FACTORS AFFECTING STOCK PRICES USING MODERATION VARIABLES IN COAL SUBSECTOR COMPANIES LISTED ON THE INDONESIAN STOCK EXCHANGE 2015 - 2022

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ABSTRACT

The moderating variable in this study is firm size. The study aims to determine the effects of net profit margin, debt-to-debt equity ratio, and total asset turnover on stock prices. This study falls under the category of quantitative research and employs a descriptive and verification technique. Secondary data were used; the procedures for gathering the data were provided by documentation and a review of the literature. In the sampling process, purposeful sampling is employed. The data analysis techniques used in this study included modified regression analysis (MRA), coefficient of determination analysis, product-moment correlation coefficient analysis, multiple regression analysis, and the classical assumption test. According to the results of the simultaneous test (F test), the debt-to-equity ratio, net profit margin, and total asset turnover all influence stock prices concurrently. The correlation criterion table shows that the correlation score is between 41% and 60%, which indicates a moderate connection. This indicates that, beyond the variables analysed, there exist additional factors that have the potential to increase the share prices of mining companies in the coal subsector on the Indonesia Stock Exchange between 2015 and 2022.

Keywords: net profit margin; debt to equity ratio; total asset turnover; stock price; firm size

INTRODUCTION

Indonesia considers coal to be a very precious resource because the industry generates a sizable amount of annual revenue for the state. The money produced by this sector goes toward funding state operations. Records show that the state made IDR 124.4 trillion from coal and mineral extraction. This number includes state revenue that is not subject to taxes, export duties, and other charges (nasional.tempo, 2023)

The primary reasons for the decline in coal prices in Indonesia include the surplus or excess supply circumstances in the market, as well as the increasing penetration of renewable energy sources and domestic supply. If coal prices continue to decline, it will put pressure on the coal mining sector. The Ministry of

Energy and Mineral Resources (ESDM) admits that prices will not be as high as they were in 2022 and that state revenue from coal will decline. The decline in coal prices also affected the share prices of other coal issuers, including INDY, ITMG, and ADRO (bisnis.com, 2023).

When making investment decisions, capital market participants continually seek out information pertinent to current market conditions because capital market investors must exercise caution (Liana & Febriyanti, 2024; Putri & Febriyanti, 2024). But not all information is useful; therefore, those involved in the stock market must choose wisely which information to consider when making decisions (Lie Sha, 2015).

Dividends and/or capital gains are the two advantages (returns) that investors or shareholders can earn from purchasing or holding shares. A company's dividends are a direct distribution to shareholders of its net profit, whereas capital gains or losses are the result of changes in share price (Rosmawati & Ginting, 2022).

According to Sugiri (2011), an examination of the company's core elements yields the intrinsic worth of its shares (internal conditions). According to a different viewpoint, a company's increased wealth level and strong performance will ultimately result in higher profitability, or return, for the company's shareholders (Husnan, 2015).

Literature Review

In this research, the moderating variable is used, namely Firm Size. Firm size is used as a moderating variable because it is one of the investment consideration factors. Therefore, the purpose of adding Company Size as a moderating variable is to find out whether it can strengthen or weaken the relationship between Net Profit Margin, Debt to Equity Ratio, and Total Asset Turnover on Stock prices. According to Sugiyono (2022), a moderating variable "is a variable that influences (strengthens and weakens) the relationship between the independent variable and the

Financial Performance

Fahmi (2020), A company's financial performance can be defined as how well its diverse activities have performed. It also describes the company's success. It is possible to clarify that financial performance analysis is done to determine how well a business has applied financial implementation guidelines.

Financial Reports

According to Kasmir (2021), financial reports should aim to achieve the following goals:

1. Give details about the kinds and quantities of assets (property) that the company now has.

2. Provide information about the type and amount of income obtained in a certain period.

3. Give details on the kinds and total amount of expenses the business incurred over a specific time.

4. Give details on the kinds and total amount of expenses the business incurred over a specific time.

5. Describe any modifications to the company's capital, liabilities, and assets.

6. Describe the managerial performance of the organization over a given period.

7. Give details regarding the notes made on financial reports.

8. Additional financial data.

Stock Price

According to Mandagie et al. (2014), the stock price is a figure that is established by supply and demand during active trading in the stock market. In the meanwhile, shareholder wealth is determined by stock prices, claim Brigham et al. (2018). The company's stock price

must be maximized to maximize shareholder value.

