CRITICAL FACTORS DETERMINING CAPITAL STRUCTURE OF THE MALAYSIAN CONSTRUCTION COMPANIES
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ABSTRACT
The main purposes of this study is to identify the critical factors determining the Malaysia corporate capital structure listed in Bursa Malaysia in the context of construction industry from period of five years from 2005 to 2009 and to find out which one of the theories used in the developed countries better explains the capital structure of Malaysia construction companies. The findings showed that profitability of the firm shows itself as the most critical factor determining the Malaysia capital structure in the field of construction companies due to the significant relationship with leverage for all years conducted in this study (p-value < 0.05). Pecking order theory and trade-off theory have been found out as the important theories in this study as well. Pearson Correlation analysis also presented that at least two out of five independent variables such as profitability, tangibility, growth, size and non-debt tax shield have a significant correlation with dependent variable, leverage. The results indicated that profitability of the firm is inversely related to the leverage as per pecking order theory for years 2005, 2006 and 2008.

Keywords: Capital structure, profitability, tangibility, growth, size and non-debt tax shield

OVERVIEW OF THE STUDY
A number of studies have been conducted in order to find the association between decision making for choosing capital structure and the value of the firm. Franco Modigliani & Merton H. Miller (1958) had an effective work on capital structure. Modigliani and Miller (MM) contested that there is no effect in the value of securities when a company changes its capital structure. It means that there is no better or worse capital structure. In other words, under varied form of capital structure, the value of the firm always will be the same, i.e. the value of levered company is equal to the value of unlevered company. This argument is correct if we assume that the rate of corporate and personal borrowing is the same and there are no taxes and no transaction costs. This pessimistic result is known as MM proposition I (Shariff Khan, 2010).

Under the certain similar assumptions, MM proposition II states that the risk of equity holders increases with debt when the expected return on equity rises. In other words, there is a positive association between leverage and expected return on equity because the risk of equity holders increases with debt, i.e. the higher the ratio of debt to equity, the higher the
expected rate of return due to the increased risk of equity holders with debt (Modigliani & Miller, 1958).

The previous propositions of Modigliani and Miller (MM) were based on unrealistic assumptions, i.e. there is no consideration for corporate taxes, transaction costs or other related agency costs as well. It means the capital market was perfect. However, if corporate taxes exist, the results would have changed and the value of the firm would be positively associated to its debt. MM proposition I with corporate taxes state that the levered firm would pay less tax as opposed to the unlevered firm because of deductibility in interest payments, not for dividend payments. In other words, debt raises the value of company by tax shield, i.e. the value of levered firm is greater than the value of unlevered firm with tax shield (Modigliani & Miller, 1963).

MM proposition II with corporate taxes is similar to MM proposition II with no taxes. In other words, the risk of equity holders increases with debt when the expected return on equity rises, i.e. the higher the ratio of debt to equity, the higher the expected rate of return due to the increased risk of equity holders with debt (Modigliani & Miller, 1963).

Quite numbers of studies have been worked on the critical factors determining the capital structure in developed countries. Definitely, these developed countries such as UK or US have various kinds of financing arrangements in their institutions as opposed to those countries in developing or emerging markets like Malaysia. Thus, it is necessary to investigate on critical factors determining the Malaysia corporate capital structure, especially in the field of construction industry. Therefore, there is a need to do a research about the Malaysia construction companies indeed need to see what are the critical factors determining the capital structure, because it has not been widely investigated and thereby, it may contribute to the economy of Malaysia which is growing rapidly in recent years.

Lately, ongoing empirical evidence related to data gathering from developed countries such as work carried out by Bradley et al. (1984), Kim & Sorensen (1986), Friend & Lang (1988), Titman & wessels (1988) and finally Chaplinsky & Niehaus (1993) mostly emphasized on US firms; Kester (1986) made a comparison between US and Japanese manufacturing firms; Rajan & Zingales (1995) investigated companies from G7 countries; and eventually, Wald (1999) utilized data for all countries existing in G7 except using data of Canada and Italy. Just in lately years, findings related to data about developing countries have been emerged, such as Booth et al. (2001) or Huang & Song (2002). Bevan & Danbolt (2000 and 2002) used data related to the UK companies; Antoniou, Guney & Paudyal (2002) utilized data from the France, Germany and UK; Hall, Hutchinson & Michaelas (2004) analyzed data related to the European SMEs.

