



Factors Affecting the Capital Structure Of Manufacturing Companies In The Basic Industry and Chemical Sub-Sector Listed On the Indonesia Stock Exchange for the 2017-2019 Period

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ABSTRAK

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This study aims to discuss whether the capital structure, firms size, dividend payout ratio and sales growth affect the company's capital structure. The companies used in the study are Manufacturing companies on the Indonesia Stock Exchange. The data analysis method used is the classical assumption test and multiple linear analysis. Based on the results of the analysis, it is stated that the firms size has a negative effect, while the capital structure, dividend payout ratio and sales growth have no significant effect on the company.

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1. Introduction

Over time, the development of the business world has been very rapid. This makes all companies compete to excel their company. Capital becomes so meaningful for the company to carry out operations and develop its business. This capital can be in the form of debt or personal capital. Mistakes in determining the capital structure will have fatal consequences, for example, the size of the company is too large so that it requires high costs and forces the company to increase its debt

In determining the distribution of each component of the assets, a balance can be made between fixed assets and total assets owned by the issuer. The high asset structure of the company increases the company's ability to guarantee its long-term liabilities. The use of debt or external capital is usually used by an issuer that has an asset structure to finance its needs.

High sales levels and can also increase sales volume, thus requiring higher production capacity. Therefore the company uses debt and hopes to increase production capacity, in order to equalize its large sales capacity. Companies with sufficient internal funds are companies whose dividend payments are routine, so that the *dividend* payout ratio is an illustration of investors to invest in a company.

There are several gaps (GAP) from previous researchers, for example, related to asset structure, where Naibaho's previous study (2015) noted that asset structure has an influence on capital structure. Meanwhile, Widodo (2013) explains that asset structure has a significant negative effect on debt.

Kanita and Hendryadi (2017); Widyaningrum (2015) explains that *firm size* has a significant effect on capital structure. In contrast to what was researched by Sari (2014), it was proven that the dividend payout did not contribute to the capital structure. Meanwhile, according to Sumani, (2012) concludes that the DPR has an effect on the *capital structure*.

Furthermore, related to sales growth, Mardinawati (2011) and Santika and Sudiyatno (2011) explain that when sales growth increases, it will make it easier for issuers to get debt. So that sales growth is in line with the capital structure. In a different direction, Lawi (2016) explains that the absence of an increase in sales does not affect sales growth on the capital structure.

The capital structure of basic industrial and chemical manufacturing companies listed on the IDX for the 2017-2019 period is as follows:



Tabel 1
Phenomenon Table

No.	Issuer Code	Year	Fixed assets (IDR / million)	Assets (IDR / million)	Dividend (IDR / million)	Profit (IDR / million)	Debt (IDR / million)
1.	ARNA	2017	861.156	1.601.346	36.919	122.183	571.946
		2018	825.318	1.625.905	88.406	158.207	556.309
		2019	832.281	1.799.137	177.715	217.675	622.355
2.	INTP	2017	159	288	341	185	430
		2018	154	277	257	114	456
		2019	1.487	2.770	202	183	462
3.	IGAR	2017	116.769	513.022	3.888	73.376	71.075
		2018	154.006	570.197	4.858	44.672	87.283
		2019	171.020	617.594	6.638	60.836	80.669

2. Literature Review

2.1 Theory of the Effect of Asset Structure on Capital Structural

- Where if fixed assets increase, the use of debt will increase p ula, making the asset structure affect the capital structure (Widyaningrum 2015).
- According to Natalia (2015), explaining the asset structure has a significant relationship. Therefore, it is possible for the issuer to obtain funds through debt.
- According to Sari (2015), it shows that the asset structure cannot take into account the amount of capital structure because the industry is concerned about using its assets and not to limit the threat of debt.

2.2 The Theory of the Effect of Firm Size on Capital Structure

- Sheikh and Wang (2011), the bigger the *firm size*, the bigger the funds needed by the company to fulfill all its activities.
- The *size of the company* is seen from *equity*, firm value and company *asset value* (Riyanto, 2013: 313).
- According to Meutia (2016), explaining that *Firms Size* affects the capital structure. Because a large *firm size* becomes the benchmark for companies to obtain loans.

