

Factors Affecting Stock Prices with EPS as Moderating Variable Among Manufacturing Companies

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ABSTRACT

The goal of this study is to look at the impact of liquidity, profitability, and also solvency towards the stock prices in manufacturing businesses issued on the Indonesia Stock Exchange (IDX) starting from 2018 to 2020, utilizing Earnings per Share (EPS) as a moderating variable. In order to gain samples for the research, we used descriptive quantitative with purposive sampling technique. The data collected contains 210 samples, including 70 manufacturing enterprises that were listed on the IDX from 2018 to 2020. Moderated Regression Analysis (MRA) is used in conjunction with EViews 10 software to process the data. MRA is used to model the case because in MRA, the regression equation contains interaction element between variables to know if the effect of a moderating variable is getting stronger or weaker. The findings reveal that both liquidity and profitability brings a advantageous and large impact towards stock prices, whereas solvency and EPS have a negative and minor impact, and that EPS can mitigate the impact of profitability, liquidity, and solvency in relation to stock prices. This study's implications include the need to enhance a company's performance and financial situation so that its financial statements are sound and stock prices rise, which is, of course, a good sign for investors.

Keywords: *Stock Price, Liquidity, Profitability, Solvency, Earnings per Share*

1. INTRODUCTION

The capital market has recently experienced fluctuating stock price movements due to certain factors. The capital market has a significant impact on a country's economy because it provides a source of funding for businesses. When a business requires funding, it can exchange its shares on the capital market to gain funds from investors [1]. The rise or fall in stock prices will correspond to the improvement in firm performance. When the company's performance increases, indirectly will also increase the stock price.

To avoid risk, before buying and selling shares, investors will usually do an analysis of the stock securities that they want to buy. The analysis is conducted so that investors will be able to know whether the shares they buy can provide a beneficial return or even harm them. To analyze stock prices, there are two ways of analysis, namely technical analysis and fundamental analysis. In this study, fundamental analysis will be used to analyze stock prices. Fundamental analysis is a way or approach to calculate the intrinsic value of common stock using company financial data. Fundamental analysis uses general economic assessments and company financial statement data to determine its relationship with stock prices [2]. In financial analysis especially in fundamental one, the measurement that often be used is financial ratio. Liquidity, profitability, and solvency will be utilized as financial ratios in this study, with EPS serving as a moderating variable.

1.1. Related Work

There are numbers of related researches that have been conducted in the same field. Research conducted by Sholichah, Asfiah, Ambarwati, Widagdo, Ulfa, and Jihadi in the journal "The Effects of Profitability and Solvability on Stock Prices: Empirical Evidence from Indonesia" says that there is a significant positive relationship and effect of profitability variables on prices share [3]. However, this is contrarywise related to the results found by Suwandani, Suhendro, and Wijayanti's research. In the journal "The Effect of Profitability on Stock Prices of Food and Beverage Manufacturing Companies on the IDX in 2014 - 2015" stating that when the profitability measures of ROA, ROE, EPS, and NPM are added together, they have no substantial impact on stock prices [4].

Research conducted by Sitorus in the journal "The Effect of Dividend Policy, Liquidity, Solvency and Earnings Per Share on Stock Prices with Profitability as a Moderating Variable in Food and Beverages Companies Listed on the Indonesia Stock Exchange" shows that solvency as projected by the Debt-to-Equity Ratio has a favorable and major impact on stock values [5]. However, Masril and Martha found that solvency with the DER ratio has a minus and slight influence on stock prices in their study published in the journal "Analysis of the Effect of Solvability Ratio, Profitability, and Market Ratio on Share Prices of Pharmaceutical Sub Sector Companies Listed on Indonesia Stock Exchange (IDX Period 2014-2014)" [6].

The publication "The Effect of Profitability Ratio and Current Ratio on Stock Prices in Pharmaceutical Companies" by Saputri and Soekotjo claims that liquidity has a major impact on stock prices [7]. The independent variable used there is the liquidity ratio. Nevertheless, this statement is in contrast to the journal made by Sepindo, et.al. (with the title: "The Effect of Liquidity Ratio, Profitability and Solvency on Stock Price in Construction And Building Companies Listed on Indonesia Stock Exchange Period 2014-2018") which states that the liquidity variable is uncorrelated with stock prices and has a negative relationship with stock prices [8].

