



## The Effect of Profitability, Liquidity, and Asset Structure on Capital Structure with Firm Size as Moderating Variable

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### ABSTRACT

The purpose of this research is to analyze the effect of profitability, liquidity, and asset structure on capital structure with firm size as a moderating variable. The population of this study was all property and real estate companies listed on the Indonesian Stock Exchange (IDX) from 2014-2016. The number of samples used was 39 companies with the audit of analysis of 117. This study used secondary data taken from the annual financial statements. The method of data analysis was descriptive analysis and Moderated regression analysis by difference absolute value test. The data analysis used was IBM SPSS Statistics 21. The result of the study showed that profitability, liquidity, and asset structure had negative and significant effects on capital structure. Firm size was able to moderates significantly the effect of liquidity on capital structure, but it is not able to moderate the effect of profitability and asset structure on the capital structure. The study concludes that capital structure is influenced by profitability, liquidity, and liquidity that moderated by firm size.

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### INTRODUCTION

Currently, companies are required to be able to win the business competition in more advanced and developing business conditions. This situation is a challenge that must be faced by companies in carrying out their operational activities. Therefore, companies must be able to manage their funding needs in order to compete with other companies. Funding in companies is obtained through two main funds, namely own and foreign funds. Funding from companies can be in the form of retained earnings another case with foreign funding that can be obtained from debt. According to Riyantina & Ardiansari (2017), the corporate capital structure can be used as a measure in making good funding decisions.

Capital structure in general is a comparison between debt and capital to finance a company (Alipour et al., 2015). The optimal capital structure can be realized by determining the combination of capital properly so that the company can carry out its operational activities and can generate maximum profit (Sari & Haryanto, 2013). Brigham & Houston (2011) suggested the increase in stock prices because the capital structure can be said to be a good capital structure. However, in reality, the use of overly much debt can result in a company

going bankrupt or bankruptcy.

The bankruptcy case occurred at PT Bakrieland Development TBK (ELTY) which was declared bankrupt on September 10, 2013. This was since its subsidiary PT Bakrieland Development TBK (ELTY) which is BLD Investment LTD could not pay debts of USD 115 million or IDR 1.7 trillion (Tempo.co, 2013). This phenomenon is the company's inability to pay its debts which has led to bankruptcy. Therefore, financial management must be able to optimize the company's capital structure in order to avoid the risk of bankruptcy.

Research on the correlation of profitability with capital structure has been reviewed by Indriani & Widarti (2013), Al-najjar & Hussainey (2011), Proença et al., (2014), Chen et al.(2014), Riyantina & Ardiansari (2017), and Abdulla (2017) prove that there is a significant negative result between profitability on the capital structure. Then, Nugroho (2014) and Karaye et al.(2015) found that the effect between profitability and capital structure has a positive and significant direction. Besides that, according to Firmanullah & Darsono, (2017) and Hartoyo et al. (2014), profitability cannot explain its effect on capital structure.

Research on liquidity on capital structure still has inconsistent results. Cahyani & Handayani(2017), Sheikh & Wang (2011), Liang et al. (2014), Jahanzeb et al. (2014), Tarus et al.(2014), and Hardanti & Gunawan (2010) stated that capital structure which is affected by

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liquidity has a significant result in a negative direction. Thereafter, Ridloah (2010) and Sabir & Malik (2012) confirmed that there is a significant positive relationship between liquidity and capital structure. In contrast to research conducted by Firmanullah & Darsono (2017) and Chadha & Sharma (2015), liquidity is not able to explain its correlation to capital structure.

Another factor that was used and still has inconsistent results is asset structure. Chadha & Sharma (2015), Wellalage & Locke (2015), Cahyani & Handayani (2017), and Riyantina & Ardiansari (2017) said that asset structure has a positive effect on capital structure. In contrast to the research of Benkraiem & Gurau (2013), Hartoyo et al. (2014), Daskalakis et al. (2014), Acaravci (2015), and Karadeniz et al. (2009) that asset structure has a negative relationship with capital structure. This is different from Sheikh & Wang (2011) and Sari & Haryanto (2013) that asset structure does not have a significant effect on capital structure.

