



Firm Size as Moderator to Capital Structure-Its Determinants Relations

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ABSTRACT

Objective – Capital structure policy is a strategic decision related to the selection of funding sources. The best mixed of capital structure will produce a low cost of capital, which in turn can maximize the value of the company. This study aims to determine the effect of company size as a moderator on the relationship of capital structure and its determinant factors on manufacturing companies in Indonesia and Malaysia.

Methodology – Data were collected from 40 manufacturing companies listed on the Indonesia Stock Exchange and 130 manufacturing companies listed on the Bursa Malaysia during 2008-2017. This study will analyze the determinants of capital structure consisting of liquidity, profitability, tangibility and efficiency as well as company size as a moderating variable. The research method uses panel data regression.

Findings – The company size provides a moderating effect on the relationship between capital structure with liquidity, profitability, tangibility and efficiency, and this moderation effect is strengthened in large companies in Indonesia. Instead, this moderation effect is weakening for large companies in Malaysia

Novelty – Research shows that the "modified pecking order" model is better able to explain the capital structure, policies of manufacturing companies in Indonesia and Malaysia compared to the traditional pecking order and trade off theory models.

Type of Paper: Empirical

Keywords: Capital Structure; Pecking Order Theory; Trade Off Theory; Manufacturing Company; Moderating Effect.

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JEL Classification: G23, G30, G32.

1. Introduction

Capital structure policy is a strategic decision related to the selection of funding sources. The best combination of debt and equity will produce a low cost of capital, which in turn can maximize the value of the company (Ondraczek et al, 2015).

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Pecking Order theory and Trade off theory are theories of capital structure that are still considered competent, many studies have shown these two theories are able to explain the funding policy in various countries including Indonesia and Malaysia (Winarto, 2015; Handriani & Robiyanto, 2018; Goh 2018; Hussain, 2015; Hadi, et al, 2018; Jaafar, et al, 2017 and Jakpar, et al, 2017).

The empirical gap in the validity of capital structure theory has led to further research to find out the causes of these differences. The findings of this study are expected to find a capital structure model that is able to explain the financial behavior of firms in Indonesia and Malaysia. The Result of this study is also important for the development of capital structure theory which is still considered a puzzle in the financial literature.

The capital structure model can be predicted by analyzing the determinants of capital structure including liquidity, profitability, tangibility and efficiency. In the Trade Off model, the company will optimize the use of debt to get high company value so that when liquidity, profitability, tangibility and efficiency increase, the company will increase the use of debt (Vätavu, 2015). Whereas in the Pecking Order model, the company will prioritize the use of internal funds to minimize the cost of capital, so that when liquidity, profitability, tangibility and efficiency increase, the company will reduce the use of debt (Imtiaz & Mallik, 2016 and Yeo, 2016).

Lemmon et al (2008) explain there are variations in capital structure and these differences are largely unexplained by determinants that have previously been identified. Variation in capital structure are explained by Gosh (2019) and Ahmed & Wang (2011) that capital structure theory is a conditional theory. A factor can have a strong influence on the company, but can also have the opposite effect on companies that have different conditions. Company size is one of the situational factors that causes differences in capital structure. Pecking Order is more relevant to explain the capital structure in small companies, whereas the Trade Off Theory model is more relevant in large companies (Serrasqueiro & Caetano, 2015). Conversely Qamar et al (2016) which shows that the model of Pecking Order theory strengthens in large companies.

This study aims to prove the moderation effect of the size of the company on the relationship of capital structure with liquidity, profitability, tangibility, and efficiency on manufacturing companies in Indonesia and Malaysia during the 2013-2018 period. The paper is divided into five sections. The next section reviews the results of literature review, methodology results, research results, discussion and the final section summarizes the conclusion.

2. Literature Review

The development of modern capital structure theory has resulted in new capital structure theories including Trade Off Theory and Pecking Order Theory (Zainudin et al, 2017). The tradeoff theory is built on the assumption that tax shield interest and financial distress costs. It explains that companies will look for an optimal capital structure by balancing the costs and benefits arising from the use of debt (Glover & Hambusch, 2014). Although the tradeoff model is still considered a mainstream capital structure theory (Berk, 2010), this theory is unable to explain why companies with high profitability generally have the lowest capital structure. These limitations can be explained by the Pecking Order Theory (Megginson, 1997). This theory explains that the company issues securities in the most profitable orders. Internal financing is chosen first before using external funds (Hulsink & Scholten, 2017). The external financing used is determined from the lowest cost and risk level.

