

PalArch's Journal of Archaeology
of Egypt / Egyptology

DETERMINANTS OF CAPITAL STRUCTURE AND ITS
IMPLICATIONS FOR FINANCIAL PERFORMANCE OF
CONSTRUCTION SERVICE COMPANIES

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Faris Kasenda : Determinants of Capital Structure and Its Implications for Financial Performance of Construction Service Companies-- Palarch's Journal Of Archaeology Of Egypt/Egyptology 17(7). ISSN 1567-214x

Keywords: capital structure, financial performance, size, asset utilization, growth opportunities, liquidity, asset tangibility

ABSTRACT

This study examines the factors affecting capital structure and its implications for construction companies in Indonesian Stock Exchange within the period of 2007-2012. This study applies panel data regression model on construction service companies in Indonesia Stock Exchange. Based on estimation of the determinants of capital structure, the results show that firm size, asset utilization, growth opportunities, liquidity and asset tangibility significantly affect capital structure. On the next stage, which is the estimation of the determinants of financial performance, the results indicate that capital structure, asset utilization, growth opportunities and liquidity significantly affect financial performance of the company. This research brings a theoretical implication, that is, in making capital structure decision, construction service companies tend to apply Trade-Off Theory rather than Pecking Order Theory, whereas leverage has a positive effect toward financial performance. This means that the companies will use debt in order to maximize their financial performance. Meanwhile, the managerial implication of this research is that capital structure is an important aspect in maximizing financial performance of construction service companies, without neglecting the conditions of the companies, such as asset utilization, growth opportunities and liquidity aspect.

INTRODUCTION

Construction industry is a capital intensive industry. A construction service business needs a substantial working capital, whereas generally an internal funding is not sufficient to meet existing needs. This makes the construction company rely on external funding, either from banks or other sources.

External funding is certainly a burden for the company, as the company has to pay the interests.

Based on historical data, construction services companies in Indonesia generally have a small net profit margin. We may notice that interest expenses have a quite large proportion in the companies' income statement. This will eventually trigger the management to seek external funding sources with the lowest interest, of course, to make the financial performance satisfy shareholders.

This phenomenon invites the researchers to conduct a deeper analysis to see how this affects funding policy, commonly known as capital structure, which will affect the companies' financial performance. To complete this research, these factors will also be analyzed in terms of their direct influence to the financial performance of the company.

Capital structure in financial terms means the way companies finance their assets through a combination of equity, debt, or a mixture of securities (San & Heng, 2011). In short, the capital structure is a combination of corporate debt (long-term and short-term), common stock and preferred stock. How this is done is important, given that any combination of the financing will affect the performance and sustainability of the business operation of a company. Therefore, the decision regarding the capital structure is crucial because it is closely related to the achievement of company objectives. Capital structure decisions represent important financial decisions of a business organization, in addition to investment decisions. The decisions are important because they involve a huge amount of money and have long-term implications for the company.

In a managerial perspective, capital structure policy is determined not only by internal and external factors that influence the risk and control, but also by the values, goals, preferences and desires as input to the management of capital structure decisions, which have implications for the financial performance of a company.

In the literature of financial management, capital structure is generally proxied by comparison (ratio) between the total debt or long-term debt to total equity. Meanwhile, the financial performance of a company is usually measured by profitability, which can be seen in figures in financial statements. Profitability generally uses indicators such as profits, net income, gross profit and operating profit. The other measures commonly used are various ratios such as Return On Investment (ROI), Residual Income (RI), Earning Per Share (EPS), Dividend Yield, Price to Earning Ratio and various other sizes (San & Heng, 2011).

Theories discussing capital structure and financial performance offer various conclusions. Trade-Off theory put forward by Stiglitz (1969) which was then supplemented by Rubinstein (1973) proposes that the higher a company uses debt (high leverage), the higher its profitability (financial performance). On the other hand, the Pecking Order theory put forward by Donaldson (1961) suggests that the lower a company uses debt (low leverage), the higher its profitability (financial performance).

