

# Profitability Analysis of Indonesian Pharmaceutical Manufacturing Companies: Capital Structure and Company Size

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## Abstract

The aim of the author in conducting this research is to determine the influence of capital structure and company size on the profitability of pharmaceutical companies listed on the Indonesia Stock Exchange. The method used by the author in conducting this research is descriptive analysis method and multiple linear regression analysis. Data processing was carried out using IBM SPSS STATISTIC 25. The population of this study was all pharmaceutical companies listed on the Indonesia Stock Exchange in 2020-2022 with the number of samples taken according to the researchers' criteria of 10 pharmaceutical companies. The partial research results show that the Capital Structure (DAR) variable has a negative and significant effect on Profitability (ROE) in pharmaceutical companies, the Company Size (FS) variable has no significant effect on Profitability (ROE) in pharmaceutical companies, simultaneously the Capital Structure (DAR) variable, and Company Size (FS) has a significant effect on Profitability (ROE) in pharmaceutical companies

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## 1. Introduction

Increasing profitability is one of the goals of all companies, both domestic and foreign companies (De Simone et al., 2020). An increase in a company's profits will be added value for the company in the eyes of investors and will have great benefits for the company to compete in an increasingly strong business world (Pangestuti et al., 2022). Through measuring profitability ratios, companies can find out the results of all policies implemented by the company, including the results of the company increasing the effectiveness of its management. Measuring the level of management effectiveness can be shown by the profits generated from sales and investment income which can be done by knowing how big the profitability ratio is (Brigham & Houston, 2010).

The Central Statistics Agency (BPS) noted that gross domestic product (GDP) at constant prices (ADHK) from the chemical, pharmaceutical and traditional medicine industries was IDR 58.08 trillion in the third quarter of 2022. This value was corrected by 3.50% compared to the same period the previous year (year on year/yoy) which amounted to IDR 60.19 trillion. This correction occurred after the chemical, pharmaceutical and traditional medicine industries managed to achieve positive performance throughout the Covid-19 pandemic. This is due to the high public demand for products from this industry during the New Year.

However, demand for chemical, pharmaceutical and traditional medicine industry products is starting to decline as the Covid-19 pandemic slows down. This condition was exacerbated by mysterious cases of acute kidney failure that befell children due to ethylene glycol (EG) and diethylene glycol (DEG) contamination exceeding safe limits. Due to this incident, BPOM imposed sanctions on five pharmaceutical companies. This was done by revoking the distribution permits for 73 drugs from the five pharmaceutical companies as of November 9 2022. Meanwhile, the

chemical industry is one of the sub-sectors of the processing industry. In the third quarter of 2022, the chemical industry contributed 9.58% to the GDP of the processing industry.

The profitability ratio is the company's ability to earn profits in relation to sales, total assets and own capital. Thus, long-term investors will be very interested in this profitability analysis (Sartono, 2010). In this case, if the company has high profitability, it will be able to give confidence to investors in their investment in the company and one of the analytical indicators of the profitability ratio is ROE (Return On Equity).

Capital structure is a comparison between the amount of long-term debt and its own capital (Riyanto et al., 2001). The capital structure ratio illustrates the company's ability to pay off long-term obligations if the company liquidated. Measuring capital structure can use leverage ratios, namely Debt to Equity Ratio (DER) and Debt to Assets Ratio (DAR) (Sjahrial & Purba, 2011). Companies that have assets that can be provided as collateral for loans tend to use large amounts of debt (Weston & Eugene, 1986). In this research, the leverage ratio used is the Debt to Assets Ratio (DAR)

Apart from capital structure, another factor that can influence a company's profitability is company size. Firm Size is a scale that can be used to classify how large or small a company is. Company size is a level that shows the company's development in business (Rizqia & Sumiati, 2013). The size of the number of assets owned by a company can be used as a measure or proxy for the company size variable (Jogiyanto, 2010). The larger the size of a company as measured by the total assets owned by the company and the greater the growth of the total fixed assets owned by the company, the greater the scale of the company. A large and growing company size can reflect the level of profits to come (Suharli, 2006).