2.3 Theory of Effect of Dividend Payout on Mode Structure I

- DPR is the percentage of *net income after tax* given to shareholders as dividends. This high ratio reduces retained earnings in order to spend investment by the company (Sudana, 2011: 167).
- The DPR is a reflection of the distribution of dividends on net income (Murhadi 2013: 65).
- Jusriani (2013) explains that the DPR is the percentage of dividends that are given to shareholders from *net income after tax*. The calculation of the DPR is carried out by comparing dividends and net income and presented as a percentage. The high percentage of the DPR provides big profits for investors but *internal finance* will weaken because it reduces retained earnings.

2.4 The Theory of the Effect of Sales Growth on Capital Structure

- The growth ratio is the ratio of calculating the amount of expertise of an issuer to protect its level in the industry and the progress of trading as a whole. This scale can be seen from the aspects of sales, *earning after tax*, and profits, dividends and stock prices (Fahmi, 2014: 82)
- Firm value and stock price can be influenced by the company's growth rate calculated through sales growth. Because the company's growth is a good sign for the company's growth so that it gets good views by investors (Kusumajaya, 2011).
- According to Heriyani (2011), the high level of company growth will require more funds to increase sales growth, which causes excessive use of debt.

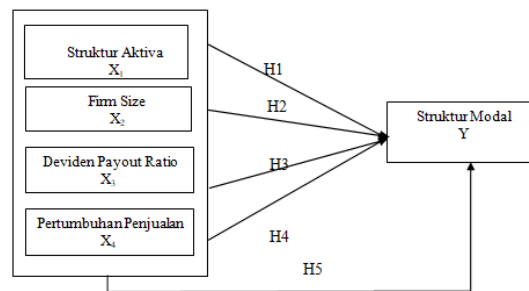


Fig 1 Conceptual Framework

The hypotheses in this study are:

- H₁ : It is assumed that the Asset Structure partially has a significant effect on the Capital Structure.
- H₂ : It is assumed that the Firm Size partially has a significant effect on the Capital Structure.
- H₃ : It is suspected that the dividend payout ratio partially affects the capital structure.
- H₄ : It is assumed that sales growth partially has a significant effect on capital structure.
- H₅ : It is suspected that capital structure, firm size, dividend payout ratio and sales growth have a simultaneous effect on capital structure.

3. Research Methods

This researcher carried out his research on industrial sector manufacturing companies on the IDX for the 2017-2019 period at <https://www.idx.co.id>. The study used a quantitative research model in the form of statistical analysis and expressed in numbers. The research method was carried out on certain populations and samples using observation instruments.

**Table 2
Description Sample Of Criteria**

No.	Criteria	Amount
1	Basic industrial sector and chemical manufacturing companies listed on the IDX for the 2017-2019 period	68
2	The company did not issue financial statements for the 2017-2019 period	(14)
3	The company is not profitable for the 2017-2019 period	(18)
4	Companies that do not distribute dividends for the 2017-2019 period	(18)
Number of Samples		18
Number of research samples (18 x 3 years)		54

3.1 Operational Definition of Research Variables

1. Asset Structure (X₁)

Asset structure is a comparison of *fixed assets* and *total assets* (Riyanto, 2011). The indicators are :

$$\text{Fixed Asset Ratio} = \frac{\text{Fixed Asset}}{\text{Total Asset}}$$

2. Firm Size (X₂)

According to Werner R. Muhadi (2013), *Firm Size* is a symbol that can be determined from natural logs with the aim of reducing excess data fluctuations. The indicators are



$$\text{Firm Size} = \ln(\text{Total Aset})$$

3. Dividend Payout (X_3)

According to Mamduh and Abdul (2012: 83), the DPR determines how much profit can be retained as an allocation of funds. The amount of retained earnings means the amount of profit allocated for the payment of small dividends. The indicators are:

$$\text{DPR} = \frac{\text{Dividen per Lembar}}{\text{Earning per Lembar}}$$

4. Sales Growth (X_4)

The ability to develop sales and compared to total sales is sales growth (Kamsir, 2016). The indicators are:

$$\text{Sales Growth} = \frac{\text{Sales}_t - \text{Sales}_{t-1}}{\text{Sales}_{t-1}}$$

