

# Capital Structure Determinants of Shariah-compliant Firms

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## ABSTRACT

This is a preliminary study developed to explore the determinants of capital structure of Shariah-compliant firms listed in Bursa Malaysia. This study is primarily motivated by the issue of the determinants still being inconclusive in the area of capital structure. The study is performed using the static models namely Pool Ordinary Least Square, Fixed Effect and Random Effect Model. Empirical analysis on the determinants reveals that country specific factor which is GDP and sector specific factor which is industry concentration are also significant in influencing the corporate financing decisions in this country along with firm specific factors such as efficiency, bankruptcy risk, profitability, tangibility, liquidity and size of the firm. The findings revealed that results are sensitive to models employed in the study. Nevertheless, the applicability of capital structure theories such as the trade-off theory, agency theory and pecking order theory diverge across sectors in Malaysia. The pecking order theory and agency theory are found to be the dominant theories governing the corporate financing decision in the country as well. It indicates strong evidence of hierarchy practised in firms' financing decision. The finding on agency theory being dominant justifies the function of short-term debt as a controlling mechanism to mitigate the agency problem arises within firms across sectors.

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## 1. Introduction

In today's dynamic and highly competitive business atmosphere, capital structure plays a crucial role in ensuring a competitive and sustainable growth of a firm. Presently, in Malaysia, managing capital structure and restructuring activities have become a major concern due to the global financial crisis and the bubble economy which have led to financial distress, liquidation and bankruptcy among major businesses. An appropriate mix of capital structure is not only imperious to maximise the interest of the

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stakeholders, but also essential for that organisation to compete competently and efficiently in its operating environment (Simerly & Li, 1999) whether the firm is Shariah-compliant or Shariah non-compliant firm. Erroneous on deciding the mix of capital structure will lead to financial distress, indebtedness to the organisation (Eriotis, Vasiliou, & Neokosmidi, 2007) and will affect the firm performance in a long run and the economy negatively as well.

Modigliani and Miller are the pioneers who have developed the capital structure theories in 1958. Since then, variety of theories and hypothesis have been developed to explain about the optimality and capital structure decisions of firms. Even though there is abundance of literature, the conceptualization of capital structure is still inconclusive (Haron, 2014a) and the capital structure still becomes a dilemma to the firms as stated by Rajan and Zingales (1995).

There are two fundamental theories that have always been referred to in capital structure studies which are the trade-off theory (Kraus & Litzenberger, 1973) and pecking order theory (Donaldson, 1961; Myers, 1984; Myers & Majluf, 1984). The capital structure trade-off theory assumes that the firm will be achieving its capital structure optimality if its marginal benefits are equivalent to the marginal costs (Shyam-Sunder & Myers, 1999). It can also be attained by balancing the benefits of tax (Miller, 1977; De Angelo & Masulis, 1980) against the financial distress costs or bankruptcy risks (Baxter, 1967; Kraus & Litzenberger, 1973) and agency costs (Jensen & Meckling, 1976).

Alternatively, in pecking order theory there exists asymmetric information between the managers and investors (Fama & French, 2002; Harris & Raviv, 1991; Wiwattanakantang, 1999; Booth, Aivazian, Demircuc-Kunt, & Maksimovic, 2001; Deesomsak et al., 2004; Chen, 2004; De Jong et al., 2008). The managers prefer to choose internal sources as a main source of financing, with the least information cost first, before they go for external sources of financing. This is consistent with Myers and Majluf (1984) who argue that the internal financing such as earnings after tax or retained earnings is preferred to be used rather than the external financing such as debt and equity. If the internal reserves diminish, then the firms will opt for debt financing rather than equity.