The objective of this study is as follows:

1. To examine the determinants of corporate capital structure listed in Bursa Malaysia construction industry from period 2005 to 2009.
2. To review the theories used to explain capital structure.

LITERATUR REVIEW

DEPENDENT VARIABLE
Capital Structure

Many studies have been conducted for developing countries. For instance, Huang & Song (2002) researched on China corporate capital structure; Pandey (2004) analyzed data of Malaysia; Omet & Nobanee (2001) examined data of Jordan; Booth et al. (2001) analyzed data of Brazil, India, Jordan, Malaysia, Mexico,
Pakistan, South Korea, Thailand, Turkey and Zimbabwe. Apart from Pakistan and South Korea, Booth et al. (2001) find out the growth opportunities is positively related to financial leverage for all countries included in their sample; Singh, Hamid, Salimi & Nakano (1992) conducted a research for those mentioned countries except Brazil; Wiwattanakantang (1999) analyzed data of Thai firms; Nivorozhkin (2002) conducted a research for capital structure of both Bulgaria and Czech Republic; Bauer (2004) researched the capital structure of Hungary, Czech Republic, Poland and Slovakia; and Chen (2004) analyzed data of China. Due to data in particular region, some researchers of capital structure have compared the capital structure of countries with each other, usually called cross-country comparisons. For instance, Deesomsak, Paudyal & Pescetto (2004) investigated data in region of Asia Pacific. These empirical researchers found relatively different results. Booth et al. (2001, p 118) say that: “In general, debt ratios in developing countries seem to be affected in the same way and by the same types of variables that are significant in developed countries. However, there are systematic differences in the way these ratios are affected by country factors, such as GDP growth rates, inflation rates, and development of capital markets.”

INDEPENDENT VARIABLES

Profitability of the firm

Quite numbers of empirical studies like Kester (1986), Friend & Lang (1988), Titman & Wessels (1988), Booth et al. (2001), Huang & Song (2002) and Rajan & Zingales (1995) cited a negative association between profitability of the firm and financial leverage. Firms with a high level of profit ought to get more advantage by using loan capital, because they faced a high level of tax shield. According to the trade-off theory, there is a direct relationship between profitability and part of the debt capital. As such, companies with a high level of profit would take greater amounts of borrowed capital than firms with a low level of profit (Nunkoo & Boateng, 2010).

As the pecking order theory says, there is a negative association between debt ratio and profitability which is congruent with empirical studies. Fama & French (2002) pointed out that firms strive to keep their share of market and develop the new products in order to sustain its competitiveness. Firms with a high level of profitability are able to gain fewer amounts of internal funds if they were going to fund such investments. Thus, they used more loan capital. Bevan & Danbolt (2002) reported that having a high level of profit can cause less dependency on debt due to the fact that the firm had a high level of retained earnings, i.e. internal funds, if they keep being profitable.

Titman & Wessels (1988), Rajan & Zingales (1995), Bevan & Danbolt (2002) and Antoniou et al. (2002) for developed countries, Wiwattanakantang (1999), Al-Sakran (2001), Um (2001), Pandey (2001), Booth et al. (2001) and Chen (2004) for developing countries pointed out that there is a negative association between profitability and debt ratio, which are all match up with the Pecking order theory.

Tangibility of Assets

Despite the fact that large number of empirical studies like Friend & Lang (1988), Titman & Wessels (1988) and Rajan & Zingales (1995) uphold this relationship, Huang & Song (2002) set forth that there is a negative association between tangibility of assets and financial leverage. Having a high level of tangible assets indicated that firms are able to apply collateral if they use debts. However, if a firm was not able to pay its debt, then its assets would expropriate. Nevertheless, this firm is positioned to be far away from bankruptcy. Thereby, it was concluded that there would be less possible for firms, having a high level of tangible assets to be defaulted on debt. This

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shows that firms are going to take more debt, thus, there is a positive association between tangibility of assets and debt ratio (Buferna, Bangassa & Hodgkinson, 2005). Empirical findings in developing countries show a combination of relationship between tangibility of assets and debt ratio whereas most numbers of empirical studies conducted for developed countries like Titman & Wessel (1988), Rajan & Zingales (1995) discovered a positive association between tangibility of assets and debt ratio.

