



# Determinants of capital structure: Empirical evidence from Shariah compliant plantation firms in Malaysia

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## ABSTRACT

Capital structure choice is vital in corporate financial management due to its effect on both return and risk to investors. As such, the objective of this research is to analyse the capital structure of listed shariah compliant plantation companies in Bursa Malaysia. The factors that influence the level of debt in this research are profitability, tangibility and liquidity respectively. The research is conducted by observing financial data of 34 listed shariah compliant plantation firms in Malaysia from period 2006 to 2016. The study has used panel data and the regression analysis is based on ordinary least square (OLS). Capital structure is the dependable variable referring to debt ratio of the companies, decomposed into total debts over total assets. The independent variables are profitability, liquidity and tangibility. Three theories of capital structure have guided this study i.e. the Trade-Off Theory, Asymmetric Information and the Pecking Order Theory. The study shows that profitability and tangibility have significant positive relationship capital structure. Nevertheless, liquidity does not have any significant relationship with the debt ratio. It is most likely that liquidity is not taken into account by listed plantation companies in Malaysia in making their capital structure decision. Since profitability and tangibility have significant relationship with the level of debt, the Theory of Capital Structure such as Trade Off Theory is applicable to plantation shariah compliant firms listed in Bursa Malaysia.

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## 1. Introduction

Plantation is one of the sub-sectors in the agriculture sector in Malaysia. It is supervised by the Ministry of Plantation and Commodities (MPIC). Government established Ministry of Primary Industries in 1972 to focus on two main commodities which are tin ore and rubber. Later on, the ministry role

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extended to include palm oil, cocoa and tobacco. In 2004, the ministry was reorganized and renamed as Ministry of Plantation Industries and Commodities. There are four main crops that have dominated the agricultural exports ever since which are palm oil, rubber, timber and cocoa.

Agriculture makes up 8 to 12 percent of Malaysia gross domestic product (GDP) from the year 2004 to 2016. 16 percent of Malaysia's population are employed under agriculture sector. Agriculture is now a minor sector in Malaysia economy compared to 1960s when agriculture contributed 37 percent of Malaysia's GDP and employed 66 percent of labour force. The crops also shifted from food crops like paddy to industrial crops such as palm oil and rubber. The total planted area used for agricultural is increasing from 68 percent in 1960 to 84 percent in 2005.

Over 10 million metric tons of palm oil were produced in Malaysia and making it as one of the world's largest producers. Almost 85% of this was exported to international market. Malaysia has a good reputation for producing high quality rubber product and supply for one third of world's rubber export. However, in the 1990s, big companies began to turn to more lucrative palm oil production. Malaysia also is the world's fourthlargest producer of cocoa in 1999.

The firms are required to make a crucial decision on the types of capital to be issued, in order to finance their activities and projects. This wouldlead to the capital structure requirement that requires to be governed by every firm to execute financial assessment before taking loan from external source of financing. A wrongchoice in capital structuring would distressthe firms on how they spend their cash and raise their funds. If the firmshad no proper planning on getting the funds for their activities, the firms might misallocate the money by taking more debt through issuing more bonds or use most of the firm's cash beforeforecasting the impact that it would cause on the firms' finance. By determining suitable optimal level of leverage for the company, it would contribute towards the company's financial strategies.

Notwithstanding Islamic finance does not accept any element of *riba'* or interest in its activities, it still has the characteristics of both debt and equity issuances. A significant enquiry that arises on this study is what inspires the shariah compliance plantationfirm to elevate capital via debt. Does shariah compliance plantation firms have similar motivation as what is being inspired by conventional firms specifically based on trade capital structure theory namely trade off (Modigliani & Miller, 1958), pecking order (Myers & Majluf, 1984, Mayers, 2001, Fama & French, 1998, 2005), bankruptcy cost (Berger et al, 1995, Florackis, 2008), risk shifting (Green, 1984, Lewis C.M et al, 1999, 2004)and others. A study devoted to shariah compliant plantation companies would not only be interesting to the reseachers around the globe, but equally also to investors and corporate managers in Malaysia as well as the authorities. Therefore, this research adds one more piece to the emerging puzzle by examining the determinants of capital structure among planation shariah compliant firms in Malaysia capital market. Furthermore, many industries in Malaysia are relying on the performance of plantation companies because it would affect the GDP and economy in Malaysia. The policy implication section of this paper will illuminate the implication of findings in greater detail.

The paper is organised as follows. Section II briefly summarises the theory capital structure particularly on the capitalstructure. Section III discusses the data and empirical method used in this study, Section IV presents the empirical results of the analysis and Section V concludes the paper.

