

THE EFFECT OF EARNING PER SHARE AND RETURN ON EQUITY ON PRICE TO BOOK VALUE IN COAL MINING SUB-SECTOR COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE

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ABSTRACT

This study aims to determine and analyze the effect of EPS and ROE on PBV. This study uses a purposive sampling method with a total of 11 samples of financial reports of coal mining companies listed on the Indonesia Stock Exchange for the period 2020 to 2023. The data collection method uses documentation. The analysis technique used is multiple regression analysis. The results of this study indicate that (1) Earning Per Share has a significant positive effect on Price To Book Value. This is because Price To Book Value increases, so investors will make purchases of shares which will increase the purchase price of shares. (2) Return On Equity has an effect and is significant on Price To Book Value. This is because Return On Equity has increased in terms of profit on share capital, making investors interested and making purchases of shares causing the share price to increase, (3) Earning Per Share and Return On Equity have an effect and are significant on Price To Book Value. Increasing share prices accompanied by good management can increase purchases of shares, thereby contributing to Price To Book Value.

Keywords: *Earning Per Share, Return On Equity, Price To Book Value*

INTRODUCTION

The capital market serves as a conduit between investors and corporations or government institutions through the trading of long-term instruments such as bonds, stocks, and other securities. In the capital market, stock prices reflect all relevant information; therefore, public companies listed on the Indonesia Stock Exchange (IDX) are obligated to submit annual financial reports to the IDX, investors, and the public each year. One category of companies that publish their financial statements on the Indonesia Stock Exchange is the Coal Mining Sub-Sector companies.

The mining sector constitutes a fundamental pillar of a nation's economic development, playing a substantial role as a provider of energy resources essential for economic growth. The Coal Sub-Sector represents one of the sub-sectors within the Mining Sector and possesses the highest number of companies compared to other sub-sectors. The coal industry represents a viable business venture, given its critical function in supporting national economic development and supplying requisite energy resources.

The metric employed to assess a financial manager's success in managing corporate finances is the firm's value (Adam, 2022). Company value is generally associated with stock price; consequently, the higher the stock price, the greater the company's value, and vice versa (Bryant, 2023).

Company value can be measured using the Price to Book Value (PBV) ratio. Price to Book Value (PBV) is a ratio that describes the extent to which the market values a company's book value. The market price-to-book value ratio provides an indication of investor perceptions regarding the company (Arifuddin, 2023). A lower PBV indicates a lower stock price relative to its book value, whereas a higher PBV suggests a higher stock price (Adam, 2022).

One determinant of investment decisions frequently utilized by investors is Earnings Per Share (EPS). The Earnings Per Share ratio demonstrates the company's capacity to generate net income attributable to security holders based on the shares invested. An overall increase in earnings signifies that Earnings Per Share is experiencing growth, thereby reflecting an increase in the company's value through its stock price (Hardiyanti & Dzulkirom Ar, 2019).

Corporate profitability can be measured through one of the profitability analyses in financial ratios, namely Return on Equity (ROE). Return on Equity (ROE) measures how effectively a company utilizes shareholders' capital to generate profits. Companies that manage their capital efficiently tend to produce higher ROE, which appeals to investors. Increased investor interest will heighten demand for the company's shares, thereby elevating the stock price and influencing the company's value.

The following presents the average Earnings Per Share (EPS), Return on Equity (ROE), and Price to Book Value (PBV) of Coal Mining Sub-Sector companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2023.

Table 1
 Average Data of EPS, ROE, and PBV Variables in Coal Mining
 Sub-Sector Companies Listed on the IDX, 2020-2023

Variable	2020	2021	2022	2023
EPS (%)	23,9	24,9	42,6	35,6
ROE (%)	19,2	27	52,2	31,7
PBV (%)	2,2	2,8	2,7	2,3

Source: Indonesian Stock Exchange, 2024

Based on Table 1 above, Price to Book Value exhibited fluctuations from 2020 to 2023; however, the results consistently remained above 1. Price to Book Value (PBV) represents the ratio between stock price and book value. When a company has a PBV above 1 (>1), the stock price is valued higher than its book value, indicating that the company's performance is increasingly favorable in the eyes of investors. Earnings Per Share demonstrated fluctuations, showing both increases and decreases over the four-year period. The increase in Earnings Per Share indicates an increase in corporate earnings. Similarly, Return on Equity experienced fluctuations over the four-year period, reflecting increases and decreases corresponding to each company's performance in generating profits.