Various empirical studies explore the factors that influence capital structure to get a convincing explanation of capital structure policies in various countries. The determinant factors that are consistently used in various studies include liquidity, profitability, tangibility and efficiency. Liquidity shows the company's ability to meet obligations that are due. In the Trade-Off Theory, companies that have high liquidity gained higher trust, so it is possible to issue new debt in larger amounts (Ahmed & Wang, 2011). In contrast, the Pecking Order Theory explained companies with high levels of liquidity have low levels of debt

(Sangeetha & Sivathaasa, 2013). The high number of current assets owned are expected to be able to produce more cash inflows, which can be used to fund operations or investments.

Profitability shows the ability of a company to generate profits at the level of sales, assets, and certain share capital. In the Trade-Off Theory, the increase in profitability affects the increase in the level of debt. Companies that are able to achieve high profitability have a lower risk of financial difficulties, so debt costs will also be lower (Vo, 2017). In the Pecking Order Theory, the existence of asymmetric assumptions of information cause companies with high profitability tend to use a relatively small proportion of debt, because funding needs can be obtained from retained earnings, otherwise if internal funding is not available then the choice are making debt and issuing shares as a last resort (Hernández et al, 2016).

Two other factors which are examined as determinants of capital structure are tangibility and efficiency. Tangibility shows the level of tangible assets' ability that can be used as collateral. In the Trade-Off Theory model, companies that have high tangibility have more assets to use as collateral to get higher debt. Research in country-oriented banks found a close relationship between companies and creditors can play a role as collateral, so companies can access sources of debt funding even though their assets are relatively low collateral. In the pecking order model, high asset collections are generally owned by large companies, which do not require additional loans because they have adequate internal funding sources (Chen, 2004).

Efficiency shows the company's ability to create sales by utilizing resources optimally. In the trade off pattern, a company with a high level of efficiency can increase the use of its debt, because of its ability to reduce the costs of bankruptcy and financial distress (Tamulyte, 2012). An efficient company will also produce a higher expected return at a certain level of capital structure so that an efficient company will be able to substitute capital requirements to protect the company from crisis. The high level of efficiency also represents a high level of solvency which is able to reduce the risk of bankruptcy. In the Pecking Order Theory model companies with high efficiency have high sales performance, which results in agency costs decreasing, so that the use of debt is not needed (Zheng, 2013)

Farooq, et al (2014) explain the relationship of capital structure with its determinant factors is not useful, as long as the relationship is influenced by situational and moderation factors. Company size is one of the important moderating factors affecting the relationship between capital structure and its determinant factors. The Dynamic Performance-leverage performance approach explains that debt capacity increases with increasing company size. This situation has an impact on improving capital structure when the company has an investment plan. However, in large companies with limited investment opportunities the need for additional debt is reduced. Based on this approach the size of the company will provide a moderating effect on the relationship of capital structure and positive performance in small companies, instead of giving a negative moderating effect on large companies (Vithessonthi & Tongurai, 2015).

3. Research Methodology

The study was conducted on manufacturing companies in Indonesia listed on the Indonesia Stock Exchange and manufacturing companies in Malaysia listed on the Bursa Malaysia. The data used are secondary data taken from the company's financial statements with an observation period of 2008-2017. Based on the purposive sampling approach, 400 units of analysis were obtained from 40 manufacturing companies in Indonesia and 1300 analysis units from 130 manufacturing companies in Malaysia. The research variables used consist of liquidity (CR), profitability (ROA), tangibility (TANG) and efficiency (ATO) as independent variables. Liquidity is measured using the current ratio, profitability is measured using Return on Assets (ROA), and tangibility is measured using a fixed asset to total asset ratio. Company size as moderation variables is measured using \ln Sales and capital structure as dependent variables is measured using the Debt to Asset ratio.

The analytical method used is a panel data regression analysis model. The advantages of using panel data include providing more complete data and more complete and varied information so as to produce a greater degree of freedom and be able to increase the precision of the estimations made (Hsiao, 2014).

