Capital Structure Determinants of Shariah and Non-Shariah Companies at Bursa Malaysia – Dynamic Approach

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This is a comparative study that examines capital structure determinates involving public listed Shariah and non-Shariah companies, in Bursa Malaysia from 2005 to 2016. There are six capital structure determinants identified in this study, namely total assets, fixed assets, current assets, sales, return on equity and earning per share. Deploying a dynamic estimation model via Generalized Method of Moments (GMM) upon these six capital structure determinants, the study reveals that current asset is the only significant capital structure determinant for the shariah-compliant category. With respect to the non-Shariah companies, total assets and fixed assets are the two significant determinants. It is worthy to note that the lag dependent Debt-Equity is also significant for both Shariah and non-Shariah categories. The significant role of this lag dependent variable suggests the importance of dynamic capital structure in explaining variations in capital structure of public listed companies in Malaysia. Similarly, the significant functions of current assets and fixed assets directly implies the relevance of Trade-Off theory in explaining a firm's choice of capital structure. In terms of profitability and value of total assets, the non-Shariah companies are performing better than their counterparts. However, it is important to note that this study is subject to survivorship bias as those loss-making companies have been entirely excluded from the analysis.

Key words: *Capital Structure Theories, Shariah Companies, Non-Shariah Companies, Trade-Off Theory, Dynamic Panel Data Model, Bursa Malaysia.*

Introduction

The topic of capital structure has attracted attention of many scholars and practitioners, and it is the most debated topic not only in academia but also in the corporate world (Demirgüneş, 2017). Capital structure describes the distribution of equity and debt in financing business operations and managing the capital structure efficiently will enable companies to emerge stronger over time (Foo et al., 2015; Saad, 2010). For this reason, a financial manager must strive to put a company at the optimal capital structure level (the best mix of debt and equity) that maximizes the firm's value (Mazhar et al., 2010). Managing a company at the point of optimal capital structure is desirable because it will benefit the company in achieving its long-term growth goals (Razak et al., 2017). However, one must admit that the task of attaining this optimal point is rather challenging for every financial manager. Despite the fact that there is a myriad of studies conducted on determinants of capital structure upon non-Shariah companies in both developed and developing markets, little attention has been given on Shariah-compliant firms (Ahmad and Azhar, 2015).

At present, the Shariah-based financial model is one of the celebrated topics among economists and researchers. Fundamentally, conventional finance is hinged upon a debt-based financial instrument that promotes a risk transfer. In contrast, Islamic finance is attached to an asset-based framework that focuses on risk sharing (Hasan and Dridi, 2010). Also, Islamic finance prefers equity-based financing over debt financing (Hourani, 2004). As such, Islamic finance encourages distribution of loss and profit among business partners which conforms to Islamic principles (Gunn and Shackman, 2014).

Malaysian's approach towards financial innovation in 1993 resulted in the establishment of dual banking system, that is, conventional banking system and Shariah-based or Islamic banking system. This is a very unique system as they operate side by side. Standards and guidelines are developed by Shariah Advisory Council (SAC) in accordance with Shariah-based principles (Ahmad and Azhar, 2015). No doubt that Malaysia is one of the pioneers in Islamic finance.

The Shariah Advisory Council (SAC) is a reference body and an advisor to Bank Negara Malaysia (BNM). It holds the responsibility of confirming and ensuring that all Takaful and Islamic banking products are in full compliance to Shariah-based principles. The screening methods of SAC is important in ensuring that all shariah approved stocks strictly follow the stipulated guidelines and principles of Islam. The SAC consistently confirms and checks fundamentals of those Shariah-compliant companies periodically (Adam and Bakar, 2014).

The conventional financial system plays an important role in facilitating the flow of funds from surplus economic units (financial intermediaries) to the deficit units or borrowers (Kumar and Kaushal, 2017). With respect to Shariah-compliant companies, their borrowing activities are allowable but the use of interest (or Riba) is strictly prohibited in the teaching of Islam (Gunn and Shackman, 2014; Farooq, 2012). As such, SAC imposes a very clear guideline that every Shariah-compliant company must maintain its debt equity ratio to a limit that is less than 33 percent (Ahmad and Azhar, 2015). Having understood the characteristics of these Shariah-compliant companies, a comprehensive study on capital structure determinants of all listed firms at Bursa Malaysia is warranted (Thabet et al., 2017; Ahmad and Azhar, 2015; Thabet and Hanefah, 2014).

