The Role of Firm Age Moderation on The Effect of Profitability and Leverage on The Share Price of Pharmaceutical Companies Listed on The Indonesia Stock Exchange

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Abstract:
The purpose of this research is to the role of firm age moderation on the effect of profitability and leverage on the share price of pharmaceutical companies listed on the Indonesia Stock Exchange. This research comes from secondary data obtained from the Annual Report of companies engaged in the pharmaceutical financial industry listed on the Indonesia Stock Exchange during the observation year, namely 2018-2022 through the IDX website (www.id.co.id). Descriptive Analysis and Moderation Regression Analysis are data analysis techniques used in this study with the EVIEWS 9 program. Based on the results of this study, it was found that Profitability has a positive and significant effect on stock prices and Leverage has a positive and significant effect on stock prices. As well as the age of the company is able to moderate the effect of profitability and leverage on the stock price.
Keywords: *profitability, share price, leverage*

INTRODUCTION

One investment field that is quite interesting but high risk is stock investment. Shares are proof of ownership of the assets of the company that issued the shares (Tandelilin, 2001). Shares of public companies as one of the investment products are classified as high risk because they are very sensitive to changes that occur both abroad and domestically, to political, economic, and monetary changes. These changes can have a positive impact, namely an increase in stock prices, or a negative impact, namely a decrease in stock prices (Jumiyanti Indah Lestari, 2004).

In simple terms, the stock price reflects changes in investor interest in the stock. If the demand for a stock is high, then the price of the stock will tend to be high. Conversely, if the demand for a stock is low, then the stock price will tend to fall (Edi Subiyantoro and Fransisca Andreani, 2003).

Stock prices that fluctuate from time to time cause a series of analyses to be needed for both internal and external parties of the company in predicting or estimating stock prices.

Many variables can affect the stock price of a company, both those that come from the external environment or those that come from the internal environment of the company itself. Gordon (Bolten 1976) states that variables that come from internal companies such as dividends, revenue growth, liquidity, company size and debt ratios or other financial ratios can affect stock prices.

The profitability ratio and the leverage ratio have certain characteristics and relationships. Profitability is important because companies generally aim primarily to make a profit, while debt can have a good or bad influence on the company. This phenomenon is evidenced by the fact that on the one hand, the company must be able to generate profits to be able to cover its obligations to shareholders and to avoid making loans to external parties for the survival of the company. But

this is not entirely true because in certain bona fide companies, debt is used as a tool to increase company profitability so this phenomenon is interesting to research.

The ups and downs of stock prices are not only caused by financial performance, but there are several factors outside of finance that can also affect investor response. One of the factors in question is the age of the company. According to (Hege, 2021: 4) The age of the company (firm age) states how long the company has been established and its ability to compete to protect the business that has been run to generate profits. The longer the company lasts, the company is considered to have a good reputation. This shows that companies that are standing longer have better financial performance than companies that have just been established so that this will increase investor confidence and interest to invest in companies that result in increased stock prices. This is the reason why the age of the company is used as a moderation variable in this study because it is considered to have an influence, both strengthening and weakening financial performance which of course can affect investor response as measured by stock prices.

The pharmaceutical industry is an industry engaged in the health sector that focuses on researching, developing and distributing drugs. The first pharmaceutical industry companies established by the Dutch East Indies Government in 1817 were NV Chemicalien Handic Rathkamp &; Co. and NV. Pharmaceutische Handel Vereneging J. Van Gorkom &; Co. in 1865. While the first modern pharmaceutical industry in Indonesia was a quinine factory located in Bandung in 1896. In 1957-1959, after the war of independence, a Dutch-owned pharmaceutical company was nationalized by the Indonesian government, namely Bovasta Bandoengsche, Kinine Fabrick, which produced quinine pills, Onderneming Jodium, which produced nationalized Iodium, which developed into PT Kimia Farma (Persero). In 1918 the ointment and gauze manufacturing factory, Centrale Burgelijke Zickeninrichring developed into the Indofarma company which is now PT Indofarma (persero). A significant development for the development of the pharmaceutical industry in Indonesia is the issuance of the Foreign Investment Law (PMA) in 1967 and the Domestic Investment Law (PMDN) in 1968 which encouraged the development of the Indonesian pharmaceutical industry to this day

Problem Statement

Based on differences in empirical research results that have been described, the problem formulation is "The discovery of controversy over research results of the influence between prifitability and leverage on stock prices".

