DETERMINANT VARIABLES ON LEVERAGE AND SPEED OF ADJUSTMENT (STUDY IN INDONESIA STOCK EXCHANGE)

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ABSTRACT

There have been many types of research on capital structure, however, those researches have not shown consistent results yet. This research aims to determine the effect of determinant variables of capital structure on leverage and speed of adjustment partially. The samples comprise 459 manufacturing companies listed in Indonesia Stock Exchange from 2009-2017. The statistic analysis utilized to test the hypothesis is multiple linear regression analysis. The test result shows that the determinant variables of capital structure have significant effects on leverage, and the partial effect of the determinant variables of capital structure (Profitability, Tangibility, Size, Growth Opportunity, and Income Variability) also has a significant effect. For the speed of adjustment, the size variable gives the biggest contribution compared to the other variables.

Keywords: *Leverage, Speed of Adjustment, Profitability, Tangibility, Size, Growth Opportunity, Income Variability.*

1. INTRODUCTION

Many empirical research in finance examined the theories of firm's capital structure, more specifically are factors that influence the capital structure. Capital structure is the particular combination of debt and equity used by a company to finance its overall operations and growth (leverage). Trade-off theory of capital structure is among the most influential theories of firms' capital structure, that predicts the optimal capital structure.

An optimal capital structure is a combination of funding sources that consist of debt and stock that will yield the highest value of the firm. Speed of adjustment is the speed of a company in meeting the target of leverage, it is in accordance with the dynamic trade-off theory which stated that a company continuously makes adjustments to the optimal capital structure, then the research in trade-off theory, examine the speed of adjustment, besides factors influencing the leverage. The research in trade-off theory are still worth to be re-examined due to their inconsistent results.

Santoso and Yuwono (2008) stated that there is no effect between tangibility, size, income variability, profitability, trade credit sales, trade debt sales on leverage. The trade debt sales variable gave the highest contribution to the speed of adjustment.

Citro (2014) said that tangibility positively influenced leverage, while size, profitability, and trade credit sales negatively influenced leverage, but, there was no effect of growth opportunity and income variability on leverage. The highest contribution variable on the speed of adjustment is profitability.

Risnawati (2017) argued that profitability has a negative effect on leverage, while assets structure has no effect on leverage. Furthermore, assets growth and company size have a positive effect on leverage. Asset growth is the variable that has the highest contribution to the speed of adjustment.

Culata and Gunarsih (2012)'s empirical research support the the trade-off theory. In their study found that Coefficinet of Collateral Value of Assets is 1.586 and statistically significant at α1%. This suggets that the higher the Collateral Value of Assets, the higher the Debt Ratio (leverage). The coefficient of Non-debt Tax Shield is 0.024 but not statistically significant. The coefficient of profitability is +0.064 and statistically significant at α5%. This suggests that the higher the profitability the higher the Debt Ratio.

The coefficient of Growth is 0.753 and statistically significant at α1%. This suggets that the higher the growth the higher the Debt Ratio. The coefficient of size is 0.014 but not statistically significant. Other study, Titman and Wessels (1988) did not provide support for an effect on debt ratios arising fom non-debt tx shield, volatility, collateral value, or future gowth.

Based on the results of previous research on the factors that influence leverage, the researchers re-examined the inconsistent variables such as profitability, tangibility, size, growth opportunity, and income variability. Lacks of literature that discusses the speed of adjustment in Indonesia is also a driving factor for this research. The problem statements of this research are:

Do the determinant variables of capital structure that consist of profitability, tangibility, size, growth opportunity, and income variability affect the leverage and which variable contributes the most to the speed of adjustment in the manufacturing companies listed in Indonesia Stock Exchange from 2009-2017.

1.1. Leverage: ratio between debt and equity

Leverage is the ratio between debt and equity. However, leverage is defined as the parameter that measures the amount of assets financed by debt (Sudarmadji and Sularto, in Jayanti, 2011). Harahap (2013) stated that leverage is the ratio that illustrates the relation between company debt and the capital, this ratio evaluates how far a company is financed by debt or outsiders, in which the company ability is illustrated by capital.