## 2. Literature Review

The foundation of the modern theory of capital structure was initiated from Modigliani-Miller (M&M) theorem, established by Franco Modigliani and Merton Miller (1958). This theory states that a firm's capital structure choice does not affect the firm's value when the capital market is prefect or efficient with the assumption of there is no tax imposed, no issuing cost for raising capital via debt or equity and no

agency cost respectively. Nevertheless, it contradicts the real world practice which eventually attributes to several other theories, also found to challenge these findings and define the optimal capital structure for the firms in various perspectives such as agency theory (Jensen & Meckling, 1976, Smith & Warner 1979, Pinegar & Wilbricht 1989, Lubatkin & Chatterjee 1994, Elliot 2002), asymmetric information (Akerlof, 1970; Myers & Majluf, 1984; Clarke & Shastri, 2001; Hasbrouck, 2005), pecking order theory (Myers & Majluf, 1984, Mayers, 2001, Fama & French, 1998, 2005), bankruptcy cost (Berger et al, 1995, Florackis, 2008), risk shifting (Green, 1984, Lewis et al, 1999, 2004), backdoor equity financing (Stein, 1992, Lewis et al, 1999, 2004).

Trade off theory explicates the capital structure from the perspective of the cost-benefit of debt. Myers (1984) customised the MM (1963) model and established the 'static trade-off' theory. It claims that there is a transaction between benefits of debt usage and the financial distress. This occurs because of the increase in the possibility of bankruptcy with the higher usage of debt. According to Myers' (1984) trade-off theory, firms have to set their debt levels and make their capital structure decisions. Debt gives firm tax benefit but at the same time also raises the firm's financial risk. As such, the ratio of debt in the capital structure increases, the value of the company also increases. This is due to the increasing present value of marginal tax shield. Nevertheless, the increase in the present value of cost of financial distress will make up for the increase in the marginal benefits and as the debt ratio increases, the value of firm will decline at higher levels of debt ratio. This permits the firms to optimise their debt levels.

Other than Trade Off theory (Modigliani & Miller, 1958), there are several other theories that explain on capital structure. The second theory is known as pecking order theory, POT (Myers and Majluf, 1984). According to POT, the firm would utilise their internal financing relatively than borrowing money via debt. POT theory suggests that the firm will choose to use their retained earnings first to meet with investment requirement. Only when their internal source is not sufficient, then they would seek the external source of financing. Issuing a new stock would be the last resort.

Asymmetric information model was initiated by Akerlof (1970) before many researchers started to integrate with pecking order theory (Myers & Majluf, 1984). This model propagates the circumstances that the manager of the firm has extra information from other investors with regards to the operations and future prospect of the firms. Presuming the manager has the attention of maximising shareholders value, the information asymmetry can affect the manager capital structure decision. This is very essential as most of the time, the investors always rely on the action of the manager in assessing the firm's prospect and react based on their own interpretation of the manager's action.

In line with the various capital structure theories, capital structure is also very important for the firms' financing growth. When the firm has a strong financial source, it facilitates them to fund more business operations and enlarge their firms smoothly. This influenced economic growth within industries and aided to our country's growth.

### **3. Empirical methodology and measurement of the variables**

The method will describe the model specification, data source, the proposed hypothesis, identify the variables and the measurement as well as the econometric model. The sample consists of 34 listed firms that are *shariah* compliance listed on Bursa Malaysia and Ace Market over the years 2006 – 2016.

### A. Empirical Model – Multiple Regression

The following model was employed for the analysis:

$$D_{it} = \beta_0 + \beta_1 P_{it} + \beta_2 T_{it} + \beta_3 L_{it} + \varepsilon_{it}$$

Where:

- $DR_{it}$  = debt ratio of firm  $i$  at time  $t$ .
- $PROF_{it}$  = profitability of firm  $i$  at time  $t$ .
- $TANG_{it}$  = tangibility of firm  $i$  at time  $t$ .
- $LIQ_{it}$  = liquidity of firm  $i$  at time  $t$ .
- $\beta_0$  = common  $y$ -intercept.
- $\varepsilon_{it}$  = stochastic error term of firm  $i$  at time  $t$ .

The Ordinary Least Square (OLS) regression is run on SPSS version 19. The model is derived on the basis of previous studies such as Asmawi and Faridah (2013), Ozkan (2001) and Ramlall (2009).

When leverage (DR),  $Y$  acts as the dependent variable,  $Y$  is dependent on the other three independent variables such as Profitability (PROF) as it expresses the relationship between the earning of the company over the debt ratio. Tangibility (TANG) measured the asset tangibility of the firm as it associates with the leverage level. Liquidity (LIQD) measured the current ratio of the firm and the relation it had on the debt's level.