Large companies can more easily obtain funds to develop their business and have large profits to attract investors and creditors because the company will gain more trust from creditors and investors. If the company is able to utilize the large amount of assets it owns well, the company will have the opportunity to increase its level of profit. This explanation shows that company size has a positive influence on profitability in accordance with research conducted by Yusralaini, et al (2016); Kusuma (2005) and Damayanti (2021).

The sustainability of a company does not only depend on the size of the company, but also because of the company's good competence "Niman in (Kusuma, 2005)". If a company has superior competence and is able to determine selling prices that can compete with larger companies, then the company can have a profit that is greater than its production costs. Meanwhile, companies that have a larger size cannot easily increase or decrease selling prices because they have to pay attention to the prices of other competitors. Therefore, profits in companies with larger sizes can decrease.

## 2. Methods

The data used in this research are pharmaceutical sector manufacturing companies listed on the Indonesia Stock Exchange for the 2020–2022 period. IDX was chosen as the research location because researchers consider IDX as a place to obtain the necessary data in the form of financial reports, annual reports and stock prices as samples in this research. This research is located on the Indonesian Stock Exchange (IDX) by downloading the company's annual financial report at the website address [www.idx.co.id](http://www.idx.co.id).

Population is the entire collection of elements that show certain characteristics that can be used to make conclusions (Sanusi, 2011). In terms of quantity, population is a generalized area consisting of objects/subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions drawn (Setyaningsih, 2009). The population is a collection of all objects of observation that are the center of attention in research, the population of observations is pharmaceutical companies listed on the Indonesian Stock Exchange. Population is the entire collection of elements that have a number of general characteristics consisting of the fields to be researched (Sanusi, 2011).

The research sample is a small portion of all the characteristics possessed by the population that can be selected for research so that the sample is chosen to represent the population. If the

population is large and it is impossible for the researcher to study everything in the population, this is due to limited energy and time, therefore the researcher can use samples taken from the population. The sample to be taken from the population must be truly representative or representative. The sample from this research is the financial reports of pharmaceutical companies on the Indonesia Stock Exchange. The method that the researcher will use is the purposive sampling method, namely taking samples with certain considerations according to the researcher's interests or objectives to represent the population.

According to (Sugiyono, 2017) states that purposive sampling is a technique for determining samples with certain considerations. The reason researchers choose sampling is because not everything in the population can be used as research.

This research uses a quantitative approach, which is a way in which statistical figures are used to answer research problems related to data in the form of numbers and statistical programs. According to Ibnu Hajar, a quantitative approach is an approach where the research results are presented in descriptive form using statistical figures.

### 3. Results and Discussion

The results of this research show that partially capital structure/DAR has a negative effect on profitability/ROE, while company size/FS has no effect on profitability/ROE. Simultaneously capital structure/DAR, and company size/FS have an influence on Profitability/ROE. The discussion in this research uses multiple linear regression analysis using a statistical application, namely IBM SPSS 25 Statistics.

#### Descriptive Statistics

Descriptive is used to view data images. In this research, the data that will provide an overview are Firm Size, Debt to Assets Ratio, Profitability of pharmaceutical companies listed on the Indonesia Stock Exchange for the period 2020 – 2022. The results of the descriptive statistics are as follows:

**Table 1** The Result of Descriptive Statistics

	Mean	Std. Deviation	N
ROE	15,50000	8,790669	30
DAR	15,50000	8,790669	30
FS	15,50000	8,803408	30

Source: Data Processed (2024)

Based on the results of the descriptive statistical tests above, it can be concluded that the Debt to Assets Ratio (DAR) has an average value of 15.5000 and the standard deviation value of the Debt to Assets Ratio is 8.7906 (below the average), which means Debt to Assets Ratio has a low level of data variation.