Referring to the formulation of the problem, the research problem proposed is "How to develop an empirical research model to overcome the controversy of the effect between profitability and leverage on stock prices".

This research model also uses company age as a moderating variable, the effect of profitability and leverage on stock prices.

Based on the formulation of the problem, the research questions are as follows:
1. Does profitability affect stock price?
2. Does Leverage affect Share Price?
3. Does Profitability affect the stock price moderated by the Firm age.
4. Does Leverage affect the stock price moderated by the firm age?
C. Research Objectives

The purpose of this study was to test and analyze empirically:
1. The effect of profitability affects the stock price.
2. The effect of Leverage affects the Stock Price.
3. The effect of profitability affects the stock price moderated by the Firm age.

4. Influence Leverage Influential towards price stock moderated by Firm Age.

Research Uses

This research is expected to contribute to the development of financial management science and capital markets. By building a new conceptual model, it is hoped that the gap between the effect of profitability and leverage on stock prices can disappear and can be a reference for investors in understanding company behavior in the capital market.

RESEARCH METHODS

A. Research Object

The object of research is a scientific target to obtain data with certain goals and uses about something objective, valid and reliable about a certain variable Kumba Digdowiseiso 2017).

This study examines whether profitability, and leverage against stock prices with the age of the company as moderation variables. The object of this study is a pharmaceutical company listed on the Indonesia Stock Exchange for the period 2018-2022.

B. Research Data

1. Data Source and Type

The type of data used in the study is secondary data. according to Sugiyono (2012) data sources that do not directly provide data to data collectors, for example through other people or through documents. The secondary data used in this study was obtained from the Annual Report of companies engaged in the pharmaceutical financial industry listed on the Indonesia Stock Exchange during the observation year, namely 2018-2022 through the IDX website (www.id.co.id).

2. Population and Sample

a) Population

The population is the entirety of the object under study. (Sugiyono, 2012) argues that population is a generational area consisting of subjects / subjects who have certain qualities and characteristics determined by researchers to be studied and then drawn conclusions. The population in this study is companies included in pharmaceutical companies listed on the Indonesia Stock Exchange and published financial statements in the research period, namely 2018 to 2022.

b) Samples

According to (Juliandi, Irfan, &; Manurung, 2014) the sample is representative of the population. The research model used in this study is purposive sampling. according to Sugiyono (2012) purposive sampling is a sampling technique with certain considerations.

This study uses quantitative descriptive analysis and regression analysis processed using panel data to examine the role of firm age moderation on the effect of the variable Return On Assets, Debt to Equity Ratio, on the Share Price of Pharmaceutical Sub-Sector Manufacturing Companies listed on the IDX in the 2018-2022 Period. This research was made using the help of Microsoft Excel and Eviews 9 application programs.

1. Descriptive Analysis

This research uses a quantitative approach using descriptive analysis, which is research in the form of quantitative data which is then processed and analyzed to draw conclusions. The descriptive statistical analysis in this study is to describe testing the role of firm age moderation on

the effect of the variable Return On Assets, Debt to Equity Ratio, on the Share Price of Pharmaceutical Sub-Sector Manufacturing Companies listed on the IDX in the 2018-2022 Period.

2. Moderated Regression Analysis

One way that can be used to test whether a variable is a moderation variable is by conducting an interaction test. Regression by testing interactions between variables is called moderated regression analysis (Gujarati, 2003). MRA is a special application of multiple linear regression where the regression equation contains an element of interaction (multiplication of two or more independent variables), with the following equation formula:

$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_1 X_3 + b_5 X_2 X_3 + e$

Information:

Y = Share Price
a = Constanta
b = Regression coefficient of each independent variable X1 = Profitability
X2 = Leverage
X3 = Age of Company e = Standard error

RESULTS AND DISCUSSION

A. Data Description
The description of the research data is presented in table 1.1.

Table 1.1 Description of Research Data

	ROA	DER	Age	Share Price
Minimum	-10,10	15,17	42,00	1,42
Maximum	92,10	1676,52	104,00	794,83
Average	11,45	131,77	59,13	132,28
Standard Deviation	15,52	266,17	19,75	226,75

Based on table 4.1, it is known that the company's ROA variable in the range of 2018 to 2022 ranges from -10.0 – 92.10. The average ROA value is 11.45 with a standard deviation of 15.52. DER variables in the interval 15.17 – 1,676.52. The average value of DER is 131.77 with a standard deviation of 266.17. The company's age is between 42 to 104 years.the average company is 59.13 with a satnadard deviation of 19.75. The company's share price ranges from 1.42 – 794.83. The average share price was $132.28 with a standard deviation of $226.75.

