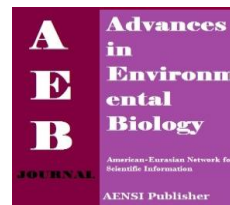




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Determinants of Capital Structure: Evidence from Financial Companies in Malaysia

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ABSTRACT

The purpose of this study is to examine the factors that determine the capital structure of publicly listed Malaysian financial companies. This study investigates companies that are listed in Bursa Malaysia from 2002 to 2012. The 28 companies comprising the study sample are selected based on the published financial statements from the same period. The results indicate that there is negative relationship between profitability and a firm's debt-to-equity ratio (D/E) as well as positive relationships between size and growth and D/E. In summary, empirical results agree with previous studies as regards the presence of industry effects. Furthermore, the results stress the need to search for further potential capital structure determinants. Our findings can serve as guidelines that can help companies decide on the best mix of capital structure for their company.

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INTRODUCTION

The prediction of the Modigliani and Miller model [14] is widely accepted among researchers. The model states that, in a perfect capital market, the value of the firm is independent of its capital structure, and hence debt and equity are perfect substitutes for each other. Capital structure is a mix of a company's debt and equity, including short-term debt, long-term debt, common equity, and preferred equity. Capital structure also indicates how a firm finances its operations and growth using different fund sources. There are different determinants of capital structure between non-financial institutions and financial institutions due to certain issues related to these institutions. For banks, liabilities relating to legal capital regulations are the most important factors in determining the capital structure. This is different from non-financial firms' capital structure, which includes deposits.

The current study focuses on the determinants of capital structure adopted by financial institutions in Malaysia. Their activities primarily include extending funding to the real sector using external resources obtained from depositors as well as managing these resources and the risks that emanate from their operations, which rely heavily on external funding. Thus, it is vital to understand the key factors that influence the debt-related decisions of these financial institutions. A firm's capital structure can be classified into debt and equity. Interest payments on debt are tax deductible, while dividends paid to shareholders are not. Apparently, the existence of such a tax shelter may lead firms to always use the maximum feasible debt. The landmark studies of Modigliani and Miller [14] about the irrelevance of capital structure and tax shield advantage paved the way for the development of alternative theories and a series of empirical research on the capital structure.

Based on empirical evidence obtained from developed countries, firm characteristics have varied impacts on different types of debt. For example, Pandey [18] utilized data from 1984 to 1999 to examine the influences of growth, investment opportunity, profitability, size, risk and tangibility on different types of debt ratios of Malaysian companies in order to capture the impact of different economic conditions. The study found that all these variables, except investment opportunity, have significant relation with debt ratios; furthermore, profitability has a negative relationship with debt ratios and has the most dominant influence on debt policy of Malaysian firms [18].

Although many studies on the determinants of capital structure have been conducted, there are few works on specific industries or specific firms, especially in financial institutions in Malaysia. Moreover, the studies that focus on these topics often use different time observations, measurements of variables, and methods. In

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response, the present study is designed to examine the relationships between a firm's debt-to-equity and its profitability, growth, and size.

1.0 Literature Review:

This section provides a review of the theoretical literature of capital structure. First, we begin with the theoretical principles involving capital structure, after which we discuss the previous studies on the profitability, size, growth, and capital structure of financial institutions. The propositions of Modigliani and Miller [14] stimulated subsequent research on capital structure. The objective of the series of theoretical and empirical studies that ensued has been to determine the factors that determine capital structure.

In the seminal work, Modigliani and Miller [14] offered theoretical proof for the assumption that, in a world of perfect capital markets with no taxes and no transaction costs associated with raising capital or going bankrupt, the value of a firm is unaffected by the amount of debt it is financed by. In the absence of tax, the increase in the return to shareholders, which results from the use of leverage, is exactly offset by the increase in risk. They later proved that tax payments do affect the value of a firm [15].