This study aims to analyze the effect of profitability, liquidity, and asset structure on capital structure with firm size as a moderating variable. The originality of the research can be seen from the addition of a moderating variable which is firm size. Firm size is the total assets that determine the company level (Indriani & Widyarti, 2013). Assets are considered more stable than sales and market capitalized in measuring firm size (Handayani & Yanto, 2013). Ukaegbu & Oino (2014) stated that firm size and source of funding have relation that causes the sources of funding for large companies to be more diverse than small companies. Thus, increased firm size can cause the corporate capital structure to increase. An increase in corporate capital structure can support its financial condition and avoid the risk of bankruptcy. In addition, the use of firm size variable as a moderating variable is also due to the results of the previous research on the variables of profitability, liquidity, and asset structure are still inconsistent with capital structure so that firm size is assumed to be able to moderate the effect of these independent variables on capital structure.

This study is based on two capital structure theories. The first theory is pecking order theory which states that internal funding is determined by the level to which companies tend to use funds from within rather than from outside the company. Internal funding is preferred by companies since the risk incurred is much smaller because the companies do not need to think about paying their obligations to creditors. Meanwhile, the second theory is trade-off theory which explains the benefits of using debt to be in line with the costs to be received by the company (Chasanah & Satrio, 2017). This theory explains that as long as the use of debt has a high rate of return from the sacrifice, the company can maximize its debt.

Profitability is the ability of a company to make profits. This indicates that profitability is closely related to the profit generated by a company (Yuliarti & Yanto, 2017). Profitability can be measured by corporate assets. Earning in a company with a high amount of assets will be more used in corporate operational activities. The use of external funds is relatively low when the company has

large profits and tends to use retained earnings (Abdulla, 2017). Pecking order theory said in determining the capital structure, companies tend to use funding from within rather than funding outside the companies. Pecking order theory supports this study where debt is not used to fund operational activities in companies with high profitability (Nirmala et al., 2016). Research conducted by Indriani & Widyarti (2013); Riyantina & Ardiansari (2017); Abdulla (2017); Chen et al. (2014); Proença et al. (2014); and Al-najjar & Hussainey (2011) explained the significant negative effect on capital structure.

### **H<sub>1</sub>: Profitability has a negative and significant effect on capital structure**

Liquidity is the ability of a company to pay its obligations. This is measured by the number of current assets owned. Companies with high liquidity will not use debt or issue new shares but use the company's internal funds (Chasanah & Satrio, 2017). Thus, companies with high liquidity tend to finance corporate operational activities using their internal funds. Cahyani & Handayani (2017) stated that based on the pecking order theory, companies tend not to use debt because of corporate high liquidity. This condition indicates that increased liquidity tends to have a low level of debt. Research conducted by Cahyani & Handayani (2017); Hardanti & Gunawan (2010); Sheikh & Wang (2011); Liang et al. (2014); Jahanzeb et al. (2014); and Tarus et al. (2014) found a significant effect in a negative direction between liquidity and capital structure.

### **H<sub>2</sub>: Liquidity has a negative and significant effect on capital structure**

Asset structure is an asset owned by a company with the aim of providing benefits in the future. Companies with high asset structure levels will use fixed assets as collateral for debt. Thus, the companies more often use debt for operational activities when they have high asset structures. This is in line with the trade-off theory where it is used as an additional capital since corporate fixed assets which are used as debt collateral for companies have a high asset structure. Research conducted by Chadha & Sharma (2015); Cahyani & Handayani (2017); Riyantina & Ardiansari (2017); and Wellalage & Locke (2015) have a significant negative result on the correlation of asset structure with capital structure.