Growth Opportunities

Myers (1977) cited that companies having a high level of growth opportunities in immediate future ought to finance with greater equity owning to the fact that firms having a high levels of leverage will not have a chance to accept such profitable investment projects. Huang & Song (2002, p.9) set forth: “Such an investment effectively transfers wealth from stockholders to debt holders.” As a consequence, it is likely to have a negative association between financial leverage and growth opportunities (Bauer, 2004).

Rajan & Zingales (1995, p.1455) quoted: “The theory predicts that firms with high market-to-book ratios have higher costs of financial distress, which is why we expect a negative correlation.” Despite the fact that quite numbers of empirical studies like Kim & Sorensen (1986), Titman & Wessels (1988) and Rajan & Zingales (1995) have stipulated a negative association between financial leverage and growth opportunities, Huang & Song (2002) and earlier Kester (1986) manifested a positive association between financial leverage and growth opportunities. It is necessary for growing firms to finance its future growth. Due to the possible high levels of costs for financial distress, these firms do not rush to finance through the borrowed capital. For this reason, there is a negative correlation between financial leverage and firm’s growth (Bauer, 2004).

Size of firm

From the standpoint of theoretical studies, there is not a clear relationship between size of the firm and debt. According to Bauer (2004), Rajan & Zingales (1995, p.1451) quoted: “Larger firms tend to be more diversified and fail less often, so size (computed as the logarithm of net sales) may be an inverse proxy for the probability of bankruptcy. If so, size should have a positive impact on the supply debt. However, size may also be a proxy for the information outside investors have, which should increase their preference for equity relative to debt.”

Non-Debt Tax Shield

There is a negative association between non-debt tax shield and debt ratio in the view of both trade-off and pecking order theories (Myers, 1984; Myers & Majluf, 1984; De Angelo & Masulis, 1980). Empirical researches such as Qian et al. (2007) verified such suggestions. Similarly, Upneja & Dalbor (2001) observed that there was a negative association between non-debt tax shield and debt ratio for listed US lodging firms.

CAPITAL STRUCTURE THEORIES

Static trade-off theory says that a firm could attain its best capital structure whenever there was a balance between tax benefit of debt and the costs of debt as like bankruptcy costs and financial distress. Due to the tax deductibility of interest payments, firms had an advantage to apply loan capital. There are indirect and direct costs for financial distress separated by Megginson (2006). The direct costs compromise with both administrative and legislative expenses. The actions of suppliers (such as capital suppliers) and users, as they knew about the financial problems of the company, were considered as indirect costs. These suppliers and users might also be aware of such decisions made by the managers which might not be optimal decisions. Although such non-optimal decisions kept the firm operation in short-term
but it would decrease the value of the firm in long-term (Norvaišienė & Stankevičienė, 2007).

**PECKING ORDER THEORY**

According to Odit & Gobardhun (2011), the information asymmetry theory, i.e. pecking order theory, says that insiders or the management team of the company had better access to the financial plans of the firm such as investment opportunities or stream return of the company as opposed to the external investors. Myers (1984) stated that the companies initially had to apply internal funds, i.e. retained earnings, and then referred to external if internal budget was insufficient. This was regarded as, “Pecking Order Theory”, means that the firm should use its retained earnings, i.e. internal funds, then invoke debt and eventually if those funds are not sufficient, go through the issuance of equity (Myers, 1984). This theory was inconsistent with previously mentioned theory, static trade-off theory (e.g., there is a negative association between profitability and debt).

According to this theory, i.e. Pecking order theory, there was a hierarchy for firms to select their sources of finance. The managers of the firm attempted to apply the most top one which had the lowest risk and costs in the hierarchy. Hence, the firm ought to apply internal sources of finance completely. The firm looks for external funds if internal funds are not enough for such investments. Now the firm should select the less risky external funds like loan issuance and finally go through the issuance of equity (Odit & Gobardhun, 2011). Capital structure decisions are connected with the asymmetry of information (Myers & Majluf, 1984). They assumed some premises relating to the managers of the firm: The managers of the firm are aware more about the earnings and future possibilities of investments for the firm as opposed to external investors; and the managers of the firm do act in such a way that maximize the wealth of shareholders.

