TARGET CAPITAL STRUCTURE AND SPEED OF ADJUSTMENT: PANEL DATA EVIDENCE ON MALAYSIA *SHARIAH* COMPLIANT SECURITIES

Razali Haron[a] and Khairunisah Ibrahim[b]

[a]Department of Finance, Kulliyyah of Economics and Management Sciences, International Islamic University Malaysia, Jalan Gombak, Kuala Lumpur, Malaysia. (E-mail: hrazali@iium.edu.my)
[b]Department of Finance, Kulliyyah of Economics and Management Sciences, International Islamic University Malaysia, Jalan Gombak, Kuala Lumpur, Malaysia. (E-mail: ikhairun@iium.edu.my)

ABSTRACT

Islamic Capital Market (ICM) in Malaysia has expanded at an average rate of 13.6% per annum over the ten year period between 2000 and 2010. The size of Malaysia's ICM is expected to expand at the average rate of 10.6% per annum to reach RM 2.9 trillion by 2020. In line with its future expansion, *Shariah* compliant securities are and will continue to be one of the important elements in ICM. Motivated by this fact, this study intends to explore the dynamic aspect of capital structure among *Shariah* compliant firms. The study finds that there exists target capital structure for *Shariah* compliant firms in Malaysia with both firm specifics and country specific factors playing important roles. Found to be under-adjust these firms readjust in a rapid speed of adjustment. Such rapid adjustment towards target leverage suggests the existence of dynamic trade-off theory. By employing a robust econometric model (GMM), this study contributes to the literature by examining the corporate financing behaviour of *Shariah* compliant firms in Malaysia ICM.

1. INTRODUCTION

The development of the Islamic Capital Market (ICM) in Malaysia has been phenomenal. The Securities Commission of Malaysia has reported that ICM has expanded at an average rate of 13.6% per annum over the ten year period between 2000 and 2010 and that marked the completion of Malaysia's First Capital Market Master Plan. The size of Malaysia's ICM stood at RM1.05 trillion as at the end of 2010 compared to just RM294 billion as at end 2000. Under the second Capital Market Master Plan, the size of Malaysia's ICM is expected to expand at the average rate of 10.6% per annum over the ten year period to 2020, to reach RM 2.9 trillion by 2020. In line with its future expansion, *Shariah* compliant securities become one of the important elements in ICM.

The development of capital market in Malaysia, unlike its other emerging market counterparts is significantly contributed by its ICM with *Shariah* compliant securities being prominent products of Malaysian ICM. This scenario offers an interesting platform to study the capital structure of *Shariah* compliant firms. Certain standard criteria have been set by *Shariah* Advisory Council (SAC) in determining *Shariah*-compliant activities. Subject to certain conditions, companies with activities adhering to the *Shariah* principles will be classified as *Shariah*-compliant securities. In contrast to that, companies will be classified as non-*Shariah* compliant securities if they are involved in prohibited core activities like financial services based on *riba* (interest), gambling and gaming, manufacturing or selling of non-*halal* products or related products, any activities containing an element of *gharar* (uncertainty) like conventional insurance, entertainment activities which are non-permissible according to *Shariah,* manufacturing or selling of tobacco-based products or related products, stockbroking or share trading in non-*Shariah* compliant securities and other activities that are contrary to *Shariah* principles.

2. THEORETICAL FRAMEWORK

Defined as the way a firm finances its investment via some combinations of equity and debt, capital structure has been extensively studied

theoretically and empirically over the years. Despite being different in nature, debt and equity complement each other as source of financing firm's investment projects. The main concern is to figure out the best mix of both. Many theorem have been proposed in the financial economic literature regarding the attainment of the optimal capital structure for the company. Each theory presents a different explanation of corporate financing under certain conditions, assumptions, and propositions. Modigliani and Miller (1958) known to be the pioneer to the development of capital structure theories propose the notion that under strict assumptions of perfect market firm value is independent of its capital structure. When these assumptions are relaxed through the inclusion of corporate taxes, transaction costs and information asymmetry, the questions of corporate financing become more complex (Myers, 1963) which have initiated extensive research and studies to investigate further the nature of corporate financing. Since then several theoretical frameworks have been developed with contributions mainly aiming at explaining the capital structure decisions of firms throughout the world with different market landscapes.

Fundamentally, three governing theories have been developed, studied and referred to in capital structure literature throughout the years which are the trade-off theory which states that optimal capital structure can be achieved if the net tax advantage of debt financing balances the leverage related costs (Myers, 1984), the pecking order theory which emphasizes on the hierarchical choices of financing (Myers and Majluf, 1984) and the agency theory which is derived from information asymmetries (Jensen and Meckling, 1976).

In relation to the theoretical capital structure framework of firms operating under *Shariah* principles, Ahmed (2007) suggests that it is very much similar with the pecking order prediction of capital structure. Being *Shariah* compliant, these firms would seek to minimize total costs. As a result, they would firstly choose internal financing, then debt financing in the form of *ijara*h (lease contract) or *murabahah* (sale contract of asset at a mark-up) and finally *mudaraba*-based (silent partnership) or *musharaka*-based (partnership that share both in capital and management) equities and these moves very much indicate hierarchical financing behaviour.

