



Share Price Model in Lq45 Companies Listed on The Indonesia Stock Exchange

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Abstract: This research undertakes an in-depth analysis to examine the correlation between Price to Book Value, Price Earning Ratio, and asset growth on stock prices. Return On Equity was used as a moderating variable in scrutinizing LQ45 companies registered on the Indonesia Stock Exchange. The study targeted companies featured in the LQ45 list on the Indonesia Stock Exchange during 2019 - 2022. A purposive sampling method was employed to select a representative sample of 26 companies for the regression analysis, which was conducted using a multiple linear model. The results indicated that Price to Book Value, Price Earning Ratio, and asset growth collectively had a significant impact on stock prices. However, individually, Price to Book Value and asset growth demonstrated a notable effect on stock prices. Residual test analyses were also carried out to validate the results. The impact of the price earning ratio on stock prices is negligible. However, it's worth noting that the profitability variable can act as a moderating variable, either amplifying or diminishing the influence of independent variables on stock prices.

Keywords: Price to Book Value, Price Earning Ratio, Asset Growth, Return on Equity, Stock Price

INTRODUCTION

A platform for trading and issuing financial securities, like bonds and stocks, the capital market serves a dual purpose. It allows firms to raise capital and investors to invest. In addition to gauging the growth of different industries, the status of a nation's capital market is a crucial indicator of its economic progress.

To understand investor behavior accurately, one must track the progress of stock prices in the capital market. Investors rely on valuable information, including financial data on the company. Several financial parameters are involved in analyzing stock prices, which includes asset growth, price to book value, and price earning ratio.

This study aims to evaluate the impact of price to book value, price earning ratio, and asset growth on stock prices, with profitability serving as a moderating factor. The scope of

this research is limited to LQ45 firms listed on the Indonesia Stock Exchange. The findings of this analysis are expected to assist a range of stakeholders, including economic and management decision-makers, as well as academics seeking to expand their knowledge.

LITERATURE REVIEW

Stock price

A company's ownership assets are represented by shares, which come in two types: preferred and common. The value of each share is indicative of the company's wealth and is subject to change depending on market demand and supply. On the stock market, fluctuations in share prices are largely influenced by these forces - more demand leads to higher prices, while an influx of sellers can lead to a decrease in stock prices.

Stock prices refer to efficient market conditions, and depend on the relevant information provided: information about price changes in the past, information available to the public or not available to the public. According to sources [2], stock prices are subject to three distinct types of information: past stock price movements, public information, and proprietary company information. The current value of its shares takes into account all historical data. Not only does the share price mirror the price trend of its immediate past, but it also reflects other updates that have been publicly disclosed.

Observing trends from the past period along with publicly available and private information, the share price indicates an issuer's standing. For investors, keeping a close eye on the issuer's condition and monitoring the fluctuation of shares on the stock exchange is a common practice.

Price to Book Value (PBV)

The Price to Book Value (PBV) is the market price-to-book value ratio of shares. Generally, a ratio above one indicates a company is performing well and the market values the stock more than the book value. This ratio is a measure of a company's ability to create corporate value in relation to the amount of capital invested. The higher the PBV ratio, the more investor value the company relative to the funds invested. A higher ratio also reflects market confidence in the company's financial future. [3]

Calculating the value of a stock can be approached through the relationship between its market price and book value per share. In theory, the market value of a share should mirror its book value, rendering this ratio an effective means of gauging potential fluctuations in stock prices. As a result, the PBV ratio indirectly impacts stock prices. The formula used to calculate this ratio is:

The calculation for Price to Book Value involves dividing the Market Value by Book Values.

H1: It can be said that the stock prices are influenced by the Price to Book Value (PBV) as per hypothesis.

Price Earning Ratio (PER)

To determine if a stock is a reasonable investment based on current conditions, potential investors utilize the Price Earning Ratio (PER). The PER aids in calculating the return on invested capital in a stock, comparing the issuer's stock price to the net profit generated over one year. Essentially, the PER reflects investor evaluation of the company's stock price, indicating the amount of funds investors will invest for each income reported by the company. A high PER value will increase investor valuation of the company shares, thus boosting the share price. By relying on the PER ratio, investors can make informed decisions about stock investments.

