

The impact of ROE, NPM, DER, and EPS on the stock price of food and beverage subsector firms in 2020-2022

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Abstract

Research Objective: The overall objective of this study is to evaluate the link between four key indicators and stock prices: ROE, NPM, DER, and EPS.

Methodology: This study employs a quantitative approach. Purposive sampling was employed to choose the sample, which resulted in 34 firms. Secondary sources are utilized to collect data using file and literature research methods. Multiple linear regression analysis is used in the study, which runs on SPSS version 25.

Research Findings: The research results show that (1) ROE, NPM, DER, EPS all have a significant influence on stock prices; and (2) ROE, NPM, DER, and EPS simultaneously influence stock prices.

Theoretical Contribution/Originality: This study is aimed to shed light on the relationship between ROE, NPM, DER, EPS, and stock prices among Indonesian enterprises listed on the Indonesian Stock Exchange (BEI).

Practical/Policy Implications: It is believed that this research would provide a foundation for assessing the impact of ROE, NPM, DER, and EPS on stock prices.

Research Limitations: One constraint of this study is that the data were obtained from the annual financial reports of food and beverage subsector manufacturing businesses listed on the IDX, which include information on ROE, NPM, DER, EPS, and stock prices.

Keywords: *Return On Equity (ROE), Net Profit Margin (NPM), Debt to Equity Ratio (DER), Earnings per Share (EPS), Stock Price*

1. Introduction

Economic growth is stable and expanding, therefore businesses must raise a considerable number of money to meet both short- and long-term demands. The stock price reflects the current worth of the expected future cash flows to shareholders. Investors should comprehend the stock production process before determining which stocks to buy or sell. This is because stock prices can also be seen as the consequence of interactions between buyers and sellers of shares motivated by a desire to benefit from the business. In general, a company's stock price is used to determine the worth of its shares. Disparities in the stock market rise when the flow of information decreases[1].

Current market conditions show significant changes in the Indonesian economy. Saving activities in the capital market are expected to provide benefits for them. Owning shares

provides benefits such as obtaining dividends, experiencing capital appreciation, and participating in the decision-making process related to common stock ownership. Stock value fluctuations are an ongoing process, shaped by diverse factors such as micro and macroeconomic conditions, a company's choice of growth, sudden leadership changes, legal issues involving a company's directors or commissioners, deteriorating company performance, systemic risk, and the influence of market psychology that impacts the technical aspects of stock trading [2].

Various factors impact stock prices. This study examined the side return on equity, net profit margin, debt-to-equity ratio, and earnings per share. Average growth in stock prices between 2020 and 2022 Amounted to 11,925 at PT. Akasha Wira International Tbk, 10,213 at PT. Bisi International Tbk, and 89,800 at PT. Campina Ice Cream Industry Tbk. Findings from earlier studies by [1] *Return on Equity* Researchers found a positive and significant impact on stock prices [3] *Net Profit Margin* Huge and negative impact on stock prices, while researchers [4] *Debt To Equity Ratio* does not significantly and partially affect the stock price. Researchers [5] state that *Earnings per Share* Positive effect on stock prices.

1.1 Statement of Problem

1. Does *Return On Equity* (ROE) significantly affect the stock price of Food and Beverage Subsector Manufacturing Companies listed on the IDX?
2. Does *Net Profit Margin* (NPM) significantly affect the stock price of Food and Beverage Subsector Manufacturing Companies listed on the IDX?
3. Does the *Debt-to- debt-to-equity ratio* (DER) significantly affect the stock price of IDX-listed Food and Beverage Subsector Manufacturing Companies?
4. Does *Earnings per Share* (EPS) significantly affect the stock price of IDX-listed Food and Beverage Subsector Manufacturing Companies?
5. How do *Return on Equity* (ROE), *Net Profit Margin* (NPM), *Debt to Equity Ratio* (DER), and *Earnings Per Share* affect stock prices?

1.2 Research Objectives

1. Determine the impact of *Return On Equity* (ROE) on stock prices of Food and Beverage Subsector Manufacturing Companies listed on the IDX.
2. Identify the impact of *Net Profit Margin* (NPM) on stock prices of Food and Beverage Subsector Manufacturing Companies listed on the IDX.
3. Identify the impact of *Debt to Equity Ratio* (DER) on stock prices of Food and Beverage Subsector Manufacturing Companies listed on the IDX.
4. Determine the impact of *Earnings per Share* (EPS) on stock prices for Food and Beverage Subsector Manufacturing Companies listed on the IDX.
5. Analyze the influence of *Return on Equity* (ROE), *Net Profit Margin* (NPM), *Debt to Equity Ratio* (DER), and *Earnings Per Share* (EPS).

