CHAPTER EIGHT

FIRM SPECIFIC VARIABLES AND STOCK RETURNS

This part of the thesis aims at investigating whether there is difference in returns between Syariah and non-Syariah firms, and whether Syariah and non-Syariah firms react similarly to the same variables. The data are collected from Bloomberg database and DataStream database. There are 150 companies in each sub-sample for 7 years with 1050 observations for each sub-sample. The variables used in this study are return (R) as dependent variable, market capitalization (MC), price earnings ratio (PER), market risk (BETA), total debt (DEBT) and market to book (MTB) as independent variables from year 2000 to 2006. This essay is concerned with reporting the results of firm specific variable and market returns form Syariah and non-Syariah companies and with interpreting them. The result of the two sub-samples companies is reported in different tables. All the variables are expressed in the natural log to ensure consistency of measures.

8.1 Series Characteristics

Table 8.1 displays the properties of the whole sample consisting of 300 firms. The mean of the return is at -0.05, while the market capitalization and debt have an average growth rate of 19% and 17% respectively. The market risk mean is at 0.203, which is below one that indicates that the firms are defensive. The average growth rate of price earnings ratio is 2.1 %, while market to book has a negative growth rate of 0.122. The standard deviation is the highest for market capitalization followed by debt. In contrast, book to market, beta and market capitalization have the lowest deviation. All the variables seem to fail the J-B test of normality indicating that the variables are normally distributed.

Table 8.1 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

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

Table 8.2 reports the descriptive statistics for both non-Syariah (referred to by subscript n) and Syariah or screened firms (referred to by the subscript s). The mean returns for both firms are negative, but Syariah returns are lower than non-Syariah firms are. The standard deviations of both returns indicate that both firms are facing the same risk exposure. The mean for other variables is as follow, price earnings ratio and debt are higher for non-Syariah firms, while market to book, beta and market capitalization are higher in Syariah firms. The normality test, namely Jarque-Bera (J-B) test indicates that all the variables in both sub samples are not normally distributed.

Although, KLSI does not have any criterion against the level of debt a company may acquire it is found that the average total debt for non-Syariah firms is higher than Syariah firms. One explanation for this can be that most of the financial industry firms are excluded from Syariah firms that prevent them from involving in high debt. Another explanation could be that many of the firms included in Syariah firms are small sized firms that have to

meet many requirements in order to get debt financing while large firms do not face the same obstacle.

Table 8.2 Descriptive statistics for conventional and Syariah firms

	Rn	PERn	MTBn	MCn	DEBTn	BETAn	Rs	PERs	MTBs	MCs	DEBTs	BETAs
Mean	-0.061	2.252	-0.198	19.039	17.640	-0.138	-0.030	1.884	-0.046	19.556	17.157	0.544
Median	-0.035	2.322	-0.236	18.714	17.979	-0.124	-0.019	2.241	-0.083	19.415	18.165	0.488
Maximum	1.408	8.740	2.657	24.288	22.959	4.68	1.910	8.136	3.304	24.428	24.527	2.99
Minimum	-1.920	-0.916	-2.040	16.475	6.908	-3.29	-1.515	-1.609	-2.659	16.074	6.908	-0.922
Std. Dev.	0.394	1.251	0.650	1.381	2.315	0.546	0.384	1.367	0.78	1.56	4.268	0.438
Skewness	-0.356	0.207	0.704	1.138	-1.326	0.824	0.189	-0.001	0.46	0.46	-1.305	0.553
Kurtosis	4.340	4.936	4.774	4.193	6.968	17.646	5.235	2.785	4.453	2.776	4.096	4.405
J-B	100.7*	171*	244*	288*	996*	9504*	224*	2.03	129.4*	39.3*	351*	140*

Rn, PERn, MTBn, MCn, DEBTn, and BETAn are non-Syariah firms' average returns, price earnings ratio, market to book ratio, market capitalization, total debt, and market risk respectively.

Rs, PERs, MTBs, MCs, DEBTs, and BETAs are Syariah firms' average returns, price earnings ratio, market to book ratio, market capitalization, total debt, and market risk respectively.