Firm Size (FS) has an average value of 15.5000 and the standard deviation value of Firm Size is 8.8034 (below the average) which means that Firm Size has a low level of data variation.

Return On Equity (ROE) has an average value of 15.5000 and the standard deviation value of Return On Equity (ROE) is 8.7906 (below the average) which means that Return On Equity (ROE) has a low level of data variation.

#### Classic Assumption Test

##### Normality test

This test aims to test whether in the regression model, the confounding or residual variables have a normal distribution. And in this test using the non-parametric Kolmogorov-Smirnov test. Data is said to be normally distributed if the significance value is more than 0.05 (5%). The results of the normality test are as follows:

**Table 2** The Result of Normality Test

		Unstandardized Residual
N		30
Normal Parameters	Mean	0,000000
	Std. Deviation	7,01879869
Most Extreme Differences	Absolute	0,108
	Positive	0,108
	Negative	-0,078
Test Statistic		0,108
Asymp. Sig (2-tailed)		0,200

Source: Data Processed (2024)

Based on the data results above, it can be seen that the residual value for the Debt to Assets Ratio and Firm Size is 0.200, which means the residual value is  $> 0.05$ , which is significant. So that in accordance with the decision making requirements of the Kolmogorov-Smirnov sample test, the data is normally distributed.

### Multicollinearity Test

This test aims to test whether in the regression model a correlation is found between the independent variables. To detect whether or not there are symptoms of multicollinearity is by analyzing the correlation matrix of the independent variables. Muticollinearity is the existence of a perfect or definite linear relationship between all the variables that explain the regression model. This test is carried out by calculating the VIF (Variance Inflation Factor). This test is said to be free from symptoms of multicollinearity if the VIF (Variance Inflation Factor) value is less than ( $<$ ) 10. The results of the multicollinearity test are as follows:

**Table 3.** The Result of Multicollinearity Test

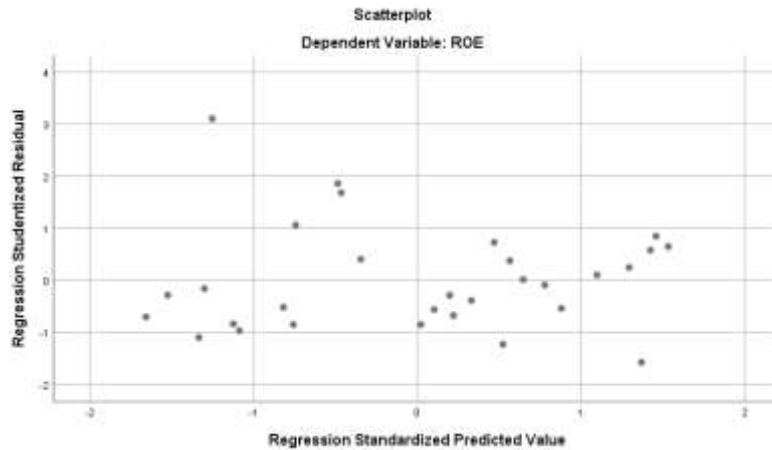
Variable	Tolerance	VIF
DAR	0,952	1,050
FS	0,952	1,050

Source: Data Processed (2024)

Based on the results of the multicollinearity test above in the Collinearity Statistics section, it can be concluded that the variables Debt to Assets Ratio/DAR ( $X_1$ ), and Firm Size/FS ( $X_2$ ) do not experience symptoms of multicollinearity as indicated by the value of VIF being smaller than 10.00 or the value of Tolerance greater than 0.10, which means that the data does not contain symptoms of multicollinearity for each independent variable.

### Heteroscedasticity Test

In this test, the way to detect whether there are symptoms of heteroscedasticity in the regression model is by using the Glejser test. The principle of the heteroscedasticity test using the Glajser test is to regress the independent variable on the absolute residual value. Data is said to be free from symptoms of heteroscedasticity if the significant value is more than 0.05. And apart from using the Glejser test, this research also uses a scatterplot as a heteroscedasticity test. The results of the heteroscedasticity test using the Glejser test are as follows:



**Figure 1.** The Result of Heteroscedasticity Test  
Source: Data Processed (2024)

Based on the results above from the scatterplot method, it can be seen that:

1. Distribution data points above and below or around the number 0.
2. The dots don't just collect at the top or bottom.
3. The distribution of data points does not form a particular pattern.