The panel data model developed in this study is as follows:

$$DAR = \alpha + \beta_1 CR_{it} + \beta_2 ROA_{it} + \beta_3 TANG_{it} + \beta_4 ATO_{it} + \beta_5 SIZE_{it} + \beta_6 CR.SIZE_{it} + \beta_7 ROA.SIZE_{it} + \beta_8 TANG.SIZE_{it} + \beta_9 ATO.SIZE_{it} + \epsilon_{it}$$

Where :

| | | |
|------|---|---|
| CR | = | Current asset to current liability ratio |
| ROA | = | Earning Before Taxed to total Asset ratio |
| TANG | = | Fixed Asset to Total Asset |
| ATO | = | Total Sales to Total Asset Ratio |
| SIZE | = | Ln Sales |
| DAR | = | Debt to Asset Ratio |

Panel data testing model used Chow Test and Hausman Test to determine the best panel data model whether it is common effect, fixed effect or random effect. After the best model is found, the next test is to test the hypothesis by conducting a simultaneous test (F test), Partial Test (t test) and determining the coefficient of determination (R²).

4. Results

In this study two determinant models of capital structure of manufacturing companies in Indonesia and Malaysia were developed. The model will be analyzed by looking at the effect of moderation company size (Ln_Sales) on the relationship of capital structure with liquidity (CR), profitability (ROA), tangibility (TANG) and efficiency (ATO). At the initial stage of developing the model, the Chow test and the Hausman Test were done to test the feasibility of the panel data model. Chow test results on manufacturing companies in Indonesia and Malaysia obtained the Chi-square Cross-section value with a prob of 0,000, which means the appropriate model is a fixed effect. Panel data model testing continued with Hausman test and obtained a random cross-section value with prob 0.000, which means the appropriate model for capital structure models of manufacturing companies in Indonesia and Malaysia are fixed effects.

Table 1 is the result of the panel data regression effect of company size moderation on the relationship of capital structure with its determinant factors in manufacturing companies in Indonesia and Malaysia.

Table 1 Results of Panel Data Regression Analysis

| Variable | Model 1 (Indonesia) | | Model 2 (Malaysia) | |
|--------------------|---------------------|--------|--------------------|--------|
| | Coefficient | Prob. | Coefficient | Prob. |
| C | 0.63396 | 0.0000 | 0.08637 | 0.4421 |
| CR | -0.03263 | 0.0233 | 0.00985 | 0.0090 |
| ROA | -0.57280 | 0.1879 | 0.01494 | 0.9211 |
| TANG | -0.33491 | 0.0430 | 0.02566 | 0.8675 |
| ATO | 0.13655 | 0.0000 | 0.27458 | 0.0000 |
| SIZE | -0.01304 | 0.0563 | 0.02236 | 0.0027 |
| CR_SIZE | 0.00209 | 0.0380 | -0.00139 | 0.0000 |
| ROA_SIZE | 0.01911 | 0.5293 | -0.02095 | 0.0490 |
| TANG_SIZE | 0.02508 | 0.0538 | -0.01056 | 0.2942 |
| ATO_SIZE | -0.00752 | 0.0000 | -0.01341 | 0.0001 |
| R-squared | 0.80081 | | 0.73096 | |
| Adjusted R-squared | 0.77357 | | 0.69898 | |
| Prob(F-statistic) | 0.00000 | | 0.00000 | |

Table 1 shows the moderation effect models in Indonesia showing the R-square calculation results of 0.80081 with a sig F value of 0.00000. The same results are also shown by the results of the calculation of sig

F value of 0.0000 and R-square 0.73096 in manufacturing companies in Malaysia. Both findings show that the model developed meets the model's goodness of fit at the sig level of less than 5% (sig. 0.0000). These findings prove that the company size is able to moderate the relationship of capital structure with liquidity, profitability, tangibility and efficiency in manufacturing companies in Indonesia and Malaysia.