Mukhtasyam, Pagalung, and Ariffudin stated in a journal entitled "Effect of Profitability, Liquidity, and Solvability on Share Prices with Earnings Per Share (EPS) As a Moderating Variables" that the EPS effect as a moderating variable had a substantial impact in the relationship of liquidity, profitability, and solvency to stock prices [9]. In the paper "Analysis of the Effect of Liquidity Ratios, Profitability, and Solvency on Stock Prices using Earnings Per Share as a Moderating Variable in Manufacturing Companies Listed on the Indonesia Stock Exchange 2014-2016," Hanum [10] said the contrary.

The findings of the studies conducted, according to Hanum, demonstrated that EPS did not reduce the influence of liquidity, profitability, or solvency factors on stock prices [10].

1.2. Our Contribution

This paper includes some improvements based on the research by Sepindo, Suhendro and Chomsatu [8]. In the previous research, Sepindo, et.al. used the stocks from construction and building industries on IDX from 2014 until 2018. Our contribution is to expand the analysis in manufacturing firms listed in IDX, with the period of 2018-2020, and adding EPS as a moderating variable [8].

1.3. Paper Structure

In this paper, we separated the sections into 5 parts. Part 1, introduction is used to expose the readers about the background of the research and the objectives of this research. Section 2 explains about the grand theories, variables and hypotheses that are going to be used in this study. Then, the research methodology and data analysis techniques employed in this study are going to be explained in Section 3. Section 4 will discuss the results of the research and considerations achieved. Lastly, in section 5, there will be discussions and conclusions from the results, followed by suggestions for further research.

2. BACKGROUND

2.1. Signalling Theory

In the firm's project assessment activities, signals are instructions supplied by the company regarding management actions [11]. "Signal theory pushes corporations to offer financial statement information to external parties since there is asymmetric information because companies know more about future conditions and prospects," according to Sindunata and Wijaya [12]. More specifically, information asymmetry from management might have a substantial or little impact on investors' investment decisions.

2.2. Stock Price

The share price is the price for share ownership arrangement in a enterprise for other parties who wish to own the shares. Stock prices are able to change quickly even in just a matter of seconds. This can happen due to several factors, for example by supply and demand between stock buyers and stock sellers [1].

2.3. Liquidity

According to Sindunata and Wijaya, liquidity is a company's capacity to pay any financial commitments that can be quickly discharged or that are due [12]. Liquidity refers to the company's capacity to satisfy all of its debt obligations using its own money. Another explanation by Kasmir, the liquidity ratio is a ratio that reflects a corporation's capacity to satisfy short-term commitments (debt), implying that if the company is billed, it will be able to pay the debt, particularly debt that is due [13]. The current ratio was chosen in this study as the type of liquidity ratio. The current ratio is a ratio used to assess a company's capacity to pay short-term commitments or debts that are due promptly and in full when invoiced. The current ratio is calculated by dividing the total current assets by the total current debt [13]. Therefore, the current ratio can be calculated using this formula:

$$\text{Current Ratio (CR)} = \frac{\text{current asset}}{\text{current liabilities}} \cdot 100\%$$

Whereas:

Current Asset = The sum of all the company's assets that undercurrent and possible to be sold during the following year as a consequence of the firm's activities.

Current Liabilities = Short-term financial liabilities of a corporation that are due during one year time or throughout a normal operational cycle.

We also formulate the hypothesis as:

H1: Liquidity has a positive and significant impact on stock prices.

2.4. Profitability

Profitability can be defined as a company's capability to earn returns and is a measure of the level of efficacy as indicated by the revenue produced from the process of selling and buying company investments, or the ability to make money in terms of sales, total assets, and capital [12]. The profitability ratio is a metric that assesses a company's capacity to make profits from its regular operations [14]. According to Kasmir, the ratio that indicates the yield on the amount of assets used in the company is represented as ROA [13]. Therefore, the profitability ratio that will be used in this study is ROA. Return on Assets can illustrate how significant the contribution of assets in generating net income [14]. The ROA can be represented by:

$$\text{ROA} = \frac{\text{net profit}}{\text{total assets}} \cdot 100\%$$

Whereas:

Net Profit = Total Revenue – Total Expenses

Total Assets = Liabilities + Owner's Equity

Followed with the hypothesis of the study as written below:

H2: Profitability has positive and significant impact on stock prices

2.5. Solvability

Solvency is defined as "a company's capacity to fulfil its long-term debt obligations," implying that solvency / leverage demonstrates a company's ability to raise capital [15]. The solvency ratio, when viewed more widely, is a ratio that assesses a company's capacity to fulfil all of its commitments, including short- and long-term debts, if it is dissolved or liquidated [13]. In this research, the solvency ratio used is the Debt-to-Equity Ratio (DER). The Debt-to-Equity Ratio is a measure of how much debt there is compared to how much equity there is. This ratio is derived by dividing total debt (including current debt) by total equity [13].