Since these firms are *Shariah* compliant and capital structure does involve debt financing, *Shariah* principles impose that debt must be asset-backed which means a firm operating under Islamic principles cannot have debt exceeding the tangible assets. Leverage ratio in an Islamic firm cannot exceed the value of its tangible assets. A firm with less tangible asset will therefore have relatively lower debt ratio (Ahmed, 2007). This condition implies that firms with more tangible assets will be able to have more debt relative to firms with fewer tangible assets. What distinguishes Islamic debt from conventional debt is that the former is necessarily asset-backed and hence, the significant amount of total debt would be bounded by the tangible assets owned by the *Shariah* firms (Obaidullah, 2007).

Study on the performance of *Shariah* compliant investments is still scarce and such comprehensive academic research on this area is still lacking in the literature (Sadeghi, 2008). Therefore the objective of the study is to investigate the dynamic aspect of capital structure among *Shariah* compliant firms in Malaysia. This study will specifically explore the existence of target capital structure, speed of adjustment and the determinants of target capital structure of *Shariah* compliant firms. The investigation is based on three dominant capital structure theories, which are the trade-off theory, the pecking order theory and the agency theory.

The remainder of this study is organized as follows: the next session reviews the determinants used in the study, then follows by the data and methodology employed. Next is the analysis and findings and the final session discusses the overall conclusion of the study.

3.   REVIEW OF CAPITAL STRUCTURE DETERMINANTS

Country specific variables like the stock market development, bond market development, economic growth, interests rate and country governance are incorporated to examine and understand firm corporate financing behaviour apart from using the firm specific factors such as non-debt tax shield, profitability, business risk, tangibility, firm size, growth opportunities, liquidity and share price performance.

Firm specific determinant, non-debt tax shield (NDTS), is defined as annual depreciation expenses to total asset. As firms increase their

NDTS, they appear to be less interested in debt as it reduces taxable income, a negative relationship with leverage (Titman and Wessels, 1988). Bradley, Jarrell and Kim (1984) on the contrary, argue that firms that invest heavily in tangible assets generate relatively high levels of depreciation and tax credits, therefore tend to have higher financial leverage, a positive relationship. As for profitability, defined as earnings before Interest and Tax (EBIT) over total asset, the existence of informational asymmetries makes firms choose internal resources as the first option as these are the cheapest funds (Myers, 1984) implying highly profitable companies will tend to finance investments with retained earnings instead of using external funds, either debt or equity, another inversed relationship with leverage.

Business risk is a proxy for the probability of financial distress or bankruptcy and it is generally expected to be negatively related with leverage. The higher the probability of bankruptcy, the lesser debt a firm should include in its capital structure. Empirical evidences show that high risk firms have high possibility to default on interest payments. This category of firms therefore should employ less debt. To expand, firms with high risk would opt for equity issuance rather than debt. To compensate the higher risk taken on investment equity holders would consequently seek higher return. The positive association between risk and return is central to Islamic finance. The maxim '*Al kharaj bi al daman*' underlies all forms of financial contracting in Islamic jurisprudence. The maxim requires that benefits (returns) and liabilities (risk) go together, that is, the higher the risk, the higher the return (Obaidullah, 2007). Business risk is measured by yearly change in the firm EBIT, similar to Deesomsak, Paudyal and Pescetto (2004).

The influence of tangibility from a trade-off theoretic point of view is that firms holding assets can tender their assets to lenders as collateral and lenders are more willing to lend as the debt is secured hence suggesting a positive relationship with leverage. However, the agency theory suggests that firms with less collateral assets may choose higher debts level to curb managers from consuming more than the optimal level of perquisites (Titman and Wessels, 1988). The value of tangible assets of a firm is measured according to the ratio of net fixed asset over total asset (Myers and Majluf, 1984; De Jong, Kabir and Nguyen, 2008).

Size of firm is also anticipated to have an impact on leverage. Larger firms tend to be more diversified and fail less often thus have bigger capacity to consume higher leverage indicating a positive relationship supporting the trade-off theory. In term of information asymmetries, the larger the firm the more information is expected to be available about the firm. This will then reduce the level of information asymmetries in the market making it more possible for large firm to obtain financial resources from lenders. However some studies find a negative relationship between firm sizes where small companies, due to their limited access to the equity capital market, tend to rely heavily on bank loans for their funding requirements. Natural logarithm of total asset is used as a proxy for firm size (Deesomsak, Paudyal and Pescetto, 2004; Cook and Tang, 2010).