5. Capital Structure (Y)

According to Fahmi (2014: 185), the capital structure measured from all debt with own capital used in the *capital structure* is as follows:

$$\text{Capital Structure} = \frac{\text{Current Liabilitas} + \text{Long term Liabilitas}}{\text{Shareholder's equity}}$$

3.2 Classic Assumption Test

1. Normality Test

Shows whether or not there are confounding *variables* in the regression and whether the data is normally distributed by means of graphical and statistical analysis (Ghozali, 2016: 154-158)

2. Multicollinearity Test

This test shows the occurrence of multicollinearity or not between the independent variables (Ghozali, 2016: 103)

3. Autocorrelation Test

This test is carried out to prove whether or not there is a correlation between confounding errors in the $t - 1$ period in the linear regression model (Ghozali, 2016: 107-108).

4. Heteroscedasticity Test

This test proves whether heteroscedasticity in the regression model is different from one observation to another (Ghozali, 2016: 134-139).

3.3 Research Data Analysis Model

a. Multiple Regression Analysis

Aiming to see the results of the independent and dependent variables with the multiple linear analysis formula, namely:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e$$

Where :

- Y = Capital Structure
- a = Constant
- b_1, b_2, b_3, b_4 = regression coefficient
- X_1 = Growth Opportunity variable
- X_2 = Firm Size variable
- X_3 = Variable Dividend Payout Ratio
- X_4 = Sales Growth Variable
- e = Error / level of error

b. Determination Coefficient Test (R2)

This test assesses the ability of the *independent variable* to explain the *dependent variable* with its R2, namely zero and one. *The dependent variable*, which is almost all the information needed to predict the *independent variable*, is a value close to one (Ghozali, 2016: 95).

c. Simultaneous Test (Test F)

The F test explains simultaneously that all *independent variables* can have an effect on the *dependent variable*. if F count is greater than F table, then *the independent variable* simultaneously affects the *dependent variable* (Ghozali, 2016: 171).

d. Partial Test (t test)

The t test explains individually the effect of the *independent variable* on the *dependent variable*. if t is greater than t table, then *the independent variables* are individually influence *the dependent variable* (Ghozali, 2016: 171).

4. Result and Discussion

4.1. Descriptive statistics

Table 3
Research Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Struktur	54	.11458	.72983	.3578413	.15845510
Firm	54	.12011	6.87547	3.1236899	2.29778036
DPR	54	.01400	2.24869	.6098790	.58672439
PP	54	.00941	14.75772	.8879629	2.17200582
Valid N (listwise)	54				

Source : Output SPSS Tahun 2020

It can be concluded that:

1. The capital structure variable has a minimum value of 0.729829329 for PT Fajar Surya Wisesa Tbk., A maximum value of 0.114578694 for PT Lion Mentari Airlines Tbk., A *mean* value of 0.3578413 and a standard deviation of 0.15845510.
2. The Firm Size variable has a minimum value of 6,875474155 for PT Ekadharma International Tbk., A maximum value of 0.12010572 for PT Pelangi Indah Canindo Tbk., A *mean* value of 3.1236899 and a standard deviation of 2.29778036.
3. The Dividend Payout Ratio variable has a minimum value of 0.835147705 for PT Impack Pratama Industri Tbk., A maximum value of 0.01399615 for PT Tridomain Performance Materials Tbk., A *mean* value of 0.6098790 and a standard deviation of 0.58672439.
4. The sales growth variable has a minimum value of 14.75772288, namely at PT Waskita Beton Precast Tbk., The maximum value is 0.00941139 Impack Pratma Industri Tbk, the *mean* value is 0.8879629 and the standard deviation is 2.17200582.

4.2 Classical Assumption Test Results

4.2.1 Nomality Test

1. Statistic Test

Table 4
Normality Test Results after Transformation

One-Sample Kolmogorov-Smirnov Test	
	Unstandardized Residual
N	54



Normal Parameters ^{a,b}	Mean	0E-7
	Std. Deviation	.35042531
Most Extreme Differences	Absolute	.071
	Positive	.071
	Negative	-.057
Kolmogorov-Smirnov Z		.522
Asymp. Sig. (2-tailed)		.948

a. Test distribution is Normal.
b. Calculated from data.

Source : Output SPSS Tahun 2020

Table 4 shows the significant value $0.948 > 0.05$ then the data can be said to be normal.

