

# Capital Structure Determinants of Shariah Compliant Companies

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## Abstract

**Purpose:** The study was empirically examining the capital structure determinants among shariah compliant companies in Malaysia between year 2003 and 2017.

**Design/methodology/approach:** Financial information of 181 non-financial shariah compliant companies were obtained from Data Stream for the period of 15 years. Five determinants were used which are profitability, potential growth, liquidity, tangibility and size of the companies in measuring the capital structure decision during the period. Analysis was done using panel data regression with fixed effect model for the estimation.

**Findings:** Finding showed that capital structure decisions of Shariah compliant companies are consistent with previous empirical evidence except for potential growth. Lots of research had been done on capital structure determinants, however most of the studies were focusing on developed and conventional market.

**Research limitations/implications:** Limited data coverage (areas, periods and determinants),

**Practical implications:** Generalization of the study will be more accurate if more comprehensive studies are being done in the future in-cooperating more estimation method and more proxies of capital structure as well as more determinants.

**Originality/value:** Studies on capital structure determinants among Islamic capital market are very limited.

**Keywords:** Capital structure determinants, Shariah compliant, Capital market, Fixed-effect.

## Introduction

Capital is referring to the source of funds used by a business in running the operation. The allocation between the source of fund, among liabilities and equities is known as capital structure. Liabilities, debts, or gearing are obtained from external sources through borrowing either from financial institutions or through the issuance of bonds. Equities on the other hand refer to the ownership in the business.

Deciding an appropriate capital structure is crucial for any business. Any decision is subjects to the maximization of shareholders' return (Graham and Harvey, 2001). Furthermore, the level of financial risk is changing once a firm decides to use debt financing (Modigliani and Miller, 1958). High usage of leverage may generate bankruptcy risk due to the inability to serve the debt installments. On the other hand, leverage can increase shareholders' return on investment while enjoying the privilege of tax advantage on interest expenses.

To keep be listed as Shariah compliant company makes the capital structure decision more challenging. Decision to use debt is restricted by the rules and regulations as being limit in Islam. Due to the prohibition of riba' or usury (Graham and Harvey, 2001), Islam does not encourage the use of loan. Islamic financial instruments such as Islamic banking products and sukuk act as alternative sources of capital in fulfilling the requirements of Islamic financing regulations. Usage of debt must be asset-backed and not more than total tangible assets.

Islamic Finance systems has been accepted worldwide. The industry is keep growing with an average growth rate of 25% for 9 years since year 2000 (Global Islamic Finance Report (GIFR), (2021)). The report shows that for the last 5 years, the average annual growth rate has obviously dropped to 6.54%. However, the volume is still outstanding. The latest report by. At end of year 2020, the volume already achieved US\$ 3 trillion. Islam banking sector contributed 72.4%, followed by Islamic capital sector 26.5% and Takaful operators 1.1%.

Parallel with the tremendous growth of the Islamic finance industry, vast studies and researches on Islamic finance had been done worldwide. However, most of the studies are focusing on the supply side or financial intermediaries such as the products development and the efficiency of the financial institutions. Studies on the demand side were concentrating more on the individual level of Islamic finance such as the awareness and acceptance of consumers towards the Islamic financial products. Little attention had been conducted on the demand side of Islamic finance at business level. The lack of interest is extremely occurring on the studies of the capital structure decision in Islamic environment. Most studies on capital structure emphasize the developed or western countries. Therefore, it is important to fill these knowledge gaps by exploring the capital structure decision in Islamic environment.

This study was done to identify is there any similarities or differences between the capital structure decisions of shariah compliant companies and non-shariah compliant companies. With the restrictions set by the Securities Exchange (SC) for companies to be listed as shariah compliant, it could have an important impact on capital structure decisions. Specifically, the study was focusing on the factors or determinants that influencing their capital structure decision.

## **Literature Reviews**

### ***Capital Structure Theory***

Over the past decades, an optimal capital structure policy based on maximizing the value of the firms by reducing the economic costs is still a big issue. Since the seminal paper by Modigliani and Miller in 1958, various studies on multiple aspects of capital structure had been conducted. Discussions on the theories as well as empirical studies on the determinants of capital structure were widely done. Though many theories had been suggested to explain the issues, universal theory that suits all cases had not been found yet (Myers, 2001).