For growth opportunity, firms with more growth opportunities should carry less leverage indicating a negative relationship because the management of growth firms has stronger incentives to signal that it does not engage in underinvestment and asset substitution. As for pecking order theory, debt ratio decreases when investment opportunities are smaller than retained earnings. For a given profitability, debt ratios are lower for firms with more growth opportunities (Myers and Majluf, 1984). This study uses market value of equity over book value of equity as proxy (Rajan and Zingales, 1995). Looking at firm liquidity, defined by ratio of current assets to current liabilities (Deesomsak, Paudyal and Pescetto, 2004; Sheikh and Wang, 2011), an inversed relationship is expected as firms with higher liquidity prefer to use internally generated funds when financing new investments. Another influencing factor is share price performance which is measured as the first difference of the year end share price (Deesomsak, Paudyal and Pescetto, 2009). Baker and Wurgler (2002) state that firms are more likely to issue equity when their market values are high, relative to book and past market values, and to repurchase equity when their market values are low therefore this variable should be inversely related as predicted by the market timing theory.

In reference to country specific determinants, as far as share price performance is concerned, Baker and Wurgler (2002) argue that when stock market increases, firms' preference for equity over debt also increases. Therefore, good performance of stock market is expected

to be inversely related to debt. The ratio of stock market capitalization to GDP is used to measure the level of stock market development in this study (De Jong, Kabir and Nguyen, 2008). As for bond market development, similar to De Jong, Kabir and Nguyen (2008), it is defined as the total bond market capitalization over GDP, inclusive of private and public bonds. Country with a highly developed debt market will have a higher private sector debt ratio indicating positive relationship with leverage.

Economic growth as represented by annual percentage change in GDP (Cook and Tang, 2010) may impact leverage. If a firm's internal funds are inadequate to fund expansionary and investment projects which usually go concurrently with economic growth, the firm would resort to debt financing to finance these projects. In accordance to the pecking order theory, under such condition, leverage is positively related to the economic growth of a country. Similarly, interest rate, measured by the lending rate (Deesomsak, Paudyal and Pescetto, 2004), may also influence leverage where in the presence of bankruptcy costs, firms are more likely to use debt when the cost of borrowing is low, implying an inversed relationship. However, interest rates also incorporate inflation expectations and thus firms could be expected to shift from equity to debt financing when interest rates are increasing. In this case, the level of interest rates is expected to be positively related to leverage.

Corporate governance has also been acknowledged as an influencing determinant. When the law protects outside investors, they become more willing to finance firms which will increase firm leverage. Firms in countries with weaker investor rights may be forced to use more internally generated funds, as external capital is likely to be expensive. Therefore, corporate governance is positively related to firm leverage (De Jong, Kabir and Nguyen, 2008). Country governance is measured according to the average of six governance indicators (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption) sourced from the World Bank database. Table 1 summarizes the literature reviews on the variables used in this study.

TABLE 1

Summary of Literature Reviews on Variables, Predicted Signs and
Supporting Theories

Variables	Predicted Sign/ Supporting Theories		Studies Done
Non debt Tax Shield	-	(Static Trade-Off)	Deesomsak et al., (2004)
	+		Bradley et al., (1984)
Profitability	-	(Pecking Order)	Rajan and Zingales (1995); Booth et al., (2001); De Jong et al., (2008)
	+	(Static Trade-Off)	Frank and Goyal (2003)
Business risk	-	(Static Trade-Off)	Titman and Wessels (1988); Booth et al., (2001); De Jong et al., (2008); Sheikh and Wang (2011)
Tangibility	+	(Static Trade-Off)	Titman and Wessels (1988); Rajan and Zingales (1995); De Jong et al., (2008); Sheikh and Wang (2011)
	-	(Agency Theory)	Booth et al., (2001); Sheikh and Wang (2011).
Firm size	-	(Static Trade-Off)	Titman and Wessels (1988); Rajan and Zingales (1995)
Growth Opportunity	-	(Agency Theory)	Jensen and Meckling (1976)
	+	(Pecking Order)	Booth et al., (2001)
Liquidity	-	(Pecking Order)	Deesomsak et al., (2004)
Share price performance	-	(Market Timing)	Deesomsak et al., (2004)
Stock market development		-	Booth et al., (2001)
Bond market development		+	Booth et al., (2001) ; De Jong et al., (2008)
Economic growth	+	(Pecking Order)	De Jong et al., (2008)
Interest rates		-	Deesomsak et al., (2004)
Governance		+	De Jong et al., (2008); Deesomsak et al., (2004, 2009)

4. DATA AND METHODOLOGY

This study employs panel data. Among the *Shariah* compliant, firms from the financial sector such as Islamic banks and *takaful* (insurance) firms are excluded from the samples firms. This is mainly because of the different accounting rules practiced by these categories of firms. This practice is in line with Rajan and Zingales (1995) and De Jong, Kabir and Nguyen (2008). Therefore, after excluding these financial firms, the final sample of *Shariah* compliant firms understudy consists of 663 firms. This study uses a 10 year period data from 2000 until 2009 where firm level data is sourced from Datastream. Only firms with minimum three consecutive observations are included in the data set to meet the minimum requirement of the Generalised Method of Moments (GMM) methodology (Deesomsak, Paudyal and Pescetto, 2009). This means that the firms should at least be listed on the stock exchange from the year 2007. Table 2 presents in detail the structure of the panel data on sample firms for this study.