Previous researchers have examined both the independent and dependent variables in this study with varying results. From this diversity, there exists a research gap concerning the variables influencing Price to Book Value. Research by Sihombing et al. (2020) stated that EPS has no significant effect on PBV. Research by Seftiana et al. (2022) indicated that ROE has no effect on firm value. Conversely, research by Adam et al. (2022) found that EPS and ROE significantly influence PBV. From these previous studies, the results remain inconsistent regarding the factors influencing PBV. Given this phenomenon, the author intends to conduct research entitled "The Effect of Earnings Per Share (EPS) and Return on Equity (ROE) on Price to Book Value (PBV) in Coal Mining Sub-Sector Companies Listed on the Indonesia Stock Exchange."

Signaling Theory was first introduced by Spence (1973), which explains that the sender (information holder) provides a signal in the form of information reflecting the condition of a company that is beneficial to the recipient (investor). This signal may take the form of promotions or other information indicating that the company is superior to other companies.

Jensen and Meckling (1976) explained the agency relationship as a contract in which one or more persons, as principals (shareholders), engage another person as an agent (management) to perform services on behalf of the principal and authorize the agent to make decisions that best serve the principal's interests. Their work involves decision-making regarding the outcomes of corporate activities.

According to Kasmir (2019:209), Earnings per Share (EPS), also known as book value ratio, is a ratio used to measure management's success in achieving profits for shareholders. A low ratio indicates that management has not succeeded in satisfying shareholders, whereas a high ratio implies increased shareholder welfare.

Kasmir (2019:206) defines Return on Equity (ROE) or return on own capital as a ratio to measure net profit after tax against own capital. This ratio demonstrates the efficiency of own capital

utilization. The higher this ratio, the better, indicating a stronger position for company owners, and vice versa.

Ukhriyawati and Dewi (2019) describe firm value or PBV as depicting the extent to which the market appreciates the book value of a company's shares. PBV can reflect that the company is favorably regarded by investors due to its secure profits and cash flows. A high PBV value will instill market confidence in the company's future prospects. Based on signaling theory and previous research, the hypotheses of this study are as follows:

H1: *Earnings Per Share (EPS) influences Price to Book Value (PBV).*

H2: *Return on Equity (ROE) influences Price to Book Value (PBV).*

H3: *Earnings Per Share (EPS) and Return on Equity (ROE) simultaneously influence Price to Book Value (PBV).*

METHODS

The location and object of this research are Coal Mining Sub-Sector companies listed on the Indonesia Stock Exchange that have disclosed their annual financial statements and issued annual reports for the 2020-2023 period, accessible through the official Indonesia Stock Exchange website. The population in this study comprises 23 coal mining companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2023.

The sampling method employed purposive sampling, resulting in a sample of 11 coal mining companies listed on the Indonesia Stock Exchange for the 2020-2023 period. The type of data used in this research is quantitative data. Quantitative data consists of numerical figures obtained from the Indonesia Stock Exchange through the official website <http://www.idx.co.id> in the form of annual financial reports for the 2020-2023 period.

The data source utilized in this research is secondary data. The secondary data consists of financial reports of coal mining companies listed on the Indonesia Stock Exchange for the 2020-2023 period, obtained from the official Indonesia Stock Exchange website (www.idx.co.id) and respective company websites. Furthermore, data collection was conducted through documentation, gathering annual reports downloaded from the official Indonesia Stock Exchange website (www.idx.co.id) and from each respective company's official website.

Earnings Per Share and Return on Equity serve as the independent variables in this study. Earnings Per Share is measured by dividing current year earnings (EAT) by the number of outstanding shares. This ratio is employed to measure management's success in achieving profits for shareholders (Kasmir, 2019). A low ratio indicates that management has not succeeded in satisfying shareholders, whereas a high ratio implies increased shareholder welfare.

Subsequently, Return on Equity is measured by dividing net profit after tax by shareholders' equity. This ratio demonstrates the efficiency of own capital utilization (Kasmir, 2019). The higher this ratio, the better, indicating a stronger position for company owners, and vice versa.

Firm value represents the dependent variable in this study, measured by dividing total equity by the number of outstanding shares. Firm value or PBV depicts the extent to which the market appreciates the book value of a company's shares (Ukhriyawati & Dewi, 2019).