Modigliani-Miller Theory (MM Theory) was proposed by Franco Modigliani and Merton Miller in 1958. The theory suggested that in a perfect market, any capital structure preference does not change the value of the firms. Two assumptions need to be held for the proposition to be valid: (1) all bonds (including debts of homemade leverage) are yielding constant and certain income; and (2) securities are traded in a perfect market. (Any perfectly substitute securities are selling in equilibrium, at the same price). Levered firms have no extra values as compared

to unlevered firms. Firms' value is totally dependent on income streams and risks attached to the business. The use of debt financing has no value advantage to the firms.

Modigliani and Miller (1963) adjusted their original proposition (MM Proposition I) by incorporating tax element in the theory. The new proposition (MM Proposition II) suggests that in a tax environment, the usage of leverage will increase value of the firms through the interest tax shields. Interest on the debt paid to the financial provider is a tax-deductible expense. To increase the value, firms are suggested to use more debt to invest in profitable project.

In the same correction paper Modigliani and Miller (1963) argued that proposition II does not imply that firms are suggested to use debt solely in running the business. They need to allocate some of future borrowing reserve and maintain their flexibility as some lenders are implementing several restrictions on borrowers' activities. Furthermore, it should be noted that extensive use of debt may expose the business towards higher risk. Based on this argument the Trade-Off Theory (ToT) was introduced. It was suggested that optimal capital structure could be achieved through the balancing of costs and benefits of debts usage.

Jensen and Meckling (1976) suggested the Agency Theory (AT) of capital structure by integrating the issues of agency costs in capital structure decisions. The choice of an optimal capital structure involved the balancing amongst agency costs and the benefit of debt usage. The most favorable capital structure is achieved when the total agency cost (total agency cost of equity and agency cost of debt) is minimized.

Myers and Majluf (1984) argued that, due to information asymmetry problem, firms are having preference towards the financing decision as in Pecking Order Theory (POT). Firms favor the use of internal funds instead of external funds. In a situation where external funds are needed, issuance of new debt is preferred instead of new equity.

Market Timing Theory (MTT) was developed by Baker and Wurgler (2002). The theory suggests that capital structure is the cumulative outcome of several attempts to time the equity market. Their study shows that the effect on capital structure decision is persistence and hold for a long period. The underlying assumption is that managers believe that they can time the market. In inefficient market firms are expected to issue new equity when their market values are high and buy back when shares are undervalued. The discussion concludes that capital structure decisions required multiple period assessments.

Table 1 summarizes the motivation and implication of all the capital structure theory that has been discussed earlier. Other than the ToT all other theories suggested that there is no optimal capital structure that firms need to achieve in running the business. Based on various factors, firms always rebalance their capital structure to maximize the value. Massive empirical studies have been conducted to determine the associated factors of capital structure decision and relate them to the theories.

Table 1: Summary of Capital Structure Theory

Theory	Motivation	Implication on Capital Structure Decision
MM Irrelevance Theory (MM)	Proposition I: Perfect capital market	Capital structure is irrelevant to firm value
	Proposition II: Interest tax shields	Use of debt will increase firm value
Trade-off Theory (ToT)	Static Model: Interest tax shields vs bankruptcy costs	There is an optimal capital structure: Balancing between these factors
	Dynamic Model: Transaction costs of rebalancing the capital structure	Deviate from the target capital structure if the transaction costs are high
Agency Theory (AT)	Agency conflicts: Shareholders vs managers and shareholders vs debtholders	There is an optimal capital structure: Minimize agency conflicts
Pecking Order Theory (POT)	Information asymmetry between managers and investors	Internal financing is the preference, followed by debt and new issues of equity
Market Timing Theory (MTT)	Ability of managers to time the equity market	Issue new equity when market price of the share is high and buyback when it is undervalued

Empirical testing of the theories on Malaysian context shows that the market supports the pecking order and trade-off theories (Saif-Alyousfi et al., 2020).