TABLE 2
The Structure of the Panel Data

No. of Annual Observations for Each Firm	No. of Records on each Firm	No. of Observations
3	30	90
4	3	12
5	39	195
6	44	264
7	61	427
8	32	256
9	68	612
10	386	3860
Total	663	5716

Note: Three annual observations refer to minimum listing period of 2007-2009.
Source: Datastream

Multicollinearity test in dataset is performed by first performing the *R*-squared between variables and then checking based on the variance-inflating factor (VIF) as suggested by Gujarati and Porter (2009:340). There is no multicollinearity problem in the data since VIF of variables are less than 10 (refer VIF in Table 3).

4.1 MEASURES OF LEVERAGE

Being the proxy to capital structure, it is crucial to have a clear cut definition of the term leverage since different definitions of leverage produce different results and no universally accepted definition of leverage exists in the literature (Drobetz and Wanzenried, 2006).

Four measures of leverage are used. Following Titman and Wessels (1988), leverage is defined as; the ratio of total debt and long term debt to total asset at book value (termed as book value leverage) and to total debt plus total equity at market value (termed as market value leverage). However, debt will be valued at its book value since the market value of debt is not available. The measures of leverage at book value and market value are also used to check the robustness of the results obtained in this study.

4.2 TARGET CAPITAL STRUCTURE

This study specifies a dynamic panel data model to ascertain the existence of target (optimal) leverage and speed of adjustment on *Shariah* compliant firms in Malaysia. Using the framework of Partial Adjustment Model (Drobetz and Wanzenried, 2006) this study assumes that the target leverage ratio for a firm is a function of sets of explanatory variables as in (1).

(1) $Y_{it}^* = F(X_{it}, X_i, X_t)$

where Y_{it}^* is the optimal leverage ratio of firm i, at time t, X_{it} is a vector of firm and time variant determinants of the optimal leverage, X_i and X_t are unobservable firm specific and country specific, and time specific effect which is common to all firms and can change through time. In a perfect market with no adjustment cost, the firm would immediately respond with complete adjustment to variations in the independent variables by varying its existing leverage ratio to equalize its optimal leverage. Thus, at any point in time, the observed leverage of firm i at time t (Y_{it}) should be equal to the optimal leverage, that is, $Y_{it} = Y_{it}^*$ and this implies that $Y_{it} - Y_{it-1} = Y_{it}^* - Y_{it-1}$. The existence of significant

adjustment costs however permits only partial adjustment to take place and represented by a partial adjustment model as in (2).

(2) $Y_{it} - Y_{it-1} = \delta_{it} (Y_{it}^* - Y_{it-1})$

where δ_{it}, is known as the speed of adjustment, it represents the rate of convergence of Y_{it}, to its optimal value. The effects of adjustment costs are represented by the restriction that $|\delta_{it}| < 1$, which is a condition that $Y_{it} \rightarrow Y_{it}^*$ as $t \rightarrow \infty$. Since δ_{it} represents the speed of adjustment, (2) explains the adjustment speed depending on its adjustment parameter value. The firm's behaviour can be represented by (4.3) below.

(3) $Y_{it}^* = \sum_{n=1}^{N} \beta_k X_{kit} + \varepsilon_{it}$

Combining (4.2) and (4.3), we derived,

(4) $Y_{it} = Y_{it-1} + \delta_{it} (Y_{it}^* - Y_{it-1})$

(5) $Y_{it} = Y_{it-1} + \delta_{it} Y_{it}^* - \delta_{it} Y_{it-1}$

(6) $Y_{it} = (1 - \delta_{it}) Y_{it-1} + \delta_{it} (\sum_{n=1}^{N} \beta_k X_{kit} + \varepsilon_{it})$

(7) $Y_{it}^* = (1 - \delta_{it}) Y_{it-1} + \sum_{n=1}^{N} \delta_{it} \beta_k X_{kit} + \delta_{it} \varepsilon_{it}$

To simplify, (7) can also be written as,

(8) $Y_{it}^* = \lambda_0 Y_{it-1} + \sum_{n=1}^{N} \lambda_k X_{kit} + \mu_{it}$

Equation (8) above is the dynamic capital structure model of which this study is intended to estimate using the Generalized Method of Moments (GMM) - First Difference, suggested by Arellano and Bond (1991). To ensure efficiency of the estimator, three diagnostic tests were performed and these include Wald test of joint significance of the estimated coefficients, the absence of second order correlation (AR2) and the validity of the instrumental variables used.

5. ANALYSIS AND FINDINGS

Table 3 presents the empirical results on determinants of target capital structure according to the various leverage definitions. Since there are at least two models qualified under the diagnostic tests, we compute the *R*-squared for each model and the most preferred model is then determined according to the highest *R*-squared between the actual and fitted values of the residual of the model, which is the most reliable measure of goodness of fit for GMM as suggested by Driffield and Pal (2010). Having compared the *R*-squared among the models, model TD/TA (market value) is to be employed in explaining the dynamic capital structure of *Shariah* compliant firms in Malaysia.