The management of a company is expected to generate satisfactory financial performance of the company. In its efforts to achieve this goal, the management must be able to take the right decision by considering the relevance and linkage of various conditions. This research is significant in

that the results will be useful for the management of companies, especially those in the construction service industry.

LITERATURE REVIEW

Modigliani Miller Proposition

Modigliani and Miller (1958) state that in a perfect world of capital markets and no taxes, the financial structure of a company does not affect the cost of capital. Assuming that there are no taxes, the results of their research revealed that a company's capital structure does not affect (is irrelevant to) the value of the company. Companies rely on the value of investment decisions, not the funding decisions (the ratio of debt and equity). In addition, the benefits of low-cost debt are erased by an increase in the cost of equity resulted in an unchanged WACC.

In 1963, they re-issued a theory by assuming the existence of tax but still without any cost of financial difficulties. They looked beyond the effect of tax on the cost of equity and corporate value. Assuming that there is a tax, they revealed that the value of a company owing money will be increased by the tax savings (tax shield) derived from interest expense on debt. Maximum enterprise value is at 100% debt. In addition, the cost of equity of companies that have debt will be higher by the loan used, but it is reduced because of the tax, that eventually will decrease the WACC.

Trade - Off Theory

One of the biggest criticisms against the proposition of Modigliani Miller is the criticism from Joseph Stiglitz, saying that if a company continues to improve its debt, it will experience financial hardship (financial distress) for the company that raises the cost of insolvency (bankruptcy cost).

The company will get an optimal debt-capital ratio, which is determined by the trade-off between the advantages of debt and costs. The increase in debt will increase the cost of financial difficulties, which then increases the cost of debt and cost of equity. The increase in leverage will increase profitability, so that there is a positive relationship between capital structure and financial performance.

Agency Theory

Jensen and Meckling (1976) put forward the theory of agency. According to this theory, the company that uses leverage is required to make the management more disciplined in the use of free cash flow, as it is overseen by the creditor. Thus, the greater the company uses debt (leverage), the more it will be able to reduce agency costs (Gumanti, 2018). On the other hand, the management will be more risk averse, that tends to make underinvestment problems which may ultimately harm shareholders.

Pecking Order Theory

Donaldson introduced the pecking order theory in 1961. His research proved that the financing of a company began with a sequence of retained earnings, debt to third parties either by loans or bonds, and the latter by issuing new shares. The order is determined by considering the cost, which is the highest cost of equity. A decrease in leverage will increase profitability, so that there is a negative relationship between capital structure and financial performance.

Signaling Theory

Ross (1977) and Leland and Pyle (1977) developed a model that describes a company's capital structure based on the asymmetric information problem between well-informed managers and outside investors that are poorly-informed.

Management needs to give a signal that is difficult to be imitated by other companies, which signifies that the company has good performance, so that the company will seek to enhance the debt. Other companies will not dare to imitate due to the fear of bankruptcy. Debt issuance is considered as a signal of good news. The manager believes that it will make a better future in company performance, that eventually increases the stock price. Meanwhile, the share issuance is considered as a signal of bad news, which is likely to decline the future earnings, eventually decreasing the stock price.

Market Timing Theory

Market timing theory was developed by Baker and Wurgler (2002). This theory emphasizes more the importance of the implications of the choice of debt or equity at various time compared with finding the optimal leverage ratio (such as those offered by the trade-off theory). Capital structure policy conducted by the company is to issue shares for sale to the public at the period of the high price and buy them back when the stock price is low. If the ratio of Market to Book Value of Equity (M / B) is low, companies with high leverage will sell shares. If the M / B is high, the company will buy the shares.

