tend to be more easily available for 10-year maturities. In addition, this study uses Indonesian Government Bond with tenor of 10 years since there is no bond issued with lesser maturity periods available in Bloomberg database.

b. The style adopted by the companies, measured by book equity to market equity, (BE/ME ratio) which is calculated by dividing the book value of stockholders' equity by market equity.

3.2. Methodology

3.2.1. Unit Root tests

To start the analysis, this study checks the stationarity properties of the data series. Gujarati (2003) stated that stationarity is a condition of time series which has constant mean and variance distribution overtime. In order to avoid the spurious regression and invalid regression techniques, it is common to start pre-testing on the time series involved for stationarity. Specifically, this study intends to employ the Augmented Dickey-Fuller (ADF) and Phillips-Peron (PP) unit root tests.

3.2.2. Capital Asset Pricing Model (CAPM)

The first model used in this study to estimate the expected return of a stock is CAPM. This model which is based on time series regressions using OLS was introduced by Black, Jensen, and Scholes (1972) as presented below:

$$R_{pt} - R_{ft} = a_{pt} + b_p\left(R_{mt} - R_{ft}\right) + \varepsilon_{pt} \quad (5)$$

3.2.3. Fama & French Three-Factor Model

1. The relationship between stock returns, overall market factor, size (ME), and value (BE/ME) is investigated by applying model introduced by Fama and French (1993) as presented below:

$$R_{pt} - R_{ft} = a_{pt} + b_p\left(R_{mt} - R_{ft}\right) + s_p SMB_t + h_p HML_t + \varepsilon_{pt} \quad (6)$$

The portfolios used for the above equation were sorted using the following steps:

2. All sample stocks are ranked on the basis of size or market equity to come with small (S), and big (B) companies.
3. The sample stocks are then ranked based on book equity to market equity ratio (BE/ME) in order to sort the high style group (H), medium style group (M), and low style group (L).

Based on the above classification method, this study then forms six portfolios at the intersection of size and style. These portfolios include S/L, S/M, and S/H; B/L, B/M, and B/H. For example, S/L portfolio includes stocks that are in the small size group and also in the low BE/ME group.

IV. RESULT AND DISCUSSION

4.1. Descriptive Statistics

To obtain a preliminary view of the data, seven portfolios are formed. These include small low (S/L) portfolio, small medium (S/M) portfolio, small high (S/H) portfolio, big low (B/L) portfolio, big medium (B/M) portfolio, big high (B/H) portfolio, and market factor (MF) portfolio.[4] The descriptive statistics of these portfolios are presented in table 1.

Table 1: Descriptive Statistics of Returns of the Indonesian Shariah Stocks

(14 September 2007 to 25 September 2009, 106 Observations)

Portfolio	Mean	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Probability
SL	-0.0081	0.0293	-0.5710	8.9221	160.6570**	0.0000
SM	-0.0025	0.0294	0.1860	3.8488	3.7929	0.1501
SH	-0.0015	0.0285	0.0825	3.9669	4.2497	0.1194
BL	-0.0006	0.0345	-1.4764	8.1984	157.8576**	0.0000
BM	-0.0026	0.0340	-0.9159	6.4016	65.9247**	0.0000
BH	0.0019	0.0482	-0.9836	8.4080	146.2613**	0.0000
MF	-0.0016	0.0566	-1.0787	5.8552	56.5608**	0.0000

Note: **, *, indicate significance level at 1% and 5% respectively

Mean column of the above table shows that average of the portfolio's weekly return are positive for one portfolio only (BH portfolio) and negative for six portfolios (S/L, S/M, B/L, B/M, and MF portfolios). Thus, it can be observe that during the period of study, the portfolios consisting big companies produce higher returns as compared to the small companies, with the exception of B/M portfolio.