The cash flows that the "average" investor is anticipated to get in the future if they buy the shares will determine the stock price at any time.

Firm Size

In accordance with Toni et al. (2021:33), firm size "is the scale of a company to be categorized into the size of the company." As for firm size, it "is a scale where the size of a company can be classified according to various methods, including total assets, log size, stock market value, etc." according to Harahap, (2018:23). The following formula can be used to find firmness:

Firm Size = Ln (Total Asset)

Net Profit Margin (NPM)

By comparing profits after interest and tax to sales, the net profit margin is calculated. This ratio displays the net profit from sales for the business (Kasmir, 2016).

Jusuf, (2014), defines the net profit margin (NPM) as the amount of profit a company makes after subtracting all costs and sales from its total revenue. The revenue-to-sales ratio is another name for the net profit margin (NPM) ratio. According to the definition given above,

net profit margin, or NPM, is the difference between net profit after taxes and total sales. This ratio evaluates the business's capacity to turn a profit relative to sales volume. NPM calculation formula:

$$\text{Net Profit Margin} = \frac{\text{Net Profit}}{\text{Sales}} \times 100\%$$

Debt To Equity Ratio

Hery (2023) states that the debt-to-equity ratio is a ratio that's utilized to figure out how much debt there is compared to capital. The quotient of total debt and capital is used to get this ratio. Meanwhile, as stated by Kasmir (2021), "the debt-to-equity ratio is a measure of the relative amounts of debt and equity. By comparing all debt—including current debt—with all equity, this ratio can be determined. Formula to find DER:

$$\text{Debt to Equity Ratio} = \frac{\text{Debt Total}}{\text{Total Equity}}$$

Total Asset Turnover

As stated by Kasmir (2021:187), "Total Asset Turnover is a ratio used to measure the turnover of all assets owned by a

$$\text{Total Asset Turnover} = \frac{\text{Sales}}{\text{Total Assets}}$$

company and measure how many sales are obtained from each rupiah of assets." "Total Asset Turnover is a ratio that shows total asset turnover as measured by sales volume, in other words, how far all assets are able to create sales," claims Harahap (2018). Calculation of the Total Asset Turnover Formula:

$$\text{Total Asset Turnover} = \frac{\text{Sales}}{\text{Total Assets}}$$

Hypothesis

According to Sugiyono (2022), "A hypothesis is a temporary answer to a research problem formulation, where the research problem formulation has been stated in the form of a question sentence. The hypotheses that will be tested in this research include:

H_1: There is an influence of Net Profit Margin on Stock prices.

H_2: There is an influence of the Debt-to-Equity Ratio on Stock Prices.

H_3: There is an influence of Total Asset Turnover on Stock prices.

H_4: There is a simultaneous influence of Net Profit Margin, Debt to Equity Ratio, and Total Asset Turnover on Stock prices.

H_5: There is an influence of Net Profit Margin on Stock prices with Company Size as a Moderating Variable.

H_6: There is an influence of Debt-to-Equity Ratio on Stock Prices with Firm Size as a Moderating Variable.

H_7: There is an influence of Total Asset Turnover on Stock prices with Firm Size as a Moderating Variable

H_8: There is an influence of Net Profit Margin, Debt to Equity Ratio, and Total Asset Turnover on Stock Prices with Firm Size as a Moderating Variable simultaneously.