MATERIALS AND METHODS

This study estimates the factors affecting the capital structure and its implications for construction companies in Indonesian Stock Exchange during the period of 2007-2012. Up to 2012, there were 8 construction companies listed on the Indonesian Stock Exchange. The sample criteria of this study are companies listed on the stock exchange in the construction industry and companies which had issued financial statements as of December 31 at the time of the research (2007-2012). From the selection results, the samples that met the data completeness requirements were seven companies. The variables used in this study are as follows:

Table 1. *Research Variables*

| Variable | Symbol | Proxy | Type of Variable |
|-----------------------|--------|----------------------|------------------------|
| Capital Structure | CAPS | Debt to Asset Ratio | Dependent, Independent |
| Financial Performance | PERF | Return on Equity | Dependent |
| Size | SIZE | Revenue | Independent |
| Asset Utilization | UTIL | Asset Turnover Ratio | Independent |
| Growth Opportunities | GROW | Asset Growth | Independent |
| Liquidity | LIQU | Current Ratio | Independent |
| Asset Tangibility | TANG | Fixed Assets / Total | Independent |

Assets

There are 13 hypotheses generated in this research :

- H₁: Size positively affects the company capital structure.
- H₂: Asset utilization positively affects the company capital structure.
- H₃: Growth opportunities positively affects the company capital structure.
- H₄: Liquidity negatively affects the company capital structure.
- H₅: Asset tangibility negatively affects the company capital structure.
- H₆: Size, asset utilization, growth, liquidity and asset tangibility jointly affect the company capital structure.
- H₇: Size positively affects the company financial performance.
- H₈: Asset utilization positively affects the company financial performance.
- H₉: Growth opportunities positively affect the company financial performance.
- H₁₀: Liquidity positively affects the company financial performance.
- H₁₁: Asset tangibility positively affects the company financial performance.
- H₁₂: Capital structure positively affects the company financial performance.
- H₁₃: Size, asset utilization, growth, liquidity, asset tangibility and capital structure jointly affect the company financial performance.

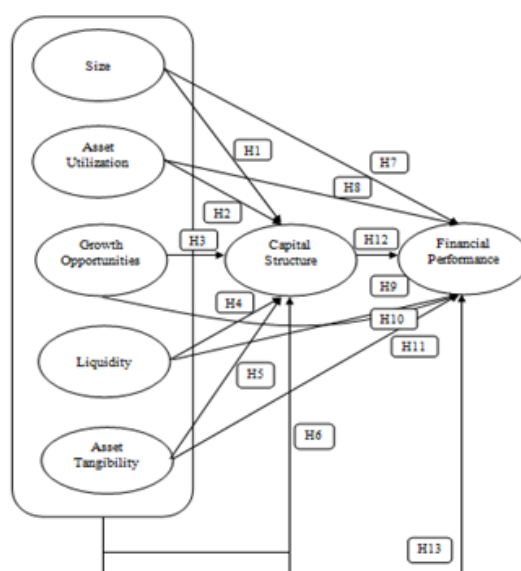


Figure 1. Theoretical Thinking Framework

MATERIALS AND METHODS

Model I Test

Model I examined the effect of Size, Asset Utilization, Growth Opportunities, Liquidity, Tangibility on Capital Structure. Testing of this model was done by using Panel Data Model. Based on Hausman test, the results showed that the p-value is greater than 5%. So, it can be concluded that the Random Effect Model can be used.

Model II Test

Model II examined the effect of Capital Structure, Size, Asset Utilization, Growth Opportunities, Liquidity, Asset Tangibility on Financial Performance. Testing of this model was done by using Panel Data Model.

Fixed Effect Model is the model chosen. The random effect estimation could not be performed because the number of individuals (cross section) is less than the coefficient including the intercept.