Afterward, this study also uses skewness measurement to analyze any asymmetry of the probability distribution of a real-valued random variable. The skewness column on the above table shows that the five portfolios (S/L, B/L, B/M, B/H, and MF portfolios) have negative skews. It means that the probability distributions' left tails are longer than the right ones. Besides, the largest part of the probability distributions is concentrated on the right side. Other portfolios are right-skewed, which means that the mass of the probability distributions is concentrated on the left side.

[4] According to Fama and French Three Factors Model, all portfolios needed to be subtracted with risk free rate (Indonesian government bonds 10 years). Thus, this is applied on the study.

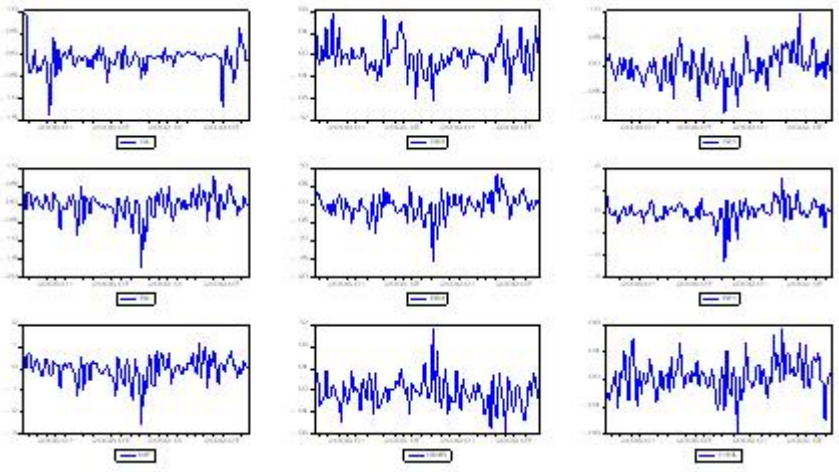
The next descriptive statistics analysis is based on kurtosis which characterizes the relative peakedness or flatness of a distribution as compared to the normal distribution. Using the measurement, distribution of all portfolios incorporated in this study is leptokurtic[5]. A distribution is called as leptokurtic when the kurtosis value (K) is higher than 0. This means that the distribution curve is more peaked and has relatively long tails.

Furthermore, another analysis on descriptive statistics is based on the Jarque-Bera test. It is a goodness-of-fit measure of departure from normality, which based on the sample kurtosis and skewness. Using this test, it is shown that except for S/M and S/H portfolios, all portfolios indicate non-normal distributions at 5% significant level.

4.2. Data Plots and Correlation Coefficients

Based on the plots of all portfolios, the S/L, S/M, S/H, B/L, B/M, B/H, MF, SMB, and HML do not show any steady upward or downward trend as well as variability over the weeks. Therefore, it can be said that these plots are potentially stationary variable whereby mean and variance do not vary systematically over time. This consistent with what suggested by Gujarati (2009). Figure 1 depicts the plots of the S/L portfolio, S/M portfolio, S/H portfolio, B/L portfolio, B/M portfolio, B/H portfolio, MF portfolio, small minus big (SMB) portfolio, as well as high minus low (HML) portfolio from 14 September 2007 to 25 September 2009.

Figure 1: Plots of S/L, S/M, S/H, B/L, B/M, B/H, MF, SMB, and HML



[5] There are two other types of kurtosis measurement, which are platykurtic and mesokurtic. Platykurtic is a distribution with negative excess kurtosis and as a lower, wider peak around the mean and thinner tails. Mesokurtic is a distribution with zero excess kurtosis, such as normal distribution.

Afterward, the study uses the Pearson product-moment correlation coefficient to quantify the relationship between the variables. The coefficient of correlation describes the strength and directions of the relationship (i.e., positive or negative relationship) between two variables in the short-run. The results of the Pearson product-moment correlation show that most of the variables have strength and directions of the relationship (positive and negative relationship). Moreover, it also can be inferred from the analysis that the MF and SMB portfolios are highly correlated with stocks in big size group at the level of significance of 1%. However, MF and SMB have reverse directions in terms of their relationships with big size group. The MF has positive directions with stocks in big size group, but the SMB has negative directions with stocks in the same group. Furthermore, the MF has strong negative correlation with the SMB, implying that when the MF is rising, then the SMB is dropping, *vice versa*.