#### 3.1 Profitability (PROF)

Profitability ratios are usually used to measure how efficiently firms use their assets and how firms manage their operations (Ross, Westerfield & Jordan 2009). These ratios also measure the firm's income or operating success. Therefore, creditors and investors are interested in evaluating profitability because income not only shows the firm's ability to obtain debt and equity financing; it also shows the company's liquidity position and its ability to grow (Weygandt, Kimmel & Kieso 2010).

The trade-off theory proposes a positive relationship between profitability and leverage because high profitability encourages the use of debt and provides incentives to firms to avail the benefit of tax shields on interest payments.

The pecking order theory assumes that firms prefer to use internally generated funds when available and choose debt over equity when external financing is required. Thus, this theory suggests a negative relationship between profitability (a source of internal funds) and leverage. Several empirical studies have also reported a negative relationship between profitability and leverage (Sheikh, 2011).

Pecking order theory implies that high profitable firms will use less debt as their financing resources. With higher profitability, a firm is more capable of fulfilling its needs of financing by using internal source of fund. Firms will prefer to do so whenever they can to avoid the costs related to the issuance of securities. This negative relationship between profitability and capital structure is evidenced in the studies done by Titman and Wessels (1988), Nugroho (2006), Indahningrum and Handayani (2009), and Firnanti (2011).

#### 3.2 Asset Tangibility (TANG)

The ratio of total fixed asset is to total asset (Chen 2004; Guad et al; 2005). Firms holding more tangible assets have greater access to borrow money. This is because tangible assets can be used as collateral, which is a secured payment if the firm becomes incapable of paying back its debt. Besides being in any creditor's favour, collateral is also beneficial for the firm as it can prevent the firm from having to go bankrupt when debt cannot be paid (Murhadi, 2011). Therefore, higher tangibility of a firm's

assets is supposedly followed by higher level of debt. This positive relationship between asset tangibility and capital structure has been studied and proven by Hadiano (2008), Mas'ud (2008), Kartika (2009), Murhadi (2011), and Munawar (2012). Myers and Majluf (1984) claimed that firms may find it advantageous to sell secured debt because there are some costs associated with issuing securities about which the firm's managers have better information than outside shareholders.

Thus, issuing debt secured by the property with known values avoids these costs. The result suggests a positive relationship between tangibility and leverage because firms holding assets can tender these assets to lenders as collateral and issue more debt to take the advantage of this opportunity. Furthermore, the findings of Jensen and Meckling (1976) and Myers (1977) suggest that the shareholders of highly leveraged firms have an incentive to invest sub optimally to expropriate wealth from the firm's debt holders. However, debt holders can confine this opportunistic behaviour by forcing them to present tangible assets as collateral before issuing loans, but no such confinement is possible for those projects that cannot be collateralized. This inducement may also encourage a positive relationship between leverage and the capacity of a firm to collateralize its debt. Several empirical studies have reported a positive relationship between tangibility and leverage (Wald, 1999; Chen, 2004; Huang & Song, 2006; Zou & Xiao, 2006; Viviani, 2008; Jong et al., 2008; Serrasqueiro & Rogaço, 2009).

### 3.3 Liquidity (LIQD)

According to Bevan and Danbolt (2000) (as cited in Noryati & Fahmi, 2013) liquidity and leverage has significant relationship because the firm prefers to choose debt in order to finance their current assets. The trade-off theory proposes that companies with higher liquidity ratios should borrow more due to their ability to meet contractual obligations on time. Thus, this theory predicts a positive relationship between liquidity and leverage.

On the other hand, the pecking order theory guesses a negative relationship between liquidity and leverage, because a firm with greater liquidities prefers to use internally generated funds while financing new investments. A few empirical studies have shown their results are consistent with the pecking order hypothesis. De Haan and Hinloopen (2003) focused their study on the financing preference hierarchy of Dutch organisations. Besides profitability, they also used liquidity as a proxy. Firms prefer to use their internal fund first, before they attract external sources to finance. Liquid assets and cash function as an internal source of finance. A firm use their liquid assets first, before they attract debt (de Jong, Kabir & Nguyen, 2008).

De Haan and Hinloopen (2003) found that liquidity is strongly positive related to internal finance and negative to external finance. This means that firms prefer to finance internal, before they attract external financing as debt. More internal fund means that an organisation will attract less external finance. Organisations will finance their projects and other investments as much as possible with internal fund, which does not increase the amount of debt. In this way, liquidity has a negative relationship with financial leverage. Firms which have a high amount of liquidity do not borrow too much (Deesomsak, Paudyal & Pescetto, 2004).

De Haan and Hinloopen (2003) found significant evidence that firms used first their liquid assets to finance. De Jong, Kabir and Nguyen (2008) found a significant negative relationship for the Dutch firms between liquidity and financial leverage. Firms first use their cash and other liquid assets instead of debt.