The calculation for the Price Earning Ratio involves dividing the Market Value (squared) by the Earning Per Share.

$$Price\ Earning\ Ratio = Market\ Value / Earning\ Per\ Share$$

H2: The stock prices can be influenced by the Price Earning Ratio (PER).

Asset Growth

A company's operational prowess is directly proportional to its assets, which are defined as any wealth owned by the company that provides future economic benefits. As assets grow, so do operating results, and this is seen as a sign of trustworthiness by outsiders. The greater the assets, the greater the trust that investors place in the company's ability to guarantee their returns. Asset growth is measured by the percentage change in total assets over a given period, and it is highly anticipated both within and outside the company. Investors consider asset growth as a key indicator of a company's profitability. As such, companies with a higher asset growth value are more likely to have a positive impact on their stock prices.

Asset growth is calculated by the formula:

$$Asset\ Growth = \frac{Asset\ t - Asset\ t-1}{Asset\ t-1} \tag{3}$$

H3: The expansion of assets has an impact on the value of stocks.

2.5. Return on Equity (ROE)

ROE, or Return on Equity, is a vital metric that determines a company's profit available to its owners in contrast to the amount of capital generating those profits. Essentially, it indicates the profitability of a company's capital and its efficacy in generating profits. Shareholders rely on this ratio to gauge the company's management of its own capital, as a higher ratio signifies more efficient capital management. A greater Return On Equity (ROE) indicates a company's enhanced performance, making it an excellent indicator for stock price movements. This ratio is calculated by the formula:

$$Return\ on\ Equity = \frac{Earning\ After\ Taxes}{Total\ Equity} \tag{4}$$

H4: The impact of stock prices is regulated by Return on Equity (ROE), which acts as a moderating factor that governs the influence of book value, price earning ratio, and asset growth.

Table 1. Review of Previous Researchers

Researcher Name	Title	Research variable	Results obtained
Augustine, Jonathan Pongtulan, and Irwahyah (2015)	Factors Affecting the Capital Structure of Pharmaceutical Companies Listed on the Stock Exchange Indonesia	Dependent Variable : 1. Capital Structure 2. Stock price Independent Variable : 1. Asset growth 2. Company size 3. Profitability 4. Business risk 5. Debt to Equity Ratio	Partially : Profitability has a positive effect on stock prices. Business risk has a negative effect on stock prices. Asset growth, company size, and Debt to Equity Ratio have no effect on stock prices.

Indra (2015)	Irfrianto Effect of Price Earning Ratio (PER), Net Profit Margin (NPM), and Return On Equity (ROE) on the Company's Stock Price Sub Sector Telecommunication on Indonesia stock exchange	Dependent Variable : Stock price Independent Variable : 1. Price Earning Ratio 2. Net Profit Margins 3. Return On Equity	Simultaneously : Price Earning Ratio, Net Profit Margin, and Return on Equity affect stock prices. Partially : Price Earning Ratio and Return On Equity has a positive effect on stock prices. Net Profit Margins has no effect on stock prices.
Lydia Savitri and Oetomo (2016)	Ayu Effect of Leverage, Price Earning, Dividend Payout on Stock Prices in Automotive Companies	Dependent Variable : Stock price Independent Variable : 1. Leverage 2. Price Earning Ratio 3. Dividend Payout Ratio	Simultaneously : leverage, Price Earning Ratio, and Dividend Payout Ratio affect stock prices. Partially : leverage positive effect on stock prices. Price Earning Ratio, and the Dividend Payout Ratio has no effect on stock prices.
R. Chepi Safei Jumhana (2016)	The Effect of PER and PBV on PT Lippo's Stock Price Karawaci Tbk	Dependent Variable : Stock Market Prices Independent Variable : 1. Price Earning Ratio 2. Price to Book Value	Simultaneously : Price Earning Ratio and Price to Book Value has no effect on stock prices. Partially : Price Earning Ratio and Price to Book Value has no effect on stock prices.
Stella (2009)	Effect of Price to Earning Ratio, Debt to Equity Ratio, Return on Assets and Price to Book Value Stock Market Prices	Dependent Variable : Stock Market Prices Independent Variable : 1. Price Earning Ratio	Partially : Price Earning Ratio positive effect on stock market prices. Debt to Equity Ratio and Price to Book Value has a negative effect on stock market prices.