According to Jayanti (2011), debt has some benefits for the company, for example: interest expense that reduces the tax burden, creditor only gets relatively fixed interest so the excess profit is a claim for the owner of the company, and creditors do not have voting rights so that the owner can control the company with smaller funds. Meanwhile debt utilization also has several lacks, since the raise of the debt increases the risk of technical insolvency, it is when a company's business does not run well, the operational income is low and insufficient to cover the interest expense so the property of the owner decreases. In an extreme case, the loss may endanger the company because it may cause bankruptcy.

Darminto and Manurung (in Milnawati Gusaptono, 2014) explained that there is a driving force that causes the company to have low leverage (low debt), such as bankruptcy costs, there are also driving forces that cause the company to have high leverage (high debt) such as tax benefits and agency cost from the free cash flow. The combination of these two forces brings out target leverage or capital structure target which may become an optimal capital structure for a company. Therefore, a company will always try to adjust the leverage level in an optimal direction. So, the leverage level of a company will always move continuously from time to time toward a target to be achieved.

1.2. Speed of Adjustment

Speed of adjustment is the speed of a company in meeting the target of leverage, it is in accordance with the dynamic trade-off theory which stated that a company continuously makes adjustments to the optimal capital structure. The optimal capital structure is when the capital expenditure is minimal and able to increase the value of a company (Citro, 2014).

The speed of adjustment of capital structure: the rate (speed) at which a firm changes its leverage ratio towards its target (optimal) leverage.

In adjusting toward an optimal capital structure, speed of adjustment can be accelerated by debt utilization, but in an optimum level (in the optimal capital structure), the debt payment expenses may bring bankruptcy risk that may decrease the value of a company. If such thing happens, then the company needs to be able to adjust its capital structure in an optimal position, which is the balance between the costs incurred on debt and the tax benefits of debt.

1.3. Determinant of Capital Structure

Profitability: Pecking order theory: NEGATIVE
Tangibility: Fixed asset as collateral: POSITIVE
Growth Opportunity: High growth opportunity & investment, financial growth: POSITIVE
Income variability: instability income: NEGATIVE

Income variability is an indicator in calculating risk from companies that use leverage as a source of funds. High income variability shows a low level of debt. Ralph and Marga (in Citro, 2014) argued that a company with high income variability increases the risk in terms of interest payment so that they use lower leverage target.

It shows that the company's income is not stable, in other words, it may increase and also decrease. The stability and the amount of company's income will determine whether the company is allowed to take capital with a fixed burden or not. A company which has stable income will always fulfill its capital liability (Kusmin, 2014).

2. RESEARCH METHOD

2.1. Population and Sample

The population of this research is the manufacturing companies listed in Indonesia Stock Exchange from 2009-2017. Sample selection is done using purposive sampling method.

2.2. Definition of Operational Variable

Leverage (DER)	=	$\frac{\text{Total Debt}}{\text{Total Equity}}$
Profitability(ROA)	=	$\frac{\text{Earning After Tax}}{\text{Total Asset}}$
Tangibility	=	$\frac{\text{Fixed Asset}}{\text{Total Asset}}$
Growth Opportunity	=	$\frac{\text{Total Capital Expenditure}}{\text{Total Asset}}$
Size	=	Ln TOTAL ASSETS
Income Variability	=	$\sigma^2 = \frac{\sum(x-\mu)^2}{n}$

2.3. Research Model

Multiple Linear Regression is used to test whether profitability, tangibility, size, growth opportunity and income variability effects the leverage variable as follows.

$$L_{it}^* = \beta_0 + \beta_1 \text{Profitability} + \beta_2 \text{Tangibility} + \beta_3 \text{Size} + \beta_4 \text{GO} + \beta_5 \text{INCV} + e \quad (1)$$