### ***Empirical Evidence on Capital Structure Determinants***

Development of the theories subsequently leads substantial empirical studies on the determinants of capital structure. Some of the determinants that had been highlighted in previous studies were discuss below.

The effects of profitability on capital structure decisions can be explained via pecking order theory and trade of theory. The financing preference as in pecking order theory suggests that firms preferred to use internal financing (retained earnings) instead of external financing. In case there is no internal funds available, debts are preferred and followed by the issuance of new equity. Highly profitable firms are able to retain more earnings and inspire them to use their internal funds instead of issuing debt. It implies that profitability and debt ratio has inverse strong relationship as being prove by Kayhan and Titman (2007), (Frank and Goyal, 2009), Bevan and Danbolt (2002), Titman and Wessels (1988), and (Myers and Majluf, 1984).

Growth Opportunities: The trade of theory anticipated that firms are expected to avoid taking more debt to finance its potential growth as high debt usage may cause financial distress to the firms. Companies being more careful on making capital structure decisions in making sure that the benefit of the debt usage will not overtake benefits of the potential projects. Furthermore, more precautions are taken by the fund providers in giving financing aid as return of the investment are uncertain. Both borrowers and lenders were aware on the risks of borrowing to finance the new projects and making them preferred not to use debt for those purposes. Significant empirical studies proved the existence of inverse relationship for instance Fan et al. (2012), Frank and Goyal (2009), Antoniou et al. (2008), Bevan and Danbolt (2002), Deesomsak et al. (2004), Rajan and Zingales (1995) and Titman and Wessels (1988).

**Liquidity:** The effect of liquidity on capital structure decision can be clearly explained by the pecking order theory as being proved by Antoniou et al. (2008). In a situation where companies have a good liquidity position and no issues on the access towards internal fund, they will use the available fund as their first choice, before opting for external fund.

**Assets Tangibility:** Fan et al. (2012), Frank and Goyal (2009), Antoniou et al. (2008), Bevan and Danbolt (2002), Rajan and Zingales (1995) and Titman and Wessels (1988) verify that firms with more tangible assets tend to have more debt. Fund providers favor serving firms with high tangible assets as more collateral can be used for the backup in case of bankruptcy or liquidation.

**Size of the Firms:** It is known that size represents the strength of the firm. Large firms face lower bankruptcy risk, have a better reputation and higher debt capacity. It makes them able to negotiate better terms of debt. As consequence the trade of theory suggesting that larger firms use more debts to grab the opportunity of gaining more interest tax shields as being prove by Fan et al. (2012), Antoniou et al. (2008), Bevan and Danbolt (2002), Deesomsak et al. (2004) and Rajan and Zingales (1995). In relation to the current study, size was used as one of the independent variables (IV) in capital structure decision.

**Shariah Compliant Companies:** Previous section discussed the most significance determinants of capital structure decisions. Most studies being done were generally without any specific environment control. Only few studies explored the capital structure decisions in shariah compliant companies. Similar to non-Shariah compliant companies, previous studies showed mix result among most of the determinants Jaafar et al. (2020), Hussain et al. (2018), Sukor et al. (2018), Khan Tareen and Siddiqui (2019), Hassan et al. (2012), Ahmad and Azhar (2015), Abdul Hadi et al. (2018). There is no specific conclusion that can be reached on the determinant of capital structure.

## Methodology

### *Samples of the data*

Samples of the study consist of non-financial institutions listed in Bursa Malaysia. Financial institutions were excluded as the capital structure is much different. Only companies that were completely listed as Shariah compliant during the study period were involved. Table 2 shows that 6 sectors of industries are involved with. 181 companies were observed for a period of 15 years (between 2003 to 2017) contributing to the total of 2,715 observations. All data of the studies were derived from DataStream.