The study on large listed firms have been monopolizing the trend in the capital structure studies due to the accessibility of data (Rajan & Zingales, 1995). In recent years, researchers have begun to shift their attention to Shariah-compliant firms as the main focus of the study. Hence, this study will be focusing on Shariah-compliant firms in an emerging market, especially in Malaysia. This study is motivated by the remarkable growth of Islamic Capital Market (ICM) which has risen to RM2.76 trillion in 2014 and is expected to reach RM 2.9 trillion by 2020. With the establishment of Shariah Advisory Council (SAC), Securities Commission of Malaysia has set up certain standard of parameters as guidelines in classifying Shariah-compliant securities. The central features of the Shariah-compliant securities are the prohibition of activities that involve interest (riba), gambling (maisir) as well as uncertainties and speculative trading (gharar). Periodical monitoring is carried out to ensure continuous conformity of those firms to the Shariah principles (Johan, 2018).

## **2. Issues on inconclusiveness and inconsistency**

The study on capital structure and firm value has gained very much attention in the past and present, and has become one of the world's debatable topics in the area of finance literature throughout the years, particularly after the seminal paper of MM (1958), and it is still being discussed amongst scholars due to the inconclusive findings (Haron, 2014a; Sahudin, Mahmood & Isa, 2014b). The issue of incomplete and inconclusive findings in the area of capital structure has been debated for so long, and remain questionable. It has been raised again by Beattie, Goodacre and Thomson (2006), Haron (2014b) and Sahudin, Mahmood and Isa (2014a). Through their findings, they found that the explanation is theoretically lacking and the results are still inconsistent to resolve the issue on how the firms should choose their method of financing, especially in the developing or emerging countries. Boateng (2004) cited that making decision on capital structure is even more complicated when international

characteristics are considered, specifically in developing markets with institutional constraints and controls.

Myers (1984) deemed capital structure as a puzzle until today. Various thoughts and concepts have been put forward to enlighten this phenomenon. Among the issues discussed are the various definitions of leverage used in capital structure studies and the different models employed in the studies. In spite of thorough research that has been done in the area of capital structure since the seminal paper of Modigliani and Miller in 1958, Myers (1977) also brings out the issue on the determinants of the corporate borrowings. Thus, the literature on the determinants of capital structure, has risen ever since. Even so, the understanding about this issue remains inconclusive and largely underexplored as pointed by Harris and Raviv (1991), Myers (2001), Al-Najjar and Taylor (2008), Margaritis and Psillaki (2010), as well as Haron (2014a).

The empirical research in the area of capital structure has lagged behind and the concepts are not directly observable (Titman & Wessel, 1988). Some found that empirical evidence on the effect of determinants on the capital structure was mixed and inconsistent (Deesomsak et al, 2004). For emerging market, Sheikh and Wang (2011) express that the findings of empirical studies are not solely due to the impact of the independent variable on capital structure only. This might due to of dissimilarities in the terms used to define the leverage, whether it is a long-term leverage or short-term leverage or because of institutional differences that exist between developed and developing countries. In view of this, Udomsirikul, Jumreornvong and Jiraporn (2011) confirmed that the decisions on capital structure are complex and they can be influenced by multitude factors.

Similarly, numerous observations have been made on the same issue of capital structure. However, the interpretation on the determinants of the firm's financial structure beyond the major developed markets such as developing markets are still underexplored. Some of the research, have analysed the international data (Rajan & Zingales, 1995; Booth et al., 2001; Antoniou, Guney & Paudyal, 2002; De Jong et al., 2008). Therefore, the study aimed to determine whether the firm, sector and country specific factors have influence on the corporate financing behaviour of Shariah-compliant firms in Malaysia.

The study contributes to the existing pool of financial economic literature and capital structure research on the relationship between firm efficiency, capital structure and bankruptcy risk for Shariah-compliant listed firms in Malaysia in several ways. First, this study used the recent sample for Shariah-compliant listed firms during the period from 2002 to 2011. Second, to the best of this study's knowledge, this is among the first empirical study which estimates the efficiency by employing the production function in Malaysia. It is assumed that efficiency and productivity have the same relationship with bank capital and risk levels. Finally, this study contributes to the existing literature by applying different risk indicators. In other words, the Altman's Z-Score which is derived from the banks' financial is used as the measurement of bankruptcy risk. Other than that, the study employed efficiency as a new independent variable as determinants of capital structure. Another new independent variable is employed in this study was Herfindahl-Hirschman Index (HHI). This index was used to measure the market share of that particular firm in the industry or sector. It is also called industrial concentration.