Thus, it can be concluded that there are no symptoms of heteroscedasticity in the scatterplot model above.

### Multiple Linear Regression Analysis

Multiple linear regression analysis was used in this research to determine the magnitude of the Debt to Assets Ratio and Firm Size on Return On Equity (ROE) in pharmaceutical companies listed on the Indonesia Stock Exchange. The results of the regression equation are as follows:

**Table 4.** The Result of Multiple Linear Regression Analysis

Variable	B	t	Sig
Constant	28.316	7,020	0,000
DAR	-0,611	-3,882	0,001
FS	-0,216	-1,371	0,182

Source: Data Processed (2024)

Based on the table above, a regression equation can be created to measure the level of influence of the independent variable on the dependent following the regression equation from the table above:

$$Y = 28.316 - 0.611X_1 - 0.216X_2$$

From the results of the regression equation above, the following results can be obtained:

1. Y (Return On Equity/ROE) is a dependent variable whose value is predicted by the independent variable. And this research uses Debt to Assets Ratio/DAR ( $X_1$ ), and Firm Size/FS ( $X_2$ ).
2. The constant value (a), namely 28.316, shows the value of the Return On Equity (ROE) variable. If the Debt to Assets Ratio/DAR ( $X_1$ ) and Firm Size/FS ( $X_2$ ) are zero, then the amount of Return On Equity (ROE) is 28,316 means that before or without the Debt to Assets Ratio (DAR) and Firm Size (FS) variables, the Return On Equity (ROE) will be 28,316.
3. Debt to Assets Ratio/DAR ( $b_1$ ) which is -0.611 is the regression coefficient of Debt to Assets Ratio/DAR ( $X_1$ ) with a negative sign. In this case, it states that the Debt to Assets Ratio/DAR ( $X_1$ ) variable has a negative influence on Return On Equity/ROE (Y). This regression coefficient shows that if the Debt to Assets Ratio (DAR) gets better or increases by one unit, then Return On Equity (ROE) will decrease by -0.611 units and vice versa, if the Debt to Assets Ratio (DAR) variable decreases by one unit, then Return On Equity (ROE) will increase by -0.611 units.

4. Firm Size/FS ( $b_2$ ) which is -0.216 is the regression coefficient of Firm Size/FS ( $X_2$ ) with a negative sign. In this case, it states that the Firm Size/FS ( $X_2$ ) variable has a negative influence on Return On Equity/ROE (Y). This regression coefficient shows that if the Firm Size (FS) increases by one unit, then the Return On Equity (ROE) will decrease by -0.216 units and vice versa, if the Firm Size (FS) variable decreases by one unit, then the Return On Equity (ROE) will increase by -0.216 units.

### Partial Test (t Test)

This test is used to determine the magnitude of the influence of the DAR ( $X_1$ ) and FS ( $X_2$ ) variables on Return On Equity/ROE (Y) in pharmaceutical companies listed on the Indonesia Stock Exchange for the period 2020-2022, in part, which can be seen from the magnitude of t calculated against t table. In this study it is known that  $n = 30$  at a significant level of 5%. At the error level ( $\alpha = 0.05$ ) and the t table value is 2.051. To find it, use the following formula:

$$t \text{ table} = (a/2 ; n-k-1 \text{ or df residual})$$

$$t \text{ table} = (0.05/2 ; 30-2-1)$$

$$t \text{ table} = (0.025 ; 27)$$

Information :

a = level of research confidence, in this case  $a = 0.05$ .

n = number of samples used, in this case 10 companies x 4 years.

k = number of independent (free) variables, in this case there are 2 variables, namely Firm Size and Debt to Equity Ratio.

df residual = degrees of freedom of residual value.

