CAPITAL STRUCTURE VARIABLES OF PECKING ORDER THEORY PERSPECTIVE IN INDONESIA STOCK EXCHANGE

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ABSTRACT

The purpose of study was to analyze variables that determine capital structure of non-financial companies in Indonesia based on pecking order theory. There are five variables observed namely, profitability, firm size, asset growth, asset structure, and liquidity. The population were non-financial companies listed on Indonesia Stock Exchange during 2010-2016 and published annual financial statements in 2009-2016. This study used census technique. Population consisted of 280 companies. Study used secondary data were data of annual financial statements during 2009-2016. Data obtained from BEI website and Indonesian Capital Market Directory. This study used multiple regression models for panel data to predict relationship between independent and dependent variables. Result showed that profitability, firm size, and asset structure had significant effect on capital structure. Other variables namely asset growth and liquidity had non-significant effect on capital structure. Study concluded that profitability is the determinant variable of capital structure on non-financial firms in Indonesia based on pecking order theory approach. The study also found that another capital structure determinant variable namely firm size and asset structure tends to follow trade-off theory.

KEY WORDS

Determinants, capital structure, Pecking Order Theory, economy.

The development of the business world in the current era of globalization requires all large- and small-scale companies to compete with each other so that they can maintain and advance the lives of their companies. The decision to choose the source of funding or the composition of the funding selection is called a funding decision (Husnan and Pudjiastuti, 2012: 277).

Corporate funding decisions, whether to use funds sourced from internal or external will be reflected in the company's capital structure. Capital structure is the mix (proportion) of the company's long-term permanent funding as indicated by debt, preferred stock equity and ordinary shares (Van Horne and Wachowicz, 2009: 452). The selection of the right capital structure will provide an opportunity for companies to improve performance, ensure the sustainability of operations and achieve strategic objectives (Hossain and Hossain, 2015). The importance of choosing a capital structure causes the factors that significantly influence it to become an important topic to study.

Research on the company's capital structure developed rapidly since the research of Franco Modigliani and Merton H. Miller was published in 1958, which became known as MM theory (Brigham and Daves, 2017: 622). In subsequent developments Modigliani and Miller in 1963 included the tax element (Brigham and Daves, 2017: 624). With the tax, the use of debt will provide benefits in increasing the value of the company or lowering the cost of capital. After research conducted by Modigliani and Miller emerging capital structure theories, one of these theories is the pecking order theory. The pecking order theory is a capital structure theory based on the selection of funding sources based on the funding sequence put forward by Myers in 1984. According to Myers (Myers) 1984), the pecking order theory does not base assumptions on adjusting the debt level to the optimum level. The pecking order theory explains why companies with high profitability generally little debt have, not because they have a low debt ratio target but because they do not need external funds (Brealey et al., 2014: 469).

Issuance of new shares can sometimes be very expensive and even companies prefer not to make investments that have a positive Net Present Value (NPV) just to avoid using external equity (Frank and Goyal, 2003). During 2010-2016 the sectors that had the highest debt ratios were the transportation, infrastructure and utilities sectors. The highest non-financial sector debt ratio in 2016 was the mining sector by 132%. The lowest debt ratio is the industrial yield sector for consumption by 20%. In general, from 2010-2016 the debt ratio of all sectors experienced fluctuations. In 2011 it decreased from the previous year, from 57% to 48% and then from 2012 to 2016 by 54%, 57%, 55%, 56% and 55%. Changes in the debt ratio of non-financial companies in 2010-2016 are interesting to study, especially regarding the variables that influence them.

The selection of the right capital structure will provide an opportunity for companies to improve performance, ensure the sustainability of operations and achieve strategic objectives (Hossain and Hossain, 2015). The importance of choosing a capital structure causes the factors that significantly influence it to become an important topic to study. Based on the determinants of capital structure as previously mentioned by the researchers, there are several factors that are often examined but get different empirical results (research gap), so it is interesting to be examined again. These factors include: profitability, company size, company growth, asset structure, and liquidity.

H₁: Profitability has a negative effect on capital structure.

Profitability is the company's ability to seek profits and provides a measure of the effectiveness of the management of a company (Kasim, 2010: 116). According to the pecking order theory, companies that have high profitability will reduce the use of debt, because high retained earnings are enough to finance most of the funding needs (Alipour et al. 2015). This statement is reinforced by the results of research conducted by Noor et al. (2015), Collins et.al (2013), Butt et al. (2013), Rakshit and Sarkar (2013) which states that profitability has a negative effect on capital structure.