### **3. Literature review**

In 1958, Modigliani and Miller (M&M) introduced a theory based on what they called a perfect capital market (the absence of corporate taxes, transaction costs, and bankruptcy costs). According to them, the value of firm is independent to its capital structure, thus, debt and equity are perfect substitute for each other.

Several theories on capital structure have been developed after the M&M theory. Many empirical evidences conclude that capital structure is vital and the choice of capital structure could influence firm's cost of capital and eventually the value of the firm (Myers, 1984; Titman & Wessels, 1988; Deesomsak, Paudyal & Pescetto, 2004; Sheikh & Wang, 2011).

According to Parrino and Kidwell (2009), the capital structure will be at the optimum level when the value of the firm is maximised and the cost of financing is minimized. However, the existence of optimal capital structure level still remains vague and with no proper methodology specified to ascertain the optimum level of capital structure based on individual firm's financial standing (Haron, 2014a). The percentage between debt and equity diverges depending on numerous factors, such as, firms' characteristics, macroeconomic factors and other factors which may have direct impact on the firm's financing decision.

Numerous researches on capital structure concentrates on factors that determine the capital structure of firms. They were conducted based on countries, that are, comparison among East Asia countries by Driffield, Mahambare and Pal (2007), in Turkey by Arslan and Karan (2006), in US by Jiraporn and Liu (2008), in Ghana by Boateng (2004), in Switzerland by Gaud, Jani, Hoesli and Bender (2005), in emerging countries in Latin America, Asia (excluding Japan), Africa, Middle East, as well as Eastern Europe by Mitton (2008) and in Malaysia by Suto (2003). Studies in each country differ according to exclusive environment of the country with similar determinants of the capital structure.

In the attempt to explain how a firm maximises its capital structure in this competitive world, countless theories in the literature of financial economic have been developed and examined. Among the finance literature with the contributions that explain the relationship between capital structure and the firm specific factors such as bankruptcy costs, size of the firm, growth opportunities, total assets of the firm, profitability, tangibility as well as non-debt tax shield. The country specific factors are those of Gross Domestic Product (GDP) of that particular country, interest rates or lending rates and the such. The examples of the studies on these issues include Modigliani and Miller (1958), Myers and Majluf (1984), Myers (1984), as well as Brounen et al. (2006).

#### **4. Methodology**

There are 305 firms chosen to form an unbalanced dataset across five sectors, namely construction, property, plantation, industrial and trade and services that managed to sustain from 2002 until 2011. This dataset analysed the firm behaviour as well as the sectoral behaviour. This panel data comprised 3013 observations in total. Firms from banking, insurance and the financial sectors were excluded from the sample due to the financial characteristics and use of leverage which were substantially different from other non-financial firms. According to Rajan and Zingales (1995), the financial sector is eliminated from the sample because in such sector, firms are highly levered as they are highly dependent on investor insurance schemes like deposit insurance and, therefore, their liabilities are not comparable to the debt issued by non-financial firms. This study also excluded companies which do not comply with the obligations under the Practice Note 4 (PN4) and Practice Note 17 (PN17) (Ibrahim & Samad, 2011). The data used in the study were extracted from the financial statement of the listed Malaysian firms derived from the Malaysian Bourse (known as Kuala Lumpur Stock Exchange prior to 2004), OSIRIS database produced by the Bureau Van Dijk and from the company's annual report as well.

This study employed a number of steps before analyzing the estimated model. Firstly, this study would look into the descriptive statistics of the variables. Secondly, it took into account any econometric issues such as multicollinearity, heteroscedasticity and autocorrelation and address them with appropriate solutions. Thirdly, once the data were ready, panel data analyses were conducted and that included the panel OLS, fixed effects model and random effects model. Then, the preferred model would be selected among all the three models.