The data analysis method employed in this research is multiple linear regression analysis. Multiple linear regression is used to determine the effect of Earnings Per Share and Return on Equity on Price to Book Value in coal mining sub-sector companies. This analytical method utilizes SPSS 26 software (*Statistical Product and Service Solution*). The multiple linear regression equation is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where:

- Y = Price to Book Value
- X_1 = Earnings Per Share
- X_2 = Return on Equity
- α = Constant/intercept
- β_1 - β_2 = Regression coefficients
- ε = Error term

RESULT

Descriptive Statistics

The Earnings Per Share variable, based on processed secondary data, indicates that in 2020, the average EPS of 11 companies was 23.9%, representing the lowest average across all years. This was attributable to the coal price still recovering from the COVID-19 pandemic, resulting in reduced coal demand due to lockdown measures. However, the average EPS began to increase in 2021 to 24.9%, and in 2023 to 35.6%. The year 2022 recorded the highest average at 42.6%, with the increase in coal prices serving as a primary factor, as coal prices experienced a significant increase compared to the previous year.

The Return on Equity variable, based on processed secondary data, shows that in 2020, the average ROE of 11 companies was 19.2%, representing the lowest average compared to other years due to the COVID-19 pandemic. The closure of activities and lockdown policies resulted in a decline in global demand, which impacted coal prices, reaching their lowest point. However, the average ROE began to increase in 2021 to 27%, and in 2023 to 31.7%. The year 2022 recorded the highest average at 52.2%, attributable to the significant increase in coal prices compared to the previous year.

The Price to Book Value variable, based on processed secondary data, indicates that in 2020, the average PBV of 11 companies was 2.2%. This represented the lowest average compared to 2021 (2.8%), 2022 (2.7%), and 2023 (2.3%).

Table 2.
Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
EPS	44	2.1	139.2	32.795	28.471
ROE	44	4.0	115.3	32.539	26.513
PBV	44	.4	9.3	2.532	1.714
Valid N (listwise)	44				

Source : Research data (2024)

Multiple Linear Regression Analysis

Regression analysis was applied to the research data to determine whether there is an effect between independent and dependent variables. The multiple linear regression equation is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

The results of the multiple linear regression analysis, conducted using IBM SPSS 26, are presented in the following table:

Table 3.
Multiple Linear Regression Analysis

		Unstandardized		Standardized		
		B	Std. Error	Beta		
1	(Constant)	-.170	.384		-.444	.660
	EPS	.047	.007	.646	6.490	.000
	ROE	.046	.008	.541	5.434	.000
a. Dependent Variable: PBV						

Source : Research data (2024)

Based on the data processing results from the multiple linear regression test shown in the table above, the following linear equation was obtained:

$$Y = -0.170 + 0.047X_1 + 0.046X_2 + \varepsilon$$

Based on the multiple linear regression test results, the constant value is negative at (-0.170), indicating that if the independent variables, namely Earnings Per Share (EPS) and Return on Equity (ROE), have a constant value or are equal to zero, then the Price to Book Value (PBV) would be (-0.170). The regression coefficient for the Earnings Per Share variable is 0.047, which can be interpreted as EPS having a positive relationship with PBV, meaning that for every unit increase in EPS, the PBV will increase by 0.047, assuming other independent variables remain constant. The regression coefficient for the Return on Equity variable is 0.046, which can be interpreted as ROE having a positive relationship with PBV, meaning that for every unit increase in ROE, the PBV will increase by 0.046, assuming other independent variables remain constant.

Hypothesis Testing

The t-test aims to determine the individual effect of each independent variable on the dependent variable. The F-test is conducted to determine whether all independent variables simultaneously influence the dependent variable. Additionally, the coefficient of determination test (Adjusted R-Square) is performed to measure the extent to which the model's capability (independent variables) explains the variation in the dependent variable. The results of these three tests are presented in Table 4.