### **H<sub>3</sub>: Asset structure has a positive and significant effect on capital structure**

Companies that have high profitability will use their profits as retained earnings and will reduce the use of debt originating from creditors. The relationship between profitability and capital structure is influenced by firm size. Total assets can be used as a measure of firm size. According to Karina & Khafid (2015), large amount of assets can be used optimally for company operations in order to generate high profits. Operational activities at large company sizes will be financed by retained earnings owned by the companies. High profitability coupled with a large company size indicates that the company is able to fund all of its operational

activities with its internal funds. Pecking order theory is the basis of this study where internal funds are more attractive to companies in financing operational activities. Thus, firm size can be used to moderate profitability and capital structure.

**H<sub>4</sub>: Firm size moderates the effect of profitability on capital structure**

A high level of liquidity reflects the size of corporate current assets that are able to meet its liabilities and operational activities. The operational activities of companies with high liquidity tend to use internal funds as they have large current assets. Firm size affects the relationship between liquidity and capital structure. Firm size is determined by the number of corporate assets. Large companies carry out their operational activities with assets in the companies. Large company sizes with a high level of liquidity can indicate that they are able to fund all of their operational activities with their internal funds. This study is supported by the concept of pecking order theory which proposes that operational activities are funded by funds from within the company. Thus, firm size can be used to moderate the effect of liquidity on capital structure.

**H<sub>5</sub>: Firm size moderates the effect of liquidity on capital structure**

A high corporate asset structure describes the amount of fixed assets in the company so that the company's external funds tend to be used to fulfil its operational activities. This indicates that the company's fixed assets that are used as debt collateral can lead to increased debt used by the company. The correlation between asset structure and capital structure is influenced by firm size. External funds used to fund operational activities in large companies originate from total assets that are used as debt collateral. On the other hand, large company size also provides a greater sense of security and trust to creditors. Therefore, large companies are expected to use a higher level of debt than small companies (Gómez et al., 2014). This means that the companies can easily get debt to finance their operational activities. A company with a high asset structure coupled with a large company size indicates that the company is able to fund all of its operational activities with external funds. This statement is in line with the trade-off theory where the benefits of using debt must be the same as the costs incurred (Chasanah & Satrio, 2017). This is because a large company size has won the trust of creditors to get debt as the capital with fixed assets as collateral for the debt. Thus, firm size can be used to moderate the effect of asset structure on capital structure.

**H<sub>6</sub>: Firm size moderates the effect of asset structure on capital structure**

**RESEARCH METHODS**

This study was a quantitative approach using secondary data. The study population was 48 property and real estate companies listed on the Indonesia Stock

Exchange (IDX) in 2014-2016. Purposive sampling was used to determine the research sample that produced 117 units of analysis. The samples were determined based on the criteria shown in table 1.

In this study, capital structure was used as the dependent variable, profitability, liquidity, and asset structure were used as independent variables, and firm size was used as a moderating variable. The definitions and measurements of each variable are shown in table 2.

The data collection method used the documentation method through secondary data which include corporate financial statements accessed on the official website of the Indonesia Stock Exchange (IDX), namely www.idx.co.id. Descriptive statistical analysis and inferential statistical analysis used as research analysis techniques. Moderating regression analysis through the absolute difference value test was used for hypothesis testing using the IBM SPSS Statistic 21 application. The significance level used was 5% (α = 0.05). This study has a regression equation (1).

$$DER = a + \beta_1 ROA + \beta_2 CR + \beta_3 SA + \beta_4 |ROA-SIZE| + \beta_5 |CR-SIZE| + \beta_6 |SA-SIZE| + e \dots\dots\dots 1$$

**RESULTS AND DISCUSSIONS**

Table 3 shows that the variables of capital structure, profitability, liquidity, asset structure, and firm size have mean values greater than the standard deviation value, meaning that the data distribution of each variable is fairly good.