However, interest payments reduce the amount of corporate taxes paid because interest payments are tax deductible, while dividends do not have any effect on the amount of tax paid. Thus, there is a net benefit to financial leverage owing to the difference between interest payments and dividends.

2.1 Determinants of capital structure:

Most researchers have incorporated common determinants of debt ratio such as profitability, size, growth, risk, and liquidity. The empirical studies from US firms, such as that of Harris and Raviv [10], seem to suggest that "leverage increases with fixed assets, non-debt tax shields, investment opportunities and firm size and decreases with volatility, advertising expenditure, the probability of bankruptcy, profitability and uniqueness of the product."

However, Dević and Krstić found several variables as being most consistently related to corporate capital structure. These include tangibility, size, profitability, and growth opportunities. Meanwhile, Deesomsak *et al.* [5] found that the positive effect of firm size and the negative effects of growth opportunities, non-debt tax shield, liquidity, and share price performance on leverage lend support to major capital structure theories.

Nagano determined corporate capital structure in the East Asian countries of Indonesia, Korea, Malaysia, the Philippines and Thailand in the aftermath of the 1997 Asian financial crisis, and found a significant negative relationship between firm profitability and corporate debt-to-equity ratio (D/E) in all the sample countries. On the one hand, firm size has a direct relationship with D/E in many countries. On the other hand, the relationship between corporate D/E and a firm's tangibility, which is generally significant in the industrialized countries, is entirely insignificant even in the post-crisis period.

Different from non-financial companies, financial institutions are under protection by a safety net (e.g., deposit insurance system, payment guarantees, liquidity window in light of sudden liquidity shortage, etc.), which enables them to operate in a sound manner, thus highlighting the importance of external factors affecting the capital structure of financial institutions. The abovementioned studies have concluded that there are many factors that influence the determinants of capital structure. In the current work, we incorporated common determinants of debt to equity such as profitability, size, and growth.

2.2 Profitability:

Profitability is the ratio earnings before interest, tax, and depreciation (EBIT) to total assets (TA) [5]. In their work, Deesomsk and Pescetto [5] found that the relationship between profitability (PROF) and leverage (D/E) is negative, but statistically insignificant for all countries except Malaysia. This is in contrast with most previous studies that analyzed only a limited set of variables [19,2,24,3] and reported the significant effect of profitability on leverage. These studies found that profitable firms tend to have lower expected costs of financial distress and that interest tax shields are more important for such firms. Therefore, profitable firms use more debt based on the tax and bankruptcy cost perspective.

The other view is based on the agency cost perspective where it predicts that the discipline provided by the debt is much more important for profitable firms because they tend to have several free cash flow problems [12]. The relationship between leverage and profit also tends to be negative because of the firms' passively accumulated profits [13]. In addition, in this theory, firms seem to prefer internal financing compared with external funds.

Firm profitability (ROA), is a proxy of the firm's internal funding ability as conceptualized by Myers and Majluf [17], and has a statistically significant relationship with D/E in all the sample countries. A previous study of Rajan and Zingales [19] showed that firm profitability has a negative relationship with D/E in four of seven industrialized countries; in their model, equity is quantified in terms of market value. Moreover, empirical findings suggest that East Asian countries have a higher degree of dependency upon internal funds than those of the industrialized countries [19].

Meanwhile, Nivorozhkin found that the profitability variable (PROF) has a strong negative effect on leverage (D/E) in both countries. The results support the pecking order theory of finance, which indicates that in general, the firms that are lacking internal funds close the gap by setting higher targets for debt. In other studies, Chen (2003) found that the negative relationship between profitability and debt in Chinese firms seems to support the pecking order model, while Fattouh *et al.* [8] reported that profitability has a negative and significant correlation with D/E. Qian, Tian, and Wirjanto [23], found that profitability has a negative effect while firm size has a larger positive effect on a firm's leverage ratio (debt ratio). Furthermore, Chinese firms learn to adjust their capital structures toward their optimal levels in order to reduce costs and minimize risks and there is no pecking order in this adjustment process.