#### 4. Empirical Result and Discussion

Table 1 demonstrates the descriptive statistics of debt ratio (leverage) for 34 companies for a 10-year period of 2006 – 2016. The total number of observations (N), used in this research were 340 for each LEVR, PROF, TANG and LIQD. In addition to the mean – median comparison and standard deviation, the data is also tested using numerous methods such as the skewness test, kurtosis, the JarqueBera respectively. This is to discover that the data under review are normally distributed or otherwise.

Table 1. Descriptive analysis

	N Statistic	Min Statistic	Max Statistic	Mean Statistic	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error
Debt Ratio	340	.0047	.7542	.2850	.1979	.0392	.2539	.1323
Profitability	340	-.1734	.2797	.0547	.0529	.0028	.2139	.1323
Tangibility	340	.0545	.9895	.7650	.1389	.0193	-.7029	.1323
Liquidity	340	.0013	.9979	.0802	.1513	.0229	3.4230	.1323

The mean for profitability, tangibility and liquidity are 0.0547, 0.7650 and 0.0802, respectively. The profitability shows that the firms are able to generate net earning 5.47 percent each year. Meanwhile, the tangibility shows that all the firms are in good performance because they manage to generate investment for 76.5 percent during the years. The liquidity shows that the firms have more current asset of 8.02 percent to pay for its short-term liability. It illustrates that plantation sector is stable during the period of the study due to the good performance of the companies.

The skewness quantifies the symmetrical of the distribution. DR, PROF and LIQ are 0.2539, 0.2139 and 3.4230 are positive skew due to the positive value. However, TANG is -0.7029 that is negative skew due to the negative value and skewed to the left.

Table 2. Regression analysis

	Coefficients	Standard Errors	t stat	p-value
(Constant)	.436	.057	7.613	.000
PROF	.286	.168	-6.387	.000
TANG	.029	.068	-.619	.536
LIQD	-.571	.062	-12.071	.000
<b>R Square</b>	0.3605		<b>Standard Error</b>	0.7181
<b>Adjusted R Square</b>	0.3548			
<b>F</b>	19.2858		<b>F stat Sig</b>	0.0000 <sup>b</sup>

From Table 2, it was predicted that the Leverage (LEVR) was equal to 0.2436 (Constant), + 0.286 (PROF), 0.029 (TANG), -0.571 (LIQD). The constant value for the regression coefficient was in positive value indicated that the expected value on the dependent variable was in positive value and greater than 0 when all the independent variables are valued at 0 or lesser than 0 values.

The first coefficient value, 0.436 (PROF) indicated for every Ringgit Malaysia increased in PROF, there would be RM 0.436 increase in LEVR, holding other variable at constant. Profitability was the most important variable that affected the choices in capital structure theories. Most plantation companies tend to choose debt as the main source of capital. The results were consistent with the trade-off theory. The positive relationship between profitability and leverage because high profitability encourages the use of debt and provides incentives to firms to avail the benefit of tax shields on interest payments.

Meanwhile, 0.029 (TANG) indicated for every Ringgit Malaysia increased in TANG would cause an increase for RM29 in LEVR while other variables at constant. The outcome of the empirical result is

consistent with empirical study conducted by Hadiano (2008), Mas'ud (2008), Kartika (2009), Murhadi (2011), and Munawar (2012). The result suggests a positive relationship between tangibility and leverage because firms holding assets can tender these assets to lenders as collateral and issue more debt to take the advantage of this opportunity.

Lastly, -0.57100 (LIQD) indicated for every Ringgit Malaysia increased in LIQD would decrease -RM 57.00 in LEVR. This result is consistent with Mat Kila and Wan Mahmood (2008) that there was negative relationship between LIQD and LEVR of the companies to finance their activities according to pecking order theory.

## 5. Conclusion

This research has established the determinants capital structure for the plantation companies in Malaysia which used leverage as the dependent variable and profitability, tangibility and liquidity as the independent variable.

Firstly, the results from the findings showed that there is positive significance relationship between profitability and leverage for the plantation companies in Malaysia. This proved that changes in profitability of the firms do affect the leverage level of the firm. For the profitable companies, they are using debt as their choice of financing. This also indicates that trade off theory is relevant to plantation firms in Malaysia.

Secondly, there is significance relationship between tangibility and leverage for the plantation companies in Malaysia. The leverage level increased with tangibility because the firms would need debt financing in order to increase the total assets for the firms. Moreover, debt financing was the best choice, especially the firm that wants to purchase expensive assets.

Lastly, there is insignificance relationship between liquidity and leverage. The result is in line with the pecking order theory that propagates negative relationship between liquidity and leverage. The firm with greater liquidity prefers to use internally generated funds while financing new investments. A few empirical studies have shown that their results are consistent with the pecking order hypothesis.

Following from the finding of this study, future direction of research might consider investigating further the contradicting insignificant finding tangibility.

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