2. Method

Four independent variables are employed in this study: *Return on Equity* (X1), *Net Profit*

Margin (X2), Debt to Equity Ratio (X3), and Earnings per Share (X4). One variable is based on the stock price. This research used a quantitative methodology.[6]. The research approach made use of financial report data from companies in the food and beverage industry that were listed between 2020 and 2022 on the Indonesian Stock Exchange. Numerical data were gathered, statistical techniques were applied for analysis, and SPSS version 25 was used for processing. 83 businesses in the food and beverage sector were part of the survey as of 2022. The sampling strategy used is purposive sampling which meets the following criteria: (1) Food and beverage subsector manufacturing companies listed on the Indonesia Stock Exchange (BEI) in 2020 and 2022. (2) Food and beverage subsector manufacturing companies listed on The Indonesian Stock Exchange (BEI) publish the financial results for the 2020-2022 fiscal year. (3) Companies with negative profits in 2020-2022. (4) Food and beverage subsector manufacturing companies do not publish financial reports and related data. *Return on Equity (ROE), Net Profit Margin (NPM), Debt to Equity Ratio (DER), Earnings per Share (EPS),* and stock price. From the sample determination criteria above, 34 companies were obtained and the research period used was 3 years, so the sample used in this research was $34 \times 3 = 102$. This research uses secondary data, and the data collection methodology used is File and Library Research. Regression analysis was carried out to test the functional relationship between the dependent and independent variables [7],[8],[9].

The explanation provided above allows for the following description of the study's theoretical framework:

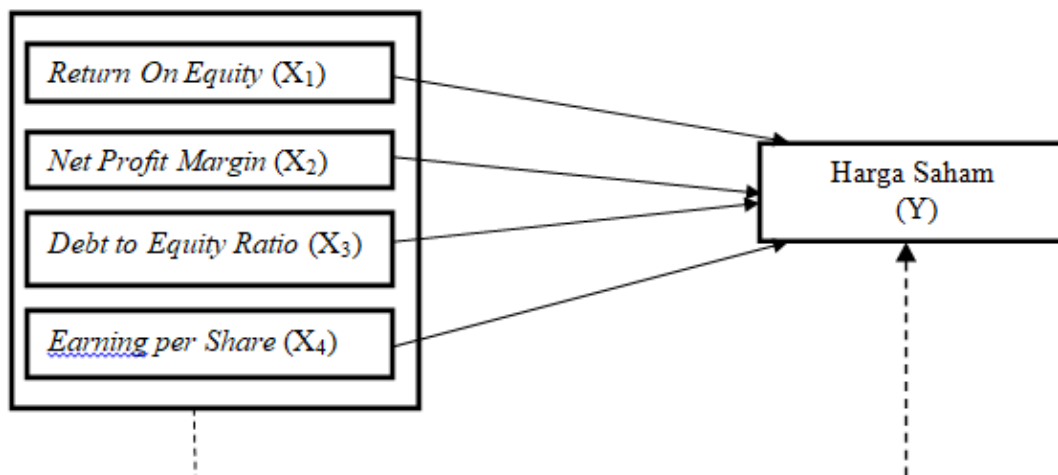


Figure 2. Conceptual Framework

Information

—————> = Partial influence

- - - - -> = Simultaneous influence

According to [10] A hypothesis is like a temporary solution to a puzzle in research. It's like trying to answer a question, but the answer is not based on real facts yet. Instead, it's based on a theory that seems relevant. So, the hypothesis is sort of like a theoretical response to the research problem. In Figure 2, we can use this way of thinking to come up with the following formulation for the hypothesis:

H1: *Return On Equity (ROE)* has some effect are partially on stock prices.

H2: Stockprices are partially influenced by *Net Profit Margin (NPM)*.

H3: The *Debt to Equity Ratio (DER)* has an impact are partially on stock prices.

H4: *Earnings per Share (EPS)* has some effect are partially on stock prices.

H5: *Return On Equity (ROE)*, *Net Profit Margin (NPM)*, *Debt to Equity Ratio (DER)*, and *Earnings Per Share (EPS)* all have a substantial influence on stock prices.