Note:
GO = Growth Opportunity
INCV = Income Variability

$$L_{it}^* = \beta_0 + \beta_1 \text{Profitability} + \beta_2 \text{Tangibility} + \beta_3 \text{Size} + \beta_4 \text{GO} + \beta_5 \text{INCV} + e \quad (1)$$
$$L_{it} - L_{it-1} = \lambda (L_{it}^* - L_{it-1}) + e \quad (2)$$

Substitute equation (1) to (2),

$$L_{it} - L_{it-1} = \lambda (\beta_0 + \beta_1 \text{Profitability} + \beta_2 \text{Tangibility} + \beta_3 \text{Size} + \beta_4 \text{GO} + \beta_5 \text{INCV} - L_{it-1}) + e$$
$$L_{it} = \lambda\beta_0 + \lambda\beta_1 \text{Profitability} + \lambda\beta_2 \text{Tangibility} + \lambda\beta_3 \text{Size} + \lambda\beta_4 \text{GO} + \lambda\beta_5 \text{INCV} - \lambda L_{it-1} + L_{it-1} + e$$
$$L_{it} = \lambda\beta_0 + \lambda\beta_1 \text{Profitability} + \lambda\beta_2 \text{Tangibility} + \lambda\beta_3 \text{Size} + \lambda\beta_4 \text{GO} + \lambda\beta_5 \text{INCV} + (1 - \lambda) L_{it-1} + e$$

Producing new equations results from substitution:

$$\mathbf{L_{it} = \theta_0 + \theta_1 \text{Profitability} + \theta_2 \text{Tangibility} + \theta_3 \text{Size} + \theta_4 \text{GO} + \theta_5 \text{INCV} + \rho L_{it-1} + e}$$

Note:
L_{it} leveragege of company *i* in period *t*
θ_0 = Constants
θ = $\lambda\beta$ (Second regression coefficient)
λ = speeded of adjustment
β = First regression coefficient
ρ = $(1 - \lambda)$

Calculating the contribution of each of the free variables (profitability, tangibility, size, growth opportunity, income variability) with the following formula:

$$\theta = \lambda\beta$$
$$\lambda = \theta : \beta$$

Note:
θ = Non-standardized coefficients from variable *i* of the second multiple linear regression (speed of adjustment).
λ = The amount of contribution of each variable to the speed of adjustment.
β = Non-standardized coefficients from the results of the first multiple regression analysis

3. RESULTS AND DISCUSSION

3.1. Descriptive Statistics

Descriptive statistics is conducted to give general illustration and information of the whole variables used in this research. Leverage, profitability, tangibility, size, growth opportunity, and income variability which are variables with ratio scales, can provide minimum, maximum, and average value. Deviation standards are as shown in Table 1.

Table 1. Description of Research Variable of Sample Companies

	N	MIN	MAX	Mean	Std. D
Leverage	459	3.71	1125.44	132.39	160.73
Profitability	459	-61.85	87.17	7.56	12.28
Tangibility	459	4.75	301.95	45.14	23.29
Size	459	25.01	33.32	28.04	1.59
Growth Opportunity	459	-58.23	79.07	3.85	10.61
Income Variability	459	0.00	6.54	0.69	1.48

Based on the above table (Table 1), each variable can be explained as follows:

1. Leverage has a minimum value of 3.71 and a maximum value of 1125.44. The average value of leverage is 132.39, with a deviation standard of 160.73.
2. Profitability has a minimum value of -61.85 and a maximum value of 87.17. The average value of profitability is 7.56, with a deviation standard of 12.28.
3. Tangibility has a minimum value of 4.75 and a maximum value of 301.95. The average value of tangibility is 45.14, with a deviation standard of 23.29.
4. Size has a minimum value of 25.01 and a maximum value of 33.32. The average value of size is 28.04, with a deviation standard of 1.59.
5. Growth opportunity has a minimum value of -58.23 and a maximum value of 79.07. The average value of growth opportunity is 3.85, with a deviation standard of 10.61.
6. Income variability has a minimum value of 0.0 and a maximum value of 6.54. The average value of income variability is 0.69, with a deviation standard of 1.48.