**AGENCY COST THEORY**

There is a relationship between agency costs and financial distress costs. Harris & Raviv (1991) and Jensen & Meckling (1976) considered a conflict between shareholders and debt holders in one part, and shareholders and managers in the other part as agency costs. Debt holders try to limit the actions of managers and shareholders in order to keep control over financing decisions of the companies. The managers of the company were being both controlled and motivated by the shareholders if they corroborate the interests of the shareholders. Jensen & Meckling (1976) on their research found out that these costs are incurred by the shareholders, though it was not important to see which parties’ controlled the other ones. When the liabilities of the company grow, then agency costs will rise, so the costs of capital increase and as a result, the advantage of the borrowed capital will diminish (Abu Mouamer, 2011).

Jensen & Meckling (1976) argued that because of having a conflict between stockholders and managers with debtholders, the costs related debt agency would crop up. Managers are going to finance in risky investment projects in order to maximize the wealth of the shareholders, because if such investments confront with failure, then the shareholders will have a little responsibility about it and the lenders will be liable for the costs incurred (Eldomiaty, 2008).

Jensen & Meckling (1976) say that the costs related debt agency would be likely decreased by applying secured debt. Nevertheless, Um (2001) recommends that because of monitoring costs for firms with low level of tangible assets, the management of the firm have tendency to select a debt with high level in order to alleviate the costs related equity agency. Hence, there is a negative association between tangibility of assets and debt corresponding to the costs related equity agency.
description (Um, 2001). Um also says that due to the conflicts between investors and managers, size of the firm could be a possible proxy for the monitoring costs, i.e. the costs related debt agency. Um (2001) highlighted that larger companies have a lower level of monitoring costs compared to smaller companies. Hence, firms having larger size are inclined to apply more debt as opposed to smaller firms.

Despite the fact that the agency problem would be alleviated by using short-term debt, using short-term debt in near future likely would be limited if the shareholders strive to capture the wealth of debt holders to themselves (Abu Mouamer, 2011). Titman & Wessels (1988) contended that for growing industries, the costs related to agency between debt holders and shareholders are possibly higher for firms in those industries, for this reason, it is predicted that there was a negative association between financial debt and growth opportunities. Matching up with these forecasting, growth opportunities was negatively associated with financial leverage conducted in studies by Titman & Wessels (1988), Chung (1993) and Rajan & Zingales (1995) for developed countries.

**FIRM CHARACTERISTICS**

Sogorb-Mira (2005) had researched on 6,482 Spanish SMEs for period 1994 to 1998 to see whether the capital structure was related to firm characteristic or not. The results indicated that the capital structure of non-financial Spanish firms was strongly reliant on the characteristics of the firms. The results also showed there was a positive association between size of the firm, structure of asset and growth with SME financial leverage while there was a negative association between profitability and non-debt tax shield with SME financial leverage.

Based on the hypothesis model, this study defines each independent variables such as profitability of the firm, tangibility of assets, growth opportunities, size of the firm and non-debt tax shield in one hand and leverage ratio as dependent variable in the other hand. Therefore, this study describes initially the dependent variable, i.e. leverage in this section. In contrast, the trade-off theory says there is a positive association between profitability of the firm and leverage. Because the profitable companies were less exposure to be bankrupted and for this reason, they borrowed more as opposed to less profitable firms and then they take tax benefits as well. Um (2001) declares that having a high level of profits might trigger having a high level of debt capacity as well and then tax shields; therefore, there was a positive association between profitability of the firm and leverage. Thereby, the first hypothesis will be as follows:

**H1: There is a relationship between profitability and financial leverage.**

**Tangibility of assets**

The second critical factor determining the corporate capital structure was tangibility of assets. Tangibility of assets shows the type of assets owning by a company. This study measures the tangibility of assets by using the tangible assets over total assets which was used by Frank & Goyal (2003), Rajan & Zingales (1995) and Titman & Wessels (1988).

Friend & Lang (1988) also calculated the tangibility of assets by using the book value of tangible assets to total assets.

The majority of the theories on capital structure discusses that capital structure would be affected by the type of assets which was owned by a company. The trade-off theory argued that companies having more tangible assets can be applied as collateral were supposed to utilize more borrowing (Titman & Wessels, 1988; Myers, 1984). It represents the agency costs as well as significant consideration in choosing corporate capital structure. As explained before, agency costs showed how managers were willing to use excess cash on
perks in a business. The expense of shareholders explains this amount of excess cash as well. Jensen (1986) believes that by decreasing the quantity of ‘free’ cash which was going to be used for inefficient expenditure, borrowing, i.e. debt, helps to put a curb on this manager’s willingness. For this reason, having a high level of tangible assets for firms shows that they might be capable of issuing more secured debt. This would be confined to the capability of managers to take the money of debtholders. Hence, it is anticipated that companies having a high level of fixed assets would try to issue debt more as opposed to companies having a low level of fixed assets. For example, Pandey et al. (2000) showed there is a positive association between tangibility of assets and leverage as per trade-off theory. In contrast, pecking order theory says that firms keeping a high level of tangible assets will less likely suffer from the problems of asymmetric information and then less prone to take borrowing or issue debt. This dispute shows a negative association.