2. Grafic Test

a. Histogram Graph

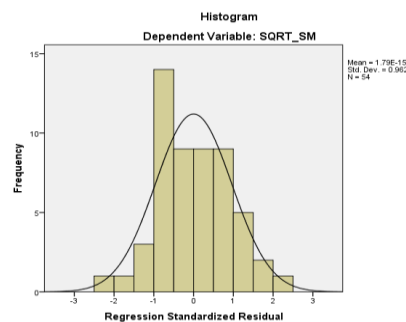


Fig 2 Histogram After Transformation

Figure 2 shows that the distribution of the data still follows the diagonal line centered in the middle (not right or left)

b. Normal Probability Plot

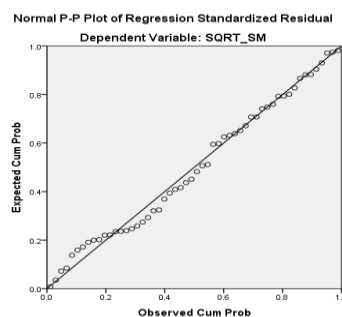


Fig 3 Normal P-Plot of Regression After Transformation

From the PP Plot graph, it can be a graph after data transformation is carried out, the image shows that the points have been spread along the diagonal line. This indicates that it is normally distributed. Different ways to understand normally distributed data or detect normality can also be done by means of the *Kolmogorov Smornov test*, which if the significant value is > 0.05 , the data is said to be normal .

4.2.2 Multicollierity Test

Multicollinearity testing shows whether a relationship is found between the independent variables. The multicollinearity test is carried out by paying attention to the *Tolerance* and *variance inflation factor* . Through a comparison of the *Tolerance* value > 0.1 and the VIF value < 10 .

Table 5
Multicollierity Test After transformation

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
1		
SQRT_Struktur	.925	1.081
SQRT_Firm	.876	1.142
SQRT_DPR	.917	1.091
SQRT_PP	.986	1.014

Source : Output SPSS Tahun 2020

Based on the analysis of the results of the multicollinearity test, the tolerance value of the four variables is > 0.10 and the VIF is <10. Then it can be concluded that this study is free from multicollinearity.

4.2.3 Heteroscedasticity Test

Table 6
Autocorrelation Test Results After Transformation

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.419 ^a	.176	.108	.36445	2.052

a. Predictors: (Constant), SQRT_PP, SQRT_Struktur, SQRT_DPR, SQRT_Firm
b. Dependent Variable: SQRT_SM

Sumber : Output SPSS Tahun 2020

Table 6 shows the value of which 2,052 on the table DW DW K = 4 and n = 18 great value dl = 1.4069 and du = 1.7234; 4-du = 2.2766. With *Durbin Watson* , du <dw <4-du = 1.7234 <2.052 <2.2766. Thus there is no autocorrelation.

4.2.4 Heteroscedasticity Test

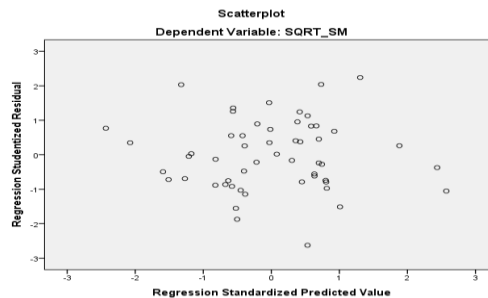


Fig 4 Heteroscedasticity Test after Transformation

Figure 4 shows Figure scattered randomly and can conclude that the occurrence of heteroscedasticity .

4.3 Data Analysis and Research

4.3.1. Multiple Linear Regression Analysis Test Results



Table 7
Moderation Regression Analysis Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
	(Constant)	1.157	.316		3.668	.001
1	SQRT_Struktur	.142	.375	.051	.379	.706
	SQRT_Firm	-.165	.077	-.299	-2.156	.036
	SQRT_DPR	-.290	.152	-.258	-1.903	.063
	SQRT_PP	.128	.085	.196	1.504	.139

Source : Output SPSS Tahun 2020

From the table above, conclusions are drawn from multiple linear regression analysis, namely: $Y = 1.157 + 0.142X_1 - 0.165X_2 - 0.290X_3 + 0.128X_4 + e$