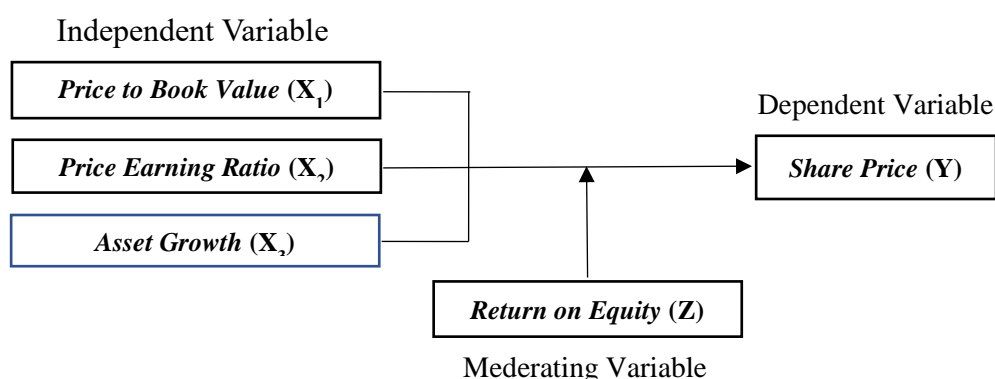


Figure 1. Conceptual Framework

2.

RESEARCH METHODS

The research presented here is quantitative and descriptive, with a special focus on causal relationships. To be specific, it delves into the nature of causal relationships [7]. This study

took place between 2012 and 2015 and was centered around companies listed on the Indonesia Stock Exchange, particularly those belonging to the LQ45 group. The official website served as the primary source of data [8].

For the purpose of data collection, the documentation method is preferred, utilizing secondary data sources. The data collated is a composite of cross-sectional information, derived from different companies, and longitudinal data, spanning multiple time periods, commonly known as pooled data. We derive our secondary data from two main sources: the Indonesia Stock Exchange (www.idx.co.id) and the official websites of companies under consideration.

For the duration of 2019-2022, the entire population of LQ45 companies listed on the Indonesian Stock Exchange were studied. Employing purposive sampling, a selection of 26 companies was obtained.

Table 2. Sampling Criteria

Information	Amount
Research population: LQ45 companies listed on the Indonesia Stock Exchange in the 2019-2022 period	66
Criteria:	
a. LQ45 companies listed consecutively on the Indonesia Stock Exchange in the 2019-2022 period	(39)
b. LQ45 companies that have not experienced growth in assets listed on the Indonesia Stock Exchange in the 2019-2022 period	(1)
Number of samples obtained	26
The number of observation samples = 26 x 4	104

Table 3. Variable Operational Definition

Variable Definition of Variable	Parameter	Scale Measurement
Dependent Variable		
Price Shares (Y)	Parameter value measurement Share price at closing (closing price) company.	Ratio
Independent Variable		
Price to Book Value (X1)	Comparison between the market price and the book value of the stock.	Ratio
	$Price\ to\ Book\ Value = \frac{Market\ Value}{Book\ Values}$	
Price earning Ratio (X2)	Comparison between prices market per share with earnings per share.	Ratio
	$Price\ Earning\ Ratio = \frac{Market\ Value}{Earning\ Per\ Share}$	
grow up Asset (X3)	Percentage change in total assets in a given year against the previous year.	Ratio
	$Asset\ Growth = \frac{Asset\ t - Asset\ t-1}{Assett-1}$	
Moderation Variable		
Return On Equity (Z)	Company capability to generate profit after tax by using the company's own capital.	Ratio
	$Return\ On\ Equity = \frac{Earning\ After\ Taxes}{Total\ Equity}$	

In order to evaluate the impact of the independent variables under scrutiny, the study employed the multiple linear regression analysis approach. Prior to this, classical assumptions were assessed and the moderating variable was tested using the residual test method.

RESULTS AND DISCUSSION

Table 4. Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Means	std. Deviation
ROE	104	1.85	48.76	19.6011	8.74645
PBV	104	.36	9.30	3.0323	1.57983
PER	104	4.79	299.33	20.1913	28.69648
Asset Growth	104	8.26	82.21	17.1001	12.89115
Stock price	104	343.00	60700.00	8957.0962	11058.02296
Valid N (listwise)	104				

As evident from the information presented in Table 4, the variables under study exhibit a range of values, including minimum, maximum, mean, and standard deviation.