#### **5. Findings and analysis**

From the findings in Table 1, 31% of investment capital is financed by short-term debt. This proportion is primarily generated from short-term debt rather than long-term debt (Abor, 2005). In

Malaysia, the commercial banks supply more short-term debt, rather than long-term debt for longer term investments and this scenario justifies the above finding. The short-term debt is more widely used compared to long-term debt by the Shariah-compliant firms in Malaysia because majority of Islamic debt instruments issued short-term debt rather than long-term debt (Aggarwal & Yousef, 2000). This also supports agency theory whereby it justifies the function of short-term debt as a mechanism to control the debt and mitigate the agency problem.

Table 1. Descriptive statistics of firm, sector and country level

SAMPLE	STATS	TD	LTD	STD	EFF	ZSCORE	PRO	TAN	LIQ	SIZE	NDTS	GRW	HHI	STCMKT	LEND	GDP
Overall Sample	Mean	0.42	0.10	0.31	0.29	1.75	8.34	0.52	2.18	8.52	0.03	0.13	0.83	42.92	5.88	3.14
	SD	0.22	0.12	0.20	0.20	1.32	0.11	0.20	1.93	3.83	0.03	0.95	1.36	12.93	0.61	2.20
	Min	0.01	0.00	0.01	0.02	-11.63	5.63	0.00	0.01	4.16	-0.11	-16.31	0.00	27.39	4.92	-3.09
	Max	2.85	1.46	2.83	1.00	16.44	9.69	0.99	21.97	18.19	0.41	23.76	7.54	77.50	6.53	5.45
	Obs.	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013	3013

Based on their review of data from studies on banking in Iran, Jordan, Malaysia and Egypt, Aggarwal and Yousef (2000) found that the vast majority of Islamic debt instruments issued for short-term debt rather than for long-term debt. They proposed agency costs and moral hazard as an explanation for the preference for short-term lending by banks in Islamic countries. The deficiency of long-term debt is probably due to the domestic bond market which is currently undergoing a major process of development (Syed Ali, 2008). The standard deviation of 20% indicates that the short-term debt ratio has the high volatility and dispersion level.

From the sector point of view, the overall scenario remains consistent with the previous dataset, and highlights the importance of short-term debt financing among the Malaysian Shariah-compliance listed firms, predominantly within the construction sector. Construction, industrial as well as trade and services sectors, seem to be highly dependent on short-term debt in financing their investments compared to other sectors. Most of the sectors have started to concentrate slowly on long-term debt financing, but this proportion of debt financing remains smaller than the portion of the short-term debt. This transformation is perhaps due to the impact of the Asian financial crisis and is probably due to the development of the Malaysian bond market in consequence of the execution of the Malaysian Capital Market Plan in early 2001. The Malaysian corporate debt market has developed extensively, where the corporate bond market represents 37% of the country's GDP and accounted for 8% of the total Asian bond market in 2004 (Ibrahim & Wong, 2006).

The above finding strengthens the argument for the differences in leverage used and in this case the use of short-term debt across firms in Malaysia. This may be the impact of several factors like firm size, the level of accessibility in the capital market, sectoral characteristics that may influence a particular firm, and other direct or indirect factors related to a specific firm. Most firms generate their external finances mainly from short-term debt, followed by equity and finally, from long-term debt as the last resort (Myers and Majluf, 1984). This pattern of financing indicates a pecking order influence across Malaysian Shariah-compliant listed firms. In comparison to that, Chen (2004) documents another variation of pecking order influence across some developing countries when raising funds. Managers, according to him, see internal funds as the fastest and easiest source of financing, new equity issuance would come next and the issuance of new debt becomes the last resort for financing. Issuing equity capital also needs extra costs than issuing debt because it takes more time and requires additional resources.

For the analysis part, the panel data approach was employed to estimate the parameters of interest. The Pooled Ordinary Least Square (POLS), Random Effect Model (RE) and Fixed Effect Model (FE) Estimates was then hypothesized for firm, sector and country specific factor for Short-Term Debt. The F-statistics for the regressions proved the validity of all three of the estimated models. The Hausman Test was taken to identify whether the FE model is better than RE model. The result was 0.0000 and indicated that the FE was better than the RE model. And finally, the Fixed Effect Model Corrected for Heteroscedasticity and Autocorrelation Problems was employed as shown in Table 2.