8.2 Correlation

The main purpose of this section is to detect the multicollinearity problem among independent variables. The benchmark for multicollinearity is 0.8, according to Gujarati (2003).

Table 8.3 reports the simple correlation for all the 300 firms. The correlation between market capitalization and market to book, price earnings ratio and debt is positive and significant at 35%, 21% and 34% respectively. Market to book is correlated positively with price earnings ratio at 9%, while it is negatively related to debt at 10%. Beta, on the other hand, is negatively correlated with price earnings ratio at 5.5%. Although the correlation is significant between independent variables, it is far below Guajarati's (2003) benchmark of 0.8. In addition, one of the characteristics of panel data is that it will avoid the problem of multicollinearity (Hsiao 2003).

Table 8.3 Simple correlation for all firms

	MC	MTB	PER	DEBT	BETA
MC	1				
MTB	0.3455*	1			
PER	0.2060*	0.0905*	1		
DEBT	0.3432*	-0.1038*	-0.0279	1	
BETA	0.0279	0.0251	-0.0559*	-0.0252	1

* Significant at 1%

8.3 Empirical analysis

8.3.1 Returns Difference

Before running the pooled regression to determine whether there is a difference in mean between both 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 8.4 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 mean and constant variance over the 7 years of the study.

Table 8.4 Unit root test for all firms

Variable	Levin, Lin & Chu t*		
	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

*, and ** significant at 1%, and 5%.

Table 8.5 reports the results of weighted pooled OLS estimator with a dummy variable to test whether there is a difference in returns between Syariah and non-Syariah firms. The result indicates that there is no difference in returns between firms. In addition, for the other independent variables beta, debt and market to book are the only significant variables. Market to book and beta have a positive sign, indicating positive impact on returns, while debt has a negative sign, which indicates that the higher the debt, the lower the returns. R^2 and adjusted R^2 are 1.5% and 1.3% respectively, while the F value indicates that the model is a good fit and D-W value points out that there is no problem of autocorrelation.

Table 8.5 OLS pooled regression of all the firms

Variable	Coefficient
PER	0.0040
MC	-0.0016
MTB	0.0294*
DEBT	-0.0035**
BETA	0.0328*
DUMMY	-0.0119
C	0.0612
F-test	5.47*
R^2	0.015
ADJ. R^2	0.013
D-W TEST	2.07

* Significant at 1%

8.3.2 Individual Firm Return

Table 8.6 reports the simple correlation for the 150 non-Syariah firms. The correlation between market capitalization and market to book, price earnings ratio, beta and debt are positive and significant at 32%, 14%, 6% and 47% respectively. Market to book is correlated positively with price earnings ratio at 7%, while it is negatively correlated with debt, but not significant. Beta, on the other hand, is negatively correlated with market capitalization at 5.6%. Although the correlation is significant between independent variables, it is far below the benchmark of 0.8 set by Gujarati (2003).

Table 8.6 Correlation for non-Syariah firms

	PER	MTB	MC	DEBT	BETA
PER	1				
MTB	0.072**	1			
MC	0.138*	0.324*	1		
DEBT	-0.016	-0.019	0.467*	1	
BETA	-0.011	0.014	0.056***	0.047	1

*, ** and *** Significant at 1%, 5% and 10%.

Table 8.7 shows the results for unit root in panel data for both non-Syariah and Syariah firms. All the variables are stationary in the level. This result confirms the earlier results for the full sample, which suggest that there is no problem of unit root.

Table 8.7 Unit root test for Syariah and non-Syariah firms

Variable	Non-Syariah firms Levin, Lin & Chu t*			Syariah firms Levin, Lin & Chu t*		
	Intercept	Intercept & time	None	Intercept	Intercept & time	None
R	-39.88*	-45.8*	-36.3*	-35.34*	-43.87*	-33.02*
BETA	-41.7*	-30.9*	-34.59*	-26.34*	-2.43*	-14.86*
MC	-26.25*	-44.32*	1.6	-13.27*	-47.08*	-0.23
MTB	-22.96*	-72.47*	3.41*	-28.46*	-30.49*	-5.29*
PER	-50.84*	-37.23*	-8.4*	-23.68*	-43.02*	0.192
DEBT	-82.74*	-88.42*	-0.07	-33.72*	-49.11*	-1.64**

* and ** significant at 1%, and 5%.