The value of Kolmogorov-Smirnov normality test is 0.089 > 0.05 which indicates that the data is normally distributed. The research result shows that there is no multicollinearity in the independent variables because the VIF value is <10 and the tolerance value > 0.10.

**Table 1.** The Selection of Research Samples

No	Criteria	Beyond Criteria	Included Criteria
1.	The property and real estate companies listed on the Indonesia Stock Exchange from 2014 to 2016.		48
2.	The property and real estate companies that present successive financial reports for 2014-2016.	(6)	42
3.	The property and real estate companies that include complete data for all the required variables.	(0)	42
	Total sample companies		42
	Total years of observation		3
	Total research data for 2014-2016		126
	Data outlier during the observation	(9)	
	Total unit of analysis		117

Source: Secondary data processed, 2018

**Table 2.** Operational Definition of the Variables

Variables	Operational Definitions	Measurement
Capital Structure (DER)	Balance or comparison of debt and equity (Riyanto, 2015).	DER = Total Debt/Total Equity (Riyantina & Ardiansari, 2017)
Profitability (ROA)	The ability of a company to obtain profit (Kasmir, 2010).	ROA = Net Profit/Total Assets (Cahyani & Handayani, 2017)
Liquidity (CR)	The ability of a company to utilize current assets to pay off its current liabilities (Sukmawati <i>et al.</i> , 2014).	CR = Current Assets/Current Debt (Hartoyo <i>et al.</i> , 2014)
Asset Structure (SA)	Company assets that can provide benefits in the future (Cahyani & Handayani, 2017).	SA = Fixed Assets/Total Assets (Riyantina & Ardiansari, 2017)
Firm Size (SIZE)	The size of assets owned by the company (Indriani & Widayarti, 2013).	Size = Log Natural Total Assets (Cahyani & Handayani, 2017)

The autocorrelation test gives the result of Durbin Watson which obtains a value of 1.937, where  $du < dw < 4 - du$  ( $1.7696 < 1.937 < 2.2304$ ) which is assumed that autocorrelation does not occur in the regression model. Meanwhile, the heteroscedasticity test using the white test shows  $c^2$  count  $< c^2$  table ( $17.55 < 124.342$ ), it can be said that there is no heteroscedasticity problem in the regression model.

The coefficient of determination or adjusted  $R^2$  shows the result of 0.233 where the research model is able to explain 23.3% of the variation in the capital structure while 76.7% is explained by other variables. The results of hypothesis testing with a significance level of 5% ( $\alpha = 0.05$ ) can be seen in table 4 and the equation 2 shows regression results of hypothesis testing.

$$DER = 0.543 - 0.087 ROA - 0.255 CR - 0.120 SA + 0.072 |ROA-SIZE| + 0.107 |CR-SIZE| - 0.039 |SA-SIZE| \dots\dots\dots 2$$

**The Effect of Profitability on Capital Structure**

Capital structure is influenced by profitability with a negative and significant correlation. This indicated that increased profitability would reduce debt so it can be said that increased company profitability can change the capital structure. The use of debt will decrease if the company has high profitability (Cahyani & Handayani, 2017). This is due to the large profit owned by the companies with high profitability. With these results, the company's operational activities are funded by retained earnings in internal funds. In addition, the use of internal funds also has a small level of risk. Therefore,

the debt used by the company will be reduced and the use of retained earnings will be increased in financing operational activities. This indicates that profitability has an important role in making funding decisions (Sofat & Singh, 2017). This study explains that internal funds in companies with high profitability are obtained from profits, which is related to the pecking order theory. The results of this study are in line with Riyantina & Ardiansari (2017), Indriani & Widayarti (2013), Al-najjar & Hussainey (2011), Proença *et al.* (2014), Chen *et al.* (2014), and Abdulla (2017) that there is a significant negative relationship between profitability and capital structure.

