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DOES DEBT STRUCTURE AFFECT FIRM'S PERFORMANCE? PANEL EVIDENCE FROM SHARIAH APPROVED FIRM IN MALAYSIA

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Abstract: *High reliance on debt proved contributes to the downfalls of large U.S. corporations such as Enron (2001), Lehman Brothers (2008) as well as during the 2009 Greek depression. Given the current uncertainty in the global economic condition, it is important to examine the return from debt in order to ascertain the optimal use of debt. Thus, this paper aims to assess the impact of the debt level on the performance of Shariah-approved firms listed on Bursa Malaysia. Various studies have been conducted to explain the influence of debt on the firm's performance, given different sets of periods, countries, methodologies as well as the selection of the variables. However, less attention is given to the Shariah approved firms. Uniquely, this study focuses on the consistent Shariah approved firms only, for the period of 2000 to 2014 according to Malaysia's Securities Commission. Our main explanatory variable is debt ratio and several firm characteristics, industry characteristics, as well as economic variables, are chosen as a controlled variable. ROA is chosen as a firms performance proxy. This study employs a panel linear regression model which includes the pooled OLS, random effect model (REM) and fixed effect model (FEM). Our analysis proved that debt is not a robust determinant to determine the performance of Shariah approved firms in Malaysia. However, several controlled variables such as growth, size and Z-score are found robust to determine Shariah approved firms' performance. Our analysis also found that there is a variation in terms of debt structure of the Shariah approved firms in Malaysia and our further*

analysis revealed that variation in debt structure contributes differently to the performance of the firms. The output from this study provides new insight and understanding in determining the relationship between performance and debt of Shariah approved firm in Malaysia specifically. This study largely contributes in terms of the sampling selection in which a firm must be consistently Shariah approved during the period of analysis.

Keywords: Shariah approved firm, firm performance, capital structure, panel data, Islamic finance.

1. Introduction

There is a dire need to study about debt and its matter not only due to the inconclusiveness issue (Charalambakis and Psychoyios, 2012; Haron, 2014) on the factors affecting debt and also scarce empirical literature from the perspective of Shariah approved firms specifically, but also because debt is closely linked to corporate performance (Zeitun and Tian, 2007). In addition, discussion on debt may also relate to the issue of financial distress (Opler and Titman, 1994), debt overhang (Myers, 1977), bankruptcy risk (Altman, 1984) and financial fragility (Davis, 1995).

Unfortunately, there is no consensus from the finance scholars pertaining to how much debt that firms should have optimally in running a business. It is just generally understood that too much debt triggers many problems and thus it needs to be planned wisely. In contrast, Islam fills that gap by limiting debt to only 33% following the Prophet Muhammad's pbuh word. As Malaysia's practices for listed firms in Bursa Malaysia, firms need to undergo 2-tier assessments qualitatively and quantitatively, set by the Securities Commissions (SC) of Malaysia in order to be recognised as Shariah approved firm since the year 2013. These assessments are inclusive debt ratio benchmark which is to be limited to 33% only that aims to measure riba and riba-based elements within a firm's statements of financial position.

As of December 2014, 673 stocks had been approved as Shariah approved stocks by the Shariah Advisory Council (SAC), representing 74% of the 905 total stocks traded on Bursa Malaysia. For the record, as of December 2014 also, Shariah approved stocks held about 61.3% of market capitalization and were worth around RM 1,012.14 billion. Due to its significance market size and never-ending discussion about debt, this study keen to contribute to the existing literature of the Shariah approved firms specifically by examining debt structure of those firms and how it contributes to the firm's performance.

2. Literature Review

The previous study shows that there is a mixed relationship between firm's performance and debt level. This is evidenced in prior literature, such as Abor (2005), San and Teh (2011), Salim and Yadav (2012), Khan (2012), Vithessonthi and Tongurai (2015) and Yazdanfar and Öhman (2015).

These inconclusive findings contributed by several factors. Others are due to the different proxies used to measure performance and are also partly caused by the variety of socioeconomic environments that shaped the firms' institutional frameworks (Yazdanfar and Öhman, 2015). Sources and origins of debt may also affect the firm's performance level (Davydov, 2016). González's (2013) analysis of 39 developed and developing countries found that firms' performance varies with their legal origin and financial structure and development level of the countries where they are located. Debt negatively affects average performance in the case of smaller business structures, but the results can be positive if the firms have collateral (Tsuruta, 2017).