2.1 Operational Definition and Variable Measurement

A. Dependent Variable used in this study is Stock Price

B. Independent Variable

1. ***Return On Equity (ROE)*** can be formulated as follows:

$$ROE = \frac{\text{Net Income}}{\text{Total Equity}} \times 100\%$$

2. ***Net Profit Margin (NPM)*** can be formulated as follows:

$$NPM = \frac{\text{Net Income}}{\text{Sales}} \times 100\%$$

3. ***Debt to Equity Ratio (DER)*** can be formulated as follows:

$$DER = \frac{\text{Total Debt}}{\text{Total Equity}} \times 100\%$$

4. ***Earnings per Share (EPS)*** can be formulated as follows:

$$EPS = \frac{\text{Net Income}}{\text{Number of Stock Outstanding}} \times 100\%$$

2.2 Data Analysis Techniques

According to [11] "This data analysis technique is the answer to the formulation of the problem to be studied". Is each variable independent of *Return on Equity (ROE)*, *Net Profit Margin (NPM)*, *Debt to Equity Ratio (DER)*, and *Earnings per Share (EPS)* and affects variables related to Stock Price either partially or simultaneously. The acquired data is then processed with SPSS version 25.

a) Test Classical Assumptions.

Regression equations require testing four classical assumptions: normal distribution, no autocorrelation, multicollinearity, and heteroscedasticity. Tests include normality, multicollinearity, heteroscedasticity, and autocorrelation.

b) Coefficient of determination

The dependent variable's change may be explained by the model to a certain extent, as indicated by the coefficient of determination (R^2). Minimizing R^2 decision-cost. Comparatively little of the independent variable can be used to explain the dependent variable.

c) Multiple Linear Regression

This study used multiple linear regression analysis to determine the impact of an independent variable on Indonesian Stock Exchange-listed food and beverage manufacturing companies.

d) Hypothetical testing

Regression coefficients are tested for hypotheses to determine if the independent variables in the regression equation affect the value of the dependent variable separately or collectively.

3. Results and Discussion

Result

Classical Assumption Test

This paper tests studies' findings against classical assumptions using multicollinearity, heteroscedasticity, and normality tests, ensuring they adhere to established norms.

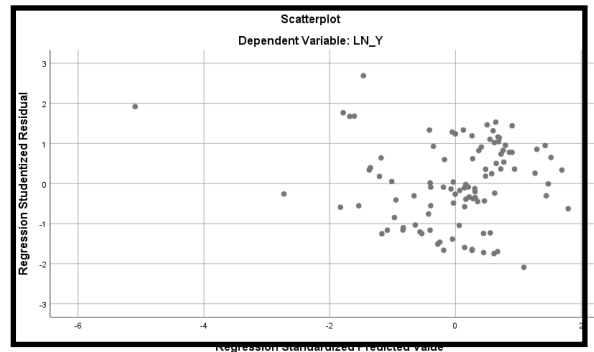
Normality test

Based on test results *Kolmogorov-Smirnov, asymp.sig* (2-tailed) indicates values of $0.000 < 0.05$. After testing the classical assumptions on all variables, it was found that all variables were abnormally distributed. Therefore, the dependent variable and the independent variable are converted into natural logarithms [12]. The regression equation becomes LN Stock Price = (LN ROE, LN NPM, LN DER, and LN EPS). Normality test results using the test *Kolmogorov-Smirnov* It is known that the significance result is $0.200 > 0.05$ which indicates since the values of all variables are regularly distributed, therefore the regression model may be used.

Multicollinearity Test

All independent variables, namely Return On Equity (ROE), Net Profit Margin (NPM), Debt to Equity Ratio (DER), and Earnings Per Share (EPS), obtained a tolerance value greater than 0.10, namely 0.685, 0.528, 0.702, 0.881, and VIF smaller than 10, namely 1.459, 1.894, 1.424, 1.135. As a result of the absence of multicollinearity, all of the factors in this research may be used to anticipate the company's financial performance.

Heteroscedasticity Test



The test findings showed that the dots did not form any discernible pattern; instead, they were randomly dispersed above and below the number 0 on the Y-axis. As a result, one may claim that this regression model lacks heteroscedasticity.

Autocorrelation Test

Primarily based on the effects of the autocorrelation take a look at above with the premise of choice making $DU < DW < (4-DU)$ with values of $one.7582 < 1.813 < 2.2418$, this shows that there is no autocorrelation.