Table 2: Number of companies and sectors

Sectors of the Industry	Number of Companies	Number of Observations	Percent	Cumulative
Industrial products	58	870	32.04	32.04
Trading & Services	35	525	19.34	51.38
Constructions	19	285	10.50	70.17
Plantation	18	270	9.94	80.66
Properties	17	255	9.39	90.61
Consumer products	14	510	18.78	100.00
Total	181	2,715	100.00	

**Variables and model of the study**

Table 3 shows the list of variables that were being used in the analysis. The dependent variable (DV) was the debt ratio of the firms represented as dr, and five independent variables (IVs) were being tested which were profitability (prof), potential growth (grow), liquidity (liqd), tangibility (tang) and size (size) of the company.

Based on the significant evidence of empirical studies that being discussed in the literature section, it is expected that the following relationship between capital structure decision and determinants will be generated.

Table 3: Variables of the analysis

Variables	Code	Operational definition	Expectation of the relationship
<u>Dependent variable (DV)</u>			
- Debt ratio of the firm	dr	Total debt ÷ Total assets	
<u>Independent Variables (IV)</u>			
- Profitability of the firm	prof	Net profit ÷ Total assets	Negative
- Potential growth of the firm	grow	(Sales <sub>1</sub> – Sales <sub>0</sub> ) ÷ Sales <sub>0</sub>	Negative
- Liquidity of the firm	liqd	Curr assets ÷ Curr liabilities	Negative
- Asset tangibility of the firm	tang	Fixed assets ÷ Total assets	Positive
- Size of the firm	size	Logarithm of the total assets	Positive

It is expected that the current study will generate a negative relationship between profitability, growth opportunities and liquidity on capital structure decision of the firm. On the other hand, it is expected that the test will generate a positive relationship between size of the firm and asset tangibility on capital structure decision. In line with the problem statement, and the literature review model of the study will be as below:

$$dr_{it} = \alpha - \beta_1 prof_{it} - \beta_2 grow_{it} - \beta_3 liq_{it} + \beta_4 tang_{it} + \beta_5 size_{it} + \varepsilon_{it}$$

Annotation:

- dr = debt ratio of the firm
- prof = profitability of the firm
- grow = potential growth of the firm
- liqd = liquidity of the firm
- tang = asset tangibility of the firm
- size = size of the firm
- α = constant
- ε = the error term

Table 4 summarizes the descriptive statistics of the variables that were being tested. Data was considered strongly balanced even though some of the data was missing due to the incomplete record.



Table 4: Descriptive statistics

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
Company	2715	91	52.25903	1	181
Year	2715	8	4.32129	1	15
Debt ratio	2680	18.41771	17.36553	0	345.1462
Profitability	2682	4.733542	8.598079	-147.6345	83.15584
Growth	2494	17.67544	124.8828	-96.70019	2712.806
Liquidity	2682	2.733924	3.952666	.00876	112.7678
Asset Tangibility	2682	50.16112	19.90755	0	97.10883
Size	2682	8.771488	.5710443	7.437275	11.1592
The command	.summarize coid yearcode dr prof grow liqd tang size				

### *Selection of the Appropriate Testing Model*

Panel data model is the most suitable for the analysis to test the relationship. Information on companies' behavior for both across companies and over time can be identified. There are several techniques of estimating panel data model, including Pool Ordinary Least Square Model (Pool OLS), Fixed Effect Model (FE) and Random Effect Model and few statistical tests need to be done to choose the most appropriate model (Law, 2018).

Breusch-Pagan LM test was done to determine whether Pool OLS or FE is more suitable. Result of the test (p-value < 0.05) as being showed in Table5 suggesting that RE model was more appropriate instead of OLS. That means that there was company specific effect in the data.

Table 5: Breusch and Pagan Lagrangian multiplier (testing the suitability of OLS estimation)

Estimated results:	Var	sd = sqrt(Var)
dr	216.7427	14.72218
e	81.74941	9.041538
u	79.3827	8.909697
Test: Var(u) = 0		
	chibar2(01) =	3589.25
	Prob > chibar2 =	0.0000
The command	.xttest0	

To choose the best way to treat the company specific effect either using the FE model or RE model, the Hausman test was done. Result of the test (p-value < 0.05) as being showed in Table 6 suggesting that RE model was not appropriate and FE was preferred. It implied that each company has their own intercept in the model. The test was rejecting the null hypothesis of the existence of common intercept.