Moreover, it also can be observed that only the HML portfolio has correlation with stocks in small and big size group of the three factor models. The HML portfolio has moderate positive correlation with stocks in S/L and SMB portfolios but it has moderate negative correlation with stocks in other portfolios. In addition, the HML portfolio has only moderate positive correlation with stocks in big size group. Table 2 summarizes the above discussions.

Table 2: Results of the Pearson Correlation Coefficient

	S/L	**S/M**	**S/H**	**B/L**	**B/M**	**B/H**	**MF**	**SMB**	**HML**
S/L									
S/M	0.008	1.000							
S/H	0.205*	0.455**	1.000						
B/L	0.165	0.382**	0.555**	1.000					
B/M	0.148	0.434**	0.662**	0.791**	1.000				
B/H	0.232*	0.258**	0.581**	0.713**	0.721**	1.000			
MF	0.168	0.391**	0.585**	0.928**	0.818**	0.733**	1.000		
SMB	0.159	0.025	-0.254**	-0.748**	-0.704**	-0.777**	-0.728**	1.000	
HML	-0.348**	0.235*	0.609**	0.212*	0.428**	0.648**	0.294**	-0.457**	1.000

Note: **, *, indicate significance level at 1% and 5% respectively

4.3. Unit Root Tests Result

The unit root test is conducted to check the stationarity property of the series. Stationarity is an important characteristic of time series data since estimating nonstationarity series may lead to spurious results and invalid regression techniques. There are several methods for testing the presence of unit roots. The most widely

used methods are Augmented Dickey-Fuller (ADF) test and Phillips-Perron (PP) test, which are both applied here.

Table 3 shows the results of the ADF and PP tests for each variable. Surprisingly, the associated ADF test indicates that there is stationarity in the level for all variables at the 1 per cent level of significance. Thus, the unit root test must be not continued by differencing the series until the null hypothesis can be rejected. These results are confirmed by the PP tests' results. The plot of each variable at levels form is given in figure 1, which clearly shows that the variables are stationary in the level form of the data

Table 3: Results of Unit Root Tests

Variable	ADF Test	PP Test
	At level	At level
S/L	-9.122**	-9.542**
S/M	-9.162**	-9.279**
S/H	-9.098**	-9.156**
B/L	-9.410**	-9.425**
B/M	-9.896**	-10.101**
B/H	-11.272**	-11.284**
MF	-10.132**	-10.184**
SMB	-11.116**	-11.101**
HML	-10.065**	-10.069**

Note: **, *, indicate significance level at 1% and 5% respectively

4.4. Regression of Market, Size and Value Factor

The CAPM is widely accepted as an appropriate technique for evaluating financial asset. The model gives us a precise prediction of the relationship that we should observe between the risk of an asset and its expected return. However, Fama and French (1992) report that the market beta has little or no ability in explaining the variation in stock returns and that firm size and book-to-market equity effect seem to describe the variation in average returns in a meaningful manner.

Therefore, the study proceeds and formally tests the CAPM and Fama & French three factor model of six size-BE/ME portfolios (S/L, S/M, S/H, B/L, B/M, B/H).

Furthermore, the study measures adjusted R-square $(\bar{R}^2)$ for each portfolio as well. Gujarati (2009) stated that for comparative purposes, $\bar{R}^2$ is better measure than R^2 provided that the regressand (dependent variable) has to be the same to make the comparison be valid. Results for this analysis are shown below in Table 4.