RESEARCH METHOD

This study employed a quantitative methodology that included a descriptive and verification approach. The population used in this study is all Coal Sub-Sector Mining Companies listed on the Indonesia Stock Exchange from 2015 to 2022 sourced from Indonesian Stock Exchange. as many as 28 companies but, not all populations were used in this study, using the purposive sampling method, this study obtained a sample of 9 companies with the following data:

Table 1. Research Sample

No.	Code	Company
1.	ADRO	Adaro Minerals Indonesia Tbk
2.	BSSR	Baramulti Suksessarana Tbk
3.	GEMS	Golden Energy Mines Tbk
4.	HRUM	Harum Energy Tbk
5.	ITMG	Indo Tambangraya Megah Tbk
6.	MBAP	Mitrabara Adiperdana Tbk
7.	MYOH	Samindo Resources Tbk
8.	PTBA	Bukit Asam Tbk
9.	TOBA	TBS Energi Utama Tbk

Type of data used in this study is secondary data from the firm's yearly financial reports, which are available on the website of the company and the Indonesian Stock Exchange, was used in this study from 2015-2022.

Descriptive Statistical Analysis

In this study, descriptive statistics by looking at the mean value, standard deviation, maximum, and minimum in each variable, namely Net Profit Margin, Debt to Equity Ratio, and Total Asset Turnover to Stock Price with Firm Size as a Moderation Variable in 2015-2022.

Verificative Statistical Analysis

Verifiable statistical analysis is an analysis to prove and find the truth of the hypothesis proposed. In this study, the verifier analysis aims to find out how strong the influence of the independent variables studied in this study is Net Profit Margin (X1), Debt to Equity Ratio (X2), and Total Asset Turnover (X3), on the Stock Price (Y) with the Firm Size Moderation Variable (Z).

RESULT AND DISCUSSION

Descriptive analysis

Based on the results of descriptive analysis, it is known that the stock prices of coal sub-sector mining companies on the

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Indonesia Stock Exchange in 2015-2022 have a minimum value of 358. The maximum value is 39,025 and the standard deviation of stock prices is 6,171,610. Furthermore, for Company Size, it has a minimum value of 28.04 a maximum value of 32.76, and a Standard Deviation for Company Size of 1.22090. For Net Profit Margin, the minimum value is 0.59, the maximum value is 41.99 and the Standard Deviation is 9.12834. Debt to Equity Ratio has a minimum value of 0.10, a maximum value of 1.65 with a Standard Deviation of 0.37393. Finally, Total Asset Turnover has a minimum value of 0.32, a maximum value of 2.59, and a Standard Deviation of Total Asset Turnover of 0.49099.

Multiple Regression Analysis

Table 2. Multiple Regression Analysis Results

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Coefficientsᵃ						
Model		B	Std. Error	Beta		
1	(Constant)	1.801	23.480		.077	.939
	Net Profit Margin	6.664	3.273	.228	2.036	.046
	Debt to Equity Ratio	-17.584	15.723	-.126	-1.118	.267
	Total Asset Turnover	39.586	15.641	.283	2.531	.014
a. Dependent Variable: Stock Price						

Based on the calculations of the Multiple Linear Regression Analysis, the following equation can be formed:

$$Y = 1,801 + 6,664X_1 - 17,584X_2 + 39,586X_3$$

Description:

Y = Dependent variable (Stock Price)

X_1 = Independent Variable (Net Profit Margin)

X_2 = Independent Variable (Debt to Equity Ratio)

X_3 = Independent variable (Total Asset Turnover)

The following interpretation can be made using the regression equation above:

1) The stock price (Y) variable has a value of 1.801 if the net profit margin (X1), debt-to-equity ratio (X2), and total asset turnover (X3) variables are all zero (0).

2) Financial performance refers to the systematic endeavor or outcome undertaken by an organization to gauge its profitability and, consequently, its prospects, growth, and potential for positive development through the utilization of its current resources.

3) Every unit rise in the Debt-to-Equity Ratio (X2) variable will result in a -17.584 reduction in the value of the Stock price (Y) variable, if all other variables remain constant. Conversely, for every unit reduction in variable X2, variable Y will increase by -17.584 while the other variables stay constant.

4) The stock price (Y) variable will grow by 39.586 for each unit increase in the total asset turnover (X3) variable if all

other variables remain constant. However, variable X3 reduces by one unit for every unit that the other variables remain constant, resulting in a 39.586 reduction in variable Y.