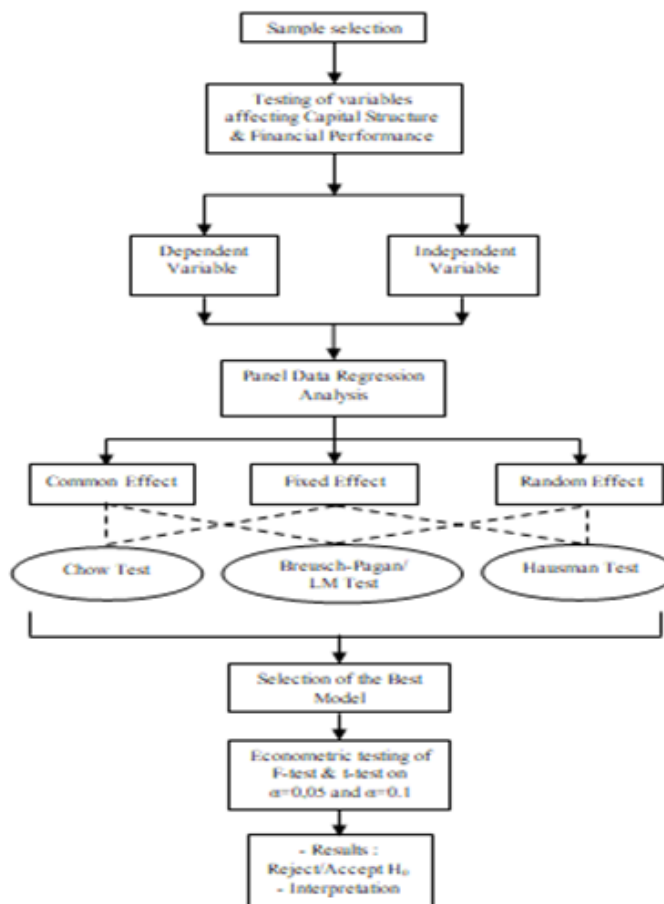


Figure 2. Data Analysis Framework

RESULTS AND DISCUSSIONS

Model I Test

The equation of Model I, using Random Effect Model Panel Data, is :

$$CAPS_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 UTIL_{i,t} + \beta_3 GROW_{i,t} + \beta_4 LIQU_{i,t} + \beta_5 TANG_{i,t} + e_{i,t} \dots\dots(1)$$

The results are shown in Table 2.

Table 2. Results of Testing Model I

| Variable | Coefficient | t-stat | Prob |
|------------------|-------------|-----------------|--------|
| C | -0.515101 | -1.267257 | 0.2132 |
| SIZE? | 0.046130 | 0.014084 | 0.0023 |
| UTIL? | 0.061400 | 0.025544 | 0.0215 |
| GROW? | 0.073509 | 0.034198 | 0.0384 |
| LIQU? | -0.148310 | 0.019657 | 0.0000 |
| TANG? | -0.193773 | 0.054314 | 0.0010 |
| R-squared | | 0.628925 | |

| | |
|----------------------|----------|
| Prob (F-stat) | 0.000001 |
|----------------------|----------|

Based on data in Table 2, by looking at the output of random effect model of the above, all of the five independent variables significantly affect the capital structure with α (0.05), each on Size (SIZE), Asset Utilization (UTIL), Liquidity (LIQU), Growth Opportunities (GROW) and Asset Tangibility (TANG). If we notice F statistic, we can conclude that the overall model is significant. The most dominant variables are Liquidity (LIQU) and Asset Tangibility (TANG) with the largest regression coefficient. It proves that in the construction service industry, the need for liquidity and the amount of fixed assets owned by the company are the most important factors affecting the funding decisions of the company, whether pursued through debt or capital.

The firm size was found to have a positive and significant effect on the capital structure, which proves that the size of the construction firms is a factor that determines the funding decision. This is in line with research done by M'ng, Rahman, and Sannac (2017), VinhVo (2017), Rufina, Ariyanto, and Lesmana (2015), Brailsford, Oliver, and Pua (1999) and Rajan and Zingales (1995). The bigger the company size, the company tends to have a larger debt as well. This is because large companies are not easy to go bankrupt. They have the ability and more flexibility to access the source of funds.

Efficiency was found to significantly affect the capital structure and has a corresponding positive coefficient. These results support the research of Margaritis and Psillaki (2010). The more efficient a company, the company is expected to obtain more feasibility assessment to be able to access the source of funds, especially debt from third parties.

The growth potential was found to have no significant effect on the capital structure. These results are different from those of Myers' (1977) and Auerbach's (1985) research in Yue (2011), and Sbeiti (2010) who found that the company's growth potential had a negative and significant effect on capital structure. The results do not support agency theory, which considers corporate managers to act as agents of debt holders who have a tendency to take over wealth from debt holders. Companies with higher growth potential opportunities have more chances to invest in non-optimal and take over the wealth of debt holders to shareholders. This does not seem to be the case with the construction service companies which are the research samples. Most of the companies are big companies that are quite bona fide in the construction services business. So, they are still trusted by the creditors (generally banking) as the holder of the debt.