Preliminary testing revealed issues with the data's adherence to classical assumptions, with the heteroscedasticity and autocorrelation tests producing unsatisfactory results. Consequently, data screening was performed exclusively on data with a Z-score ranging from -3 to 3, resulting in 2 units of data loss. The data was transformed using Natural Logarithms (Ln) for both Return on Equity (ROE) and stock price variables. Post-transformation, the regression model demonstrated no issues with classical assumptions.

Simultaneous Significance Test (F Statistical Test)

Table 5. Simultaneous Test (F Test)

Model		Sum of Squares	Df	MeanSquare	F	Sig.
1	Regression	12,268	3	4,089	3,452	,019b
	Residual	116,101	98	1.185		
	Total	128,369	101			

a. Dependent Variable: Ln_SharePrice

b. Predictors: (Constant), Asset Growth, PER, PBV

The data presented in Table 5 illustrates that the value of Fcount (3.452) surpasses that of Ftable (2.70), while the sig value (0.019) is less than 0.05. Therefore, it can be inferred that in the years spanning 2019-2022, the stock prices of LQ45 companies listed on the Indonesia Stock Exchange are significantly impacted by all independent variables, including Price to Book Value, Price Earning Ratio, and Asset growth, in unison.

Partial Significance Test (Statistical Test t)

For a 2-way significance test with a probability of 0.05 and n=102, the t table value is 1.984. During 2019-2022, LQ45 companies listed on the Indonesia Stock Exchange were evidently impacted by the Price to Book Value (PBV) variable as suggested by a tcount of 2.746 and a significant value of 0.007. The t count value exceeded ttable (2.746 > 1.984), while the significant value was lower than the significance level (0.007 < 0.050), further supporting the notion that PBV variable played an influential role on stock prices.

The influence of Price Earning Ratio (PER) on Stock Prices

The variable for Price Earning Ratio (PER) yields a tcount of -1.320 with a significant value of 0.190. Since the tcount value is smaller than ttable (|-1.320| < 1.984) and the significant value surpasses the significance level (0.190 > 0.050), it suggests that the PER variable does not influence stock prices for LQ45 firms registered on the Indonesian Securities Exchange during 2019-2022.

The impact of the expansion of assets on stock prices.

The stock prices of LQ45 companies listed on the Indonesia Stock Exchange from 2019-2022 were evidently impacted by the Asset Growth variable as evidenced by a significant value of 0.035 and a tcount of -2.143. This is further supported by a tcount value exceeding ttable at $|-2.143| > 1.984$ and a significant value below the set significance level of 0.050.

$$\text{Ln Share Price} = 8.588 + 0.223\text{PBV} - 0.022\text{PER} - 0.021\text{Asset Growth} \tag{5}$$

The outcome of the analysis can be inferred from the regression equation, leading to the following conclusions:

If the independent variable is zero, the stock price is always at a value of 8.588 units as per the constant.

The variable of Price to Book Value (PBV) boasts a positive regression coefficient value, suggesting that a 1-unit increase in PBV will translate into a 0.223-unit uptick in stock price. Nonetheless, this presupposes that all other independent variables remain constant.

In the context of the study, the variable Price Earning Ratio (PER) exhibits a negative regression coefficient value. This signifies that a one-unit increase in PER would correspond to a drop of 0.022 units in the stock price, provided that the other independent variables remain constant.

The Asset Growth Variable possesses a regression coefficient value with a negative sign, implying that if we keep all independent variables, except Asset Growth, constant, an increase of 1 unit in Asset Growth will result in a 0.021 unit decline in the share price.

Determination Coefficient Test (R2)

Table 6. Coefficient of Determination (R2)

Model	R	R Square	Adjusted R Square	std. Error of the Estimates	Sig. FChange
1	,309a	.096	,068	1.08844	,019

The SPSS output suggests that the Adjusted determination coefficient (R2) is 0.068, indicating that only 6.8% of the variation in stock price can be attributed to fluctuations in the three independent variables- Price to Book Value, Price Earning Ratio, and asset growth. Meanwhile, the remaining 93.2% can be explained by variables outside the scope of this research.