The result of the tests indicated that all test statistics rejected the null hypothesis of equal variance of residual across firms at 1% significant level, presenting strong evidence of the presence of heteroscedasticity problem in all capital structure regression models. On the other hand, the result of serial relationship signified that the test rejects the null hypothesis of no serial relationship at 1% significant level. Therefore, after correcting for the heteroscedasticity and autocorrelation problems, these were found to be the best fit model for this research.

Table 2. Summary of the result for OLS, RE, FE and FE after correcting the heteroscedasticity and autocorrelation problems

Dependent Variable	Independent Variable	OLS	RE	FE	FE Corrected for Hetero & Autocorrelation
LEV (STD)	Constant	5.4592***	4.5021***	4.4275***	4.4275***
	Efficiency	0.0297*	0.0281**	0.1190**	0.1190*
	Z-Score	0.0023	-0.0085***	-0.0150***	-0.0150*
	Profitability	-0.5759***	-0.4669***	-0.4254***	-0.4254***
	Tangibility	-0.4437***	-0.3812***	-0.3189***	-0.3189***
	Liquidity	-0.0610***	-0.0490***	-0.0429***	-0.0429***
	Size	-0.0026***	-0.0035***	-0.0405***	-0.0405***
	NDTS	-0.0330	0.1200	0.1293	0.1293
	Growth	0.0010	0.0014	0.0016	0.0016
	HHI	-0.0035	-0.0033	0.0163***	0.0163*
	Stock Market Development	-0.0002	-0.0002	-0.0001	-0.0001
	Lending	0.0065	0.0072**	0.0020	0.0020
	GDP	0.0012	0.0010	0.0010	0.0009*
	Breusch-Pagan LM Test	-	0.0000	-	-
	Hausman Test	-	-	0.0000	-
	Obs.	3013	3013	3013	3013
	Multicollinearity (VIF)	-	-	1.30	-
	Heteroscedasticity	-	-	0.0000	-
	Serial Relationship	-	-	0.0000	-
	R2		0.5470	0.5417	0.2489

## 6. Results

Table 3 summarizes the result from the preferred model namely those models after correcting for heteroscedasticity and autocorrelation problem. Based on the overall sample, there were only eight independent variables that were significant in explaining short-term debt which were efficiency, bankruptcy risk (Z-Score), profitability, tangibility, liquidity, size of the firm, industrial concentration (HHI) as well as GDP. Profitability, tangibility, liquidity and size of the firm maintained a negative relationship and it was significant at 1% with short-term debt for overall sample. Meanwhile, efficiency, HHI and GDP maintained a positive relationship and it was significant at 10% with short-term debt for overall sample. As for bankruptcy risk, it also showed a significant negative relationship at 10% level with short-term debt for overall sample.

For efficiency or performance of the firms, however, it is significant and positively related to leverage, which is consistent with some previous studies (Margaritis & Psillaki, 2010; Faizal, Afif & Nizam, 2018).

Table 3. FE regression corrected for heteroscedasticity and autocorrelation problem (with firm, sector and country specific variables)

Dependent Variable	Independent Variable	Overall
LEV 3 (STD)	Constant	4.4275*** (0.000)
	Efficiency	0.1190* (0.079)
	Z-Score	-0.0150* (0.061)
	Profitability	-0.4254*** (0.000)
	Tangibility	-0.3189*** (0.000)
	Liquidity	-0.0429*** (0.000)
	Size	-0.0405*** (0.019)
	NDTS	0.1293 (0.394)
	Growth	0.0016 (0.489)
	HHI	0.0163* (0.112)
	Stock Market Development	-0.0001 (0.738)
	Lending	0.0020 (0.734)
	GDP	0.0009* (0.079)
	R2	0.2489
	F-stat	11.09***
	Obs.	3013

Book Value Leverage: Lev3=STD/TA

\*\*\*, \*\*, \* denotes significant at 1%, 5% and 10% level respectively

Note: Value in parentheses ( ) are P-Value

The relationship between the leverage and efficiency should be positive as the more efficient is the firm, the higher will be the level of leverage that the firm will hold. This indicates that the public have trust on the firm and it also has a good reputation in the eyes of the world. This effect is positive at the mean of leverage for each industry and it remains positive over the entire relevant range of leverage values. Thus, the study supports the agency cost hypothesis that higher leverage is associated with improved firm performance (Margaritis & Psillaki, 2010). This indicates that the efficient firms are growing in accordance to the economics condition.