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

Whereas:

Total Debt = Short-Term Debt + Long-Term Debt

Total Equity = Assets - Liabilities

Thus, the hypothesis for DER is:

H3: Solvability has negative and significant impact on stock price

2.6. Earnings Per Share (EPS)

Earnings per share (EPS) explained the degree of how profitable a company is Earnings after taxes (EAT) divided by the number of outstanding common shares, i.e., profit after taxes divided by the number of outstanding ordinary shares [16]. The earnings per share (EPS) ratio is used to assess a company's profitability [17]. Profits per share, often known as earnings per share, is the amount of a company's net profit that is ready to be given to its shareholders. The greater the ability of a corporation to produce income to its shareholders, the higher the EPS. To calculate EPS, we can use this formula:

$$EPS = \frac{\text{Earnings After Tax (EAT)}}{\text{Shares Outstanding (SO)}} \cdot 100\%$$

Whereas:

EAT = Revenue – (Cost of Goods Sold – Interest Expense– Operating Expense– Depreciation Expense) – Tax Rate

SO = Sum of number shares of a corporation's shares that have been approved, issued, and acquired by them.

The hypothesis of EPS can be formulated as follow:

H4: EPS has positive and significant impact on stock price

2.7. EPS moderates the relationship between liquidity and stock price

Based on signalling theory, a company that has high level liquidity indicates that a company is able to fulfil its short-term responsibilities and the company is liquid, which means it will attract the attention of investors so that they will invest in the company, and then will provide high stock returns as well. So, the EPS will also increase.

H5: EPS can moderate the relationship between liquidity and stock price

2.8. EPS moderates the relationship between profitability and stock price

According to signalling theory, if a company's profitability is high, which implies its income is high, it will entice investors to invest since the company's performance is strong, resulting in a huge stock return if the stock price rises. This might be a favourable indicator for investors because the EPS ratio will rise as a result.

H6: EPS can moderate the relationship between profitability and stock price

2.9. EPS moderates the relationship between solvability and stock price

Based on signaling theory, if the solvency number with the DER ratio shows a large number, it means the company has a large debt, so it will give a negative signal to investors because it means that the company's funding is not good, and it will decrease stock prices and stock returns. If stock price decreases, the EPS ratio will decrease.

H7: EPS can moderate the relationship between solvability and stock price.

3. METHODS

The study used a sample of 70 manufacturing businesses that were listed on the Indonesia Stock Exchange. The study looked at the impact of liquidity, profitability, and solvability on stock prices using a selective sample technique using secondary data from financial reports from the BEI and the company's website, with EPS as a moderating variable. EViews 10 was used to analyse the data in this study.

3.1. Data Analysis Methods

This study uses descriptive statistical methods, Moderated Regression Analysis (MRA), and panel data model. Time series and cross-section data are both included in panel data. In this study, the common effect model, fixed effect model, and random effect model were used in panel data regression testing [18].

3.1.1. Descriptive Statistical Analysis

Descriptive statistics is a statistical method used to describe data that ready obtained from research samples [19]. Descriptive statistical techniques include data presentation, both with tables, graphs, and diagrams, as well as data calculations including mode, median, mean, decile, percentile, standard deviation, and percentage calculation.

3.1.2. Moderated Regression Analysis

Moderate regression analysis (MRA), often referred to as an interaction test, is a type of linear multiple regression in which the regression equation contains an interaction element (multiplication of two or more independent variables). MRA is used in analytical approaches to know if the effect of a moderating variable is getting stronger or weaker. Moderator models are often used when the independent variable affects the dependent variable. In other words, the moderated model is used to find the factors that change the relationship between the independent and dependent variables. The MRA equation formula can be expressed as bellow [20]:

$$Y = c + b_1X_1 + b_2X_2 + b_3X_1X_2 + e$$

Whereas:

- Y = Dependent Variable
- C = Constant
- b = Beta Coefficient of Independent Variable
- X = Independent Variable (s)
- e = Error Term

Since it represents the moderating influence of the X2 variable on the connection between X1 and Y, the variable between X1 and X2 is also known as the moderating variable. In the meanwhile, the X1 and X2 variables have a direct impact on Y. The higher X1 and X2 are, the higher Y will be.