Theoretically, a positive relationship between a firm's performance and debt level is consistent with the agency theory, which suggests that the more debt a firm uses, the higher the firms performed. Due to the separation of ownership and control in a firm, the manager and the shareholders typically engage in agency conflict (Jensen and Meckling, 1976). To mitigate agency problems, firms opt for debt financing. Debt is perceived as a discretionary managerial behaviour to ensure that the manager provides a sufficient work effort to maximise the firm's value. Again, precautionary action must be observed, however, as excessive use of debt at a certain level may diminish the inherent benefits to the firm and can lead to bankruptcy and liquidation.

3. Research Methodology

This study covers a 15-year period of analysis from 2000 to 2014. The sample of the study is the Shariah approved firms from various sectors in the Main Market of Bursa Malaysia. Further, the firms also must consistently Shariah approved firms during that period in order to be included in the analysis. The study adopts a purposive sampling technique and some criteria and assumptions have been adopted accordingly during the selection process. Consistent with the research objective, the study develops econometric models using panel linear regression method that includes the pooled OLS, random effect model (REM) and fixed effect model (FEM).

$$Y_{it} = \beta 0 + \beta 1 DR_{it} + \beta 2 TANG_{it} + \beta 3 GROW_{it} + \beta 4 SIZE_{it} + \beta 5 ZSCORE_{it} + \beta 6 NDTS_{it} + \beta 7 HH_{t} + \beta 8 INF_{t} + \beta 9 GDP_{t} + \beta 10 FIN_{t} + \varepsilon_{it}$$

The main explanatory variable in this study is the debt ratio (DR). Several firm characteristics—asset tangibility (TANG), firm's growth (GROW), firm's size (SIZE), bankruptcy risk (ZSCORE), and non-debt tax shield (NDTS) and industry characteristics—Herfindahl-Hirschman Index (HH), as well as economic variables—inflation (INF), gross domestic product (GDP) and 2008 financial crisis (FIN), are chosen that serves as controlled variables. Meanwhile, our dependent variable is the firm's return on asset (ROA). All raw data are downloaded accordingly from Datastream database.

Details of the variables selected in this study is as in Table 1.

Table 1: Variables measurement

	WHAT TO MEASURE	HOW TO MEASURE
DEPENDENT VARIABLES (Y)		
Return on asset	Firm's performance	Net Income – bottom line + ((Interest expense on debt-interest capitalised) * (1-Tax rate) Average of last year's and current year's total assets *100
FIRMS DETERMINANTS (X)		
Debt ratio	Firm's total debt	Firm's total debt / Firm's total asset
Tangibility	Firm's asset structure	Firm's fixed asset / Firm's total asset
Growth	Firm's growth opportunities	Annual percentage change in total assets
Size	Firm's size	Log of sales
Z-score	Bankruptcy risk	3.3(EBIT/total assets) + 1.0(sales/total assets) + 1.4(retained earnings/total assets) + 1.2(working capital/total assets) + 0.6(MV of equity/total liabilities)
Non-debt tax shield (NDTS)	Alternatives to tax shields as provided by debt financing	Annual depreciation expenses / Firm's total asset
Herfindahl-Hirschman Index (HH Index)	Industry concentration	Sum of the squares of the market shares of firms within a given industry
GDP	GDP growth	
Inflation	Annual inflation	
Financial crisis	2008 financial crisis	Dummy 1= 2008 financial crisis 0= Other than the year 2008

4. Results and Analysis

Initially, there were 673 total Shariah approved firms as of November 2014 based on the SC Shariah approved listing. As this study focuses only on the seven industries, the number of Shariah approved firms were reduced to 586. Since the study requires firms to be consistently Shariah approved from 2000 to 2014, only 239 firms remain at the end of the screening procedure.

