



# The Effect of Profitability, Liquidity, And Working Capital on Capital Structure in Manufacturing Companies Including Multiple Industrial Sectors and Consumer Goods Industry Sector Listed on The Exchange Indonesia Effect

**Natalia Naibaho**

Department of Accounting, University of North Sumatra, Indonesia

## ARTICLE INFO

### Article history:

Received Feb 15, 2021

Revised Mar 11, 2021

Accepted Mar 30, 2021

### Keywords:

Profitability;  
Liquidity;  
Working Capital;  
Capital Structure.

## ABSTRACT

The capital structure of the company is one of the fundamental factors in the company's operations. Determination of the proportion of debt and equity in its use as a source of corporate funding is closely related to the term capital structure. This study was conducted to better understand whether there are and how big the variables profitability, liquidity and working capital affect capital structure in manufacturing companies covering various sectors of industrial and consumer goods industry sectors listed on the Stock Exchange during the period of study (2009- 2011). As described in previous studies sourced from journals and reference books that these variables affect the capital structure, so here the author tries to discuss again within different periods and different data. Sampling was done by purposive sampling method with the criteria listed in the Indonesia Stock Exchange and has complete financial statements. The study sample consists of 25 companies. Analysis using descriptive and statistical analysis (linear regression) using SPSS version 17.0. Partially, the results showed that the profitability and working capital significantly and negatively related to capital structure while the liquidity variable positive and significant impact on the capital structure of the company various industry sectors and consumer goods industry in Indonesia Stock Exchange. Simultaneously, the results showed that the variables of profitability, liquidity, and capital working together positive and significant impact on capital structure. Where the level of significance seen sig. which shows the rate < 0.05.

*This is an open access article under the [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) license.*



### Corresponding Author:

Natalia Naibaho,  
Department of Accounting,  
University Of North Sumatra, Indonesia,  
Jl. Dr. Mansur No. 9 Padang Bulan, Kec. Medan Baru, Kota Medan 20222.  
Email: natalianaibaho@gmail.com

## 1. INTRODUCTION

One of the important decisions faced by financial managers in relation to the company's operations is funding decisions or capital structure decisions, namely a financial decision related to the composition of debt, both long-term debt and short-term debt, preferred stock, and common stock to be issued. used by the company.

Managers must be able to raise funds both from within the company and from outside the company efficiently. Companies must have the right funding decisions, where there needs to be a manager's role in determining the most optimal capital structure. The optimal capital structure of the company will be able to minimize the cost of capital that must be borne by the company.

Determining the capital structure for a company is one form of important financial decisions, because this decision can affect the achievement of the company's financial management objectives. The main objective of capital structure management is to create a mix or combination of permanent sources of expenditure in such a way as to maximize the company's share price. In order to achieve the objective of capital structure management, the mechanism that can be used is to create a spending mix in such a way as to minimize the cost of capital and maximize firm value. The ideal spending mix that is always strived to be achieved is called the optimal capital structure (Warsono, 2003: 238).

Capital structure can be measured by the ratio of total debt to equity which is usually measured by the debt to equity ratio (DER). Therefore, the capital structure is proxied by the debt to equity ratio (DER), which is the ratio of total debt to equity. The higher this ratio, the greater the risk faced, and investors will demand a higher level of profit. A high ratio also indicates a low proportion of own capital to finance assets. In addition, creditors also assume that there is a big risk from the company so that creditors can only provide large enough interest, so that the company's ability to get money from outside sources is limited.

the average value of the debt to equity ratio (DER) in 2009-2011 manufacturing companies covering the various industrial sectors and the consumer goods industrial sector listed on the Indonesia Stock Exchange was below one, which was 0.789, 0.737 and 0.685. using funds for investment activities from their own capital.

With the average value of DER decreasing from year to year, namely in 2009 of 0.789, 2010 of 0.737 and 2011 of 0.685, which is below one each year, it means that the company has a smaller amount of debt than the amount of its own capital and this is in accordance with the theory. optimal capital structure where the amount of debt should not be greater than own capital.

## **2. RESEARCH METHOD**

This type of research is hypothesis testing. This study will test the hypothesis regarding the effect of profitability, liquidity, and working capital on the capital structure of manufacturing companies covering the various industrial sectors and the consumer goods industrial sector listed on the Indonesia Stock Exchange in the period 2009 to 2011 either partially or simultaneously.