Table 4: Excess Return on the Six Size-BE/ME Portfolios

Regressed on CAPM and Fama & French Model

Portfolio	CAPM			Fama and French				
	a_{pt}	b_p	$\bar{R}^2$	a_{pt}	b_p	s_p	h_p	$\bar{R}^2$
S/L	-0.008 (-2.838)***	0.087 (1.733)***	**0.019**	-0.004 (-1.728)***	0.299 (4.687)*	0.445 (3.272)*	-0.364 (-3.376)*	**0.256**
S/M	-0.002 (-0.835)	0.203 (4.330)*	**0.145**	-0.0004 (-0.183)	0.468 (8.437)*	0.871 (7.357)*	0.406 (4.335)*	**0.441**
S/H	-0.001 (-0.473)	0.295 (7.353)*	**0.336**	-0.002 (-1.061)	0.457 (12.664)*	0.711 (9.243)*	0.738 (12.116)*	**0.749**
B/L	0.0003 (0.244)	0.567 (25.438)*	**0.860**	-3.45E-05 (-0.029)	0.492 (16.417)*	-0.264 (-4.127)*	-0.167 (-3.294)*	**0.881**
B/M	-0.002 (0.349)	0.492 (14.505)*	**0.666**	-0.004 (-1.941)***	0.399 (8.611)*	-0.172 (-1.741)***	0.220 (2.806)*	**0.708**
B/H	0.003 (0.912)	0.625 (10.998)*	**0.533**	-0.003 (-1.233)	0.332 (5.773)*	-0.533 (-4.348)*	0.729 (7.501)*	**0.776**

Note: *, **, ***, indicate significance level at 1%, 5%, and 10% respectively

From the CAPM result, it can be observed that beta coefficient can significantly affect the returns of all the six portfolios with significance level of 1%, except for S/L portfolio which significantly influenced by beta coefficient at the significance level of 10%. Portfolio which returns are highly influenced by beta coefficient is B/H portfolio (with beta value of 0.625). CAPM analysis for data used in this study results that the CAPM intercept (a_{pt} coefficient) is statistically significant for S/L portfolio only but insignificant for other portfolios. The intercept for S/L portfolio is negative at significance level of 10%. Afterward, the CAPM intercept is statistically insignificant for five other portfolios, which are S/M, S/H, B/L, B/M, and B/H. It means that the intercept (S/M, S/H, B/L, B/M, and B/H) should be statistically indistinguishable from zero.

Furthermore, with regard to the measurement of Fama and French Three-Factor model, intercept (a_{pt} coefficient) is statistically significant for S/L and B/M portfolios but insignificant for other portfolios. The intercept for S/L and B/M portfolio are negative at significance level of 10%. Additionally, the intercept for other portfolio is statistically insignificant. Moreover, the overall of market factor (b_p coefficient) is lower than one also and statistically significant at the 1% level for all the six portfolios. The size factor (s_p coefficient) is positive and highly significant at the 1% level for the three small portfolios (S/L. S/M, and S/H). This result was also consistent with Drew, Naughton, and Veeraraghavan (2003). The s_p coefficient for the B/M portfolio is negative and significant at the 10% level. The s_p coefficient for B/L and B/H portfolios is highly significant at the 1% level, but negative. The behavior of the s_p coefficient is generally consistent with the findings of Fama and French (1996) who observe that small firms tend to have positive slopes on SMB while big firms tend to have diminishing positive or negative slopes on SMB. This study also finds that the book to market equity factor (h_p coefficient) is significant at the 1% level for six portfolios. Additionally, it is important to note that the h_p coefficient is negative for S/L and B/L portfolios and the rest portfolio is positive (S/M, S/H, BM, and B/H).

As a result, this study shows a comparison that CAPM merely can explain well the regression in S/M, S/H, B/L, B/M, and B/H portfolios (except for S/L portfolio), since this study uses the significant at the 1% level. Additionally, Fama & French Model merely can explain the regression in S/L, S/M, S/H, B/L, and B/H (except for B/M), since this study uses the significant at the 1% level.