B. Analysis of Results

Data analysis was carried out twice testing. The first is tanma testing involving moderation variables and interaction with moderation variables. The second analysis is with moderation variables and the results of interaction with moderation variables.

1. The Effect of ROA and DER on Stock Prices

a. Multiple Regression

The results of multiple regression testing are presented in table 1.2

Table 1.2 Multiple Regression without Moderation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	72.21935	63.54821	1.136450	0.2633
ROA	3.882930	2.448330	1.585951	0.1215
DER	0.001822	0.004115	0.442821	0.6605

Based on table 4.2, it is known that the coefficient regression ROA to the stock price is 3.8829 with a prob value. 0.1215. While the DER regression coefficient is 0.0018 with prob. 0,6605.

b. Classical Assumptions
1. Normality Test

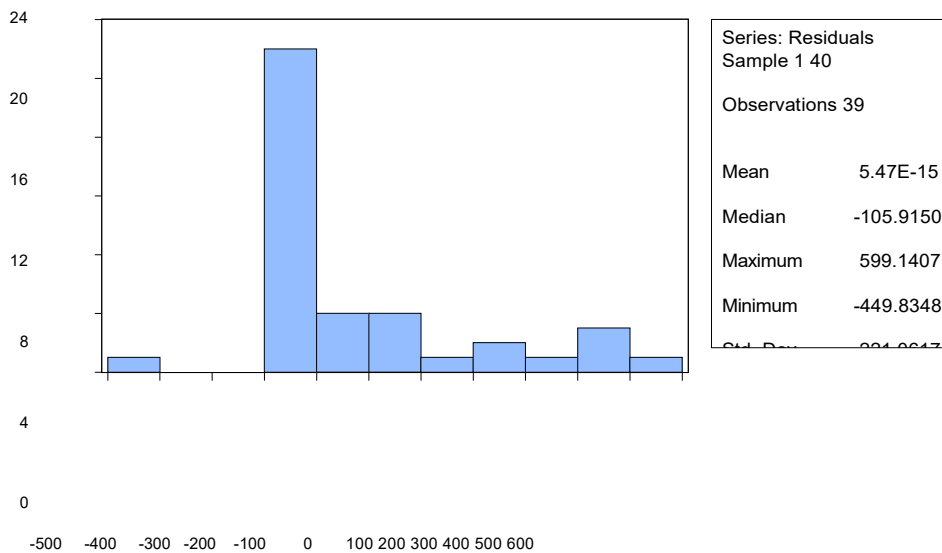|		
Series: Residuals		
Sample 1 40		
Observations 39		
Mean	5.47E-15
Median	-105.9150
Maximum	599.1407
Minimum	-449.8348

Figure 1.1 Regression Normality Testing without Moderation

Based on figure 1.1 it is known that the value of Jarque-Bera is 0.0038. This value is less than 0.05 which means that the residuals are not normally distributed.

2. Heteroscedasticity Test
The results of heteroscedasticity testing are presented in table 1.3.

Table 4.3 Heteroscedasticity test results without Moderation

F-statistic	10.01040	Prob. F(2.36)	0.0003
Obs*R-squared	13.93788	Prob. Chi-Square(2)	0.0009
Scaled explained SS	17.71242	Prob. Chi-Square(2)	0.0001

Based on table 4.3 it is known to carry the value of prob. Chi-Square of 0.0009. A value of less than 0.05 indicates that in the regression model there is a heteroscedasticity problem.
C. Robust Regression

Because the conditions of residual normality and heteroscedasticity are not met, hypothesis testing cannot be carried out. So another estimate is needed, namely a robust estimate that is immune to outlier data and heteroscedasticity. The robust estimation results are presented in table 4.4.

Table 1.4. Robust Estimation Results without Moderation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-250.7113	4.447413	-56.37239	0.0000
ROA	26.55827	0.171346	154.9979	0.0000
DER	0.013234	0.000288	45.95093	0.0000

Based on table 4.4, the equation of conversion is obtained as follows: Harga_Saham = -250.7113 + 26.55827 (ROA) + 0.013234 (DER)

A constant of -250.7113 indicates that without a change in ROA and DER, the stock price will decrease by 250.7113.