4. FINDINGS AND DISCUSSION

4.1. Descriptive Statistical Analysis Result

Table 1 Descriptive Analysis Result

	X1 (CR)	X2 (ROA)	X3 (DER)	Z (EPS)	Y (Stock Price)
Mean	5.497469	0.0823	0.8269	218.692	3,062.457
Median	2.195135	0.0550	0.5750	59.5200	860.0000
Max.	303.2819	0.9210	5.4400	5726.68	83,625.00
Min.	0.013430	0.0000	0.0000	0.00000	58.00000
Std. Dev.	25.20174	0.0963	0.7878	609.305	7,893.220
Skewness	10.41635	4.2444	2.4573	6.35351	6.993171
Kurtosis	113.9352	31.424	11.640	48.6990	62.71477
Jarque Bera	111480.3	7699.81	864.44	19686.3	32,912.87
Probability	0.000000	0.0000	0.0000	0.00000	0.000000
Sum	1154.469	17.276	173.65	45925.4	643,116.0
Sum Sq. Dev.	132741.7	1.9379	129.71	77591820	1.30E+10
Observations	210	210	210	210	210

From the descriptive analysis results (shown in Table 1), we can see that the maximum ROA variable is 0.921000 and the minimum is 0. This is followed by the ROA variable with a standard deviation of 0.096293. The mean value of the variable X3 (DER) is 0.826905. In this case, the maximum value of the DER variable is 5.440000 and the minimum value is 0. The standard deviation of the DER variable is 0.787783. The mean adjustment variable Z (EPS) is 218.6922. The maximum EPS variable is 5,726.680 and the minimum is 0. The standard deviation of the EPS variable is 609.3051. The mean value of the dependent variable Y (stock price) is 3,062.457. The highest price is 83,625.00, the lowest price is 58. The maximum value of the variable is 83,625.00 and the minimum value is 58. The standard deviation of the stock price variable is 7,893.220.

4.2. Multiple Linear Regression Analysis Results

According to the results of Moderate Regression Analysis (MRA), multiple regressions can be generated. Therefore, the moderated regression analysis model used in this study can be written as:

$$Y = 3663.184 + 14.00120 \text{ CR} + 26353.65 \text{ ROA} - 773.3419 \text{ DER} - 4.390253 \text{ EPS} - 3.512489 \text{ CR*EPS} - 7.045976 \text{ ROA*EPS} + 5.228790 \text{ DER*EPS} + e$$

4.3. Moderating Variable Category

Table 2 Moderating Variable Category

	<i>B2 Significant</i>	<i>B2 Non- Significant</i>
<i>B3 Non- Significant</i>	<i>1 Predictor Moderator</i>	<i>2 Homogeniser Moderator</i>
<i>B3 Significant</i>	<i>3 Quasi Moderator</i>	<i>4 Pure Moderator</i>

A Quasi Moderator is a variable that changes the association among an independent variable and a dependent variable that is also an independent variable. In the generated relational model, the predictor moderator is a tuning variable that acts only as a predictor (independent) variable. Homologise Moderator (Potential Moderation) is a variable that functions as a moderator. According to Memon, et al. (2019), the kind of moderating variable on the independent variable in this study may be identified based on the following equation [21]. The significant threshold in this study is 0.05, therefore if a variable is less than 0.05, it is considered significant. In this study, the categories of moderation are as follows:

- EPS variable (β_2) has a significance value of 0.0937, and the significance value of CR*EPS (β_3) has a significance value of 0.0000. So, it can be said that EPS is included in the Pure Moderator variable.
- EPS variable (β_2) has a significance value of 0.0937, and the significance value of ROA*EPS (β_3) has a significance value of 0.0359. So, it can be said that EPS is included in the Pure Moderator variable.
- The EPS variable (β_2) has a significance value of 0.0937, and the DER*EPS (β_3) significance value has a significance value of 0.0031. So, it can be said that EPS is included in the Pure Moderator variable.