Afterward, table 4 confirms that the average $\bar{R}^2$ of Fama and French model (63.5%) is quite higher than average $\bar{R}^2$ of CAPM (42.7%). This result supports the study done by Fama and French (1993). They found that the regression slops and the average premiums for the three risk factors (the average values of MF, SMB, and

HML) capture most of the strong spread in the average returns on the six size-BE/ME portfolios. This result was the same also from Homsud, Wasunsakul, Phuangnark, and Joongpong (2009), whereas Fama and French model is more able to describe monthly excess return rate of portfolio than CAPM model in Stock Exchange of Thailand.

The subsequent tests employed in this study are autocorrelation, heteroscedasticity, and multicollinearity on CAPM and Fama & French Model from the above regression. The serial correlation LM test reports that there is no evidence of autocorrelation for any the six size to book to market equity sorted portfolios as the computed F statistic is higher than the upper bound value at the 1% level on CAPM as well as Fama & French Model. Therefore, we do not reject the null hypothesis of no autocorrelation among the disturbances entering the regression function.

This study also conducted tests to determine if the null hypothesis of no heteroscedasticity is violated. This study uses the white heteroscedasticity test to detect evidence of heteroscedasticity. This study finds that there is no evidence of heteroscedasticity among the regressors entering the regression function at the 1% level. Thus, we do not reject the null hypothesis of no heteroscedasticity among the regressors in the model. However, there is no evidence of heteroscedasticity on Fama & French Model only, but there is evidence of heteroscedasticity on CAPM in B/L and B/H portfolios.

The next test conducted in this study is multicollinearity. This study employ VIF test to identify evidence of multicollinearity. There is no evidence of multicollinearity if VIF test less than 5. Once again, this study finds that there is no evidence of multicollinearity (CAPM and Fama & French) among the regressors entering the regression function since VIF test less than 5 on Fama and French Model. Detail of the test's result can be seen in table 5.

Moreover, this study also aims to ensure whether excess return on the six size-BE/ME portfolios might get better result during regress on SMB and HML factors only (without market factor). The analysis shows that the SMB only can explain well the regression in S/H, B/L, B/M, and B/H portfolios (except for S/L and S/M portfolios) at the significance level of 1%. The HML only can explain well the regression in S/L, S/H, B/M, and B/H portfolios (except for S/M and B/L portfolios) at the significance

level of 1%. Lastly, The SMB with HML can explain well the regression in B/H portfolio only, since this study uses the significant at the 1% level.

Table 5: Diagnostics Test on CAPM and Fama & French Model

Portfolio	CAPM			Fama and French				
	Serial Correlation LM Test	White Test	VIF Test	Serial Correlation LM Test	White Test	VIF Test		
						MF	SMB	HML
SL	3.218*	0.334***	1.000	0.912***	1.583***	2.136	2.467	1.269
SM	0.823***	0.004***	1.000	1.376***	1.969**	2.136	2.467	1.269
SH	0.051***	0.377***	1.000	1.210***	2.050**	2.136	2.467	1.269
BL	1.111***	5.571	1.000	1.180***	2.886*	2.136	2.467	1.269
BM	0.935***	1.234***	1.000	0.927***	1.485***	2.136	2.467	1.269
BH	0.248***	7.828	1.000	0.197***	2.662*	2.136	2.467	1.269

Note: *, **, ***, indicate significance level at 1%, 5%, and 10% respectively

Furthermore, Table 6 presents that the average R^2 of SMB and HML (38.4%) is higher than average $\bar{R}^2$ of SMB (28.5%) and HML (19.2%). However, the average $\bar{R}^2$ of CAPM (42.7%) is still higher than two factors (SMB with HML).

In addition to the above analysis, this study finds that at the significance level of 1% there is no evidence of autocorrelation, heteroscedasticity, and multicollinearity when SMB is used as explanatory variable on S/L and S/H portfolios only. Surprisingly, there is no evidence of autocorrelation, heteroscedasticity, and multicollinearity when HML is used as explanatory variable at the significance level of 1%. However, there is evidence of heterosdasticity on all portfolios when both SMB and HML are used as explanatory variable at the significance level of 1%.