ROA has a coefficient value of 26.55827 which means that ROA has a positive influence on the stock price. A probability value of 0.0000 less than 0.05 indicates that the ROA effect on the stock price is significant. So it can be said that ROA has a positive influence on stock prices.

DER has a coefficient value of 0.0132 which means that DER has a positive influence on the stock price. A probability value of 0.0000 less than 0.05 indicates that the impact of DER on the stock price is significant. So it can be said that DER has a positive influence on stock prices

2. The Effect of ROA, DER on Stock Prices in Moderation by Company Age
a. Multiple Regression
The results of multiple regeneration plants with moderation variables are presented in table 4.5.

Table 1.5 Regression with Moderators

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	**128.1786**	**227.0969**	**0.564423**	**0.5763**
ROA	-39.22237	8.658396	-4.529981	0.0001
DER	0.009226	0.010333	0.892799	0.3784
AGE	-0.025746	0.044939	-0.572908	0.5706
MODERASI_ROA_UMUR	0.804319	0.169748	4.738304	0.0000
MODERASI_DER_UMUR	-0.001650	0.018635	-0.088521	0.9300

Based on table 4.2 it is known that:

- The constant is 128.1786.

- coefficient ROA regression to stock price of -39.2223 with prob. 0,0001.

- The DER regression coefficient is 0.001892 with prob. 0,3784.

- Koefisen age regersi is -0.0257 with prob.0.5706.

- The interaction coefficient of roa and age is 0.8043 with a probability of 0.0000.
  The age and der interaction progression coefficient is -0.0016 with pro. 0,9300.
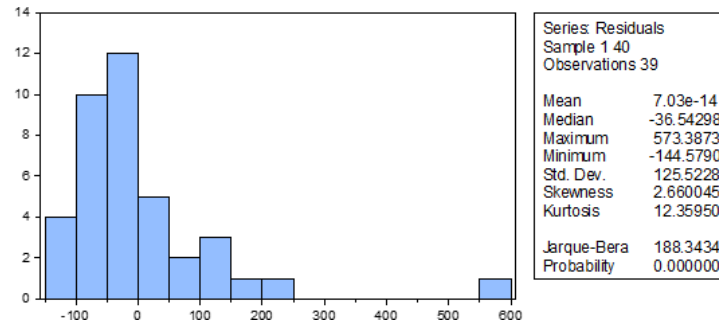
a. Classical Assumptions

Figure 1.2 Regression Normality Testing with Moderation

Based on figure 1.2 it is known that the value of Jarque-Bera is 0.0000. This value is less than 0.05 which means that the residuals are not normally distributed.

Heteroscedasticity Test

The results of heteroscedasticity testing are presented in table 1.6.

Table 1.6 Heteroscedasticity Test Results with Moderators

F-statistic	0.203285	Prob. F(5.33)	0.9588
Obs*R-squared	1.165337	Prob. Chi-Square(5)	0.9482
Scaled explained SS	4.738923	Prob. Chi-Square(5)	0.4486

Based on table 4.6 it is known to bring the value of prob. Chi-Square of 0.0.9842. A value of more than 0.05 indicates that in the regression model there is no heteroscedasticity problem.

c. Robust Regression

Because the residual normality condition is not met, even if heteroschedesticity is met, hypothesis testing still cannot be carried out. So another estimate is needed, namely a robust estimate that is immuneMultiple conversion results with moderation variables are presented in table 1.7

Table 1.7 Regression with Mpderator

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-24.29864	15.44929	-1.572800	0.1158
ROA	-38.29146	0.589026	-65.00805	0.0000
DER	0.013618	0.000703	19.37160	0.0000
AGE	-0.002628	0.003057	-0.859710	0.3899
MODERASI_ROA_UMUR	0.784953	0.011548	67.97364	0.0000
MODERASI_DER_UMUR	-0.008909	0.001268	-7.027822	0.0000

Based on table 4.7, the equation is obtained as follows: Stock Price = -24.29864 - 38.29146 (ROA) + 0.013618 (DER) - 0.002628 (AGE) + 0.784953 (ROA*AGE)- 0.008909 (DER*Age)

A constant of -24.2986 indicates that without a change in ROA and DER, the stock price will decrease by 24.2986.