Based on the hypothesis test results, the calculated t-value for the Earnings Per Share variable (X_1) is $t\text{-count} = 6.490 > t\text{-table} = 2.020$, with a significance level (0.000) less than the established probability (0.05). From these results, it is concluded that the Earnings Per Share variable has a positive and significant effect on Price to Book Value in Coal Mining Sub-Sector Companies Listed on the Indonesia Stock Exchange, indicating that the first hypothesis is accepted. Furthermore, the calculated t-value for the Return on Equity variable (X_2) is $t\text{-count} = 5.434 > t\text{-table} = 2.020$, with a significance level (0.000) less than the established probability (0.05). This indicates that Return on Equity has a positive and significant effect on Price to Book Value in Coal Mining Sub-Sector Companies Listed on the Indonesia Stock Exchange, indicating that the second hypothesis is accepted.

Subsequently, the calculated F-value is $F\text{-count} = 31.170 > F\text{-table} = 3.28$, with a significance level (0.000) less than the established probability (0.05). This indicates that Earnings Per Share and Return on Equity jointly have a positive and significant effect on Price to Book Value in coal mining sub-sector companies listed on the Indonesia Stock Exchange, indicating that the third hypothesis is accepted.

The coefficient of determination test (Adjusted R^2) shows a value of Adjusted R-Square (R^2) = 0.584, indicating that the direct effect of the independent variables Earnings Per Share (X_1) and Return on Equity (X_2) on Price to Book Value (Y) is 58.4%. This suggests that there are epsilon variables (ϵ) of 41.6% that influence variable Y but are not measured in this study.

Table 4
 Results of Coefficient of Determination, t-test, and F-test

Variable	Tcount	Ttable	Sig.	Fcount	Ftable	Sig.	Adjusted R^2
EPS	6,490	2,020	0,000	31,170	3,28	0,000	0,584
ROE	5,434	2,020	0,000				

Source : Research data (2024)

DISCUSSION

The Effect of Earnings Per Share on Price to Book Value

Based on the results of testing the first hypothesis, it is concluded that Earnings Per Share has a positive and significant effect on Price to Book Value in coal mining sub-sector companies listed on the Indonesia Stock Exchange for the 2020-2023 period, and the hypothesis is accepted. This indicates that every increase in Earnings Per Share will result in an increase in Price to Book Value. The increase in Earnings Per Share illustrates the extent of the company's ability to generate

earnings per share, enabling investors to ascertain the profits obtained by the company from their shares. This occurs because, based on processed data, the EPS of the companies studied, despite fluctuating, experienced a significant increase. In 2021, EPS in coal sub-sector companies increased by 24.9% on average per year compared to the previous year, which only achieved 23.9%. Furthermore, in 2022, EPS increased to 42.6%, significantly higher than previous years, indirectly enabling investors to assess and perceive that coal sub-sector companies can generate promising returns per share of their investment.

Investors will be attracted to hold shares due to high EPS values, with the expectation that the stock price will increase rapidly, thereby generating profits for shareholders. When investor attention increases toward stocks that demonstrate favorable and improving Earnings Per Share ratios, investors will purchase these shares, thereby driving up the share purchase price. Subsequently, the stock price will rise, causing the company's value, measured using Price to Book Value, to also increase.

The results of this study are consistent with signaling theory. In this context, the EPS variable functions as an important signal. EPS reflects net income per share, indicating how well the company manages its resources to create value for shareholders. Investors frequently use EPS as a primary indicator in evaluating company performance. High EPS can indicate that the company successfully manages production costs, improves operational efficiency, and capitalizes on high coal prices. This sends a positive signal that the company possesses good profitability, which in turn increases investor confidence. The results of this study also align with agency theory. Managers acting as agents will strive to maintain or increase EPS because this figure serves as one of the benchmarks investors use to assess their success in managing the company. By increasing EPS, managers demonstrate accountability to the principals (shareholders). When EPS increases and has a significant positive impact on PBV, this reflects managers' efforts to align their interests with shareholders, consistent with the fundamental principles of agency theory.

The results of this study are consistent with research conducted by Adam et al. (2022), Seftiana et al. (2022), and Atmaja & Afa (2023), which demonstrated that Earnings Per Share has a significant effect on Price to Book Value.

The Effect of Return on Equity on Price to Book Value

Based on the results of testing the second hypothesis, it is concluded that Return on Equity has a positive and significant effect on Price to Book Value in coal mining sub-sector companies listed on the Indonesia Stock Exchange for the 2020-2023 period, and the hypothesis is accepted. This indicates that every increase in Return on Equity will result in an increase in Price to Book Value. This occurs because, based on processed data, the ROE of the companies studied, despite fluctuating, experienced a significant increase. In 2021, ROE in coal sub-sector companies increased by 27% on average per year compared to the previous year, which only achieved 19.2%. Furthermore, in 2022, ROE increased to 52.2%, significantly higher than previous years, indirectly enabling investors to assess and perceive that coal sub-sector companies can generate promising returns.