Table 6: Excess Return on the Six Size-BE/ME Portfolios Regressed on SMB and HML Factors

Explanatory Variable(s)	Portfolio	a_{pt}	s_p	h_p	$\bar{R}^2$
SMB	S/L	-0.008 (-2.649*)	0.164 (1.645)		**0.016**
	S/M	-0.002 (-0.844)	0.026 (0.257)		**-0.009**
	S/H	-0.002 (-0.916)	-0.255 (-2.681*)		**0.056**
	B/L	-0.004 (-1.754***)	-0.906 (-11.486*)		**0.555**
	B/M	-0.006 (-2.395**)	-0.841 (-10.106*)		**0.491**
	B/H	-0.003 (-0.985)	-1.315 (-12.575*)		**0.600**
HML	S/L	-0.006 (-2.336**)		-0.396 (-3.791*)	**0.113**
	S/M	-0.004 (-1.324)		0.268 (2.471**)	**0.046**
	S/H	-0.005 (-2.049**)		0.674 (7.838*)	**0.365**
	B/L	-0.002 (-0.567)		0.284 (2.213**)	**0.036**
	B/M	-0.005 (-1.689***)		0.564 (4.831*)	**0.175**
	B/H	-0.004 (-0.982)		1.212 (8.687*)	**0.415**
SMB, HML	S/L	-0.006 (-2.321**)	-8.60E-05 (-0.0008)	-0.396 (-3.356*)	**0.104**
	S/M	-0.004 (-1.245)	0.173 (1.579)	0.356 (2.935*)	**0.060**
	S/H	-0.005 (-2.018**)	0.031 (0.351)	0.690 (7.102*)	**0.360**
	B/L	-0.003 (-1.479)	-0.997 (-11.467*)	-0.220 (-2.288**)	**0.572**
	B/M	-0.006 (-2.620**)	-0.767 (-8.282*)	0.177 (1.731***)	**0.500**
	B/H	-0.005 (-1.944***)	-1.028 (-10.211*)	0.693 (6.237*)	**0.706**

Note: *, **, ***, indicate significance level at 1%, 5%, and 10% respectively

Table 7: Diagnostics Test on SMB and HML Factors

Portfolio	SMB			HML			SMB & HML			
	Serial Correlation LM Test	White Test	VIF Test	Serial Correlation LM Test	White Test	VIF Test	Serial Correlation LM Test	White Test	VIF Test	
									SMB	HML
SL	2.010***	3.723*	1.00	1.330***	4.399*	1.00	1.324***	3.755	1.264	1.264
SM	0.733***	8.458	1.00	0.978***	0.05***	1.00	0.984***	5.233	1.264	1.264
SH	0.718***	2.38**	1.00	3.095*	2.546**	1.00	3.190*	6.210	1.264	1.264
BL	3.188*	15.56	1.00	0.625**	2.602**	1.00	2.729**	9.304	1.264	1.264
BM	1.294***	6.875	1.00	0.440***	1.39***	1.00	1.329***	3.921	1.264	1.264
BH	0.026***	10.02	1.00	0.392***	3.187*	1.00	0.093***	6.217	1.264	1.264

Note: *, **, ***, indicate significance level at 1%, 5%, and 10% respectively

V. CONCLUSION & RECOMMENDATIONS

5.1. Main Finding

This study provides evidence regarding the expected return of S/L, S/M, S/H, B/L, B/M, and B/H portfolio in the Indonesian Shariah Stocks and its determinants such as market factor (market index minus risk free rate), firm size, and book to market (value premia) factor. Analysis of this study suggests that big and value firms (except for B/M) generate superior returns as compared to small and growing firms. Additionally, these findings are consistent with findings of Fama and French (1996) and Drew and Veeraraghavan (2002) which report that value firms generate superior returns because they are distressed.