### **2.1 Multicollinearity Test**

The multicollinearity test aims to test whether the regression model found a correlation between the independent variables (independent). A good regression model should not have a correlation between independent variables. If there is independent correlation with each other, then these variables are not orthogonal. Orthogonal variables are independent variables whose correlation values between independent variables are equal to zero (Ghozali, 2006:91). "This test is needed because it is to find out whether there are independent variables that have similarities with other independent variables in one model" (Fatma, et al, 2007:32).

#### **a. Heteroscedasticity Test**

The heteroscedasticity test aims to test whether there is inequality in the regression model variance from the residual of one observation to another observation. If the residual variance from one observation to another observation remains, it is called homoscedasticity and if it is different it is called heteroscedasticity. A good regression model is homoscedasticity or there is no heteroscedasticity (Ghozali, 2006:105). "The homoscedasticity test in principle wants to test whether a group has the same variances among members of the group" (Helmi, et al, 2008:63).

#### **b. Autocorrelation Test**

The autocorrelation test aims to test whether in the linear regression model there is a correlation between the confounding error in period  $t$  and the error in period  $t-1$  (previous). If there is a correlation, it is called an autocorrelation problem. Autocorrelation arises because successive

observations over time are related to each other. This problem arises because the residual (interference error) is not independent from one observation to another. This is often found in time series data because the "bully" in an individual/group tends to affect the "disruption" in the same individual/group in the next period (Ghozali, 2006:95).

### c. Hypothesis test

- 1) Partial Test with T-Test. "T-test aims to determine the magnitude of the influence of each independent variable individually (partial) on the dependent variable" (Fatma, et al, 2007:51).
- 2) "To test whether the proposed hypothesis is accepted or rejected, the t statistic (t test) is used. If  $t_{\text{calculate}} < t_{\text{table}}$ , then  $H_0$  is accepted or  $H_a$  is rejected, whereas if  $t_{\text{count}} > t_{\text{table}}$ , then  $H_0$  is rejected and  $H_a$  is accepted. If the significance level is below 0.05, then  $H_0$  is rejected and  $H_a$  is accepted" (Helmi, et al, 2008:115).
- 3) Simultaneous Test with F-Test. "The results of the F-test can be seen from the regression results in the ANOVA table. The results of the F-test show that the independent variables jointly affect the dependent variable" (Fatma, et al, 2007: 50).

The F statistical test basically shows whether all independent or independent variables included in the model have a joint effect on the dependent/bound variable (Ghozali, 2006:84).

To test whether the proposed hypothesis is accepted or rejected, the F statistic (F test) is used. If  $F_{\text{count}} < F_{\text{table}}$ , then  $H_0$  is accepted or  $H_a$  is rejected, while if  $F_{\text{count}} > F_{\text{table}}$ , then  $H_0$  is rejected and  $H_a$  is accepted. If the significance level is below 0.05 then  $H_0$  is rejected and  $H_a$  is accepted (Helmi, et al, 2008:114).

### d. Coefficient of Determination (R<sup>2</sup>)

The coefficient of determination (R<sup>2</sup>) essentially measures how far the model's ability to explain variations in the dependent variable is. The value of the coefficient of determination is between zero and one. A small value of R<sup>2</sup> means that the ability of the independent variables in explaining the variation of the dependent variable is very limited. A value close to one means that the independent variables provide almost all the information needed to predict the variation of the dependent variable (Ghozali, 2006:83).

### e. Multiple Linear Regression Method

"Multiple linear regression is intended to determine the linear relationship between several independent variables commonly called X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub> and so on with the dependent variable called Y" (Helmi, et al, 2008: 109).

## 3. RESULTS AND DISCUSSIONS

### 3.1 Descriptive statistics

**Table 1.** Descriptive Results  
Descriptive Statistics

	N	Range	Minimum	Maximum	mean	Std. Deviation	Variance
	Stati	Statistics	Statistics	Statistics	Statistics	Statistics	Statistics
	stics				Std. Error		
DER	75	2.8307715	.1626130	2.9933846	.737005025	.0776178771	.6721905336
ROA	75	.9126994	-.4205483	.4921510	.080639878	.0146039843	.1264742141
Current Ratio	75	30334107	47647	30381754	2376054.36	577992.393	5005560.956
Working Capital	75	27122615	-10275180	16847435	725824.21	421477.654	3650103552
Valid N (listwise)	75						1.332E13

The total number of data processed is 75 which is indicated by the value of N. The Range column shows the range of each variable. The minimum column shows the minimum value of each variable and the maximum column shows the maximum value. Mean Statistics is the average and

standard error of each variable. Std. Deviation shows the standard deviation of each variable and variance shows the variance or variance.