Table 6: Result of the Hausman Test (Testing the suitability or fixed-effect)

Fixed-effects (within) regression		Number of obs	=	2490	
Group variable: coid		Number of groups	=	181	
R-sq:		Obs per group:			
within	=	0.1224	min	=	11
between	=	0.2143	avg	=	13.8
overall	=	0.1779	max	=	14
corr(u_i, Xb) = -0.0512		F(5,2304)	=	64.25	
		Prob > F	=	0.0000	

  

dr	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]
prof	-0.2987587	0.0308874	-9.67	0.000	-0.3593286 -0.2381887
grow	0.0035687	0.0015246	2.34	0.019	0.0065584
liqd	-0.5579092	0.0830431	-6.72	0.000	-0.7207562 -0.3950621
tang	0.1352763	0.0211341	6.4	0.000	0.0938325 0.1767202
size	7.875069	1.010389	7.79	0.000	5.893702 9.856436
_cons	-55.08661	8.931817	-6.17	0.000	-72.60185 -37.57137
sigma_u	10.216676				
sigma_e	9.041538				
rho	0.56079372	(fraction of variance due to u_i)			
F test that all u_i=0:		F(180, 2304) =	15.22		Prob > F = 0.0000
The command		. xtreg dr prof grow liqd tang size, fe			

### Findings

Referring to Table 6 of the FE estimation model, all five IVs are significantly correlated with the debt ratio. The statistics showed that firm's potential growth, tangibility and size were significantly had positive correlation with the debt ratio of Shariah compliant companies. The model also showed that profitability and liquidity of the firm were significantly had negative correlations towards the debt ratio of shariah compliant companies. The estimated model based on the statistical result is as below.

$$dr_{it} = -55.09 - 0.299prof_{it} + 0.0036grow_{it} - 0.558liqd_{it} + 0.135tang_{it} + 7.875size_{it} + \epsilon_{it}$$

### Discussion

Table 7 comparing the relationship following to (1) the theories, (2) the predicted hypothetical and (3) the empirical findings. Hypothetical relationship was generated based on previous empirical literatures on determinant of capital structure of non-specific companies (Shariah and non-Shariah compliant). All determinants, except potential growth, were following the same relationships as per hypothetical expected. It means that the capital structure decisions of Shariah compliant companies are consistent with empirical evidence except for potential growth.



Table 7: Comparison of the test results with the expectations of theories

Determinants	Relationship based on the theory	Hypothetical relationship	Research findings: Shariah Compliance
Profitability	POT: Negative ToT: Positive	Negative	Negative
Potential Growth	POT: Positive ToT: Negative	Negative	Positive
Liquidity	POT: Negative ToT: Positive	Negative	Negative
Tangibility of Assets	POT: Negative	Positive	Positive
Size	POT: Negative ToT: Positive	Positive	Positive

As discussed by Kahya et. al (2020) the negative relationship of profitability on capital structure decision is in line with the POT of capital structure in Malaysian environment. It being debated in the same study that the negative influence of liquidity on capital structure decision is in line with the POT, explaining that the Shariah compliance companies not preferred to use long term financing.

Generally, the capital structure decisions of Shariah compliant companies are consistent with non-Shariah compliant companies. However, more studies need to be done to statistically test the consistency of these relationships. It is suggested that more comprehensive studies should be done in the future to cover more data (areas, periods and determinants), in-cooperate the diagnostic test, robustness using different standard errors and compare more method of estimation. In addition, more proxies can be used for both capital structure as well as the determinants.

### Conclusion

The study was investigating capital structure determinant among Shariah compliance companies in Malaysia. FE panel data model was used to estimate the effect of profitability, potential growth, liquidity, assets tangibility and size of the firms on capital structure decision of Shariah compliant companies in Malaysia. Debt ratio was used as a proxy of capital structure. Findings of the study showed that all the determinants, except potential growth were following similar pattern as previous empirical results which being done on all companies with no specific environment control.

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