3.2. Determinant and Speed of Adjustment of Capital Structure

This research uses 5 free variables, they are profitability, tangibility, size, growth opportunity and income variability, which will be tested together and partially on the leverage variable and to find out the biggest contribution of the free variables to the speed of adjustment using the multiple linear regression, but before conducting the test, an econometric test will be carried out.

3.2.1. Normality Test

The results of normality test using Kolmogorov-Smirnov test are: Kolmogorov-Smirnov value is 1.219 and *Asymp. Sig* above 5% or 0.05, is equal to 0.012, which means that the residual value is distributed normally or meets the assumption of normality.

3.2.2. Multicollinearity Test

Table 2. Multicollinearity Test with VIF and tolerance

Variable	Tolerance	VIF
Profitability	0.941	1.062
Tangibility	0.893	1.119
Size	0.856	1.168
Growth Opportunity	0.918	1.089
Income Variability	0.968	1.033
Tolerance more than 0.1 *VIF less than 10*		

Table 2 shows that the value of each independent variable is more than 0.1 and the VIF value of each variable is less than 10. It shows that the data does not have any multicollinearity problem.

3.2.3. Heteroscedasticity Test

Table 3. Results of Heteroscedasticity Test with Glejser Test

Variable	Sig
Profitability	0.154
Tangibility	0.092
Size	0.768
Growth Opportunity	0.081
Income Variability	0.133
Sig > 5%	

Table 3 shows that the data of significance for the independent variable is greater than 5% or 0.05. It can be concluded that the regression does not have any heteroscedasticity problem.

3.2.4. Autocorrelation Test

The results of the autocorrelation test using Durbin-Watson statistics are a DW value of 1.886 with k = 5, n = 459, dU = 1.86449, dL = 1.82941 and 4-dU = 2.13551. Since dU < DW < 4-dU, it can be concluded that there is no autocorrelation in the regression model.

3.2.5. Regression Results

The next step after all the econometric tests have been fulfilled is conducting statistic tests on the regression model. The statistic tests consist of simultaneous test (F test), partial test (t test), and coefficient of determination test. The results are presented in Table 4.

Table 4. Statistic Test

Variable	**B**	**T**	***P-value***
Constants	-14.246	-3.349	0.001
Profitability	-0.234	-3.251	0.001
Tangibility	-0.283	-2.385	0.018
Size	5.822	4.455	0.000
GO	0.162	2.517	0.012
INCV	0.404	2.240	0.026
F-test	8.750		
P-value	0.00		
Adj R^2	0.078		

In Table 4, it can be seen that the value of F = 8.750 with a probability value of 0.00. Since the P-value is smaller than α (0.05), then it can be concluded that Ho is rejected, it means that profitability, tangibility, size, growth oppprtunity, and income variability influence the leverage.

Profitability to Leverage

From the estimation results of profitability variable, it is found that the probability value is 0.001. Since the probability value is less than 0.05 and the coefficient is negative, it can be concluded that H_0 is rejected, which means the profitability has significant negative effect on the leverage.

Tangibility to Leverage

From the estimation results of tangibility variable, it is found that the probability value is 0.018. Since the probability value is less than 0.05 and the coefficient is negative, it can be concluded that H_0 is rejected, which means the tangibility has significant negative effect on the leverage.

Size to Leverage

From the estimation results of size variable, it is found that the probability value is 0.00. Since the probability value is less than 0.05 and the coefficient is positive, it can be concluded that H_0 is rejected, which means the size has significant positive effect on the leverage.

Growth Opportunity to Leverage

From the estimation results of growth opportunity variable, it is found that the probability value is 0.012. Since the probability value is less than 0.05 and the coefficient is positive, it can be concluded that H_0 is rejected, which means the growth opportunity has significant positive effect on the leverage.