2.3 Size of a firm:

Large firms are generally considered to be financially and operationally stronger, and thus, have lower probability of bankruptcy. Large firms are also assumed to have a more organized information disclosure system, and therefore, hold a lower degree of information asymmetry in a capital market

The size of a firm is measured by the natural log of assets [5], such that a large firm tends to face lower risk. Meanwhile, the experienced firms within a stable market environment face lower debt-related agency costs. Therefore, the firms who are more mature and have been in the industry longer will face more debts but have the opportunity to retain earnings than the new firms. Based on the pecking order theories, leverage and firm size has a negative relationship.

Other studies on the relationship between leverage and profit found mixed results. Some studies reported a positive relationship between leverage ratios and size in developing countries [18,11], while another study reported that size has a negative relationship, whereby it is related to short-term debt and positive relation when it comes to long-term debt.

The Malaysian result for the relationship between the leverage and the size of firm shows that it has a negative relationship. Moreover, the corporate bonds issued by the large Malaysian firms are underwritten by major commercial banks, which are major players in the domestic capital market. Based on this view, it can be assumed that a large firm with a lower D/E results from the relationship between the borrowers and lenders; furthermore, there are smaller information asymmetry between borrowers and investors.

Delcours [6] reported that when company size is used as a proxy for probability of default, its relationship with financial leverage becomes less obvious, especially in countries where costs of financial distress are low. The pecking order hypothesis stipulates that larger firms exhibit lower information asymmetry with financial markets, and are able to issue more equity compared to small companies. The current study uses the natural logarithm of total assets as a proxy for firm size.

2.4 Growth:

Growth opportunity can be described as the book value of total assets minus the book value of equity plus the market value of equity, and then divided by the book value of total assets [5]. Growth can worsen debt-related agency problems, enhance the costs of financial distress, and reduce free cash flows problems. Therefore, growth can help reduce leverage based on the trade-off theory. Meanwhile, based on the pecking order theory, firms with higher investment and fixed holding profitability should accumulate much debt over time. This leads to the prediction that the relationship between leverage and growth is positive. The proxy for growth opportunities is the market-to-book ratio, which is the most reliable. Moreover, stock mispricing can also lead to higher market-to-book ratio.

Meanwhile, growth can also serve as a proxy for capital expenditures and change in log assets. Shyam-Sunder and Myers (1999) reported that it leads to a direct increase in the financing deficit. Zoppa and McMahon (2002) found that growth opportunity has a negative relationship with leverage, whereas Booth *et al.* [2] found a positive relationship between growth opportunity and leverage for Thai and Malaysian firms. Chen [4] also found a positive relationship between growth opportunities and debt in China, which confirms the same relationship found in developed countries. Based on the trade-off theory, firms holding future growth opportunities tend to borrow less than those holding more tangible assets because growth opportunities cannot serve as collateral [6].

Qian, Tian, and Wirjanto [23] also reported that positive association between growth opportunity and leverage is consistent with the view that companies with a high percentage of non-tradable shares owned by government typically enjoy more borrowing privileges from Chinese banks. They suggest that the small and statistically insignificant effect of growth may be due to the use of sales growth rate as a proxy for growth opportunities given that sales growth rate measures past growth experience.

Fattouh *et al.* [8] stated that growth has a positive and significant coefficient at low and moderate levels of leverage, but becomes insignificant at the two highest quantities of the distribution. This can be attributed to the fact that, at low and medium levels of leverage, the asset substitution effect is low, while at higher levels, the marginal agency costs associated with noncollateralizable assets increase, thus discouraging the firms to resort to

leverage. For Shah and Khan, growth variable is significant at the 10% level and is negatively related to leverage. Their results confirm the results of previous studies such as those of Titman and Wessels [21], Barclay *et al.* and Rajan and Zingales [19]. The usual explanation is that growing firms have more options between safe and risky firms.