By using Ordinary Least Square (OLS) modeling approach, this study finds that the size and value premia exists in the Indonesian Shariah Stocks. In other words, the market beta alone is not sufficient to describe the variation in average equity returns for Indonesian Shariah Stocks over the period 14 September to 25 September 2009. This is because the study shows that the average R-squared (R^2) of Fama and French model (64.5%) is higher than average R^2 of CAPM (43.1%). This result supports the study conducted by Fama and French (1993). They found that the regression slops and the average premiums for the three risk factors (the average values of MF, SMB,

and HML) capture most of the strong spread in the average returns on the six size-BE/ME portfolios.

Afterward, aim of this study to observe whether the size and value premia only can more describe the expected return of portfolio than CAPM in the Indonesian Shariah Stocks is also discovered. This study finds that the average R^2 of CAPM (43.1%) is still higher than the average R-squared (R^2) of SMB and HML (39.6%) and the average R^2 of SMB (29.2%) and HML (19.9%). It means that even though size and value premia can give a good explanation on the expected returns of the Indonesian Shariah Stocks; the market factor is still most important factor among the Fama & French Three Factors Model.

5.2. Implication

Findings of this study may bring some implications for investors who are willing to take additional risks with advantage of extra returns. This study suggests that asset management company as well as investors are suggested to consider the firm size and book to market equity (including market factor) in order to make expectation on return of all portfolios (S/L, S/M, S/H, B/L, B/M, and B/H) in the Indonesian Shariah Stocks. As found in this study, the market beta alone is not sufficient to describe the variation in average equity returns for Indonesian Shariah Stocks. Thus, understanding of two other factors that can influence the stocks' return may help the asset management companies and individual investors to more effectively plan and decide their investment portfolios. However, they may be required to spend extra efforts to indentify the firm size and book to market equity to finally come up with the expected return of portfolios.

Besides, this study supports the country's Capital Market and Financial Institutions Supervisory Agency to continuously publish the Indonesian Shariah Stock List according to the standard so that it can be a reference for the investors as well as asset management companies to invest in shariah-compliant stocks. Additionally, this study encourages the Agency, the Indonesia Stock Exchange, as well as researchers on Islamic capital market to formulate an index which comprise of all shariah stocks available in the country to be further used as benchmark for individual shariah stock. This is because the current available index which related with shariah stocks is only JII which consistently consist of 30 shariah-compliant stocks.

Afterward, academicians can continue to teach the CAPM as an introduction to the fundamental concepts of portfolio theory and asset pricing. However, they also have to warn their students that despite its seductive simplicity, the CAPM's empirical problems probably invalidate its use in applications. Therefore, they are strongly recommended to introduce other methodologies for making portfolio return expectation, such as Fama & French Model.

Finally, as a Muslim, we have to concern that investment choices that we make should not only be based on the profit maximization but also on those returns in the hereafter. Hence, the decision to invest in Indonesian Shariah Stocks is not only to earn some profit but also to get the blessing of Allah SWT.

5.3. Future Research

Fama and French (1992) stated that there are some variables other than market beta which have explanatory power to stock returns. These variables are size, EPR, debt-to-equity ratio, and book-to-market ratio. Thus, the next study is suggested to use all of those variables and find out whether those can give better result on expected return of the portfolios. Secondly, it is also suggested to use monthly data of the Indonesian Shariah Stocks, since use of monthly data set may give different result from use of weekly data set. Additionally, by using monthly data, future study is also recommended to address whether the Fama and French Model can be explained by January effect, since Fama and French (1993) note that returns on small stocks tend to be higher in January than in the rest of the year. Finally, further study also suggested using different sample of data, such as the whole stocks traded in IDX or stocks listed on several indices, such as JCI, JII, or LQ 45. This is because result of this study only relevant for Indonesia Shariah stocks and cannot be generalize to any other stocks.

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