Return on Equity (ROE), often referred to as return on common equity, is commonly translated as profitability of own capital (profitability of share capital). ROE is used to assess how effectively company management manages capital to generate profits. Investors use ROE to project the

company's growth potential. In the mining industry, companies with high ROE are assumed to possess the ability to manage operational risks and capitalize on market opportunities, such as rising coal prices or improved operational efficiency. These growth expectations make the company's stock more attractive, thereby increasing PBV. With increased investor confidence, PBV will also increase, demonstrating that ROE has a positive effect on firm value.

The results of this study are consistent with agency theory. High ROE indicates that management effectively manages equity capital to generate profits, which can increase shareholder confidence. This also reflects management's success in meeting shareholder expectations, maximizing firm value, and reducing conflicts of interest. In coal mining companies, this relationship becomes more important because the industry is significantly influenced by external factors such as commodity prices and regulations, making efficient management a key factor in increasing market confidence. The results of this study also align with signaling theory. In this context, ROE can function as a signal to investors regarding the quality and prospects of the company. When a company generates high ROE, it sends a positive signal that the company is efficient and profitable, making investors more interested and attracting more investors who wish to purchase the company's shares. This will in turn increase PBV and signal that the company manages its assets and capital effectively, thereby increasing investor confidence in the company's ability to generate future profits. The results of this study are consistent with previous research conducted by Adam et al. (2022), Atmaja & Afa (2023), and Bryant (2023), which stated that Return on Equity has a positive and significant effect on Price to Book Value.

The Effect of Earnings Per Share and Return on Equity on Price to Book Value

Based on the third hypothesis, it is concluded that Earnings Per Share and Return on Equity simultaneously have a positive and significant effect on Price to Book Value in coal mining sub-sector companies listed on the Indonesia Stock Exchange for the 2020-2023 period, and the hypothesis is accepted. Thus, when Earnings Per Share and Return on Equity increase, the company's value (PBV) will also increase in line with improvements in EPS and ROE. This condition demonstrates that EPS and ROE have a significant effect in increasing the PBV of coal mining sub-sector companies on the Indonesia Stock Exchange.

EPS and ROE complement each other in influencing PBV, as both provide a comprehensive picture of the company's financial performance and efficiency. EPS indicates the extent to which the company can generate net income for each share. Meanwhile, ROE complements EPS by demonstrating how effectively the company utilizes equity to generate profits. Companies capable of improving both metrics will tend to have higher market value. When both EPS and ROE are high, this sends a strong positive signal to the market that the company not only generates high profits but also does so efficiently. This provides greater confidence to investors regarding the company's ability to generate profits and manage assets, making Earnings Per Share and Return on Equity simultaneously influential on Price to Book Value in coal mining sub-sector companies listed on the Indonesia Stock Exchange for the 2020-2023 period. The results of this study are consistent with previous research supporting the findings of Adam et al. (2022), Atmaja & Afa (2023), and Bryant (2023).

CONCLUSION

This research aimed to determine the effect of Earnings Per Share and Return on Equity on Price to Book Value in coal mining sub-sector companies listed on the Indonesia Stock Exchange for the 2020-2023 period. The research findings and discussion yield the following conclusions: (1) Earnings Per Share has a positive and significant effect on Price to Book Value, with every increase in EPS resulting in a 0.047 increase in PBV. This occurs because an increase in EPS leads investors to purchase shares, thereby raising the share purchase price and consequently increasing PBV. (2) Return on Equity has a positive and significant effect on Price to Book Value, with every increase in ROE resulting in a 0.046 increase in PBV. This occurs because an increase in ROE, in terms of profits on share capital, attracts investors and prompts share purchases, causing the share price to rise and PBV to increase. (3) Earnings Per Share and Return on Equity collectively have a positive and significant effect on Price to Book Value. Increasing share prices accompanied by effective management can enhance share purchases, thereby contributing to Price to Book Value. Similarly, well-managed and controlled ROE enables companies to obtain profits, attracting investors and prompting share purchases, making Price to Book Value increasingly optimal.

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