5.1 EXISTENCE OF TARGET AND SPEED OF ADJUSTMENT TO TARGET CAPITAL STRUCTURE

The estimated coefficient of the lagged leverage is significant (*p*=0.01) and this indicates the existence of target leverage for *Shariah* compliant firms in Malaysia. These firms adjust to long term targets leverage from time to time but are under-adjust at the speed of 0.6013 ($\delta_{it} = 1 - \lambda_0$). The speed of adjustment explains how quickly firms converge to their optimal capital structure (Clark, Francis and Hasan, 2009). To elaborate further, the speed of adjustment can also be converted in 1.66 year (1/δ_{it}) and 0.75 year respectively [*ln0.5/ ln(1-ä)*] (Mukherjee and Mahakud, 2010). This concludes that *Shariah* firms close by 60.13% the gap between current and target leverage within one year. This is equivalent to 1.66 year to fully reach the target or 0.75 year to reach half of the target from the current leverage level. Such rapid adjustment towards target leverage suggests the existence of dynamic trade-off theory (Mukherjee and Mahakud, 2010). Clark, Francis and Hasan (2009) in their studies conclude that consistent with the dynamic trade-off theory, the faster the adjustment takes place, the greater benefits of closing the gap to the target capital structure will be expected.

TABLE 3
Determinants of Target Capital Structure

Indp	TD/TA (BV)	LTD/TA (BV)	TD/TA (MV)	LTD/TA (MV)
Lev(-1)	-0.0891**	0.4990	0.3987***	0.1713
	[-2.1675]	[4.3302]	[4.7524]	[0.8831]
NDTS	-8.9950***	0.1859	-1.0939**	-0.1516
	[-2.6325]	[0.3864]	[-1.9483]	[-0.1883]
Tangibility	-0.1467	0.0099	0.1575*	0.0205
	[-0.3929]	[0.1221]	[1.6427]	[0.1528]
Profitability	0.3440***	-0.0321	-0.076***	0.0090
	[3.1694]	[-1.0075]	[-3.8307]	[0.3330]
Business Risk	0.0124*	0.0023**	0.0023	0.0026
	[1.7312]	[1.9507]	[1.4058]	[1.4678]
Firm Size	-1.8761***	0.0467***	-0.044***	0.0403***
	[-6.3229]	[4.5652]	[-3.1853]	[2.8923]
Growth	-0.0800	-0.0088	-0.0102	-0.0225
	[-1.3697]	[-1.0679]	[-1.0649]	[-1.4645]
Liquidity	-0.0146	-0.0046	-0.0021	-0.0077
	[-0.5523]	[-0.7174]	[-0.3473]	[-0.7611]
Share Pr Per	-0.0313	0.0044*	-0.014***	-0.0008
	[-1.3631]	[1.7838]	[-2.9067]	[-0.2216]
Stock Mkt Dev	-0.0205*	-0.0033**	-0.0039*	-0.0016
	[-1.7087]	[-1.9210]	[-1.6697]	[-0.7294]
Bond Mkt Dev	24.6425*	4.2648	5.6603***	1.1573
	[1.7472]	[1.5601]	[2.6661]	[0.4410]
Economic Gr	-0.8021*	0.1540*	-0.190***	0.0443
	[-1.7071]	[1.6887]	[-2.7541]	[0.5042]
Interest Rates	-1.1518*	0.1718	-0.2117**	0.0505
	[-1.8771]	[1.4756]	[-2.3502]	[0.4540]
Governance	13.3943*	2.3851*	2.6749**	0.8362
	[1.7860]	[1.6488]	[2.4018]	[0.6066]
AR(1)	-0.0329*	-0.0457**	-0.074***	-0.0785***
	[-1.7824]	[-2.4818]	[-4.0268]	[-4.2642]
AR(2)	0.0028	0.0121	0.01714	0.0115
	[0.1495]	[0.6558]	[0.9312]	[0.6219]
Wald (Joint) χ^2	1090.38***	61.75***	482.16***	63.2847***
J-statistic	7.8653	13.6865	19.8566	15.1657
No. of Observations	5716	5716	5716	5716

Source: Author's own.

.

TABLE 3 (Continued)

$Lev_{i,t} = Lev(-1)_{i,t} + \beta_1 NDTS_{i,t} + \beta_2 TANG_{i,t} + \beta_3 PROFIT_{i,t} + \beta_4 RISK + \beta_5 SIZE_{i,t} + \beta_6 GROWTH_{i,t} + \beta_7 LIQUIDITY_{i,t} + \beta_8 SPP_{i,t} + \beta_9 STOCKMKT + \beta_{10} BONDMKT_t + \beta_{11} ECON_t + \beta_{12} INT_t + \beta_{13} GOVERN_t + \varepsilon_{it.}$

The *t*-statistics in parentheses are the *t*-values adjusted for White's heteroscedasticity consistent standard errors.
***, **, * denotes significant at 1%, 5%, 10% level respectively. The Wald test statistic refers to the null hypothesis that all coefficients on the determinants of the target debt ratio are jointly equal zero. Second order correlation refers to the null of no second order correlation in the residuals. The J test statistic for the null that the over identifying restrictions are valid.