ROA has a coefficient value of - 38.29146 which means that ROA has a negative influence on the stock price. A prob value of 0.0000 less than 0.05 indicates that the effect of ROA on the stock price is significant. So it can be said that ROA has a negative influence on stock prices.

DER has a coefficient value of 0.013618 which means that DER has a positive influence on the stock price. A probability value of 0.0000 less than 0.05 indicates that the impact of DER on the stock price is significant. So it can be said that DER has a positive influence on stock prices.

Age has a coefficient value of -0.002628 which means that age has a negative influence on stock prices. A prob value of 0.3899 of more than 0.05 indicates that the effect of age on stock prices is significant. So it can be said that age has no influence on stock prices.

The interaction variable between ROA and age has a coefficient of 0.784953 with prob. 0.0000. This shows that the age of the company is able to moderate the relationship between ROA and stock price.

The variable interaction between ROA and age has a coefficient of - 0.008909 with prob. 0.0000. This shows that the age of the company is able to moderate the relationship between DER and stock price.

Hypothesis: 1 Profitability has a positive and significant effect on stock prices.

ROA has a coefficient value of - 38.29146 which means that ROA has a negative influence on the stock price. This means that every decrease of 1 unit of ROA, the stock price will experience a decrease of 38.2915. In fact, when the ROA increases by 1 unit, the price will decrease by 38.2915.

This result is in line with the results of the study showing the effect of ROA on stock prices resulting in a calculated t value of -0.721 with a significant value level of 0.474. The ROA has a negative influence on the stock price, because the value is significantly greater than the standard which is 0.05 and has a coefficient value of -0.707. So that the conclusion that H1 can be rejected, meaning that return on assets (ROA) has no effect on stock prices (Verlian & Mildawati, 2023).

A prob value of 0.0000 less than 0.05 indicates that the effect of ROA on the stock price is significant. So it can be said that ROA has a negative influence on stock prices.

The results of this study support the findings of Theo,p (2023 which states that hypothesis testing shows that profitability has a significant effect on stock prices. A similar result is that return on assets (ROA) has a positive and important effect on stock returns (Davidson et al., 2023).

Hypothesis: 2 Leverage Has a Positive and Significant Effect on Stock Prices.

DER has a coefficient value of 0.013618 which means that DER has a positive influence on the stock price. It can be interpreted that when DER experiences an increase of 1 unit, the stock price will also rise by a height of 0.0136. In fact, when DER experiences a decrease of 1 unit, the stock price will also decrease by 0.0136. A prob value of 0.0000 less than 0.05 indicates that the effect of DER on the stock price is significant. So it can be said that DER has a positive influence on stock prices.

This result is in line with the statement of the variable regression coefficient Return On Equity (X1) of 11.556. This means that every time there is an increase in Reaction On Equity by one unit, the stock price will increase by 11,556 units assuming other independent variables remain (Andriani, S., et al., 2022).

Hypothesis: 3 Age of Company Able to Moderate Effect of Profitability on Stock Price

The interaction variable between ROA and age has a coefficient of 0.784953 with prob. 0.0000. This shows that the age of the company is able to moderate the relationship between ROA and stock price. The coefficient value of ROA that was negative to positive shows that the effect of moderating the age of the company is to weaken the relationship between ROA and stock price because it has the opposite value of coefficient or influence.

This result is in line with the findings of Rahmani, N. A. B. (2023) who states that Return On Assets has a significant influence on Stock Prices. ROA reflects the level of success of the company's management in running the company, managing resources which is reflected in the share price at the end of the year. The high level of ROA owned by the company is an indication of the company's success in managing the assets owned by the company.

Hypothesis: 4 The age of the company is able to moderate the effect of leverage on the stock price.

The variable interaction between ROA and age has a coefficient of -0.008909 with prob. 0.0000. This shows that the age of the company is able to moderate the relationship between DER and stock price. The effect of DER which was initially positive to negative shows that the effect of moderating the age of the company is weakening the relationship between DER and stock prices.

The results are in line with the results of research which states that the age of the company can moderate the ratio of Leverage to company value (Nopianti, et al., 2023).

CONCLUSION

The conclusion obtained from this study is: Profitability has a positive and significant effect on stock prices. Leverage has a positive and significant effect on stock prices. The age of the company is able to moderate the effect of profitability on the stock price. The age of the company is able to moderate the effect of leverage on the stock price.

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