Income Variability to Leverage

From the estimation results of income variability variable, it is found that the probability value is 0.026. Since the probability value is less than 0.05 and the coefficient is positive, it can be concluded that H_0 is rejected, which means the income variability has positive significant effect on the leverage.

Coefficient of Determination

According to the results of determination test, it is found that the value of Adjusted R Square (Table 4) is 0.078. It means that the independent variables (profitability, tangibility, size, growth opportunity, and income variability) have an effect of 7.8% to the dependent variable (leverage), while the other 92.2% was influenced by other variables which are not examined in this research.

3.2.6. Calculating The Speed of Adjustment

The calculation results of the contribution of each variable to the speed of adjustment are presented in table 5.

Table 5. Calculation Results of Speed of Adjustment

	Θ	B	**Λ**
Profitability	-0.234	-0.234	1
Tangibility	-0.283	-0.283	1
Size	5.831	5.822	1.00154
GO	0.162	0.162	1
INCV	0.404	0.404	1
$(1- \lambda)\ Li_{t-1}$		-0.058	-1.058

According to the calculation results in Table 5, the size variable has the biggest contribution to the speed of adjustment, the size variable is 1.00154 times faster than the other variables and the result of -1.058 shows that the company's speed in managing its financial leverage for 9 years has decreased by 1,058 times.

3.2.7. Discussions

The test results of each variable are explained as follows:

The Effect of Profitability on Leverage

From the estimation results of profitability variable, it is found that the probability value is 0.001. Since the probability value is less than 0.05 and the coefficient is negative, it can be concluded that H_0 is rejected, which means the profitability has significant negative effect on the leverage.

It shows that the companies with high profitability rate tend to fund the companies' operational activities using internal funds. Other than the factor of risk, manufacturing companies can still make profit of 7.5% (average) which suffice to fund the companies' needs, profit addition will increase the proportion of retained earnings for the companies if they do not share dividends or if the companies' dividend policies remain (constant).

The results of this research are in accordance with Citro (2014) and Risnawati (2017) who found that profitability has a negative effect on the leverage.

The Effect of Tangibility on Leverage

From the estimation results of tangibility variable, it is found that the probability value is 0.018. Since the probability value is less than 0.05 and the coefficient is negative, it can be concluded that H_0 is rejected, which means the tangibility has significant negative effect on the leverage.

It happens because the companies which have more tangible assets tend to have low leverage, because the companies with more tangible assets are likely to have stable sources of income and there are only few opportunities for them to seek external funding. These results are in accordance to Leona's research (2016) which found that tangibility has significant negative effect on the leverage.

The Effect of Size to Leverage

From the estimation results of size variable, it is found that the probability value is 0.00. Since the probability value is less than 0.05 and the coefficient is positive, it can be concluded that H_0 is rejected, which means the size has significant positive effect on the leverage.

This supports Hanafi's (2014) statement which explained that the companies with bigger size have greater trust in getting their source of fund, since the companies with bigger size usually own high assets. Those high assets will later become collateral for the creditors if the companies are in debt, thus the companies will be easier in getting credit from external parties.

The big company size is a positive signal for creditors to provide loans, so the size has a positive influence on leverage. This corresponds to Hadi and Risnawati (2017) who found that size has significant positive effect on leverage.

The Effect of Growth Opportunity on Leverage

From the estimation results of growth opportunity variable, it is found that the probability value is 0.012. Since the probability value is less than 0.05 and the coefficient is positive, it can be concluded that H_0 is rejected, which means the growth opportunity has positive significant effect on the leverage of 5%.

It shows that higher growth opportunity rate will improve the companies' ability to obtain income and profits. Companies with a high level of growth opportunity tend to utilize greater debt than those with a low level of growth opportunity. These results are in accordance with Fauzi's research (2013) which found that growth opportunity has significant positive effect on leverage.

The Effect of Income Variability on Leverage

From the estimation results of income variability variable, it is found that the probability value is 0.026. Since the probability value is less than 0.05 and the coefficient is positive, it can be concluded that H_0 is rejected, which means the income variability has positive significant effect on the leverage.