Based on table 1, the following is the equation of the capital structure model in Indonesia

$$\begin{aligned} \text{DAR} = & 0.63396 - 0.032634\text{CRit} - 0.57280\text{ROAit} - 0.33490\text{TANGit} + 0.13655\text{ATOit} - 0.01304\text{SIZEit} \\ & + 0.00209\text{CR.SIZEit} + 0.01911\text{ROA.SIZEit} + 0.02508\text{TANG.SIZEit} - 0.00752\text{ATO.SIZEit} + \epsilon \end{aligned}$$

The results of the determinants effect test models on manufacturing companies in Indonesia show that an increase in efficiency will have an impact on increasing capital structure, meanwhile an increase in liquidity, profitability and tangibility will have an impact on the decline in capital structure. Of the four determinants, only liquidity performance and tangibility have a significant effect. The negative effect of liquidity, profitability and tangibility on the capital structure indicates that the Pecking Order model is applied by manufacturing companies in Indonesia. Companies will first optimize the use of internal funds to finance investments before the decision to increase debt is used. This research is in line with Tang & Jang (2007) and De Haan & Hinloopen (2003).

Testing of company size as a determinant factor shows an increase in company size will significantly reduce capital structure. Meanwhile, as a moderation factor, company size provides a significantly strengthening moderating effect on liquidity and tangibility relations, and provides a moderating effect that significantly weakens the relationship between structure and efficiency. The findings of this study indicate that the pecking order pattern strengthens in the capital structure policy of large companies in Indonesia. Large companies will form to optimize the use of internal funds before the decision to increase debt is made. The findings of this study are in line with research (Vithessonthi & Tongurai, 2015).

The following is the regression equation for the capital structure model in Malaysia:

$$\begin{aligned} \text{DAR} = & 0.08637 + 0.00985\text{CRit} + 0.01494\text{Ait} + 0.02566\text{TANGit} + 0.27458\text{ATOit} + 0.02236\text{SIZEit} \\ & - 0.00139\text{CR.SIZEit} - 0.02095\text{ROA.SIZEit} - 0.01055\text{TANG.SIZEit} - 0.01340\text{ATO.SIZEit} + \epsilon \end{aligned}$$

Based on the regression equation above, an increase in liquidity, profitability, tangibility, and efficiency will have an impact on a high capital structure but only liquidity and efficiency will have a significant impact. The determinant analysis of capital structure shows that the Trade Off model is found. Companies that have high liquidity and efficiency have lower financial distress risks, so companies can increase the use of debt with relatively low capital costs. The findings of this study are in line with research (Deesomsak, et al, 2004) and Nicodano & Regis, 2019). The results of testing the company size as a moderating factor show that the company size significantly weakens the relationship of liquidity, profitability, and efficiency. The findings of this study show the model of Trade Off is weakening in large companies in Malaysia. The findings of this study are in line with research (Vithessonthi & Tongurai, 2015)

5. Discussion

This study shows manufacturing companies in Indonesia and Malaysia use different capital structure models. Companies in Indonesia tend to use the Pecking Order model, and this pattern strengthens along with the increase in company size. Byoun (2007) explains that manufacturing companies use the Pecking Order

pattern to maintain financial flexibility. Companies will adapt to changes in technology and markets through investment. Large companies need much larger investment funds compared to the smaller one, but the increase in debt is limited by the capacity of the debt. As a result, large companies will optimize the ability of internal funds to anticipate debt restrictions from creditors when investing with large funds is needed. The company seeks to maintain its financial flexibility by first using free cash flow to foster working capital and for current investments.

On the contrary, manufacturing companies in Malaysia tend to use the Trade Off model, but this pattern weakens along with the increase in company size. Although the optimum debt strategy is used by increasing the use of debt, the addition of debt is also reduced along with the increase in the size of the company. The results of the research show that the capital structure policy models in Indonesia and Malaysia are different, but companies in the two countries use the same strategy, which is the strategy of maintaining financial flexibility to maintain the capacity of debt

The findings of this study support Delcoure (2007) which explains that currently companies in various countries tend to use the "modified pecking order" model instead of following the conventional theoretical model of trade-offs, pecking orders or agency costs. The model is used because of the financial constraints of the banking system and the development of debt and capital markets in various countries.

6. Conclusion

The research shows that the company size has a moderate effect on the relationship between capital structure with liquidity, profitability, tangibility and efficiency. The strengthening pecking order model at large companies in Indonesia and the weakening trade off model at large companies in Malaysia, shows that the modified pecking order model is used by manufacturing companies in both countries. This research is a comparative study of capital structure policy in two different countries, but this study only provides the influence of internal factors as determinants of capital structure in the short run. The next researcher is expected to be able to conduct further research by examining macroeconomic factors that affect the capital structure over a longer time span to obtain a comprehensive finding.

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