Firm Specific:
NDTS, Tangibility, Profitability, Business Risk, Firm Size, Growth, Liquidity, Share Price Performance

Country Specific:
Stock Market Development, Bond Market Development, Economic Growth, Interest Rate, Governance

5.2 DETERMINANTS OF TARGET CAPITAL STRUCTURE

This study depicts negative relationship (p=0.05) between NDTS and target leverage on *Shariah* compliant firms suggesting that NDTS are the substitute to the tax shields on debt financing. This result supports the finding by DeAngelo and Masulis (1980). The benefit of tax shields on interest payments encourages firms to take on more debt, but it also increases the probability that earnings in some years may not be sufficient to offset all tax deductions. Firms with large NDTS relative to their expected cash flow will therefore include less debt in their capital structure. In line with the proposition, Deesomsak, Paudyal and Pescetto (2004) have also found evidence on the tax substitution hypothesis. Looking at tangibility, it relates positively with leverage (p=0.10) in *Shariah* compliant firms. This positive relationship supports the trade-off theory that tangibility or asset structure of a firm should be positively associated to leverage (Rajan and Zingales, 1995; Sheikh and Wang, 2011). This positive relationship enhances *Shariah* imposition that debt must be asset-backed which means a firm operating under Islamic principles cannot have debt exceeding the tangible assets. A firm with less tangible asset will therefore have relatively lower debt ratio (Ahmed, 2007). This condition implies that firms with more tangible assets will be able to have more debt relative to firms with fewer tangible assets. The positive relationship between tangibility and leverage also confirms the role of tangible assets in reducing the agency costs for outside investors, which in turn raises firm leverage. The finding is also similar to De Jong, Kabir and Nguyen (2008).

As for profitability, negative relationship between profitability and leverage (p=0.01) is detected for *Shariah* compliant firms. The relationship illustrates that *Shariah* compliant firms with high profit consume less leverage in their capital structure indicating the practice of hierarchical financing. This finding is similar with past study on Malaysian firms by Deesomsak, Paudyal and Pescetto (2004). The finding from this study also confirms the recent analysis by IMF, conducted by Felman et al. (2011) on ASEAN5. According to them, firms in the region were struggling to increase their profitability after the 1997-1998 Asian financial turmoil. They were reported to have

succeeded in doing so as a large portion of their diminished investment needs were financed using their own internal cash generation.

Similarly, firm size is also found to be inversely related to leverage (p=0.01). Size therefore is an important factor for *Shariah* compliant firms in Malaysia. Bigger firms tend to generate higher profit and have higher internal funding to support their investment. The negative relationship therefore reinforces the negative relationship between profitability and target leverage evidenced earlier in which *Shariah* compliant firms practice hierarchy in their capital structure decision. Share price performance also relates negatively with leverage (p=0.01). This finding confirms the previous finding such as Deesomsak, Paudyal and Pescetto (2004) that firms prefer to issue equity to debt when share prices are rising and is consistent with the market timing theory (Baker and Wurgler, 2002).

The negative relationship (p=0.10) found between stock market development and leverage reveals that as stock market increases, *Shariah* compliant firms' preference for equity over debt also increases. This further suggests that good development of the local stock market provides avenue for equity financing as alternative financing to firms other than bank financing (Booth et al. 2001). As for the bond market development, a positive relationship between bond market development and leverage on *Shariah* compliant firms (p=0.01) is reported in this study. According to De Jong, Kabir and Nguyen (2008), as a country's bond market is further developed, firms have more choice for borrowing and are willing to employ more debt in capital structure. They also conclude that a higher bond market development mitigates better protection for creditors and better legal enforcement, thus encourages lenders to increase lending to firms. The positive relationship is also believed to be contributed by the size of the local bond market with an average size of 87.6% to GDP (2000-2009), comparatively higher than its neighbour countries such as Thailand and Singapore of 41.1% and 54.9% respectively (source: World Development Indicators of the World Bank).

This study found a negative relationship (p=0.01) between economic growth and leverage. This suggests that there is a switch of corporate financing behaviour of *Shariah* compliant firms from debt to equity as the economy grows, causing a drop in firm leverage. Rajan and Zingales

(1985) and Titman and Wessels (1988) and also find significant negative influence of GDP on leverage in his studies for firms in the selected ASEAN countries. This study therefore suggests that, as economy grows, there seem to be a shift of pattern in corporate financing of *Shariah* firms opting for equity financing relative to debt. This is further evidenced in our correlation analysis between stock market development and bond market development in which we find a correlation of -0.1694 (p=0.01) between the two segments of capital market (as shown in Appendix 1).