Grossman & Hart (1982) believes that there is a high level of monitoring costs for stockholders of companies which have a low level of tangible assets. Thus, there would be a high level of leverage as well. As a result, this correspondingly shows a negative association. However, as per pecking order theory, Frank & Goyal (2002) and Rajan & Zingales (1995) reported a positive association between tangibility of assets and leverage, because tangible assets create a type of secured collateral. Besides, Titman & Wessels (1988) differentiated between intangible assets (the ratio of intangible assets to total assets) and tangible assets (the ratio of tangible assets to total assets). They found out there is a positive and negative association between tangible assets and intangible assets with financial leverage, respectively. Other than that, Stohs & Mauer (1996) and Chittenden et al. (1996) reported a negative association between tangibility of assets and short-term debt, but a positive association between tangibility of assets and long-term debt (Ramlall, 2009). Thereby, the second hypothesis will be as follows:

H2: There is a relationship between tangibility of assets and financial leverage.

Growth opportunity

The third critical factor determining the corporate capital structure is the growth opportunities. Growth opportunities mean companies might be able to accept those investments with a high level of profits. This study is going to use the percentage change in total assets for growth opportunities, i.e. total assets of current year minus total assets of previous year divided by total assets of previous year. Some literatures like Titman & Wessels (1988), Sinha (1992) and Bathala, Moon & Rao (1994) also used this measurement in their research. Other than that, Wald (1999) calculated the growth with average of five years of sales growth. Qian, Tian & Wirjanto (2007) used the total sales to total assets for growth. Based on studies conducted by Myers & Majluf pecking order (1984) and Myers (1977), companies having a high level of sales growth ought to apply less amount of debt funding. Titman & Wessels (1988) reported that there is more flexibility for companies existing in growing industries if they are going to accept further investment plans. There is also more opportunity for those companies to take money from debtholders and as a result, agency costs will increase.

Stulz (1990), Myers (1977) and Jensen & Meckling (1976) contend that there is a negative association between growth opportunities and leverage because growing companies are inclined to take risky investment plans funded by creditors as opposed to non-growing companies, thus the cost of borrowing goes up. Inversely, firms having a high level of growth feel to be financed externally and capture more debt due to the pecking order theory. In this case, they prefer to issue short-term debt because it is less related to the asymmetry of information. Barclay
& Smith (1996), Rajan & Zingales (1995) and Titman & Wessels (1988) support a negative association between growth opportunities and leverage as empirical studies conducted. However, Bevan & Danbolt (2002) stated that there is a positive association between growth opportunities and total debt. However, Myers (1977) considered that firms would take small amount of debt in their structure of capital if growth opportunities for such firms went up. In case of small firms whose ownership is more concentrated, Heshmati (2001) denoted that firms with a high level of growth opportunities will need a high amount of borrowing and consequently, they will present a high amount of leverage. However, there is a relationship between previous and future degree of growth and is still unclear among empirical studies. In a study conducted in South Africa, Abor & Biekpe (2006) explained that Small Medium Enterprises (SMEs) having a high level of growth opportunities is going to capture more amount of debt funding. Although, Sogorb-Mira (2005), Hall et al. (2004) and Cassar & Holmes (2003) demonstrated that there is a positive association between growth opportunities and both short-term and long-term debt, Jordan et al. (1998) and Chittenden et al. (1996) presented mixed results. Thereby, the third hypothesis will be as follows:

H3: There is a relationship between growth opportunities and financial leverage.