It illustrates that the companies with with stable sources of income will always be able to fulfill their capital liabilities as a result of external capital utilization. On the other hand, companies with unstable income will bear the risk of not being able to pay the interest or their debt installments. The results of this research correspond to Abimanyu and Wirasedana (2015) who found that income variability has significant positive effect on leverage.

Biggest Contribution to Speed of Adjustment

Based on the above calculation, the biggest contribution to the speed of adjustment comes from the size variable, which is 1.00154 times faster than the other variables. So, it can be concluded that H_6 is rejected, which means that profitability does not give the biggest contribution to the speed of adjustment.

The size may give higher contribution than the other variables to the speed of adjustment, because bigger companies will own more assets to be used as collateral in debt, so those companies will be faster in adjusting the target leverage towards the optimal capital structure. Speed of adjustment can go faster if the companies are able to adjust the target leverage towards the optimal capital structure. Optimal capital structure is the balance between the balance between the benefits of tax saving and the bankruptcy cost obtained from debt.

The other variables that give less contribution to the speed of adjustment are explained as follows:

The research results show that profitability has negative effect on leverage. If the companies have high profitability, the companies do not need debt from external parties because the profit suffices the companies' funds. It means that profitability has not accelerated speed of adjustment to achieve an optimal capital structure yet.

The research results show that tangibility has negative effect on leverage. It occurs because the companies that own more tangible assets tend to have low leverage, because those companies may be able to increase their income. It means that tangibility has not accelerated speed of adjustment to achieve an optimal capital structure yet.

Growth opportunity of the companies that have the chance to grow tend to use external funds, yet they are still in a condition of having growth opportunities. The possibility that the companies have growth opportunity can accelerate the speed of adjustment, but those companies will not fully have the opportunity to grow.

Income variability of the companies with stable income will be able to pay off the companies' debt. However, the income received is not always stable. So with the revenue instability received by the company, then the income variability can also accelerate or decelerate the speed of adjustment.

4. CONCLUSIONS

Based on the results of testing using multiple linear regression, the following conclusions are obtained:

Profitability has a significant negative effect on the *leverage* variable . This shows that companies with a high level of *profitability* are more likely to fund their operational activities with internal funds rather than debt. *Tangibility* has a negative effect on the *leverage* variable . This can occur because companies that have a higher proportion of tangible assets in their asset arrangement tend to have low *leverage* , because companies with more tangible assets are likely to have a stable source of income and there are few opportunities for them to seek outside funding. *Size* has a significant positive effect on the *leverage* variable . This shows that companies with a *size* larger, have greater confidence in getting the source of funds from outside the company, as the company with the *size* that large usually have high asset. *Growth opportunity* has a significant positive effect on *leverage.* This shows that the higher the level of *growth opportunity* , the company can increase its ability to obtain company income and profits. *Income variability* has a significant positive effect on *leverage.* This shows that companies that have stable income will always be able to meet their capital obligations as a result of using external capital. On the other hand, companies with unstable income will bear the risk of not being able to pay interest or installments due to bad conditions.

For the company's *speed (speed of* adjustment) in managing its financial leverage, the highest contribution is the *size* variable . *Size* can provide the highest contribution to the *speed of adjustment* because the larger the size of the company, the more assets the company has to be used as collateral for debt. *Speed of adjustment* can move faster if the company is able to adjust the *leverage* level towards the optimal capital structure.

Further research is expected to increase the number of variables other than the variables studied in this study. Further research is expected to add other types of companies that have been listed on the IDX as research samples, so that they can reflect the reaction of investors in investing.

5. REFERENCES

Abimanyu, M. K. A., & Pradnyantha, W. W. (2015). Pengaruh Ukuran Perusahaan, Variabilitas Pendapatan dan Operating Leverage pada Industri Perbankan. *E-Jurnal Akuntansi Universitas Udayana, 11*(3), 848-862.