**The Effect of Liquidity on Capital Structure**

Liquidity has a significant negative relationship with capital structure. This indicates that the capital structure that originates from debt is reduced so that the level of liquidity can affect the capital structure. The high liquidity of a company can make its ability to meet liabilities because its current assets can be used to pay these obligations. With the increase in corporate liquidity, internal funds in the form of current assets are used to fulfil obligations in paying corporate debt and if there are still internal funds, they can be used to finance operational activities. Relatively low debt at high company liquidity has results that are in line with the pecking order theory (Chasanah & Satrio, 2017). This study has results that are in line with Cahyani & Handayani (2017), Sheikh & Wang (2011), Jahanzeb *et al.* (2014), Tarus *et al.* (2014), Liang *et al.* (2014), and Hardanti & Gunawan (2010) which explain the correlation between liquidity and capital structure having a significant negative direction.

**The Effect of Asset Structure on Capital Structure**

Asset structure can affect the capital structure significantly and negatively. The size of company risk due to using debt causes a negative correlation between the asset structure and the capital structure. Then, this condition causes the company to use relatively little debt as a source of funding in financing its operational activities. Company assets used as internal funds are used for corporate operational activities with a large asset structure.

**Table 3.** Descriptive Statistical Analysis Results

	N	Min	Max	Mean	Std Dev
Capital Structure	117	0.03	2.02	0.69	0.48
Profitability	117	-0.12	0.20	0.06	0.06
Liquidity	117	0.09	10.06	2.46	1.94
Asset Structure	117	0.11	0.95	0.62	0.21
Firm Size	117	25.77	31.45	29.08	1.34
Valid N (listwise)	117				

Source: Output SPSS 21, 2018

**Table 4.** Results of the Hypothesis Test

No	Hypothesis	Regression Coefficient	Sig.	Results
1.	H <sub>1</sub> : Profitability has a negative and significant effect on capital structure.	-0.087	0.037	Accepted
2.	H <sub>2</sub> : Liquidity has a negative and significant effect on capital structure.	-0.255	0.000	Accepted
3.	H <sub>3</sub> : Asset structure has a positive and significant effect on capital structure.	-0.120	0.008	Rejected
4.	H <sub>4</sub> : Firm size significantly moderates the effect of profitability on capital structure.	0.072	0.200	Rejected
5.	H <sub>5</sub> : Firm size moderates significantly the effect of liquidity on capital structure.	0.107	0.039	Accepted
6.	H <sub>6</sub> : Firm size moderates significantly the effect of asset structure on capital structure.	-0.039	0.442	Rejected

Source: Secondary data processed, 2018

This occurs since the company prioritizes the use of fixed capital in the company's fixed assets (Hartoyo et al., 2014). Thus, it can be said that companies will tend to use their embedded capital as fixed assets for operational activities budget not as collateral in getting debt. In addition, the use of internal funds also has a relatively small risk. This study shows that low debt in the capital structure is the result of a high asset structure. The use of internal funds is preferable to external funds where the result of this study is the same as the pecking order theory. This study strengthens the research results of Hartoyo et al.(2014), Karadeniz et al.,(2009), Benkraiem & Gurau(2013), Daskalakis et al.(2014), and Acaravci (2015) which state that there is a significant negative effect between the asset structure on the capital structure.

#### **Firm Size Moderates the Effect of Profitability on Capital Structure**

Firm size has not been able to moderate the correlation between profitability and capital structure. In pecking order theory, determining the capital structure is carried out based on a hierarchy, which makes internal funds often used instead of external funds. Retained earnings that exist in internal funds are more often used than debt in funding the corporate operational activities with high profitability. The number of assets in the company can be used to determine the size of the company. Increased company assets can be used as internal capital to fund company operations. A company that is large and has large profitability should get a large and sufficient internal capital to finance its operational activities so that it does not require debt in the company's capital structure.