Size of the firm

The fourth critical factor determining the corporate capital structure is the size of the firm. Size of the company shows whether the company is large or small and this study applies the natural logarithm of total assets, i.e. Ln (total assets). Some literatures such as Cassar & Holmes (2003) and Al-Sakaran (2001) used this measurement in their studies. Titman & Wessels (1988) suggest that larger companies are trying to be more diversified and less likely to be bankrupted. Those discussions show that larger companies ought to be more leveraged. Marsh (1982) points out those smaller companies select short-term debt, whilst larger companies pick long-term debt. The influence of the firm size on leverage ratio might be considered in the view of asymmetry information theory. If the asymmetric information keeps increasing for people outside the company in larger firms, they probably keep equity instead of debt in turn. If it happens, there will be a negative association between the firm size and leverage ratio and it can be viewed as a probable bankruptcy occurrence because larger companies are more diversified and rarely do not succeed (Halit & Gonence, 2003).

It is anticipated that there is a positive association between size of the firm and leverage because of three reasons. Initially, there is a relationship between size of the firm and both bankruptcy costs and risk. Larger companies are going to be more diversified, it represents that the risk of the firm is likely less and as a result, the probability of default will be less as well. Second, the transaction costs related to debt might be less for larger companies as opposed to smaller ones. Third, the information costs might be less for larger companies owing to the fact that financial information for larger companies seems accurate and transparent (Daskalakis & Psillaki, 2008). Ferri & Jones (1979) posited that larger companies can access to the market easily and are able to borrow under good states. Myers & Majluf (1984) asymmetric information argue that larger firms have smaller asymmetric information; as a result, they tend to issue equity rather than debt. Majority numbers of empirical studies such as Bevan & Danbolt (2002), Barclay & Smith (1996) and Rajan & Zingales (1995) found out a positive association between size of the firm and leverage. Besides, Bevan & Danbolt (2002) figure out that the nature of debt determine this relationship; there is a negative association in the light of short-term debt and positive in long-term debt. Although Chkir & Cosset (2001), Berger et al. (1997), Lasfer (1995) and Aggrawal & Nagarajan (1990) found a positive association between firm size and leverage, Gupta (1969) reported a negative association between firm size and debt.
However, Remmers et al. (1974) and Kester (1986) reported that there is no significant relationship between firm size and leverage. Thereby, the fourth hypothesis will be as follows:

**H4: There is a relationship between firm size and financial leverage.**

*Non-debt tax shield*

The fifth critical factor determining the corporate capital structure is non-debt tax shield. De Angelo & Masulis (1980) believe that there is a substitution for the tax benefits of debt namely non-debt tax shield. MacKie-Mason (1990) reports a negative association on depreciation whilst Bradley et al. (1984) reported a positive association.

Non-debt tax shields consist of all non-interest deductions of tax which is made from the taxable income of the firm such as Research and Development (R&D) expenses or fixed assets. Hence, there is a negative association between non-debt tax shield and leverage ratios. Gajdka (2002, pp. 306-309) verified the negative association between non-debt tax shield and leverage whilst Campbell & Jerzemowska (2001, p.71) reported a positive relationship. In this study, the depreciation expense divided by total assets is applied as a proxy for non-debt tax shield followed by Titman & Wessels (1988) and Bradley et al. (1984).

Companies having a high level of non-debt tax shield are anticipated to apply a low level of leverage in their capital structure, because the tax advantages of debt are relatively worthless. Companies experience other tax advantages such as depreciation and tax credits of investment try to get less amount of tax shield of debt. There is a negative association between non-debt tax shield and leverage as per pecking order theory. Still, Moore (1986) and Scott (1977) denote that non-debt tax shield can show itself as enticing collateral and makes the level of debt go up. Thereby, the fifth hypothesis will be as follows:

**H5: There is a relationship between no-debt tax shield and financial leverage.**

The Conceptual Framework of Determinants of Capital Structure consists of Dependant variables, the Capital Structure (Leverage) and Independent variables such as Profitability, Tangibility of assets, Growth, Size and Non-debt Tax Shield.

Based on this conceptual framework, the hypothesis regression model is applied in this study which is conformed to Titman & Wessels (1988) and Myers & Majluf (1984). The hypothesis model is employed as follows:

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\text{Leverage} = \alpha + \beta_1 \text{Profitability} + \beta_2 \text{Tangibility} + \beta_3 \text{Growth} + \beta_4 \text{Size} + \beta_5 \text{Non-debt Tax Shield} + \epsilon
\]