H₂: Company size has a negative effect on capital structure.

Large size companies tend not to owe much because they already have large total assets. A large amount of assets has the potential to generate high profits, so the company already has sufficient internal funding to finance operational and investment needs. The amount of the company's total assets can also be used to pay off the total debt (Channar et al., 2015). Company size and capital structure have a negative effect since large companies could finance through the issuance of shares rather than debt financing, so that large companies will use less debt in the capital structure (Deloof and Overfelt, 2008). The larger the size of the company, the lower the capital structure of the company. This statement is reinforced by the results of Alipour et al. (2015), Srivastava (2014), Butt et al. (2013), Rakshit and Sarkar (2013), Akinyomi and Olagunju (2013), Rajagopal (2011), Ramlall (2009) which stated that company size had a negative effect on capital structure.

H₃: Asset growth has a positive effect on capital structure.

Companies with high asset growth require more funds in the future, especially external funds to meet their investment needs or meet the needs to finance its growth (Indrajaya et al., 2011). Capital expenditure causes a cash outflow which will increase the financing deficit (Shyam-Sunder and Myers, 1999). According to the pecking order theory, when the company's internal funds are insufficient, the company will seek external funds through debt. Pecking order theory shows a positive relationship between asset growth and debt levels (DeAngelo and Masulis, 1980; Jensen, 1986; Myers, 1984; Myers and Majluf, 1984). This statement is supported by research by Khan et al. (2015), Noor et al. (2015), Srivastava (2014), Rakshit and Sarkar (2013), Akinyomi and Olagunju (2013), Rajagopal (2011), Yuliati (2011), Ramlall (2009).

H₄: Asset structure has a negative effect on capital structure.

Companies with low levels of fixed assets have more asymmetric information problems than companies with high levels of fixed assets. Companies that have a high level of fixed assets are generally large companies, which can issue shares at a fair price so that they do not use debt to fund investment (Harris and Raviv, 1991). This statement is reinforced by the results of research conducted by Rakshit and Sarkar (2013), Çekrezi (2013), Bayrakdaroglu

et al. (2013), Butt et al. (2013), Saleem et al. (2013), Mahardhika and Aisjah (2012), Akinlo (2011) which stated that asset structure has a negative effect on capital structure.

H₅: Liquidity has a negative effect on capital structure.

Companies with high liquidity have large internal funds, so the company will use its internal funds first to finance its investment before using external financing through debt (Cekrezi, 2013). A company that has high liquidity means that it could pay short-term debt, so it tends to reduce total debt, which in turn capital structure will be smaller. This statement is reinforced by the results of research conducted by Alipour et al. (2015) Srivastava (2014), Rakshit and Sarkar (2013), Butt et al. (2013), Cekrezi (2013), Harrison and Widjaja (2013) which stated that liquidity has a negative effect on capital structure.

METHODS OF RESEARCH

The approach used in this research proposal is a quantitative approach (positivism) which aims to determine the relationship between two or more variables. Quantitative research approaches are research with an emphasis on testing theories through quantitative measurement of research variables using statistical analysis methods. The study was conducted at the Indonesia Stock Exchange by taking data through ICMD (Indonesian Capital Market Directory) in 2009-2016, and on the internet site www.idx.co.id. The study was conducted on non-financial companies because non-financial companies do not have rules or are more flexible, especially in funding policies. Financial companies were excluded from the analysis on the grounds of special characteristics of banking companies, namely as "regulated industry". The dependent variable in this study is the Capital Structure. The independent variables of this study are profitability, company size, asset growth, asset structure, and liquidity. This study uses panel data regression analysis method, which is a combination of time series data and cross section data (Basuki and Prawoto, 2016: 294). This research uses panel data regression analysis method. Panel data regression is a combination of time series data and cross section data (Basuki and Prawoto, 2016: 294). The method of estimating the regression model using panel data can be done through three approaches, including the Common Effect Model, the Fixed Effect Model, the Random Effect Model. Chow test and Hausman test were conducted to choose the most appropriate model to use in managing panel data. The fulfillment of the classical assumption test for panel data regression was measured only by the multicollinearity test and the heteroskedasticity test (Basuki and Prawoto, 2016: 298). The t test statistic and the F test are used to test the research hypothesis, namely how much influence the independent variable has on the dependent variable can be determined by the analysis of the coefficient of determination.