- a. The constant value is 1.157, which means that the variable Asset Structure, Firm Size, Dividend Payout Ratio, and Sales Growth = 0, therefore the value of Capital Structure will be 1.157.
- b. The *regression coefficient* value of positive asset structure is 0.142. This shows that if there is an additional value to the asset structure, the value of the Capital Structure is 0.142 and if other variables are assumed to be zero.
- c. The *regression coefficient* value of the Asset Structure is *negative*, namely -0.165. This shows that if there is an additional value to the asset structure, the value of Capital Structure is 0.165 and if other variables are assumed to be zero.
- d. The *regression coefficient* value of the Asset Structure is *negative*, namely -0.290. This shows that if there is an additional value to the asset structure, the value of the Capital Structure is 0.290 and if other variables are assumed to be zero.
- e. The *regression coefficient* value of positive asset structure is 0.128. This shows that if there is additional value to the asset structure, the value of Capital Structure is 0.128 and if other variables are assumed to be zero.
- f. struktur aktiva maka nilai Struktur Modal 0.128 dan apabila variabel lain diasumsikan nol.

4.3.2 Test The coefficient of determination (R²)

Tabel 8
Adjusted R Square Test Result

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.419 ^a	.176	.108	.36445	2.052

a. Predictors: (Constant), SQRT_PP, SQRT_Struktur, SQRT_DPR, SQRT_Firm
b. Dependent Variable: SQRT_SM

Based on Table 8, the R² value is 0.108. meaning that 10.8% of the independent variables of the capital structure are described from the independent variables (Asset Structure, Firm Size, Dividend Payout Ratio, Sales Growth) the remaining 89.2% is influenced by other variables

4.3.3 Simultaneous Significance Test (Test F)

Table 9
F test Results

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.388	4	.347	2.612	.047 ^b

Residual	6.508	49	.133
Total	7.896	53	

a. Dependent Variable: SQRT_SM
 b. Predictors: (Constant), SQRT_PP, SQRT_Struktur, SQRT_DPR, SQRT_Firm

Based on Table 9, it shows that the F test shows that $F_{count}(2.612) < F_{table}(2.56)$ is significant at $0.047 \leq 0.05$, which means that the variables of Capital Structure, Firm Size, Dividend Payout Ratio and Sales Growth have a simultaneous effect on Capital Structure

4.3. 4 Partial Significance Test (T Test)

Table 10
T Test Results

Model	Unstandardized Coefficients		Coefficients ^a		Sig.	Collinearity Statistics	
	B	Std. Error	Standardized Coefficients Beta	t		Tolerance	VIF
	(Constant)	1.157	.316		3.668	.001	
1	SQRT_Struktur	.142	.375	.051	.379	.706	.925
	SQRT_Firm	-.165	.077	-.299	-2.156	.036	.876
	SQRT_DPR	-.290	.152	-.258	-1.903	.063	.917
	SQRT_PP	.128	.085	.196	1.504	.139	.986

a. Dependent Variable: SQRT_SM

Source : Output SPSS Tahun 2020

In Table 10, it is known that the results of the statistical test are as follows.

- Asset structure $t_{count}(0.379) < t_{table}(1.67655)$ with a significant $(0.706) > (0.050)$. It can be concluded that the asset structure does not contribute to the influence and is not significant to the Capital Structure.
- Firm Size $t_{count}(-2.156) < t_{table}(1.67655)$ with significant $(0.036) > (0.050)$. The conclusion is that Firm size contributes a negative and significant effect on capital structure.
- Dividend Payout Ratio $t_{count}(-1.903) < t_{table}(1.67655)$ with significant $(0.063) > (0.050)$. It is concluded that the dividend payout ratio does not contribute to the effect and is not significant to the Capital Structure.
- Sales growth $t_{count}(1.504) < t_{table}(1.67655)$ with significant $(0.139) > (0.050)$. It is concluded that sales growth does not contribute to the insignificant effect on the Capital Structure

4. Conclusions

After testing the data, it can be concluded that partially only *Firm size* has a significant *negative* effect on the capital structure. meanwhile, the asset structure, *DPR*, and sales growth do not and do not significantly affect the capital structure. However, simultaneously the Asset Structure, *Firm Size* , Dividend Payout Ratio, and sales growth have a significant *positive* effect on the capital structure.

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