Multiple linear regression analysis

A statistical method for determining the connection between the Multiple linear regression occurs when a dependent variable and two or more independent variables are involved. [6].

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

$$Y = 9.538 + (-0.458) ROE + (0.424) NPM + (0.611) DER + (0.074) EPS + \varepsilon$$

- The linear regression equation indicates a positive constant for 9.538, indicating a bound for the variable, indicating a 9,538 increase in stock price assuming constant independent variables.
- The regression coefficient (X1) result shows a negative association direction of -0.458, implying that for every unit of equity returned, the product level declines by -0.458, or 45.8%. Assume no change in the other independent variables.
- The value of the Net Profit Margin (X2) regression coefficient is 0.424 with a positive relationship direction indicating that for every increase in profit margin, the stock price level will increase by 0.424 or 42.4%. Assuming that the other independent variables are considered constant.
- The value Debt to Equity Ratio (X3) regression coefficient has a value of 0.611 and a positive association direction, indicating that as the debt to equity ratio rises, so does the level of the stock price. 61.1%, or 0.611, if we assume that the other independent

variable remains constant.

- e. The value of the Earnings per Share (X4) regression coefficient is 0.074 with a positive relationship direction which shows that for every one-time increase in stock earnings, the stock price level increases by 0.074 or 7.4%.
- f. Error (ϵ) is a reference to another variable that is influential but does not match the variables of this study. The error value can be calculated using the formula $e = 1 - R^2 = 1 - 0.169 = 0.831$.

Test Coefficient of determination (R²)

The output table for the SPSS "Model Summary" indicates that the R-Square, or coefficient of determination, can have a maximum value of 0.169. The correlation coefficient's (or "R") squared value, which is $0.411 \times 0.411 = 0.169$, yields the R-Square value of 0.169. While ROE, NPM, DER, and EPS variables may explain 13.4% of stock price variables, the remaining $100\% - 13.4\% = 86.6\%$ of stock prices can be described by other variables that have not been researched, according to the Adjusted R-Square value of 0.134, or equivalent to 13.4%.

Hypothesis Test

A hypothesis test is used to determine if the independent variable has a simultaneous and partial influence on the dependent variable [13].

Partial Test (t-test)

One variable is indicated in the coefficient table to have no influence. Casewise diagnostics is a technique used to identify outliers. Two observations fit the definition of an outlier, according to casewise diagnostic detection. The following assumptions are based on the results (t-test):

1. Return On Equity (X1)

Based on the t-test table above, the return variable on equity (X1) against stock price (Y) shows a numerical value of -0.458. In Return to equity, the value of $t_{\text{calculated}} -2.934 > t_{\text{table}} 1.986$. Also, the mean value is $0.004 < 0.05$ based on the test findings, it may be said that H_0 is approved and H_1 is denied, with the justification that the stock price and equation (X1) are consistently affected (Y).

2. Net Profit Margin(X2)

Based on the t-test table above, the coefficient of Net Profit Margin (X2) variable on the product price (Y) shows a numerical value of 0.424. In the value of net profit margin, value $t_{\text{calculated}} 2.524 > t_{\text{table}} 1.986$. In addition, the significance value presented is $0.013 < 0.05$. H_0 is approved and H_2 is denied based on the test findings, with the justification that the changeable net profit margin (X2) has a detrimental impact on the stock price (Y).

3. *Debt to Equity Ratio (X3)*

Based on the t-test table above, variable cost (X3) and variable product price (Y) show a numerical value of 0.611. In the bill for the equation, the $t_{\text{calculated}}$ is 3.846 > and the t_{table} is 1.986. In addition, a significant result of $0.000 < 0.05$ is obtained. The test's findings show that H_0 is accepted while H_3 is rejected, with the justification that the change in debt-to-income ratio (X3) has a negative effect on the stock price (Y).

4. *Earnings per Share (X4)*

Based on the t-test table above, the earnings per share variable (X4) against the stock price variable (Y) shows a statistical value of 0.074. In earnings per share, profit $t_{\text{calculated}}$ 2,020 < t_{table} 1,986. In addition, we get a significant value of $0.046 > 0.05$. According to the test findings, H_0 is approved and H_4 is refused, with the justification that the modification in Earnings per share (X4) has a negative effect on the stock price (Y).