RESULTS AND DISCUSSION

Determining the selection of panel data regression models two types of testing need to be done. The first test will be a Chow test to determine the choice between a pool / common effect model or a fixed effect model. In the next stage the Hausman test will be carried out if necessary. Table 1 shows the cross-section F probability value of 0,000 which is less than 0.05. Based on the results of the Chow test, it can be decided that H₀ is rejected, so it can be stated that the fixed effect model is better than the common effect model.

After the Chow test, the Hausman test is then necessary to determine whether the regression model is more suitable to follow the fixed effect model or random effect model. Table 2 shows the random cross-section probability value of 0.0000 which is smaller than 0.05. Based on these results, H₀ is rejected, so it can be stated that with a 95% confidence level, the fixed effect model is more suitable for use in panel data regression.

Multicollinearity test can be done by calculating the correlation coefficient between independent variables. If the correlation coefficient is low, there is no multicollinearity problem. Table 3 shows that the correlation coefficient values for all independent variables are smaller than 0.80. Based on the data in table 4, it can be stated that there is no multicollinearity problem or there is no linear relationship between the independent variables.

Table 1 – Chow Test Result

*Redundant Fixed Effects Tests**Pool: DATA_KEUANGAN**Test cross-section fixed effects*

Effects Test	Statistic	d.f.	Prob.
Cross-section F	12.531692	(279,1675)	0.0000
Cross-section Chi-square	2209.545424	279	0.0000

Source: Data Processed, 2018.

Table 2 – Hausman Test Result

*Correlated Random Effects - Hausman Test**Pool: DATA_KEUANGAN**Test cross-section random effects*

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	33.023286	5	0.0000

Source: Data Processed, 2018.

Table 3 – Multicollinearity Test Results

Independent Variable	DER	PRO	SIZE	GRO	SA	LIQ
DER	1.000000	-0.232625	0.209882	-0.024804	0.209293	-0.113081
PRO	-0.232625	1.000000	0.135938	-0.005004	-0.104253	-0.048026
SIZE	0.209882	0.135938	1.000000	0.012966	-0.011093	-0.092076
GRO	-0.024804	-0.005004	0.012966	1.000000	-0.037532	0.181830
SA	0.209293	-0.104253	-0.011093	-0.037532	1.000000	-0.090479
LIQ	-0.113081	-0.048026	-0.092076	0.181830	-0.090479	1.000000

Source: Data Processed, 2018.

Park test was conducted to determine whether there is a heteroscedasticity problem. Basic decision making is done by comparing the probability value (prob) with 0.05 (confidence level or α of 5%). Table 5 shows that the probability value (prob) of all independent variables is greater than 0.05, so in this model there is no heteroscedasticity problem.

Table 4 – Park Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.072313	1.690082	-2.409536	0.0161
PRO	-0.989926	0.736091	-1.344843	0.1789
SIZE	-0.131719	0.114294	-1.152460	0.2493
GRO	0.000110	0.005261	0.020921	0.9833
SA	0.936236	0.505056	1.853726	0.0640
LIQ	0.004849	0.003504	1.383974	0.1666

Source: Data Processed, 2018.

Based on the results of the panel data regression model selection through the Chow test and the Hausman test that had been done previously, the panel data regression analysis used the fixed effect model approach. The results of panel data regression using the fixed effect approach can be seen in table 5.

Table 5 – Regression Test Results with Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.596585	0.190371	-3.133805	0.0018
PRO	-0.312846	0.082913	-3.773164	0.0002
SIZE	0.076280	0.012874	5.925087	0.0000
GRO	-0.001024	0.000593	-1.727759	0.0842
SA	0.254626	0.056890	4.475792	0.0000
LIQ	-0.000562	0.000395	-1.423570	0.1548
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.726421	Mean dependent var		0.577644
Adjusted R-squared	0.680035	S.D. dependent var		0.419599
S.E. of regression	0.237348	Akaike info criterion		0.095104
Sum squared resid	94.35932	Schwarz criterion		0.906583
Log likelihood	191.7984	Hannan-Quinn criter.		0.393366
F-statistic	15.66039	Durbin-Watson stat		1.105942
Prob(F-statistic)	0.000000			

Source: Data Processed, 2018.