4.4. Coefficient of Determination (R^2) Results

Table 3 R^2 Test Results

R-squared	0.950185
Adjusted R Squared	0.921720

From Table 3, the coefficient of determination which represented by adjusted R squared is 0.921720. This value means all independent variables, namely X1, X2, X3 and X4 all together change the stock price variable by 92.17%, the remaining 7.83% is influenced by other factors outside this research model.

Table 4 F-Test Result

F-statistics	33.38012
Prob (F-statistics)	0.000000

From the result of the above F-test (Table 4), the probability value (F-statistic) is $0.0000 < 0.05$ implies that the MRA model is feasible and important to investigate. The outcome of the F-test also mean that all independent variables (ROA, CR, DER, and adjustment variable EPS) have a large impact on the dependent variable (stock price) at the same time.

4.5. Partial Regression Coefficient Test (t-Test) Results

Table 5 t-Test Result

Variable	Coefficient	Std. Error	t-Statistics	Prob.
X1 (CR)	14.00120	8.012655	1.747386	0.0829
X2 (ROA)	26,353.65	6,437.572	4.093725	0.0001
X3 (DER)	-773.3419	720.9747	-1.072634	0.2854
Z (EPS)	-4.390253	2.600639	-1.688144	0.0937
X1_Z (CR*EPS)	-3.512489	0.590774	-5.945575	0.0000
X2_Z (ROA*EPS)	-7.045976	3.324469	-2.119429	0.0359
X3_Z (DER*EPS)	5.228790	1.735669	3.012549	0.0031

The coefficient at the positive CR variable is 14.00120, with a prob cost of 0.0829, ich is greater than 0.05, indicating that CR gives a positive and negligible have an impact on stock prices, rejecting H1. The coefficient at the nice ROA variable is 26,353.65, with a prob cost of 0.0001 (less than 0.05) indicating that CR has a increasing and substantial influence on stock prices, indicating that H2 is acceptable. The coefficient on the negative DER variable is -773.3419, with a prob value of 0.2854, indicating a probability greater than 0.05 (H3 is unaccepted), implying that DER has a negative and negligible influence on stock prices statistically. The coefficient on the negative EPS variable is 4.390253, with a prob value of 0.0937, indicating a probability > 0.05, indicating that DER has a negative and negligible influence on stock prices, rejecting H4.

The negative coefficient of the CR variable with EPS as the adjustment variable is 3.512489, and the prob value is 0.0000, indicating that the profitability is 0.05 (accept H5), implying that the ROA with EPS as the adjustment variable has a significant negative impact on the stock price. The negative coefficient of the ROA variable with EPS as the adjustment variable is 7.045976, and the prob value is 0.0359, indicating that the profitability is 0.05, indicating that the ROA with EPS as the adjustment variable is negative, The positive coefficient of the DER variable with EPS as the moderating variable is 5.228790 and the probability value is 0.0031, indicating that the profitability is 0.05 (H5 is acceptable), implying that the DER with EPS as the moderator has a significant positive impact on stock prices, as stated in H7.

5. CONCLUSIONS

This paper examined the factors that affect stock prices with EPS as a moderating variable, specifically in manufacturing companies listed in IDX from 2018 to 2020. According to the analyses that have been conducted, the findings can be concluded as follows:

- Liquidity which represented by *Current Ratio* (CR), has a positive impact to the stock price. The higher the CR value, it gives more trust to the shareholder since a high CR represents the ability of a company to pay their short-term liabilities and reduce the possibility of bankruptcy.
- For the profitability, it represented by *Return on Assets* (ROA). The ROA also has a positive impact towards the stock price of manufacturing companies listed on IDX from 2018 - 2020.
- In reverse, a company's solvency, expressed as a Debt-to-Equity ratio (DER), adversely affects the stock prices of IDX-listed manufacturers from 2018 to 2020. This is consistent with theoretical backing, indicating that the higher the DER value, the more the company's debt is greater than its capital. This condition has been avoided by investors to minimize the risk of default.

- d. Finally, EPS has a insignificant negative impact on the stock prices of IDX-listed manufacturer companies from 2018 to 2020. In addition, based on the results of moderate test, suggests that EPS can ease the link moderating variables between stock price liquidity, profitability, and solvency [9].

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