Besides firm specific factor, mainly efficiency, bankruptcy risk (Z-Score), profitability, tangibility, liquidity as well as size of the firm, the sector specific factor is also included in the model. The industrial concentration (HHI) shows a significant positive relationship at 10% level with short-term debt for the overall sample. Nevertheless, for country specific factor, GDP is also found to have a positive and significant relationship at 10% level with short-term debt.

The findings obviously illustrate different significant effects of sector specific factor and country specific factors on the firm leverage across sectors. Hence, it supports the findings of Deesomsak et al., (2004), De Jong et al., (2008), Haron (2014b), Li and Islam, (2019) as well as Li and Manisha, (2019). They assert that beside firm specific factors, the sector specific factor and country specific factors are also

significant determinants of capital structure of the firm. Therefore, managers should not ignore these sectors and external factors in determining the capital structure as those factors are important in influencing the firm internal characteristics (Kayo & Kimura, 2011).

## 7. Conclusion

It can be summarised that the pecking order theory is the most dominant theory followed by the agency theory in governing the corporate financing decision on Shariah-compliant firms in Malaysia. These findings show that Shariah-compliant firms in Malaysia practice hierarchical financing in their capital structure corporate financing decision and thus confirms that the Shariah-compliant firms in Malaysia prefer to finance their new projects with internal funding. The pecking order theory emphasises that the profitable firms utilise their profits to finance their investments and use less debt or other external funds. This result is highly consistent with the findings of Harris and Raviv (1991), Rajan and Zingales (1995) as well as De Jong et al. (2008).

In relation to the capital structure framework of firms operating under Shariah principles, Ahmed (2007) suggests that it is very much similar with the pecking order prediction of the capital structure. Conforming to the nature of Shariah compliance, these firms would aim to limit total cost to the lowest possible. Consequently, hierarchical financing behaviour would be very much preferred where they would firstly choose internal financing, then debt financing in the form of *ijarah* (lease contract) or *murabahah* (sale contract of asset at a mark-up) and finally *mudarabah*-based (silent partnership) or *musharakah*-based (partnership that share both in capital and management) equities (Haron & Ibrahim, 2012a).

The second dominant theory recorded in this study is the agency theory. Gurcharan (2010) makes a point that agency theory has been domineering in explaining the capital structure of emerging market. This argument is supported by Fan, Wei and Xu (2011) by stressing capital structure decisions are very much influenced by agency problems and financial constraints. The findings address the issue of agency problems and it has implication on firm's policy making. Deesomsak, Paudyal and Pescetto (2009) enlighten that apart from the level of integrity and efficiency of a country, debt financing is preferred to equity financing due to the monitoring and controlling mechanism of debt on managers, especially short-term debt. This scenario provides sound justification why agency theory is found to have substantial influence on firms' capital structure in this study for debt being the controlling and disciplinary mechanism to managers.

Capital structure deals with the ratio of debt and equity in financing investments. Being Shariah compliance, these firms need to adhere to certain rules and impositions pertaining to debt financing. Debt, according to Shariah principles, needs to be backed by assets, tangible assets for that matter thus, debt taken on should not exceed the value of its tangible assets (Haron & Ibrahim, 2012a). A firm with more tangible asset may have relatively higher ability to take on higher debt ratio (Ahmed, 2007). Islamic debt is distinctively different from the conventional debt where Islamic debt has to be asset backed and the amount of debt would be bounded by the tangible assets owned by the Shariah-compliant firms (Obaidullah, 2007).

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