Almeida, H., & Campello, M. (2007). Financial Constraints, Asset Tangibility, and Corporate Investment. *The Review of Financial Studies, 20*(5), 1429-1460.

Baxter, N. D. (1967). Leverage, Risk of Ruin and The Cost of Capital. *Journal of Finance, 22*(3), 395-403.

Brigham, E. F., & Houston, J. F. (2011). *Dasar-dasar Manajemen Keuangan Terjemahan Ali Akbar Yulianto*. Jakarta: Salemba Empat.

Chandra, T. (2008). Perkembangan Teori Struktur Modal dari Modigliani-Miller, Myers, sampai Jensen. *Jurnal Manajemen Bisnis, 6*(4), 840-850.

Chipeta, C., Wolmarans, H. P., & Vermaak, F. N. S. (2012). Financial Liberalisation and The Dynamics of Firm Leverage in a Transitional Economy: Evidence From South Africa. *Journal Economic and Finance, 3*(2), 216-224.

Citro, V. D. H. (2014). Pengaruh Determinan Struktur Modal terhadap Leverage dan Speed of Adjusment Industri Pertambangan di Indonesia. *FINESTA, 2*(1), 48-55.

Culata, P. R. E., & Gunarsih, T. (2012). Pecking Order Theory and Trade-Off Theory of Capital Structure: Evidence from Indonesian Stock Exchange. *Journal The WINNERS, 13*(1), 40-49.

Fatmasari, R. (2011). The Relation between Growth Opportunity, Leverage Policy and Function of Covenant to Control the Agency Conflict Between Shareholders and Debtholders. *Buletin Ekonomi Moneter dan Perbankan, 13*(3), 307-324.

Fauzi, B. I. (2013). Pengaruh Profitabilitas, Tingkat Prtumbuhan, Ukuran Peusahaan dan Asset Tangibility tehadap Leverage Peeusahaan (Studi pada Perusahaan Manufaktur yang Tedaftar di BEI Periode 2009-2011). *Skripsi Progam Studi Manajemen*. Universitas Negeri Yogyakarta.

Febriyani, N., & Srimindarti, C. (2010). Faktor-Faktor yang Mempengaruhi Leverage pada Perusahaan-Perusahaan LQ-45 di Bursa Efek Indonesia Tahun 2006 – 2008. *Jurnal Keuangan dan Perbankan, 2*(2), 138-159.

Firnanti, F. (2011). Faktor-faktor yang Mempengaruhi Struktur Modal Perusahaan Manufatur di Bursa Efek Indonesia. *Jurnal Bisnis dan Akuntansi, 13*(2), 119-128.

Fischer, E.O., Heinkel, R., & Zechner, J. (1989). Dynamic Capital Structure Choice: Theory and Test. *Journal of Finance, 44*(1), 19-40.

Ghozali, I. (2013). *Aplikasi Analisis Multivariat dengan Program SPSS.* Semarang: Badan Penerbit Universitas Diponegoro.

Gujarati, D. N., & Porter, D. C. (2012). *Dasar-dasar Ekonometrika Buku 2*. Jakarta: Salemba Empat.

Halim, A. (2012). *Manajemen Keuangan Bisnis*. Bogor: Ghalia Indonesia.

Hanafi, M. M. (2014). *Manajemen Keuangan*. Yogyakarta: BPFE.

Harahap, S. S. (2013). *Analisis Kritis Atas Laporan Keuangan.* Jakarta: Rajawali Pers.

Indrajaya, Glen, Herlina, & Setiadi, R. (2011). Pengaruh Struktur Aktiva, Ukuran Perusahaan, Tingkat Pertumbuhan, Profitabilitas dan Risiko Bisnis Terhadap Struktur Modal: Studi Empiris Pada Perusahaan Sektor Pertambangan yang Listing di Bursa Efek Indonesia Periode 2004-2007. *Jurnal Ilmiah Akuntansi, 6*(2), 256-262.