This explanation cannot be used as a reference in explaining the results of this study. The relationship between profitability and capital structure cannot be moderated by company size because funding from within the company cannot be used for operational activities. Hardanti & Gunawan (2010) explained that capital can be easily obtained by large companies compared to small companies. This is because company assets can be used as collateral for debt in large companies. This results in increased debt used and low internal funds used in large company sizes. In addition, if the profit earned by the company is higher, it indicates that the company

is in a healthy condition, the company will easily get its debt. This means companies that are large and in healthy financial conditions are able to increase creditor trust in approving the use of debt.

Thus, pecking order theory cannot be used as a reference in explaining company size in moderating the relationship between profitability and capital structure because external funding in the form of debt is more often used than the use of internal company funds to finance its operational activities.

#### **Firm Size Moderates the Effect of Liquidity on Capital Structure**

The research result indicates that firm size is able to significantly moderate the asset structure with the capital structure. The hypothesis test result confirms that there is an increase in the value of the regression coefficient between before and after the existence of firm size so that the moderating variable further weakens the negative relationship of liquidity in the capital structure.

Pecking order theory emphasizes that external funding is rarely used by companies and tends to use internal funding. Internal funds are preferred by companies with high liquidity (Sheikh & Wang, 2011). Debt in large companies will be paid using current assets owned by the company so that it can be used to pay off company debts. Therefore, the existence of liquidity and a large company size does not require debt to finance operational activities but uses funds from within the company.

However, the results of this study indicate a positive direction where firm size weakens the correlation to liquidity and capital structure. Even though it is a large-scale company with high liquidity, the company is considered capable of paying its obligations. If the remaining current assets are only small, the company will use debt to finance its operational activities. This decision is related to the pecking order theory, if retained earnings are not sufficient then debt becomes the next decision (Suryani & Khafid, 2016).

The effect of liquidity on the capital structure can be weakened by company size which is used as a moderating variable. The reference from the pecking order theory in developing this hypothesis is accepted. This means that the presence of company size as a moderating variable with high liquidity can raise the capital

structure.

### **Firm Size Moderates the Effect of Asset Structure on Capital Structure**

Firm size is not able to moderate the relationship between asset structure and capital structure. A higher asset structure is marked by the larger total fixed assets of the company that can be used as collateral to obtain debt. In addition, debt will be easy to get at large companies since large company sizes provide a sense of security to creditors than small company sizes. This is since large companies have a special attraction for creditors because these companies have good performance. It should be that companies with large company sizes and high asset structures can use larger debt. However, this opinion is unable to explain the results of this study.

Some reasons cause the correlation between asset structure and capital structure cannot be moderated by firm size because the use of debt that is overly high also has a big risk for the company. Although large companies with high asset structures can easily get debt from creditors, the company also considers the risks they will accept if they have too much debt. If the company cannot return the debt, it can result in bankruptcy, so that the company minimizes the use of its debt.

Thus, the trade-off theory cannot be used as a reference in explaining firm size in moderating the relationship between asset structure and capital structure. Although there are many opportunities for THE companies to obtain debt, they do not use these opportunities and prefer to use internal company funds. This is done by the companies in order to avoid the risk of bankruptcy resulting from the use of overly high debt. Thus, the companies will be more careful in using debt and as much as possible maximize the use of internal funds in financing their operational activities. Pecking order theory is more appropriately used in explaining the relationship of asset structure to the capital structure which is moderated by firm size where debt is not used in large companies that have high asset structures.

### **CONCLUSIONS**

The conclusion that can be formulated is that profitability and liquidity have a significant negative relationship with the capital structure and liquidity moderated by company size which are proven to have effects on the capital structure. Suggestions for companies are that company management can pay more attention to profitability and liquidity in making funding decisions. Investors should pay attention to company size in companies with high liquidity because company size can moderate the effect of liquidity on capital structure. Further research is suggested to add business risk variables that are thought to have a correlation with the capital structure, which refers to the pecking order theory in which companies with high business risk prefer internal funds to external funds in the form of debt. In addition, low use of debt can help companies in order to avoid the risk of bankruptcy.

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