Example: the average ROA value (with a total of 75 data) is 0.080639878 with a maximum value of 0.4921510 and a minimum value of -0.4205483, resulting in a range of 0.9126994 (max - min).

### 3.2 Classical Assumption Test

To test the hypothesis, multiple linear regression analysis will be used. A good regression model is a regression model that meets the classical assumptions so that the parameter estimation will be BLUE (Best Linear Unbiased Estimation), then it will first be tested whether there is a deviation from the assumptions.

#### a. Normality Test

Normality test aims to test whether in the regression model, the confounding or residual variables have a normal distribution. The t-test and F-test assume that the residual value follows a normal distribution. If this assumption is violated, then the statistical test becomes invalid for a small sample size. There are two ways to detect whether the residual has a normal distribution or not, namely by graphical analysis and statistical tests.

#### b. Graph Analysis

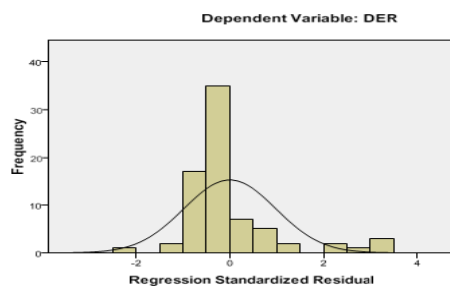


Figure 1. Histogram

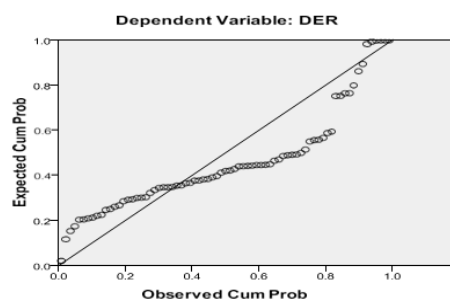


Figure 2. Normal PP Plot of Regression Standardized Residual

In principle, normality can be detected by looking at the spread of data/points on the diagonal axis of the graph or by looking at the histogram of the residuals. The regression model is said to meet the assumption of normality if the data spreads around the diagonal line or histogram graph.

By looking at the histogram graph display which is slightly skewed to the left, it can be concluded that the histogram graph provides an abnormal distribution pattern. Meanwhile, the normal plot graph shows that the points spread far around the diagonal line, and the distribution does not follow the direction of the diagonal line. The two graphs above show that the regression model is not feasible to use because it does not meet the assumption of normality.

However, the residual normality test with graphs can be misleading if you are not careful. Visually it looks normal, but statistically it can be normal and vice versa. Therefore, in addition to using a graphical test, it should be equipped with a statistical test. Especially in this case, it looks abnormal, because the data is small (n=75).

**Table 3.** Normality Test  
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		75
Normal Parameters <sup>a,b</sup>	mean	.0000000
	Std. Deviation	.34054795
Most Extreme Differences	Absolute	.175
	Positive	.175
	negative	-.165
Kolmogorov-Smirnov Z		1,519
asympt. Sig. (2-tailed)		.120
Test distribution is Normal. Calculated from data.		

The value of Kolmogorov-Smirnov is 1.519 with a significance level above 0.05, which is 0.120. In other words, the KS value is not significant, meaning that the residuals are normally distributed.

### c. Multicollinearity Test

The multicollinearity test aims to test whether in the regression model there is a high or perfect correlation between the independent variables. If there is perfect multicollinearity between independent variables, then the regression coefficient of the independent variable cannot be determined and the standard error value becomes infinity. If the multicollinearity between the independent variables is high, the regression coefficient of the independent variable can be determined, but having a high standard error value means that the regression coefficient cannot be estimated correctly.

**Table 3.** Coefficients Multicollinearity Test<sup>a</sup>  
Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations		Collinearity Statistics		
	B	Std. Error				Zero-order	Partial	Part	Tolerance	VIF
(Constant)	.762	.071		10,690	.000					
ROA	-1.452	.441	-.273	-3.296	.002	-.313	-.364	-.271	.984	1.016
Current Ratio	9.885E-8	.000	.736	5.335	.000	-.155	.535	.439	.356	2.812
Working Capital	-1.971E-7	.000	-1.070	-7.758	.000	-.512	-.677	-.638	.356	2.812

The table above shows that the VIF value of each ROA (1.016), current ratio (2.812) and working capital (2.812) is much smaller than 10 and the value of Tolerance ROA (0.984), current ratio (0.356) and working capital (0.356) is greater than 0.10, it can be concluded that there is no multicollinearity in the model.