**DISCUSSION AND FINDINGS**

Pearson Correlation analysis also presented that at least two out of five independent variables such as profitability, tangibility, growth, size and non-debt tax shield have a significant correlation with dependent variable, leverage. The multiple regression coefficients report to what extent each of these explanatory variables such as profitability, tangibility, growth, size and non-debt tax shield have an effect on leverage ratio of the firm. The second objective of this study was to find out which one of the theories used in the developed countries better explains the capital structure of Malaysia construction companies. Pecking order theory and trade-off theory have been found out as the important theories in this study. However, the pecking order theory plays a prominent role in the capital structure of construction companies as opposed to the trade-off theory. This is also consistent with the findings of Booth et al. (2001). Pecking order (information asymmetry) theory says that if a firm tries to fund its new investment projects, it should finance with its retained earnings, then debt and eventually equity as a last choice. The information asymmetry theory, i.e. pecking order theory, also states that insiders or the
management team of the company have better access to the financial plans of the firm such as investment opportunities or stream return of company as opposed to the external investors. Thereby, it seems that this study has been answered to the all questions in the study

H1: There is a relationship between profitability of the firm and financial leverage.

Profitability of the firm is significantly correlated to the dependent variable, leverage for all years conducted in this study (p-value < 0.05). The results showed that profitability of the firm is inversely related to the leverage as per pecking order theory for years 2005, 2006 and 2008. Pecking order theory states that firms with a high level of profits are more successful in case of applying their retained earnings for internal funds rather than firms with a low level of profits. Therefore, according to Myers (1984) and Myers & Majluf (1984), there is a negative association between profitability and leverage ratio in the view of pecking order theory. Pecking order theory also states that companies are most likely to fund further investments internally instead of externally. Thus, firms having a high level of profit ought to have less debt owning to the fact that they are less likely to use external funds.

H2: There is a relationship between tangibility of assets and financial leverage.

Tangibility of assets is not related to the dependent variable, leverage for all years examined in this study (p-value > 0.05); therefore, the hypothesis testing statement is rejected. However, tangibility of assets is significantly correlated to the non-debt tax shield for all years studied (p-value < 0.05). Titman & Wessels (1988), De Angelo & Masulis (1980) draw a conclusion from their findings that it is likely to take an advantage of tax not only by applying the borrowed capital but depreciation and amortization expenses will decrease the taxable net profit. Owing to this, firms with a high level of fixed assets will have a high level of tax shield. Thus, these firms can apply more borrowed capital as opposed to firms with a low level of fixed assets.

H3: There is a relationship between growth opportunities and financial leverage.

Growth opportunity is significantly correlated to the dependent variable, leverage for years 2005, 2006, 2007 and on average (p-value < 0.05). The results showed that growth opportunity is positively related to the leverage for year 2006 as per pecking order theory. According to Myers (1984), there is a positive association between growth opportunities and leverage ratio in the view of pecking order theory. This is related to a problem called the asymmetry information existing between internal managers of the company and outside investors. De Angelo & Masulis (1980), Myers (1984), Myers & Majluf (1984), Jensen (1986), Hall et al. (2000), Benito (2003) and Zou & Xiao (2006) found out there is a positive association between leverage ratio and growth opportunities of the firm. Um (2001) also points out that further investment opportunity for growing firms is possibly greater than its retained earnings, and then it will be possible for them to select debt instead of issue equity. Thereby, there is a positive association between growth opportunities and financial debt if this theory, information asymmetry, regarded in Malaysia.

The findings also showed that on average, growth opportunity is negatively related to the leverage as per trade-off theory. Stulz (1990), Myers (1977) and Jensen & Meckling (1976) reported that there is a negative association between leverage ratio and growth opportunities of the firm. There is a high level of financial distress costs for growing firms, because they carry more risk.

H4: There is a relationship between firm size and financial leverage.
Size of the firm is significantly correlated to the dependent variable, leverage for years 2005, 2007, 2008 and 2009 (p-value < 0.05). The results reported that firm size is positively related to the leverage for years 2005, 2006 and 2007 as per trade-off theory, because firms in larger size are inclined to be more diversified and there is less probability of financial distress as opposed to smaller firms. Larger companies have a low level of bankruptcy costs compared to smaller ones, so they apply debt as an advantage (Ang, 1992; Homaifar et al. 1994; Wiwattanakantang, 1999; Bevan & Danbolt, 2002). However, size of the firm is negatively related to the leverage for year 2009 as per pecking order theory, because asymmetry information for larger firms is not so serious. Thereby, the cost of capital for larger firms ought to be less as opposed to smaller ones (Zou & Xiao, 2006; Rajan & Zingales, 1995).