Huang and Song [11] showed that firms with a good growth opportunity in the future (i.e., a higher Tobin's Q) tend to have lower leverage. Firms with brighter growth opportunities in the future prefer to keep leverage low; thus, they will not give up profitable investments because of the wealth transfer from shareholders to creditors. Another reason is that growth opportunities are intangible assets, which are likely to be damaged in times of financial distress.

2.5 Leverage Level:

There are differences in the results of empirical studies that have been done so far due to the fact that existing works use different time periods, measures of variables, book or market values, and methods. Many leverage measures have been proposed by prior studies such as the ratio of total liabilities over total assets, the ratio of total debt over total assets, and the ratio of total debt over capital/equity, depending on the purpose of the analysis [19]. Most studies defined leverage as some form of debt ratio, which may differ according to whether book measures or market values are used. Meanwhile, leverage can also differ from total debt or long term debt. Based on a previous work, leverage is considered as interest coverage ratio. There are four alternatives of defining leverage, and these include the following:

- a) the ratio of total debt to market value of assets (TDM);
- b) the ratio of total debt to book value assets (TDA);
- c) the ratio of long term debt to market value of assets (LDM); and
- d) the ratio of long term debt to book value of assets (LDA).

Many researchers have proposed different interpretations of leverage levels. Geyer Rajan and Zingales [19], Nivorozhkin, Booth *et al.*, Zoppa and McMohan [24], Cassas and Holmes [3], Deesomsak [5], and Fattouh *et al.* [8] all equated leverage to D/E. However, others tested long and short-term debts separately. Jorgensen and Terra, Chen [4], Hoo *et al.*, Qian *et al.* [23], Delcoure [6], and Shah and Khan all measured leverage in different ways depending on the objective of their respective studies. For the current study, leverage is measure by D/E, because there is not much research done on DE as a level of leverage.

1.0 Data and Methodology:

This study investigates the determinants of capital structure for financial institutions listed in Bursa Malaysia during the year 2002 to 2012. Only 28 companies with sufficient financial data, by which to compute the leverage ratios and the determinant variables during the period of study are included.

3.1 Variable and hypotheses:

Based on the previous research with respect to the main determinants of capital structure, the following model is formulated to state the hypothesized relationship:

$$DE = a + b_1 \text{ PROF} + b_2 \text{ SIZE} + b_3 \text{ GROW}$$

where:

- DE = debt-to-equity ratio that measures total debt/total equity;
 PROF = profitability measured by the ratio of operating profits to total assets;
 SIZE = size measured by the volume sales; and
 GROW = growth of total assets measured by the percentage change in total assets.

3.2 Hypotheses:

The current study's hypotheses are stated below:

Hypothesis 1: There is a significant relationship between profitability and debt ratio.

Hypothesis 1: There is a significant relationship between growth and debt ratio.

Hypothesis 1: There is a significant relationship between size and debt ratio.

1.0 Empirical Results and Discussion:

4.1 Descriptive analysis:

Table 1 provides a summary of the descriptive statistics of the dependent and independent variables. This shows the average indicators of variables that computed from the financial statements of 28 financial institutions. The mean (median) for the leverage of financial institutions is 0.4281 (0.3341). This means that more than 42.81% of the financial institutions in Malaysia are financed by debts. Profitability, given as the ratio

of operating profits to total assets, presents a mean value 0.0128, thus indicates that the ratio between the two is 1.28%. Size is measured by the volume sales and has the mean (median) of 0.4804 (0.1101). The mean (median) for growth, measured by the percentage change in total assets, is 0.8685 (0.7536). This means that, on average, the growth for financial institutions is 86.85% during the 10-year period.

Results for the multicollinearity tests are presented in Table 2. As can be seen, the highest cross-correlation terms for the variables are fairly small, thus giving no cause for concern about the problem of multicollinearity among the variables.