Simultaneous Test (f test)

The significance value is $0.014 < 0.05$, as determined by the above one-time test (f-test) findings. $F_{\text{calculated}}$ 4.827 > F_{table} 2.46, which illustrates how the stock price (Y) simultaneously affects the free *return on equity* (X1), *net profit margin* (X2), *debt to equity* (X3), and *earnings per share* (X4).

Discussion

The Effect of Return On Equity (ROE) on Stock Prices

This is regarded as a bullish indication by the market, providing a positive outlook for investors contemplating purchasing shares. Increased demand for stocks is likely to result in higher stock prices. By looking at the test results for the variable X1, which is: Return on Equity In the table above, a computed value of -2.934 was achieved. When compared to the t_{table} value, which is 1.986, the $t_{\text{calculated}}$ exceeds the t_{table} . The significance value is 0.004, which is less than 0.05. Therefore it can be concluded that H_0 is rejected and H_1 is accepted. The results showed that *Return on Equity* has a significant influence on the Stock Price. This is in line with research conducted by [14] that generates it *Return on Equity* Negative and significant influence on stock prices. In line with research conducted by [1] which produces it *Return on Equity* has a positive and significant influence on changes in stock prices.

The Effect of Net Profit Margin (NPM) on Stock Prices

By looking at the test results for variable X2, which is: Net Profit Margin In the table above, a calculated value of 2,524 was achieved. When compared to the t_{table} value of 1.986, the $t_{\text{calculated}}$ value is higher. The significance value is 0.013, which is less than 0.05. This shows that H_2 is acceptable but rejected. The findings of this inquiry are consistent with research conducted by [3] In his research showed that *Net Profit Margin* negative and significant influence. According to [3] Increasingly *Net Profit Margin* Then the company's stock price also increased, otherwise if *Net Profit Margin* experienced a decline, then the stock price also decreased.

The Effect of *Debt to Equity Ratio (DER)* on Stock Prices

Investors are not only profit-oriented but take into account the amount of risk associated with a company when investors choose to invest their capital in it. This level of risk is indicated by the *Debt to Equity Ratio*, revealing the proportion of a company's capital used to meet its obligations. Naturally, every investor tries to avoid investing in companies with high risk, which have numbers *Debt to Equity Ratio* high because it reflects a high level of risk AS well. This will affect investor valuations so that stock prices fall. Based on the test results for variable X3, namely: *Debt to Equity Ratio* In the table above, a calculated value of 3.846 is obtained. When compared with the ttable value, which is 1.986 so that the $t_{\text{calculate}} > t_{\text{table}}$. While the significance value is 0.000, which is smaller than 0.05 or $0.000 < 0.05$. Alaihi Salam a result, it can be said that while H_0 is rejected, H_3 is accepted. The Debt to Equity Ratio has a favorable impact on the stock price when partial factors are used. The findings of this study contradict the findings [4] it discovered that the company's price was negatively impacted by the variable *Debt to Equity Ratio (DER)*. Consequently, it is true to state that as the *Debt to Equity Ratio (DER)* rises, the stock price falls, and vice versa.

The effect of *Earnings per Share (EPS)* on stock price

Earnings per Share (EPS) is a measure that evaluates a company's post-tax net income relative to the total number of shares issued within a given fiscal year. This rise in demand for equities is expected to cause an increase in their prices. Based on the test results for variable X4, namely: Earnings Per Share In the table above, a calculated value of dua.020 is obtained. When compared with the ttable value, which is 1.986 so that the $t_{\text{calculate}} < t_{\text{table}}$. On the other hand, the significance value, which is $0.046 > 0.05$, is higher than 0.05. Thus, it may be said that while H_4 is rejected, H_0 is accepted. Earnings Per Share significantly affects stock price when partial factors are included. This is consistent with studies carried out by [4] on multiple linear regression tests that produce a negative relationship between *Earnings Per Share* against the stock price. Researchers [14] also state that *Earnings Per Share* influence on stock prices.

Conclusion

Researchers conducted a study on how Return On Equity, Net Profit Margin, Debt to Equity Ratio, and Earnings per Share influence the stock prices of food and drink manufacturing companies. Their findings reveal that Return On Equity has a partial impact on stock prices, as does Net Profit Margin. Similarly, Debt to Equity Ratio and Earnings per Share also have partial effects on stock prices. Moreover, ROE, NPM, DER, and EPS collectively influence stock prices simultaneously.

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