From the analysis, as seen in Table 1, the Breusch Pagan Lagrangian Multiplier (BPLM) test is found to be statistically significance (p=0.01) and this concludes that the REM is more appropriate than the pooled OLS. It is also confirmed that the firm-specific effects exist in the model. Then, the study proceeds to the Hausman test to confirm either the REM or FEM is the most appropriate model. The Hausman test is statistically significant (p=0.01) and thus the null hypothesis is rejected which confirmed that the FEM is the best model. The F-statistics prove the validity of the model.

A diagnostic check on FEM was also conducted to identify whether the model suffers from multicollinearity, heteroskedasticity and autocorrelation problems. From the results, the model suffers heteroskedasticity and autocorrelation problems as evidenced by the modified Wald test and Wooldridge test. However, from VIF result, no multicollinearity problem exists in the model. Since FEM suffers heteroskedasticity and autocorrelation problems, a fixed effect robust cluster model was performed as suggested by Hoechle (2007) to overcome these problems where the standard error is adjusted to be robust to heteroskedasticity and clustered at the firm level.

Since this study focuses on the relationship between performance and debt ratio of Shariah approved firms in Malaysia, further discussion will only cover that specific scope. From Table 2, using FEM, the best econometric model, at the pooled sample, total debt is found not significant to affect the performance of the Shariah approved firms in Malaysia. Thus, it can be concluded that the debt level does not matters for Shariah approved firm's performance in Malaysia. There are other factors that proved contributes to the performance of the Shariah approved firms in Malaysia such as growth, asset tangibility, size, bankruptcy risk and HH Index that measures industry concentration. However, only growth, size and bankruptcy risk are found robust in determining Shariah approved the firm's performance in Malaysia.

Table 2: Panel regression result (Pooled sample)

VARIABLES	(1) OLS	(2) RE	(3) FE	(4) FE ROBUST	VIF
Constant	-0.0497***	-0.0085	0.0620**	0.0620	-
	(0.0095)	(0.0159)	(0.0251)	(0.0426)	
DR	-0.0340***	-0.0121	0.0035	0.0035	-
	(0.0068)	(0.0082)	(0.0091)	(0.0197)	
GROW	0.0260***	0.0237***	0.0229***	0.0229***	1.02
	(0.0025)	(0.0022)	(0.0022)	(0.0061)	
TANG	0.0322***	0.0028	-0.0188**	-0.0188	1.38
	(0.0057)	(0.0072)	(0.0082)	(0.0149)	
SIZE	0.0082***	-0.0013	-0.0152***	-0.0152*	1.53
	(0.0019)	(0.0031)	(0.0047)	(0.0080)	
Z-SCORE	0.0324***	0.0389***	0.0441***	0.0441***	1.87
	(0.0012)	(0.0016)	(0.0019)	(0.0051)	
NDTS	-0.3155***	-0.2021***	-0.1268	-0.1268	1.29
	(0.0500)	(0.0658)	(0.0771)	(0.1341)	
HH	0.0800***	0.1211***	0.1212**	0.1212	1.07
	(0.0257)	(0.0412)	(0.0580)	(0.0842)	
GDP	0.0002	0.0003	0.0003	0.0003	1.17
	(0.0004)	(0.0004)	(0.0004)	(0.0003)	
INF	0.0006	0.0010	0.0015	0.0015	2.41
	(0.0013)	(0.0011)	(0.0011)	(0.0012)	
FIN	0.0046	0.0010	-0.0014	-0.0014	2.26
	(0.0058)	(0.0050)	(0.0050)	(0.0045)	
BPLM	1518.99***		-	-	
Hausman	-		40.49***	-	
Wald test	-	-	60136.61***	-	
Wooldridge	-	-	20.141***	-	
Rsquare	0.3464	0.3336	0.3006		
F-stat	-	-	108.16***	-	

Note.
1) ***, **, * denote significance at 1%, 5% and 10% level, respectively; the numbers in parentheses are the t-statistics.
2) The Wald test statistics test for group-wise heteroskedasticity in the fixed effect regression model where the H_0: all coefficients = 0.
3) The Wooldridge test statistics test for autocorrelation problems in the panel data where the H_0: no first-order autocorrelation.
4) Fixed effect robust cluster is where the standard error is adjusted to be robust to heteroskedasticity and clustered at the firm level

Since debt was found not significant to influence firm performance as in Table 2, an enhanced analysis has been performed to find out how the structure of debt itself may influence the performance of Shariah approved firms in Malaysia. The firms' sample is divided into two categories according to their debt structure—1) Shariah approved firms with consistent debt ratio less than 33% and 2) Shariah approved firms with inconsistent debt ratio less than 33%. There are 106 firms with consistent debt ratio less than 33% from 2000 to 2014, a contrast to 133 firms with inconsistent debt ratio less than 33%. The FEM is used since it is the best econometric model as evidenced in the pooled sample analysis earlier. The panel regression results based on the different debt structure are as in Table 3.