Interest rates are found to have negative impact on leverage (p=0.05) implying the importance of interest rate in influencing manager's decision in debt financing. Country governance is found to be positively related to target leverage (p=0.05). This positive relationship is in line with Fan, Wei and Xu (2011) where they find governance of a country has an effect on the level of leverage for firms in that country. This is merely because if outside investors feel that they are adequately protected by the law of that country, they become more willing to provide financing to firms, thus increases firm leverage. This is further evidenced based on the strength of legal rights, an index that measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders. This index sourced from the World Bank Database Indicators shows that from the period of 2006-2009, Malaysia has the index of 10/10. This shows stronger legal rights which indicates a higher protection on borrower and lenders' right in Malaysia.

6. CONCLUSION

This study investigates the dynamic aspects of capital structure looking particularly on the existence of target capital structure, the speed of adjustment and the determinants of target capital structure of *Shariah* compliant firms in Malaysia. These investigations are in response to the outstanding growth recorded on Islamic Capital Market in Malaysia with about 89% (839 of 946 total securities) of the listed firms are classified as *Shariah* compliance based on the SAC criteria. This reflects the importance of these *Shariah* compliant firms to Malaysia ICM as

to meet the urgent needs and demands from the Muslim investors in Malaysia.

The study finds that there exists target leverage for *Shariah* compliant firms in Malaysia with certain firms and country levels determinants significantly affect the target capital structure. Pursuing target capital structure firms do adjust from time to time due to time varying factors. The magnitude of speed of adjustment suggests a rapid adjustment towards target leverage thus supporting the existence of dynamic trade-off theory. By employing a robust econometric model (GMM), this study contributes to the literature by examining the corporate financing behaviour of *Shariah* compliant firms in Malaysia ICM.

ENDNOTES

1. Gujarati and Porter (2009:340) state that, as a rule of thumb, if the variance-inflating factor (VIF), where VIF= $1/(1-r^2_{23})$ of a variable exceeds 10, which will happen if R^2_j exceeds 0.90 (that is, $R_j = 0.95$), that variable is said to be highly collinear. Based on the VIF, this study concludes that there is no concern of multicollinearity among the set of explanatory variables as the VIF of variables are less than 10.

REFERENCES

Ahmed, H. "Corporate Finance: Capital Structure in Firms." *IRTI Research Paper Series* (2007) no.70.

Arellano, M., and S.R. Bond. "Some Tests of Specification for Panel Data: Monte Carlo Evidence and Application to Employment Equations." *Review of Economic Studies* 58, no. 2 (1991): 277-297.

Baker, M., and J. Wurgler. "Market Timing and Capital Structure." *Journal of Finance* 57 (2002): 1-32.

Booth, L., V. Aivazian, A. Demirguc-Kunt, and V. Maksimovic. "Capital Structure in Developing Countries." *Journal of Finance* 56, no. 1 (2001): 87-130.

Bradley, M., G.A. Jarrell, and E. H. Kim. "On the Existence of Optimal Capital Structure: Theory and Evidence." *Journal of Finance* 39 (1984): 857-878.

Clark, B., B. Francis, and I. Hasan. "Do Firms Adjust Toward Target Capital Structure? Some International Evidence." (2009). http://ssrn.com/abstract=1364095

Cook, D.O., and T. Tang. "Macroeconomic Conditions and Capital Structure Adjustment Speed." *Journal of Corporate Finance* 16 (2010): 73-87.

De Jong, A., R. Kabir, and T.T. Nguyen, "Capital Structure around the World: The Roles of Firm-and Country-Specific Determinants." *Journal of Banking and Finance* 32 (2008): 1954-1969.

De Angelo, H., and R. Masulis. "Optimal Capital Structure under Corporate and Personal Taxation." *Journal of Financial Economics* 8 (1980): 3-29.

Deesomsak, R., K. Paudyal, and G. Pescetto. "The Determinants of Capital Structure: Evidence from the Asia Pacific Region." *Journal of Multinational Financial Management* 14 (2004): 387–405.

_____. "Debt Maturity Structure and the 1997 Asian Financial Crisis." *Journal of Multinational Financial Management* 19 (2009): 26–42.

Driffield, N., and S. Pal. "Evolution of Capital Structure in East Asia: Corporate Inertia or Endeavours." *Journal of Royal Statistical Society A* 173, no. 1 (2010): 1-29.

Drobetz, W., and G. Wanzenried. "What Determines the Speed of Adjustment to the Target Capital Structure?" *Applied Financial Economics* 16 (2006): 941-958.

Fan, J.P.H., K.C.J. Wei, and X. Xu. "Corporate Finance and Governance in Emerging Markets: A Selective Review and an Agenda for Future Research." *Journal of Corporate Finance* 17 (2011): 207-214.

Felman, J., S. Gray, M. Goswami, A. Jobst, M. Pradhan, S. Peiris, and D. Sereviratne. "ASEAN5 Bond Market Development. Where does it stand? Where is it going?" IMF Working Paper 11/137 (2011).

Frank, M.Z., and Goyal, V.K. "Testing the Pecking Order Theory of Capital Structure." *Journal of Financial Economics* 67, no. 2 (2003): 217-248.