This paper seeks to explore a new frontier of knowledge by examining the determinants of capital structure involving all Shariah and non-Shariah companies which are listed at Bursa Malaysia main market. Specifically, this empirical study only selects profitable companies from Bursa over a period of 12 years from 2005 to 2016. At the end of the process, a total number of 446 listed companies are identified and considered for further analysis.

Literature Review

A modern study on capital structure was initiated by Modigliani and Miller (1958). Fondly known as MM Theory, this theory ends up with three propositions. MM I hypothesize that under a perfect capital market assumption; a firm decision related to capital structure is independent from its market value and related cost of capital. Essentially, a perfect capital market exists when there is an absence of transaction cost, agency and bankruptcy cost, taxes and symmetry of information. With regard to MM II, firm's leverage has no effect on weighted average cost of capital (WACC). Ultimately, MM III stipulates that firm's value is not affected by firm's dividend policy (Hussain, 2015; Abdul Jamal, 2013).

Another celebrated capital structure theory is known as the Trade-off Theory. This theory suggests that firms can choose their capital structure by balancing the benefits of debt, especially tax savings and with the costs of debt such as bankruptcy cost (Abdeljawad et al., 2013). In short, Trade-off Theory brings an attention to cost of financial distress as well as agency cost (Abdul Hadi, 2017). The third theory is referred to as Pecking Order Theory and as the name suggest, it focuses on priority of internal financing followed by debt and lastly equity financing. Pecking Order Theory advocates that financing cost would increase with the asymmetric information and does not put an emphasis on optimal capital structure (Luigi and Sorin, 2009; Mostafa and Boregowda, 2014).

Pandey (2001) investigates the determinants of capital structure of Malaysian firms by providing new insights by relating capital structure with market power and profitability.

Ozkan (2001) highlights the observed target determinants of firm's capital structure and the process of adjustment to achieve selected target capital structure. Deesomsak et al. (2004) study the determinants of capital structure in Asia Pacific countries and find that capital structure is dependent upon environment or industry in which firms are operating. Gill et al. (2009) analyze the determinants of capital formation for the service industry in the United States and examine the impact of income tax, size, profit and growth on return on equity (ROA) in which their findings support that leverage is an indirect relation to firm's performance.

Saad (2010) explores the best practices of firm's capital structure in Malaysia and finds that substantial relationship to the firm's capital structure and organizational success exists. Zabri (2012) investigates capital structure determinants of Malaysian small and medium size enterprises (SMEs). The results of his investigation reveal that SMEs and large firms' capital structure determinants are almost similar. Mohammadzadeha et al. (2013) employs Static Trade-off Theory and Pecking Order Theory and acknowledges the negative association between capital structure and profitability. A study by Saarani and Shahadan (2013) aims at analyzing capital structure determinants of Malaysian small, medium and large firms by considering the relevance of Trade-off Theory and Pecking Order Theory.

Yusuf et al. (2013) uses debt ratio as a proxy for capital structure in their study upon Malaysian electronic and electric sector. Hussain and Miras (2015) also uses total debt ratio as a variable of interest on their study on Malaysian food producers. They assign size, growth, liquidity and asset tangibility as independent variables. Mursalim et al. (2017) conduct a study on capital structure determinants of Thailand, Indonesia and Malaysia listed companies and reveal that company size, profitability and volatility play significant roles in defining the variation of a firm's capital structure. Their results show that a firm's capital structure is significantly associated with a firm's performance.

Data and Methodology

From the onset, this study considers a total of 558 companies across all sectors of Bursa Malaysia main market (with the exception of the financial sector) over a period of 12 years from 2005 to 2016. As the filtering process involves selection of profitable companies from the Bloomberg database, only 446 listed companies are identified and subsequently divided into Shariah and non-Shariah categories. There are 351 Shariah-compliant companies, while the non-Shariah category is made up of 95 companies. Technically, the research model is estimated using Dynamic Panel Data Analysis via Generalized Method of Moments (GMM) approach and expressed as follows:

$$DE_{it} = \alpha_0 + \delta DE_{i,t-1} + \beta_1 TA_{it} + \beta_2 FA_{it} + \beta_3 CA_{it} + \beta_4 Size_{it} + \beta_5 ROE_{it} + \beta_6 EPS_{it} + \mu it \ldots..(1)$$

Where, α, δ and β are the model's coefficients and the individual and time specific effects are represented by i and t respectively. DE represents the variable of interest or the firm's capital structure, while $DE_{i,t-1}$ is the lagged dependent variable. The six explanatory variables are made up of total assets (TA), fixed assets (FA), current assets (CA), sales (Size), return on equity (ROE) and lastly earning per share (EPS). Finally, μ_{it} denotes the model's error term. This empirical model helps explain the theoretical relationships between capital structure and its determinants.