Moderated Regression Analysis

Table 3. Moderated Regression Analysis Results

Coefficients^a				

Unstandardized Coefficients		Standardized Coefficients	t	Sig.
B	Std. Error	Beta		
11.348	15.652		.725	.471
203.907	106.332	6.987	1.918	.060
-1438.155	560.024	-10.270	-2.568	.013
3078.394	432.372	22.002	7.120	.000
-37.042	19.384	-7.076	-1.911	.060
-273.760	102.513	-10.872	-2.670	.010
579.621	79.078	21.745	7.330	.000

Based on the Moderated Regression Analysis Test (MRA), the constant values and regression coefficients are known so that the MRA equation can be formed as follows:

$Y = 11{,}348 + 203{,}907X_1 - 1438{,}155X_2 + 3078{,}394X_3 - 37{,}042[X_1Z] - 273{,}760[X_2Z] + 579{,}621[X_3Z]$

Description:
Y   = Dependent variable (Stock Price)
X_1 = Independent Variable (Net Profit Margin)
X_2 = Independent Variable (Debt to Equity Ratio)
X_3 = Independent variable (Total Asset Turnover)
Z   = Moderated Variable (Firm Size)
X_1Z = Interaction of Net Profit Margin with Firm Size
X_2Z = Interaction of Net Profit Margin with Firm Size

X_3Z = Interaction of Net Profit Margin with Firm Size

1) That the interaction between the variables, the net profit margin (X1), the debt-to-equity ratio (X2), and the total asset turnover (X3) are all 11.348.

2) Every unit rise in the Net Profit Margin (X1) variable will result in a 203.907 increase in the value of the Stock price (Y) variable, if all other variables remain constant. Conversely, if variable X1 decreases by one unit while the other variables stay unchanged, variable Y will decrease by 203.907.

3) Every unit rise in the Debt-to-Debt-to-Equity ratio (X2) variable will result in a -1438.155 reduction in the value of the Stock price (Y) variable, if all other variables remain constant. Conversely, variable Y will grow by -1438.155 if every unit drops in variable X2 while the other variables remain constant.

4) Every unit increase in the Total Asset Turnover (X3) variable will result in a 3078.394 increase in the value of the Stock price (Y) variable, if all other variables remain constant. Conversely, if variable X3 declines by one unit while the other variables stay unchanged, variable Y will decrease by 3078.394.

5) Every unit increase in the interaction between variable X1 and variable Z will

lower the profitability value if the interaction between the moderating variable Company Size (Z), the variable Net Profit Margin (X1), and other factors is constant. -37,042 is the variable stock price (Y). However, variable Y will increase by -37.042 for every unit drop in the interaction between variables X1 and Z, with the other variables remaining constant.

6) The value of the Stock price (Y) variable will decrease by -273,760 for each unit rise in the interaction between the Debt-to-Equity Ratio (X2), the moderating variable Company Size (Z), and other factors if this interaction remains constant. On the other hand, variable Y will increase by -273,760 for every unit decrease in the interaction of variable X2 with Z, while the other variables remain unchanged.

7) Every unit increase in the interaction between variable X3 and variable Z will raise the value of the variable Total Asset Turnover (X3) with the moderating variable Size Company (Z) and other variables if the interaction between said variables and the moderating variable is constant. 579,621 is the variable stock price (Y).

On the other hand, variable Y will fall by 579.621 for every unit decrease in the interaction of variable X3 with Z, assuming the other variables remain constant.

Determination Coefficient Analysis

Table 4. Determination Coefficient Analysis Result

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.666[a]	.443	.391	3966.08937

a. Predictors: (Constant), Total Asset Turnover_Z, Net Profit Margin_Z, Debt to Equity Ratio_Z, Total Asset Turnover, Net Profit Margin, Debt to Equity Ratio

b. Dependent Variable: Stock Price

The results of the Coefficient of Determination Test after Moderation show that the coefficient of determination (R square) value of 0.443 indicates that variations in the variables of net profit margin, debt-to-equity ratio, and total asset turnover can impact stock prices. Specifically, net profit margin is influenced by company size, debt-to-equity ratio is influenced by firm size, and total asset turnover is influenced by firm size at 44.3%. There is a moderate association, according to the correlation criterion table, which covers correlation values between 41% and 60%.