Table 6 shows the constant value (C) of -0.596585 while the coefficients of PRO, SIZE, GRO, SA, and LIQ are respectively -0.312846; 0.076280; -0.001024; 0.254626; and -0.000562 with a significance level of five percent. Then the regression equation can be arranged as follows:

$$DER = -0,596585 - 0,312846PRO + 0,076280SIZE - 0,001024GRO + 0,254626SA - 0,000562LIQ$$

The study uses Adjusted R Square value because the value of R Square in the regression equation is vulnerable to the addition of independent variables, where the more independent variables involved, the greater the value of R Square (Basuki and Prawoto, 2016: 51). Adjusted R Square value of 0.680035, meaning that the independent variable is profitability, company size, asset growth, asset structure and liquidity can explain the dependent variable that is the capital structure of 68.00%, while the remaining 32.00% is explained by other variables not found in research.

According to Basuki and Prawoto (2016: 51), the F test in multiple linear regression analysis aims to determine the effect of the independent variables on the dependent variable simultaneously. The test criteria is if the probability value (F-statistic) is greater than 0.05

(confidence level or α of 5%) then H_0 is accepted while if the probability value (F-statistic) is less than 0.05 then H_1 is accepted. Based on table 5 the probability value (F-statistic) of 0.0000 shows that the independent variable, namely profitability, company size, asset growth, asset structure and liquidity, has a significant effect on the dependent variable, which is capital structure simultaneously. According to Basuki and Prawoto (2016: 52), the t test was used to determine the effect of each independent variable on the dependent variable partially. The test criteria is if the probability value is greater than 0.05 (confidence level or α of 5%) then H_0 is accepted while if the probability value is less than 0.05 then H_1 is accepted.

Table 6 – Individual Effect Regression Fixed Effect Model Results

<i>Fixed Effects (Cross)</i>	Coefficient	<i>Fixed Effects (Cross)</i>	Coefficient	<i>Fixed Effects (Cross)</i>	Coefficient
_AALI--C	-0.356488	_AKRA--C	-0.077887	_ASGR--C	-0.239983
_ABBA--C	0.394172	_ALKA--C	0.145429	_ASII--C	-0.28239
_ACES--C	-0.255553	_ALMI--C	-0.053057	_ASRI--C	0.338891
_ADES--C	0.256927	_AMFG--C	-0.278956	_ATPK--C	-0.04015
_ADHI--C	0.135715	_AMRT--C	-0.023627	_AUTO--C	-0.408077
_ADMG--C	-0.06592	_ANTM--C	-0.174624	_BAPA--C	0.199727
_ADRO--C	0.065294	_APLI--C	-0.219346	_BATA--C	-0.235818
_AISA--C	0.149213	_APLN--C	0.202065	_BAYU--C	-0.197895
_AKKU--C	0.818376	_ARNA--C	-0.246475	_BCIP--C	0.013582
_AKPI--C	0.047439	_ARTI--C	0.050739	_BHIT--C	-0.112649

Source: Data Processed, 2018.

Table 6 shows the results of individual regression for 30 samples. The fixed effect approach in the research method shows that there are different effects between individuals (Basuki and Prawoto, 2016: 279). Although the intercepts of each sample are different, the intercepts of each sample are not different at any time. Table 6 shows the intercepts of each sample in sequence for AALI, ABBA and ACES of -0.31285; 0.07628 and -0.00102. The intercept values reflect the specific characteristics of each company. Each sample company has a different policy in determining capital structure.

Table 7 – Hypothesis Test Results

No.	Variable Independent	Coefficient	Sig.	Pecking Order Theory Hypothesis	Test Result
1	Profitability	-0.31285	0.0002	(-)	(-) Significant
2	Company Size	0.07628	0	(-)	(+) Significant
3	Asset Growth	-0.00102	0.0842	(+)	(-) Not Significant
4	Asset Structure	0.254626	0	(-)	(+) Significant
5	Liquidity	-0.00056	0.1548	(-)	(-) Not Significant

Source: Data Processed, 2018.

Table 7 shows the probability value of the GRO, and LIQ variables of 0.0842 and 0.1548 greater than 0.0. These results indicate that the independent variables consisting of asset growth and liquidity do not significantly affect capital structure. The probability value of the PRO, SIZE and SA variables is 0.0002; 0.0000 and 0.0000 smaller than 0.05. These results indicate that the variable profitability, company size and asset structure significantly influence the capital structure. A summary of the results of hypothesis testing can be seen in Table 7

Table 7 shows that the profitability variable that is proxied by ROA negatively significantly affects the capital structure. The results are in line with the pecking order theory which states that profitability has a negative effect on capital structure. Companies with high profitability will increase the company's retained earnings. High retained earnings require large internal funding sources. High retained earnings are enough to finance most of the company's funding needs, so the company will reduce the use of debt. The results are in accordance with previous studies by Pacheco and Tavares (2016), Chadha and Sharma

(2015), Khan et al. (2015) and Noor et al. (2015) which confirms the pecking order theory, that profitability has a significant negative effect on capital structure.