The results from the table above can be explained as follows:

1. The DAR test results are thought to be a variable that influences Return On Equity (ROE). Sig value. DAR is  $0.001 < 0.05$  with a calculated t value of  $-3.882 < t \text{ table}$ , namely 2.051. In accordance with the t test requirements where the sig value.  $0 < 0.05$  and the calculated t value  $< t \text{ table}$ , then DAR has a significant negative effect on Return On Equity (ROE) in pharmaceutical companies. Thus  $H_1$  is accepted.
2. The results of FS are thought to be a variable that influences Return On Equity (ROE). Sig value. FS is  $0.182 > 0.05$  with a calculated t value of  $-1.371 < t \text{ table}$ , namely 2.051. In accordance with the t test requirements where the sig value.  $0 > 0.05$  and the calculated t value  $< t \text{ table}$ , then FS does not have a significant influence on Return On Equity (ROE) in pharmaceutical companies. Thus  $H_2$  is rejected.

### Coefficient of Determination Test ( $R^2$ )

This test is used to measure the extent of the ability of the independent variables, namely Debt to Assets Ratio/DAR ( $X_1$ ), and Firm Size/FS ( $X_2$ ) by explaining variations in the dependent variable, namely Return On Equity/ROE (Y). The coefficient of determination value is between 0 and 1. A small  $R^2$  value means that the ability of the independent variable to explain the dependent variable is very limited. A value close to 1 means that the independent variables have almost all the information needed to predict variations in the dependent variable. The results of the coefficient of determination test are as follows:

**Table 5.** The Result of Determination Test ( $R^2$ )

R	R Square	Adjusted R Square
0,602	0,362	0,315

Source: Data Processed (2024)

From the results of the table above, the Adjusted R square result is 0.315, which means that 31.50% of the independent variables (X) consisting of Debt to Assets Ratio/DAR ( $X_1$ ), and Firm Size/FS ( $X_2$ ) can explain The dependent variable is Return On Equity/ROE (Y), and the remaining 68.50% is influenced by other factors that are not explained by this research. Adjusted R square is the adjusted R Square, R Square is the coefficient of determination but the weakness of the coefficient of determination is that it is biased towards the number of independent variables

included in the capital, so in the research we chose to use Adjusted R square to look at the coefficient of determination.

## 4. Conclusion

Based on the data analysis conducted to test the hypothesis, several conclusions can be drawn regarding the influence of capital structure and company size on the profitability of pharmaceutical companies listed on the Indonesia Stock Exchange for the period 2020-2022. Firstly, the analysis revealed that, partially, the Capital Structure, as measured by the Debt to Assets Ratio (DAR), has a negative and significant effect on Profitability, as indicated by the Return On Equity (ROE). This suggests that higher levels of debt relative to assets are associated with lower profitability for these companies. Secondly, the Company Size variable, represented by Firm Size (FS), does not have a significant effect on Profitability (ROE) when considered independently. This indicates that the size of the firm, in terms of total assets, does not substantially influence profitability within the observed period. However, when considering the combined effects of both Capital Structure (DAR) and Company Size (FS), the analysis shows that these variables together have a significant impact on Profitability (ROE). This simultaneous influence implies that while company size alone might not affect profitability, it plays a role when considered alongside capital structure, affecting the financial performance of pharmaceutical companies in Indonesia during the specified period.

Limitations of this research include that the analysis period is limited to 2020-2022, which may not reflect long-term trends in the pharmaceutical industry in Indonesia. In addition, this research only considers two independent variables, namely Capital Structure (DAR) and Company Size (FS), so other factors that can also influence profitability, such as product innovation, operational efficiency and market conditions, are not analyzed. Therefore, for further research, it is recommended that studies be carried out over a longer period and consider additional relevant variables. Research can also be expanded by using a qualitative approach to gain deeper insight into the dynamics of the pharmaceutical industry in Indonesia.

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