Table 8.8 reports the simple correlation for the 150 Syariah firms. The correlation between market capitalization and market to book, price earnings ratio, and debt are positive and significant at 34%, 32%, and 33% respectively. Market to book is correlated positively with price earnings ratio at 13%, while it is negatively correlated with debt at 14 %. Beta, on the other hand, is positively correlated with market to book at 5.4%. Although the correlation is significant between independent variables, it is far below the benchmark of 0.8 set by Gujarati (2003).

Table 8.8 Correlation for Syariah firms

	PER	MC	MTB	DEBT	BETA
PER	1				
MC	0.315*	1			
MTB	0.133*	0.342*	1		
DEBT	-0.051	0.325*	-0.135*	1	
BETA	0.031	0.027	0.054***	0.006	1

*,**, and *** significant at 1%, 5%, and 10 %

Table 8.9 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

Ho: difference in coefficients not systematic
1.5 (Hausman test)

Ho: difference in coefficients not systematic
7.38 (Hausman test)

Ho: no first-order autocorrelation
2.54 (Wooldridge)

Ho: no first-order autocorrelation 1.5
(Wooldridge)

$$R_{jt} = \alpha_i + \chi_i \beta etajt + \delta MC_{jt} + \lambda_i MTB_{jt} + \phi PER_{jt} + \varphi DEBT_{jt} + \mu_{jt} --- non-Syariah$$

$$R_{jt} = \alpha_i + \chi_i \beta etajt + \delta MC_{jt} + \lambda_i MTB_{jt} + \phi PER_{jt} + \varphi DEBT_{jt} + \mu_{jt} ----Syariah$$

R is returns, PER is price-earnings ratio MC is market capitalization, MTB is market to book ratio, DEBT is the total debt, and BETA is the market risk.
*, **, and *** significant at 1%, 5%, and 10 %

Table 8.9 reports the results of the panel data estimation for both Syariah and non-Syariah firms separately. There are three reported estimations for each type of firms for comparison purposes. For non-Syariah firms the significant variables affecting returns are market to book and beta. For Syariah firms price earnings ratio and market cap are significant in fixed and random effect estimation respectively. Market to book is the only variable that consistently affects returns. Market to book has a positive sign that is not consistent with

the theory 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 has a positive relation with returns, which was interpreted as value firms having higher returns because there were undervalued. The same analogy can be applied to market to book since it is the opposite of book to market and it can be derived that it should have a negative relationship towards returns. This can be interpreted as both firms being undervalued. Debt in the non-Syariah firms has the predicted sign that is negative, indicating that the higher the total debt a firm accumulates, the lower its returns due to its risk. Market capitalization and price earnings ratio for both firms are following the predicted sign whereby there is a negative effect of market capitalization or size and a positive effect of price earnings ratio. On the other hand, beta is positive and significant in non-Syariah firms and negative but not significant in Syariah firms. This indicates that non-Syariah firms are volatile while Syariah firms are defensive. This is clear since any change in the market risk by one percent will affect non-Syariah firms by positive number. However, a change in the market risk by less than one percent affects Syariah firms negatively.

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

8.4 Conclusion

The goal of this part is to test whether there is a difference in returns between Syariah and non-Syariah firms while controlling for firm specific variables. It also aims to test whether there is a difference in the variables affecting Syariah and non-Syariah firms. Using panel data techniques it is concluded that there is no difference in returns between both types of firms. On the other hand, the only variable that is common in affecting returns for both firms is market to book. For other variables, debt and beta explain some of the variation in returns for non-Syariah firms while price earnings ratio explains the variation in returns in Syariah firms. This result goes in line with the previous results about performance of KLSI and KLCI and the macroeconomic variables impact on these two indices. Again, the results suggest that both firms do not significantly differ in returns and that are common factors that affect them. Therefore, investors wishing to maximize their financial and non-financial returns can choose to invest in Syariah firms without fearing any penalty.