The two-step GMM is mobilized as an estimation model for testing the determinants of firm's capital structure across the Shariah and non-Shariah spectrum. This method provides the panel data (cross-sectional and time series data) with efficient econometric estimators. GMM is a dynamic estimation model and it is capable of reducing and easing up endogeneity problem. Endogeneity is the correlation between the parameters or variables with the error term. This GMM approach controls the endogeneity problem by employing unobservable shocks in the cross-sectional component. To ensure the validity of GMM results, two important diagnostic tests are performed – serial correlation test on the error terms plus the test for exogeneity of the instruments via the Sargan test. The GMM approach is commendable because it improves not only the estimation efficiency but also reduces the multicollinearity problem while increasing the degree of freedom between the explanatory variables. Also, GMM's panel data approach yields the advantage of solving unobserved firm-specific effects. In short, GMM is a method that alleviates the deformation caused by fixed effects, simultaneity and endogeneity.

Empirical Findings

The balanced panel data is analyzed in SAS programs and the descriptive statistics for both Shariah and Non-Shariah categories are presented in Table 1 and Table 2 below.

Table 1: Descriptive Statistics of 351 Shariah-Compliant Companies

Variable	Maximum	Minimum	Mean	Median	Mode	Std Dev
DE	37.8510	0.0045	0.7976	0.5852	0.8048	0.9683
TASSET	132,902.20	3.7850	1,708.29	360.08	529.45	6811.26
FASSET	101,685.40	0.0019	778.05	115.97	129.07	4343.78
CA	81,459.81	3.7850	615.68	174.14	40.55	2260.92
SALES	47,254.50	3.5058	920.59	252.07	385.02	3100.21
ROE	148.3993	0.0002	0.1807	0.0857	0.0073	2.8873
EPS	39.27	0.0002	0.1736	0.0777	0.0200	0.7884

Table 1 shows that the mean DE is approximately 0.80, while its median stands at lower level 0.59. The maximum value of TASSET for the Shariah-compliant category is about RM133 million, but its mean value settles at much lower level of RM1.708 million. The mean value of CA and SALES are registered at RM615,000 and RM920,000 respectively. The mean ROE is seen at much lower percentage of 0.18%, followed by the mean EPS of 0.17 cent.

Table 2: Descriptive Statistics of 95 Non-Shariah Companies

Variable	Maximum	Minimum	Mean	Median	Mode	Std Dev
DE	23.8652	0.0019	0.9059	0.5230	0.0504	1.4466
TASSET	92,545.80	14.9184	2,685.04	454.75	139.85	8740.26
FASSET	42,830.40	0.0030	1,106.84	118.83	0.0030	4130.62
CA	32,416.00	6.7694	965.65	202.14	1336.72	3054.23
SALES	20,049.17	0.0680	1,057.41	225.24	10.28	2573.98
ROE	40.1296	0.0006	0.1593	0.0761	0.0218	1.2183
EPS	72.3870	0.0001	0.2556	0.0770	0.0206	2.2503

With respect to the non-Shariah companies, their mean DE is higher than its counterpart at 1.02. Interestingly, the median of DE is slightly lower at 0.523 as compared to the Shariah companies. Looking at the DE distribution, its standard deviation of 1.446 seems much higher than the Shariah companies. In terms of tangibility, the mean TASSET, FASSET and CA are found to be much higher than the Shariah counters. As for the EPS, the non-Shariah category outperforms its counterpart.

Table 3: GMM Estimation on Capital Structure Determinants of Shariah-Compliant Companies:

GMM: First Differences Transformation Estimation Method: Two-Step GMM Parameter Estimates				
Variable	Estimate	Standard Error	t Value	P-value
Intercept	-0.0268	0.0215	-1.25	0.2116
lde_1	0.2449	0.0881	2.78	0.0054*
ltasset	0.0606	0.2963	0.20	0.8379
lfasset	0.0296	0.1533	0.19	0.8466
lca	0.7418	0.3049	2.43	0.0150*
lsales	0.2053	0.2237	0.92	0.3587
lroe	0.1603	0.1089	1.47	0.1412
leps	-0.0615	0.0580	-1.06	0.2894

*significant at 5%

Table 3 demonstrates the estimation results of the Shariah-compliant model. It is evident that the coefficient of lagged dependent variable is significant at 5%, which suggests that the Dynamic Capital Structure does explain a firms' financing decisions. It is worthy to note that the value of this coefficient or the speed of adjustment (δ=0.25) is quite high, laying between 0 and 1. There is also a positive significant relationship between CA and firm's capital structure. As the level of CA expands, the firm has a better chance to increase its borrowings.