Liquidity was found to significantly affect the capital structure and has a corresponding negative coefficient. These results support the research of Friend and Lang (1988), Deesomsak, Paudyal, and Pescetto (2004), Sbeiti (2010), and Icke and Ivgen (2011), in Hossain and Ali (2012) and Sabir and Malik (2012). The more liquid a company, then the possibility of debt owned by a company is getting smaller, because the company's liquidity needs can be met from its own internal funds. The opposite will happen if the liquidity of a company is limited, then the company will rely on external funding. So, leverage will be high.

Asset tangibility was found to have a positive and significant impact on the capital structure. These results support the research of VinhVo (2017),

M'ng et al (2017), Bradley, Jarrell and Kim (1984), Rajan and Zingales (1995) and Titman and Wessels (1988) indicating that firms with high tangible assets tend to use more debt on their capital structure, where the positive relationship between this variable and the capital structure shows that tangible assets can be used as collateral in getting more debt, thus supporting the Trade-Off Theory. Tangible assets can also reduce agency conflicts between debtholder and stockholder, as proposed by Agency Theory (Jensen & Meckling, 1976). Another reason is that asymmetric information is less contained in tangible assets than intangible assets whose value is quickly lost in the event of bankruptcy.

Model II Test

The equation of Model II, using Fixed Effect Model Panel Data, is:

$$PERF_{i,t} = \beta_0 + \beta_1 CAPS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 UTIL_{i,t} + \beta_4 GROW_{i,t} + \beta_5 LIQU_{i,t} + \beta_6 TANG_{i,t} + e_{i,t} + \sum_{i=6} \beta_i Di + e_{i,t} \dots\dots\dots(2)$$

The results are shown in Table 3.

Table 3. Results of Testing Model II

| Variable | Coefficient | t-stat | Prob |
|----------------------|-------------|-----------|--------|
| C | 123.9150 | 0.712571 | 0.4830 |
| CAPS? | 107.7353 | 2.825066 | 0.0094 |
| SIZE? | -8.758203 | -1.340414 | 0.1927 |
| UTIL? | 26.70514 | 2.842050 | 0.0090 |
| GROW? | 28.72362 | 6.760233 | 0.0059 |
| LIQU? | 28.72362 | 6.133358 | 0.0001 |
| TANG? | 20.50035 | 12.43070 | 0.1121 |
| R-squared | | 0.769160 | |
| Prob (F-stat) | | 0.000309 | |

Based on data in Table 3, looking at the output above the fixed effect model, from six independent variables used, there are four variables that significantly affect the financial performance with α (0.05). They are Capital Structure (CAPS), Asset Utilization (UTIL), Growth Opportunities (GROW) and Liquidity (LIQU). If we notice F statistic, we can conclude that the overall model is significant. From the six significant independent variables, the most dominant variables are capital structure (CAPS) and Liquidity (LIQU) with the largest regression coefficient. It proves that in the construction service industry, management decision in determining the capital structure, both in debt and equity financing, is very influential on financial performance. This is unacceptable given the level of profits/margins is thin in this business. So, it requires a funding decision in determining the best capital structure for obtaining the minimal weighted average cost of capital, which in turn can make financial performance (in this case the profitability) maximum. Besides that, this research proves that liquidity condition is also an important factor affecting financial performance, considering that this is a capital intensive industry. Thus, that

good liquidity condition will ensure the continuity of projects undertaken and that new projects are carried out.

Company size was found to have no significant effect on financial performance. This result does not support the research of Rajan and Zingales (1995), Ang, Chua and McConnel (1982) and Warner (1977). Company size does not appear to be a factor that directly affects financial performance, but it is a factor affecting capital structure, which then implies company performance.