Gujarati, Damodar N., and Dawn C. Porter. *Basic Econometrics*. New York: McGraw-Hill, 2001.

Jensen, M.C., and W. Meckling. "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure." *Journal of Financial Economics* 3 (1976): 305–360.

Modigliani, F., and M. Miller. "The Cost of Capital, Corporation Finance, and the Theory of Investment." *American Economic Review* 48 (1958): 261-297.

Mukherjee, S., and J. Mahakud. "Dynamic Adjustment towards Target Capital Structure: Evidence from Indian Companies." *Journal of Advances in Management Research* 7, no. 2 (2010): 250-266.

Myers, S.C., and N.S. Majluf. "Corporate Financing and Investment Decisions when Firms have Information that Investors do not have." *Journal of Financial Economics* 13 (1984): 187-221.

Myers, S.C. "The Capital Structure Puzzle." *Journal of Finance* 39 (1984): 575-592.

Obaidullah, M. "Teaching Corporate Finance from an Islamic Perspective", *Islamic Economics Research Centre, King Abdul Aziz University* (2007).

Rajan, R.G., and L. Zingales. "What Do We Know About Capital Structure? Some Evidence From International Data." *Journal of Finance* 50 (1995): 1421-1460.

Sadeghi, M. "Financial Performance of Shariah-Compliant Investment: Evidence from Malaysian Stock Market." *International Research Journal of Finance and Economics* 20 (2008): 15-26.

Sheikh, N.A., and Z. Wang. "Determinants of Capital Structure: An Empirical Study of Firms in Manufacturing Industry of Pakistan." *Managerial Finance* 37, no. 2 (2011):117-133.

Securities Commission of Malaysia. http://www.sc.com.my/

Titman, S., and R. Wessels. "The Determinants of Capital Structure Choice." *Journal of Finance* 43 (1988): 1-19.

APPENDIX 1

Correlation Matrix between Variables

VARIABLES	TD/TA(1)	LTD/TA(2)	TD/TA(3)	LTD/TA(4)	NDTS	TANGIBLE	PROFIT	RISK	SIZE	GROWTH	LIQUID	SPP	STOCK	B
TD/TA(1)	1.0000													
LTD/TA(2)	0.2249***	1.0000												
TD/TA(3)	0.5315***	0.4928***	1.0000											
LTD/TA(4)	0.2905***	0.8928***	0.6197***	1.0000										
NDTS	0.02561*	0.0279**	0.0234*	0.0271**	1.0000									
TANGIBLE	0.0005	0.0144	0.0942***	0.1482***	0.8624***	1.0000								
PROFIT	-0.0405***	-0.0200*	-0.0925***	-0.00321*	0.8006***	0.8088***	1.0000							
RISK	-0.0055	-0.0098	0.0074	0.0059	-0.0057	0.0047	0.0253	1.0000						
SIZE	-0.0599***	0.2726***	0.1585***	0.3093***	-0.1498***	-0.0812***	-0.0726***	-0.0107	1.00					
GROWTH	-0.0523***	-0.0152	-0.1508***	-0.0814***	0.0154	-0.0824***	0.07198***	-0.0110	0.0397***	1.00				
LIQUID	-0.1109***	-0.1108***	-0.2586***	-0.1287***	0.0649***	0.0543***	0.0903***	0.0046	-0.0815***	0.02	1.00			
SPP	-0.016	0.0337**	-0.0918***	-0.0206	-0.0465***	-0.0247*	0.0246*	-0.1740***	0.0411***	0.0838***	-0.0047	1.00		
STOCK	0.0108	0.0086	-0.0637***	-0.0339***	-0.0043	-0.0030	-0.0051	-0.0166	-0.0192	0.0024	0.0047	0.1152***	1.00	
BOND	-0.0183	0.0200	0.0588***	0.0589***	0.0077	-0.0046	0.0003	0.0319**	0.0383***	-0.0702***	0.0079	-0.0264*	-0.1694***	
GDP	0.0262**	0.0052	-0.0428***	-0.0281**	-0.0151	-0.0168	-0.0086	-0.015	-0.0351***	0.0890***	-0.0082	0.0183	0.1349***	-0.6
INTEREST	-0.0038	-0.0488***	-0.0524***	-0.0868***	0.0199	0.0300**	0.0291**	0.011	-0.0206	0.0451***	-0.0182	0.0301**	-0.0687***	-0.5
GOVERN	0.0234	0.0144	-0.0415***	-0.0092	0.0117	0.0729***	-0.0157	-0.0205	-0.0572***	-0.0100	0.0345**	0.0088	0.5376***	-0.3

Notes:
(1) ***, **, * significant at 1%, 5%, 10% respectively; TD/TA(1) and LTD/TA(2) at book value; TD/TA(3) and LTD/TA(4) at market value
(2) Firm Specific: NDTS, Tangibility, Profitability, Business Risk, Firm Size, Growth, Liquidity, Share Price Performance; Country Specific: Stock Market Development, Bond Market Development, Economic Growth, Interest Rate, Governance