Tabel 5. Test (Partial)

Hypothesis Testing

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51978.703	6	8663.117	22.809	.000[b]
	Residual	24687.424	65	379.807		
	Total	76666.127	71			

ANOVA[a]

a. Dependent Variable: Stock Prices

b. Predictors: (Constant), Total Asset Turnover_Z, Net Profit Margin_Z, Debt to Equity Ratio_Z, Total Asset Turnover, Net Profit Margin, Debt to Equity Ratio

Table 6. F Test (Simultaneous) Results

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	11.348	15.652		.725	.471
	Net Profit Margin	203.907	106.332	6.987	1.918	.060
	Debt to Equity Ratio	-1438.155	560.024	-10.270	-2.568	.013
	Total Asset Turnover	3078.394	432.372	22.002	7.120	.000
	Net Profit Margin_Z	-37.042	19.384	-7.076	-1.911	.060
	Debt to Equity Ratio_Z	-273.760	102.513	-10.872	-2.670	.010
	Total Asset Turnover-_Z	579.621	79.078	21.745	7.330	.000

a. Dependent Variable: Stock Prices

Based on table 5, The study's findings support the following hypothesis-testing (t-test) conclusions: (1) Stock price (Y), where count < table, specifically 1.918 < 1.996, is unaffected by Net Profit Margin (X1). (2) Where count < table, that is, -2.568 < -1.996, the debt-to-equity ratio (X2) has a negative and significant impact on stock price (Y). (3) Where count > table, i.e., 7.120 > 1.996, Total Asset Turnover (X3) has

a positive and significant effect on Stock price (Y). (4) Where count > table, that is, -1.911 > -1.996, firm size (Z) cannot mitigate the impact of net

profit margin (X1) on stock prices (Y). (5) Where count < table, that is, -2.670 < -1.996, firm size (Z) can mitigate the impact of debt-to-equity ratio (X2) on stock prices (Y). (6) Where count > table, that is, 7.330 > 1.996, firm size (Z) can mitigate the impact of total asset turnover (X3) on stock prices.

Based on table 6, the study's findings indicate that the following three factors—Debt to Equity Ratio (X2), Net Profit Margin (X1), and Total Asset Turnover (X3)—all have a simultaneous impact on the stock price (Y), where Fvalue > Ftable equals 4.120 > 2.74. (8) The share price (Y) is simultaneously influenced by the net profit margin (X1), debt-to-equity ratio (X2), and total asset turnover (X3) with the company size (Z), where Fvalue > Ftable, or 22.809 > 2.24.

CONCLUSION

Identify the presence and type of moderators' variables have important implications. If there is a significant interaction between the moderator and the independent variable and a correlation between the moderator itself and (a) the independent variable, (b) the dependent variable, or (c) the independent and dependent variables,

call the variable a quasi-moderator (Sharma et al,1981).

The results of the F test research (simultaneous) show that Net Profit Margin (X1), Debt to Equity Ratio (X2), and Total Asset Turnover (X3) simultaneously influence Stock Prices (Y) with Company Size (Z) as the Moderating Variable. The coefficient of determination (R square) is 0.443, which means that changes in share prices can be influenced by changes in the variables Net Profit Margin, Debt to Equity Ratio, Total Asset Turnover, Net Profit Margin moderated by Firm Size, Debt to Equity Ratio moderated by Firm Size, and Total Asset Turnover is moderated by Firm Size at 44.3%. Based on the correlation criteria table which includes correlation values between 41% - 60%, there is a significant relationship.

The research conducted by the author still has limitations, both in sample selection and problem analysis. In future research, researchers who will use stock prices as a dependent variable are advised to add or change sectors and replace indicators that can influence stock

prices so that better predictors can be obtained.

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