### d. Effect of Profitability on Capital Structure

Partially that variable X1 (profitability) to Y (capital structure) can be seen from the results of the T test, with the t-count value smaller than t-table, namely -3.296 < -1.99. And the significance value is less than 0.05, which is 0.002. These results indicate that H1 is accepted and H0 is rejected where the variable X1 (profitability) has a negative and significant effect on Y (capital structure).

This means that the higher the resulting profitability, the lower the capital structure. This condition indicates that management's decision to reduce the use of debt when the resulting profitability (ROA) is high. This situation is in accordance with the concept of pecking order theory, where management chooses financing from within to increase its capital needs. The use of debt will only be carried out if the financing from within is not sufficient to cover the required capital requirements.

#### e. Effect of Liquidity on Capital Structure

Variable X2 (liquidity) to Y (capital structure) can be seen from the results of the T test with a t-count value of 5.335 and a t-table of 1.99, so t-count > t-table, and a significance value of 0.000 which is less than 0, 05 so that these results indicate that H1 is accepted and H0 is rejected which means that the variable X2 (liquidity) has a positive and significant effect on Y (capital structure) partially in manufacturing companies including the various industrial sectors and the consumer goods industrial sector listed on the Indonesia Stock Exchange.

#### f. Effect of Working Capital on Capital Structure

Partially that variable X3 (working capital) to Y (capital structure) can be seen from the results of the T test, with the value of t count smaller than t table that is  $-7.758 < -1.99$ . And the significance value is less than 0.05, which is 0.000. These results indicate that H1 is accepted and H0 is rejected, which means that the variable X3 (working capital) has a negative and significant effect on Y (capital structure) in manufacturing companies including the various industrial sectors and the consumer goods industrial sector listed on the Indonesia Stock Exchange.

#### g. Simultaneously

Simultaneously from the results of testing the variable X1 (profitability), X2 (liquidity), and X3 (working capital) have a significant effect on variable Y, namely capital structure. As shown by the number of calculated F is greater than F table, namely Fcount of 25.579 and Ftable of 2.73, then H1 is accepted and H0 is rejected, with a significance level of  $0.000 < 0.05$ . So that it can be interpreted that the independent variables of profitability, liquidity, and working capital have a positive and significant influence on changes in capital structure.

## 4. CONCLUSION

Based on the results of testing hypothesis 1, it shows that partially X1 namely profitability (ROA) has a negative and significant effect to Y, namely the capital structure (DER). This shows that companies with high returns on ROA investments will use relatively small debt.

The results of testing hypothesis 2 show that partially X2 that is liquidity (current ratio) has a positive and significant effect on Y, namely the capital structure (DER). So the greater the liquidity ratio means the more liquid the company is.

The results of testing hypothesis 3 show that partially X3 that is working capital (working capital) has a negative and significant effect on Y, namely the capital structure (DER). This shows that company managers are trying to do good management in the company's operations to improve the company's capital structure.

The results of testing hypothesis 4 show that all independent variables (X1, X2, X3) namely profitability (ROA), liquidity (current ratio), and working capital together (simultaneously) have a positive and significant influence on Y, namely the capital structure (DER). This means that if the three variables increase together, it will increase the capital structure (DER).

## REFERENCES

- Arifin, Zeanal, 2005. *Teori Keuangan dan Pasar Modal*, Edisi 1, Ekonisia, Yogyakarta.
- Brealey dan dkk, 2006. *Dasar-Dasar manajemen Keuangan Perusahaan*, Erlangga, Jakarta.
- Brigham, Eugene dan Houston, 2001, *Manajemen Keuangan*, Edisi 8, Erlangga, Jakarta.
- Djarwanto, Ps, 2004. *Pokok-Pokok Analisis Laporan Keuangan*, Edisi 2, BPFE, Universitas Gadjah Mada, Yogyakarta.