Table 7 shows that firm size variables have a significant positive effect on capital structure. The results of the study are not in line with the pecking order theory, but in accordance with the assumption of a trade-off theory in which large sector companies have large capital structures because they use more debt. Large companies are better at using debt to finance their operations because they have the ability to diversify risk and minimize bankruptcy. Large companies are also easier to obtain loans from creditors, because they have large assets that can be used as collateral to obtain debt. The results of the study are in line with previous research by Qaderi et al. (2015), Wardianto (2013), Nuswandari (2013), Collins et al. (2013), Cekrezi (2013).

Table 7 shows that the growth of company assets negatively does not significantly affect capital structure. The results are not in line with the pecking order theory but in accordance with the trade-off theory in which non-financial sector companies that have high asset growth owe less than companies that have low asset growth. Companies with high asset growth tend to have higher profits. Large amount of profits will be used to finance operational activities and investments so that the level of debt becomes lower. The results of the study are in line with previous studies by Qaderi et al. (2015), Nuswandari (2013), Wardianto (2013), Saleem et al. (2013), Akinio (2011), Ali (2011).

Table 7 shows that asset structure has a significant positive effect on capital structure, which means that the higher the asset structure of the company, the higher the capital structure will be. Non-financial sector companies in Indonesia in the period 2010-2016 with large asset structures are more easily indebted, because companies can use more fixed assets as collateral. The results of the study are not in line with the pecking order theory which states that there is a negative relationship between asset structure and capital structure. Companies with low levels of fixed assets have more asymmetric information problems than companies with high levels of fixed assets. Companies with a high level of fixed assets are generally large companies, these companies can issue shares at a fair price so that debt is not used to finance investment. In contrast, the results of the study confirm the trade-off theory which states that asset structure has a significant positive effect on capital structure, and is in line with previous research by Chadha and Sharma (2015), Qaderi et al. (2015), Alipour et al. (2015), Khan et al. (2015).

Table 7 shows that liquidity has a significant negative effect on capital structure. The results confirm the pecking order theory where high liquidity reflects the company already has cash flow or high internal funding sources. High internal funding is enough to finance the company's operations, so that it will reduce the use of debt. Liquidity shows the company's ability to meet short-term obligations. High liquidity of the company means that the company is able to pay long-term debt that is due without having to use sources of long-term financing. Empirical evidence of the research is in line with research by Haron (2016), Pacheco and Tavares (2016), Alipour et al. (2015), Srivastava (2014), Rakshit and Sarkar (2013), Butt et al. (2013), Cekrezi (2013), Harrison and Widjaja (2013), Hestuningrum and Darsono (2012), Sheikh and Wang (2011).

Based on the results of the study, there are three variables that significantly influence the capital structure, namely profitability, company size and asset structure. The other two variables namely asset growth and liquidity do not significantly influence the capital structure. The study found that profitability is a determinant variable of capital structure based on the pecking order theory. The study also found the determinants of capital structure based on the trade-off theory, namely company size and asset structure. The use of panel data regression with fixed effect mode is able to emphasize that each company is considering different capital structures. Each company considers the selection of funding sources based on the order of funding, namely internal sources first (pecking order theory). But there are also conditions for companies trying to balance benefits and costs as a result of debt (trade-off theory).

CONCLUSION

Some conclusions can be obtained from the results of data analysis and discussion. First, profitability negatively significantly influences capital structure. Second, company size positively significantly influences capital structure. Third, the growth of company assets negatively does not significantly affect the capital structure. Fourth, the asset structure has a significant positive effect on capital structure. Fifth, liquidity has no significant negative effect on capital structure. Sixth, companies in implementing funding policies do not absolutely follow the rules of the pecking order theory, but also follow the rules of other capital structure theories.

Suggestions that can be given are: First, for companies in making funding decisions pay attention to factors that have a significant impact on capital structure in this study, namely profitability, company size and asset structure. Second, it is recommended for further researchers to add other variables or use the same variable with different proxies.

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