Table 1: Descriptive statistics of the dependent and independent variables.

Variables	Mean	SD	Minimum	Maximum	Medium
PROF	0.0128	0.1059	-0.2815	0.1265	0.0221
SIZE	0.4804	0.6175	0.3295	0.3311	0.1101
GROW	0.8685	0.1574	0.5575	0.8953	0.7536
DE	0.4281	0.4112	0.0759	1.6286	0.3341

Table 2: Pearson correlation coefficient matrix

Variables	PROF	SIZE	GROW	DE
PROF	1.0000			
SIZE	0.0722	1.0000		
GROW	-0.0310	0.2861	1.0000	
DE	0.0197	0.0408	-0.0491	1.000

Table 3: Results of the regression analysis

Variables	Coefficient	SE	t- statistic
PROF	-0.2407	0.0794	-1.853
SIZE	0.7321	0.0044	5.718
GROW	0.0387	-0.0069	0.345

Notes: $R^2 = 0.7758$, $F=22.9214$, $Sig.=0.1447$, $Sig. F = .000$

4.2 Regression analysis:

Profitability is negatively correlated with D/E, which is in line with the pecking order theory; firms prefer using surplus funds generated by profits to finance their investments. This result indicates that firms generally prefer internal funds rather than external funds.

The growth opportunities variable is found to be negatively related to D/E. This result runs passively with that of Abdullah [1] and opposes that of Myers [16], who proposed that firms with significant growth or opportunities borrow on short-term basis. In other words, there is no evidence of predicting debt maturity decrease as the proportion of growth options in the firm's investment opportunity set increases. This finding explains the ability of firms to roll over STD and, therefore, short-term loans are converted to LTD. There is positive relationship between size and D/E. The result reveals that size is a significant determinant of capital structure.

Hypothesis 1 examined the relationship between profitability and debt ratio. This is where the hypothesis is accepted. From the result, it shows that capital structure which is represented by debt ratio is influenced by the profitability of the financial institutions. This is due to profitable firms tend to have lower expected costs of financial distress and found that the interest tax shields are much important [5].

Secondly, hypothesis 2 that examined the relationship between size and debt ratio shows positive relationship. In this case, independent variable which is size of the firm have mix relationship depends on the structure of the financial institution. This is because large firms tend to face low risk and experienced with the stable market environment. It also faces a lower debt related to agency cost compared to the smaller bank [5].

Lastly, hypothesis 3 examined the relationship between growth and debt ratio. From the results shows that hypothesis is accepted. This consistent with previous study by Qian, Tian, and Wirjanto [23]. The positive relationship between the variable is consistent with the view that companies with a high percentage of non-tradable shares owned by government typically enjoy more borrowing privileges from Chinese banks. They suggest that the small and statistically insignificant effect of growth may be due to the use of sales growth rate as a proxy for growth opportunities given that sales growth rate measures past growth experience.

Conclusion:

The main objective of this paper is to examine the factors that determine the capital structure of publicly listed Malaysian financial companies. Regression analysis technique was applied in order to examine the relationship between dependent variable and independent variables. The sample is using 28 financial companies in Malaysia from 2002 to 2012. The study has shown that there is a significant and insignificant relationship between debt to equity with the selected factors which are profitability, size and growth. Based on regression analysis, the F-Statistic shows that there have significant relationships between the dependent variable and independent variables. So that both model appears to be useful in predicting the determinants of capital structure

of financial institutions.

Based on the finding and conclusions, there are several recommendations that the researcher can make in order to determinants of capital structure for financial institutions. For the more definitive and accurate result, the researchers suggest for future research to increase more number of financial institutions and lengthen the time period of the observation

The results of the study were important to the managers to be aware of the changes of capital structure. A good capital structure will help the decision making process and also to ensure the financial health of the firm.

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