- Dwi, Sri, 2010. *Manajemen Keuangan Lanjut*, Edisi 1, Graha Ilmu, Yogyakarta. Ghozali, Imam, 2006. *Apliasi Analisis Multivariance dengan Program SPSS*, Edisi Ketiga, Badan Penerbit Universitas Diponegoro, Semarang.
- Gitosudarmo, Indriyo dan Basri, 2002, *Manajemen Keuangan*, Edisi 4, BPFE, Universitas Gadjah Mada, Yogyakarta.
- Hafitz, Azlan, 2012. *Pengaruh Firm Size, Growth Opportunity, Liquidity, dan Profitability terhadap Struktur Modal Perusahaan Otomotif yang terdaftar di BEI*, Skripsi, Universitas Sumatera Utara, Medan.
- Halim, Abdul, 1999. *Manajemen Keuangan: Dasar-Dasar Pembelanjaan Perusahaan*, Edisi 1, BPFE, Universitas Gadjah Mada, Yogyakarta.
- Hamidi, 2007. *Metode Penelitian dan Teori Komunikasi*, Umm Press, Malang.
- Harmono, 2011. *Manajemen Keuangan: Berbasis Balanced Scorecard Pendekatan Teori, Kasus, dan Riset Bisnis*, Cetakan 2, Bumi Aksara, Jakarta.
- Horne, James dan Wachowicz, 2007. *Prinsip-Prinsip Manajemen Keuangan*, Edisi 12, Salemba Empat, Jakarta.
- Kasmir, 2008. *Analisis Laporan Keuangan*, Edisi 1, Rajawali Pers, Jakarta
- \_\_\_\_\_, 2010. *Pengantar Manajemen Keuangan*, Edisi 1, Kencana, Jakarta. Lubis, Ade Fatma, Arifin Akhmad dan Firman Syarif, 2007. *Aplikasi SPSS untuk Penyusunan Skripsi & Tesis*, Edisi 1, USU Press, Medan.
- Margaretha, Farah dan Aditya Rizky Ramadhan, 2010. *Faktor-faktor yang Mempengaruhi Struktur Modal di BEI*, Jurnal, Universitas Trisakti, Jakarta.
- Martono dan Agus, 2001. *Manajemen Keuangan*, Edisi 1, Ekonisia, Yogyakarta.
- Mavis, 2012. *Analisis Pengaruh Pertumbuhan Perusahaan, Kebijakan Dividen, Profitabilitas, Risiko Bisnis dan Free Cash Flow terhadap Struktur Modal Perusahaan Manufaktur yang Terdaftar di BEI*, Skripsi, Universitas Sumatera Utara, Medan.
- Nababan, Ewin, 2011. *Pengaruh Profitabilitas, Pertumbuhan Penjualan, dan Struktur Asset terhadap Struktur Modal pada Perusahaan Manufaktur yang Terdaftar di BEI*, Skripsi, Universitas Sumatera Utara, Medan.
- Sartono, Agus, 2010. *Manajemen Keuangan: Teori dan Aplikasi*, Edisi 4, BPFE, Universitas Gadjah Mada, Yogyakarta.
- Situmorang, Manatap, 2010. *Pengaruh Struktur Aktiva, Profitabilitas dan Ukuran Perusahaan terhadap Struktur Modal pada Perusahaan Manufaktur yang Terdaftar di BEI*, Skripsi, Universitas Sumatera Utara, Medan.
- Situmorang, Syafrizal Helmi, dan dkk, 2008. *Analisis Data Penelitian: Menggunakan Program SPSS*, Edisi 1, Usu Press, Medan.
- Sjahrial, Dermawan, 2009. *Manajemen Keuangan*, Edisi 3, Mitra Wacana Media, Jakarta.
- Sudana, I Made, 2011. *Manajemen Keuangan Perusahaan: Teori dan Praktik*, Erlangga, Jakarta.
- Sundjaja, Ridwan S dan Inge, 2002, *Manajemen Keuangan Satu*, Edisi 4, Intan Sejati, Jakarta.
- \_\_\_\_\_, 2003, *Manajemen Keuangan Dua*, Edisi 4, Intan Sejati, Jakarta. Sutrisno, 2000. *Manajemen Keuangan: Teori, Konsep dan Aplikasi*, Edisi 1, Ekonisia, Yogyakarta.
- Syahyunan, 2004. *Manajemen Keuangan I*, Edisi 1, Usu Press, Medan.
- Warsono, 2003. *Manajemen Keuangan Perusahaan*, Edisi 3, Bayumedia Publishing, Malang.
- Weston, Fred dan Brigham, 1994. *Manajemen Keuangan*, Edisi 9, Erlangga, Jakarta.