Efficiency was found to have no significant effect on financial performance. These results do not support the research of Chinaemerem and Anthony (2012), and Chowdury (2010) and Ahmad, Abdullah, Mohd, and Roslan (2012). Measurement of efficiency using asset utilization measures (with asset turnover proxies) seems more pronounced when applied to the manufacturing industry, whereas for service industries such as construction, they are not drivers that directly affect financial performance.

The growth potential was found to positively and significantly affect the financial performance. These results support the research of Zeitun and Tian (2007) and Ahmad et al. (2012). The growth potential of the company is able to generate profits from the investment. So, the better the growth potential of a company, the expected financial performance of the company will also increase in the future.

Liquidity was found to have a significant effect on financial performance and has a corresponding positive coefficient. These results support the research of Owolabi, Obiakor and Okwu (2011), Vijayakumar (2011), and Bhunia and Das (2001). Companies that have good liquidity conditions are expected to reduce the risk of failure and simultaneously increase the chances of survival. Good liquidity management also allows the company to get maximum benefits with minimal cost to improve financial performance.

Asset tangibility was found to have no significant effect on financial performance. These results do not support the research of Mackie (1990) and Akistnye (2008) in Chinaemerem and Anthony (2012). This is possible given that the companies that became the object of the research are engaged in the construction services business. So, they do not rely on the existence of tangible assets (land, building and factory) as manufacturing companies. Therefore, the factor is not a direct determinant of the financial performance.

Capital structure was found to have a positive and significant impact on financial performance. These results support the research conducted by Myers and Majluf (1984), Abor (2005) and Arbabiyan and Safari (2009). It proves that companies in the construction services industry in Indonesia tend to follow the Trade-Off Theory (compared to Pecking Order Theory), where leverage (capital structure) positively affects profitability (financial performance). According to the Trade-Off Theory, the optimal capital structure (which is proxied by the leverage ratio) is obtained through the use of debt capable of lowering the weighted average cost of capital (WACC) at a minimal level, which ultimately can increase financial performance (and firm value) at a maximum level.

CONCLUSIONS

The results of this research shows that capital structure is the most influential factor affecting company financial performance. This proves that in the construction service industry, management decision in determining the capital structure, both in debt and equity financing, is very influential on the company financial performance. It is acceptable considering the relatively small profit margin in this business. So, it requires a funding decision in determining the capital structure to minimize the cost of fund in order to achieve the maximum financial performance (profitability).

In addition, this research proves that the liquidity condition is the second most important factor affecting financial performance. Construction service industry is a capital intensive industry. Thus, good liquidity will ensure the continuity of projects carried out and facilitate obtaining new projects in the future. So, it affects business continuity to make the company financial performance better.

Capital structure in this research is affected mainly by asset tangibility, followed by liquidity. It proves that in the construction service industry, company fixed assets and the need for liquidity is important factors affecting the decision of corporate funding (capital structure), whether pursued through debt or capital.

This research reveals that the large size of the construction service company does not significantly affect the company financial performance. There are some small construction companies that outperform the larger companies in their financial performance, as the small companies tend to be selective in choosing projects with a large margin and they also succeeded in managing operational risks in order to maximize financial performance.

This research also reveals that the presence of assets may not directly affect the financial performance, but it affects the capital structure, which in turn has an implication for the financial performance. Ownership of a company for its fixed assets makes the choice of debt become more possible, thus increasing the company financial performance.

To apply the knowledge obtained from this research, the management of construction service companies is advised to do some managerial decisions, including:

1. Making funding decisions that can make the cost of funds minimum in order to maximize the financial performance (profitability), given the relatively small profit margins in the construction service business.
2. Keeping good company liquidity, given that the construction service industry is a capital intensive industry. Good liquidity is essential to ensure the sustainability of the project that is being run as well as to facilitate obtaining of new projects in the future, so that the continuity of the business in the future can be guaranteed in order to achieve a satisfactory financial performance.
3. Paying attention to asset tangibility and liquidity factors in determining the choice of capital structure, either through debt and equity financing. Ownership of fixed assets with large proportions makes the choice of debt become more likely, while high liquidity makes the choice of capital become more possible.
4. Making selective efforts in choosing projects with attention to good operating margin to be able to maximize financial performance.

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