Ismail, A., Triyono, & Achyani F. (2015). Faktor-Faktor yang Mempengaruhi Leverage pada Perusahaan Property dan Real Estate. *Jurnal Ekonomi Manajemen Sumber Daya, 17*(1), 1-7.

Jayanti, I. S. D. (2011). Pengaruh Firm Size, Earning Volatility, Assets Tangibility, Profitability, Growth dan Firm Age Terhadap Leverage (Studi Pada Perusahaan Manufaktur yang terdaftar di Bursa Efek Indonesia Periode 2005-2009). *Skripsi Fakultas Ekonomi dan Bisnis.* Universitas Sebelas Maret.

Kusmin, B. G. (2014). Pengaruh Likuiditas, Variabilitas Laba, Struktur Modal dan Rasio Profitabilitas Terhadap Beta Saham Syariah Pada Perusahaan yang Terdaftar di Jakarta Islamic Index. *Thesis Fakultas Hukum.* UPN Veteran Yogyakarta.

Leona, D. (2016). Pengaruh Profitability, Tangibility, Size, Growth dan Liquidity terhadap Leverage. *Thesis Program Studi Manajemen.* Universitas Terbuka Jakarta.

Nilmawati, C. A., & Gusaptono, R. H. (2014). Identifikasi Variabel Penentu Struktur Modal dan Adjustment to Target Capital Structure: Trade off Theory. *Jurnal Keuangan dan Perbankan*, *18*(3), 358–369.

Nugrahani, S. M. (2012). Analisis Pengaruh Profitabilitas, Likuiditas, Pertumbuhan Penjualan, Ukuran Perusahaan dan Manajerial Ownership Terhadap Struktur Modal. *Skripsi Progam Studi Manajemen.* Universitas Diponegoro Semarang.

Risnawati, R. (2017). Faktor-Faktor yang Mempengaruhi Kecepatan Penyesuaian Struktur Modal. *Skripsi Program Akuntansi.* Universitas Pendidikan Indonesia.

Riyanto, B. (2011). *Dasar-dasar Pembelanjaan Perusahaan*. Yogyakarta: BPFE.

Ryanni, M. L., & Farah, M. (2014). Faktor-faktor yang Mempengaruhi Struktur Modal pada Perusahaan Manufaktur yang Terdaftar di Bursa Efek Indonesia. *Jurnal Manajemen, 1*(1), 1-21.

Santoso, H., & Yuwono, F. (2008). Analisa Aset dan Penjualan terhadap Leverage dan Speed of Adjustment pada Perusahaan Properti yang Listing di BEI (periode 2002-2005). *Jurnal Bisnis dan Akuntansi, 2*, 224-231.

Setiawati, A. A. S. M. D., & Putra, I. W. (2015). Pengujian Trade off Theory pada Struktur Modal Perusahaan dalam Indeks Saham Kompas100. *E-Jurnal Akuntansi Universitas Udayana, 13*(3), 705-722.

Shabrina, A. (2015). Kebijakan Dividen Memoderasi Hubungan Struktur Modal dan Growth Opportunity Terhadap Nilai Perusahaan. *Skripsi.* Sekolah Tinggi Ilmu Ekonomi Indonesia.

Sugiyono. (2017). *Metode Penelitian Bisnis*. Bandung: CV. Alfabeta.

Titman, Sheridan, & Wessel, R. (1988). The Determinants of Capital Structure Choice. *The Journal of Finance, XLIII*(1), 1-19.

Utami, E. S. (2009). Faktor-Faktor yang Mempengaruhi Leverage Perusahaan Manufaktur. *Fenomena, 7*(1), 39-47.

Warmana, G. O., & Widnyana, I. W. (2017). Determinan dan Kecepatan Penyesuaian Struktur Modal Perusahaan pada Sektor Pertanian di Bursa Efek Indonesia. *AGRIMETA: Jurnal Pertanian Berbasis Keseimbangan Ekosistem*, 10-17.