It is obviously seen that the structure of debt of the Shariah approved firms in Malaysia did not matter to the firm's performance as the insignificant results shown for both types of the firm. Therefore, it can be concluded that debt structure does not play roles in determining the firm performance. The performance of the firms may contribute by the other factors. This can be proved by looking at the controlled variables results. The results confirmed that the performance of Shariah approved firms with consistent debt ratio less than 33% are contributes by growth, size, bankruptcy risk, NDTS and industry concentration. Unlike Shariah approved firms that opt for inconsistent debt ratio of less than 33%, their performance is affected by growth and bankruptcy risk only. For both types of firms, similar factor that are found significant in determining firm's performance are growth and bankruptcy risk. In fact, the relationship directions are also similar—firm's that have high growth rate and high Z-score will have higher performance, regardless of their debt structure. This result consistent with the earlier panel regression analysis using pooled sample that also found that growth and bankruptcy risk is matter in determining the Shariah approved firm performance in Malaysia.

Table 3: Panel regression result (Different debt structure)

VARIABLES	(1) Consistent DR less 33%	(2) Inconsistent DR less 33%
Constant	0.1020**	0.0302
	(0.0412)	(0.0325)
TD	-0.0331	0.0064
	(0.0228)	(0.0107)
GROW	0.0439***	0.0180***
	(0.0048)	(0.0026)
TANG	-0.0203	-0.0170
	(0.0133)	(0.0105)
SIZE	-0.0222***	-0.0087
	(0.0077)	(0.0061)
Z-SCORE	0.0449***	0.0432***
	(0.0030)	(0.0025)
NDTS	-0.2903**	-0.0673
	(0.1360)	(0.0949)
HH	0.1671**	0.0663
	(0.0802)	(0.0832)
GDP	0.0004	0.0002
	(0.0005)	(0.0005)
INF	0.0014	0.0017
	(0.0016)	(0.0015)
FIN	0.0018	-0.0053
	(0.0071)	(0.0069)
Observations	1,482	1,840
Number of firms	106	133
R-squared	0.2514	0.3264

Note.
1) ***, **, * denote significance at 1%, 5% and 10% level, respectively; the numbers in parentheses are the t-statistics.

5. Conclusion

The study investigates either debt structure of the Shariah approved firms in Malaysia contributes to the performance of the firms. Consistent Shariah approved firms from various industry listed in Bursa Malaysia were selected for the period of 2000 to 2014. To achieve its objective, the study employs a panel regression model for further investigation.

The analysis using FEM for both pooled sample and different group of firm's debt structure confirmed that there is no relationship between debt level and performance of Shariah approved firms in Malaysia. The result is also robust using FE robust cluster. However, certain controlled variables such as firm's growth level and bankruptcy risk are found significant in determining firm's performance at pooled sample as well as across different group of firm's debt structure.

The findings further suggest that limiting debt to only 33%—that is according to the Islamic teaching and the practices of SC in the assessment procedure for listed firms, does not increase the performance of firms. In fact, there is no significant evidence in terms of contribution to the firm performance level, if the firm decides to have consistent or inconsistent debt ratio of less than 33%. In other words, debt level can be said as irrelevant to the firm's performance based on the adopted method of analysis. However, further investigation using more sophisticated econometric model coupled with the latest financial data of the firms may derived a more informative output.

Despite of the unfavourable results, the initiative taken by SC back in 2013 is something to proud of, however, as it will expand the Malaysian capital market to a wider reach consistent with the SC's aspiration in the Capital Market Master Plan 2 (CMP2). As time goes by, hopefully more initiatives will be taken by the policymakers to attract both Muslims and non-Muslims investors to invest in Shariah approved firms.

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