Table 4: Sargan Test

Test for Exogeneity of Instruments H0: Model and over-identifying conditions are correctly specified H1: Model and over-identifying conditions are not correctly specified		
DF	Statistics	Prob > ChiSq
26	32.06	0.1911

The Sargan test is a test of validity of the instrument variables. It is a test of the over identifying restrictions in a statistical model. The null hypothesis states that the instrumental variables are uncorrelated to some set of residuals, and therefore they are accepted as valid and credible instruments. From the diagnostic test above, the null hypothesis is cannot be rejected and this result confirms that the instrument variables are valid.

Table 5: AR(m) Test

Test of Autocorrelation on Error Terms H0: There is no serial correlation on error terms H1: Presence of serial correlation on error terms		
Lag	Statistic	Pr > Statistic
1	-3.68	0.9999

The second diagnostic test is the AR(m) test. The test checks for the presence of serial correlation on the model's error terms. The p-value of AR (m) test is 0.9999 and it is greater than the α of 5%. It is now obvious that the null hypothesis cannot be rejected and the absence of autocorrelation problem is therefore confirmed.

Table 6: GMM Estimation on Capital Structure Determinants of Non-Shariah-Companies

GMM: First Differences Transformation Estimation Method: Two-Step GMM Parameter Estimates				
Variable	Estimate	Standard Error	t Value	P-value
Intercept	-0.0303	0.0264	-1.15	0.2507
lde_1	-0.3341	0.0580	-5.76	<0.0001*
ltasset	0.6822	0.2256	3.02	0.0026*
lfasset	0.0963	0.0215	4.48	<0.0001*
lca	0.1000	0.1725	0.58	0.5619
lsales	0.0725	0.1524	0.48	0.6340
lroe	-0.0599	0.1142	-0.52	0.5999
leps	0.0005	0.1339	0.00	0.9964

*significant at 5%

The estimation results of non-Shariah model is presented in Table 6. Similar to its counterpart, the coefficient of lagged dependent variable is also significant at 5% level. This implies the relevance of Dynamic Capital Structure whereby firms at Bursa Malaysia do change their financial strategies to achieve target capital structure. Both TA and FA are positively and significantly related to firm's capital structure. In other words, the firm's borrowing capacity increases in tandem with its tangibility.

Table 7: Sargan Test

Test for Exogeneity of Instruments H0: Model and over-identifying conditions are correctly specified H1: Model and over-identifying conditions are not correctly specified		
DF	Statistics	Prob > ChiSq
26	15.60	0.9453

As for the non-Shariah model, its GMM's diagnostic tests are summarized in Table 7 and Table 8. The null hypothesis of Sargan and AR(m) tests cannot be rejected and these results confirm that the instrument variables are valid coupled with the absence of serial correlation on the model's error terms. As such, the predictive modelling from this GMM approach is therefore valid and credible.

Table 8: AR(m) Test

Test of Autocorrelation on Error Terms		
H0: There is no serial correlation on error terms		
H1: Presence of serial correlation on error terms		
Lag	Statistic	Pr > Statistic
1	1.62	0.0524

The test results from Shariah and non-Shariah models clearly show the relevance of Dynamic Capital Structure theory and Trade-Off theory in explaining variations of DE ratio or leverage in Bursa Malaysia companies. From the estimation results of both models, tangibility and liquidity appear relevant in influencing firm's choice of financing. Secondly, the study posits that financial managers are free to readjust their leverage level periodically so as to achieve their firm's optimal capital structure.

Conclusion

There is no doubt that this study has presented some new insights on the characteristics of Shariah-compliant companies and their nature of business financing. The empirical findings reveal that current asset is the only significant capital structure determinant for the shariah-compliant category. With respect to the non-Shariah companies, total assets and fixed assets are the two significant determinants. It is worthy to note that the lag dependent Debt-Equity is also significant for both Shariah and non-Shariah categories. The significant role of this lag dependent variable suggests the importance of dynamic capital structure in explaining variations in capital structure of publicly listed companies in Malaysia. Similarly, the significant functions of current assets and fixed assets directly implies the relevance of Trade-Off theory in explaining a firm's choice of capital structure. In terms of profitability and value of total assets, the non-Shariah companies are performing better than their counterparts. However, it is important to note that this study is subject to survivorship bias as those loss-making companies have been entirely excluded from the analysis.

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