**CONCLUSION**

The main purpose of this study is to identify the critical factors determining the Malaysia corporate capital structure listed in Bursa Malaysia in the context of construction industry from period 2005 to 2009. Tangibility of assets is not related to the dependent variable, leverage for all years examined in this study (p-value > 0.05). However, tangibility of assets is significantly correlated to the non-debt tax shield for all years studied (p-value < 0.05). The results also showed that growth opportunity is positively related to the leverage for year 2006 as per pecking order theory. Size of the firm is significantly correlated to the dependent variable, leverage for years 2005, 2007, 2008 and 2009 (p-value < 0.05). The results reported that firm size is positively related to the leverage for years 2005, 2006 and 2007 as per trade-off theory. Finally, non-debt tax shield is significantly correlated to the dependent variable, leverage for year 2006 (p-value < 0.05). However, there is no anticipated sign between leverage and non-debt tax shield discovered in this study for listed construction companies.
Hence, the findings showed that profitability of the firm considers as the most critical factors determining the Malaysia construction companies for all years conducted in this study. However, tangibility of assets shows no significant relationship with the leverage for all years examined in this study. Nevertheless, it might be significant in other industries as one of the important characteristics of the firm. Pecking order theory and trade-off theory have been found out as the important theories in this study.

REFERENCES


**APPENDIX**

1. ANALYSIS OF YEAR 2005

The hypothesis multiple regressions, which fit the model, will be as follows:

\[
\text{Leverage} = -0.457 - 1.202 \times (X1) + 0.073 \times (X4) + \epsilon
\]

Leverage = Dependent Variable

\[\alpha = \text{Constant}\]
X1 = Profitability of the Firm

X4 = Size of the Firm

ε = Random Error Term

Table 2: Estimated Coefficients for Multiple Regression

<table>
<thead>
<tr>
<th>Model</th>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
<th>Tolerance</th>
<th>VIF</th>
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<td>B</td>
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<td>t</td>
<td>Sig.</td>
<td>Tolerance</td>
<td>VIF</td>
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<td></td>
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<td>.192</td>
<td>-1.512</td>
<td>-6.251</td>
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<tr>
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</table>

a. Dependent Variable: Leverage

2. ANALYSIS OF YEAR 2006

Leverage = -0.331 – 2.386 (X1) + 0.316 (X3) + 0.064 (X4) + ε

Leverage = Dependent Variable

α = Constant

X1 = Profitability of the Firm

X3 = Growth Opportunity

X4 = Size of the Firm

ε = Random Error Term

Table 3: Estimated Coefficients for Multiple Regression
3. ANALYSIS OF YEAR 2007

Leverage = \(-0.320 + 0.094 (X1) + 0.058 (X4) + \varepsilon\)

Leverage = Dependent Variable

\(\alpha =\) Constant

\(X1 =\) Profitability of the Firm

\(X4 =\) Size of the Firm

\(\varepsilon =\) Random Error Term

Table 3: Estimated Coefficients for Multiple Regression

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
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<th>Sig.</th>
<th>Collinearity Statistics</th>
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<td>Tolerance VIF</td>
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</table>

a. Dependent Variable: Leverage
4. ANALYSIS OF YEAR 2008

Leverage = 1.327 – 5.710 (X1) + ε

Leverage = Dependent Variable

α = Constant

X1 = Profitability of the Firm

ε = Random Error Term

Table 4.: Estimated Coefficients for Multiple Regression

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Collinearity Statistics</th>
</tr>
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a. Dependent Variable: Leverage

5. ANALYSIS OF YEAR 2009

Leverage = 2.329 + 3.798 (X1) – 0.146 (X4) + ε

Leverage = Dependent Variable

α = Constant

X1 = Profitability of the Firm

X4 = Size of the Firm

ε = Random Error Term
Table 5: Estimated Coefficients for Multiple Regression

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
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<td>.245</td>
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</table>

a. Dependent Variable: Leverage

6. ARITHMETIC AVERAGE ANALYSIS

Leverage = 0.010 + 3.176 (X1) – 0.347 (X3) + ε

Leverage = Dependent Variable

α = Constant

X1 = Profitability of the Firm

X3 = Growth Opportunity

ε = Random Error Term

Table 6: Estimated Coefficients for Multiple Regression

<table>
<thead>
<tr>
<th>Model</th>
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a. Dependent Variable: Leverage