Moderation Test

Table 7. Moderation Test

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	std. Error	Betas	t	
(Constant) 1	,505	,142		3,544	,001
Ln_SharePrice	-.035	,017	-.205	-2,092	.039

Upon examining Table 8, the residual test model equation yields the following outcomes:

$$|e| = 0.505 - 0.035\text{LnShare Price} \tag{6}$$

The residual test equation yielded a significance value of 0.039, which is less than the threshold of 0.05. This confirms the significance of the Return on Equity (ROE) in moderating the influence of Price to Book Value, Price Earning Ratio, and asset growth on stock prices.

This conclusion holds true for the 2019-2022 period, particularly for LQ45 companies listed on the Indonesia Stock Exchange.

Discussion

1. Over the period spanning 2019-2022, LQ45 companies listed on the Indonesia Stock Exchange experienced a positive and significant impact on stock prices due to the Price to Book Value (PBV) variable. This study corroborates the findings of previous research stating that a rise in PBV is positively associated with an increase in stock prices [9]. However, these results contradict research indicating that PBV has no significant effect on stock prices [10]. The PBV ratio shows how much value investors hold in a company relative to the funds they have invested. As such, it plays a crucial role in how investors evaluate a company's worth and affects investment decisions. Investors tend to gravitate towards companies with good performance, which in turn drives up stock prices.
2. During 2019 - 2022, the Price Earning Ratio (PER) variable lacked any influence on stock prices in LQ45 companies listed on the Indonesia Stock Exchange. A similar conclusion was reached by a previous study [11]. However, this result contradicts another research that found a significant impact of PER on stock prices [12]. Ultimately, this study shows that PER cannot predict or estimate high or low stock prices, and that they remain unaffected by this factor. Rather, investors consider other factors like Earning Per Share (EPS) when selecting stocks.
3. During the 2019-2022 period, LQ45 firms listed on the Indonesia Stock Exchange experienced a negative and noteworthy impact on their stock prices as a result of Asset Growth. Ironically, these findings contradict previous research which found no correlation between asset growth and stock prices [14]. The results of this study reveal a discrepancy between the research and the theory, demonstrating how an increase in asset growth ultimately leads to a decrease in stock prices. This outcome may stem from suboptimal asset utilization, where existing assets are not being properly leveraged, leading to a rise in asset depreciation. The depreciation of assets can significantly shorten their useful life, resulting in a need for replacement and a reduction in company profits. This decline in profits subsequently leads to a decrease in investor interest in the company's shares, ultimately resulting in a drop in the firm's stock price
4. The stock price of LQ45 companies listed on the Indonesia Stock Exchange for the period 2019-2022 can be influenced by the variables such as Price to Book Value (PBV), Price Earning Ratio (PER), and asset growth, but the influence can be moderated by the Return On Equity (ROE) variable. A higher ROE signifies higher profitability and better company performance, which in turn attracts investors and results in a subsequent rise in stock prices. Therefore, a greater ROE is always preferable as it helps companies generate better profits and perform well in a competitive market.

CONCLUSION

1. Throughout the years 2019-2022, LQ45 companies listed on the Indonesia Stock Exchange experienced notable changes in stock prices influenced by a multitude of factors. Among these, the Price to Book Value (PBV), Price Earning Ratio (PER), and asset growth were particularly impactful.
2. Between 2019 and 2022, LQ45 firms listed on the Indonesia Stock Exchange experienced a notable impact on their stock prices due to their Price to Book Value (PBV) and asset growth. Conversely, Price Earning Ratio (PER) did not demonstrate any significant effect on their stock prices during this period.
3. The adjusted coefficient of determination (R^2) has been calculated to be 0.068. This indicates that only 6.8% of the variations in stock prices can be accounted for by the changes

in the three independent variables - Price to Book Value, Price Earning Ratio, and Asset Growth. The remaining 93.2% is attributed to other variables beyond the scope of the research.

4. The impact of independent variables on stock prices in LQ45 companies, listed on the Indonesia Stock Exchange during 2019 - 2022, can be reinforced or weakened by the moderating variable, Return on Equity (ROE).

REFERENCE

- Tandelilin, E. 2001, Investment Analysis and Portfolio Management, First Edition, Publisher: BPFE, Yogyakarta.
- Harahap, SS 2002, Critical Analysis of Financial Statements, Publisher: PT Raja Grafindo Persada, Jakarta.
- Darmadji, T. and Hendy M. Fakhrudin, 2006, Capital Markets in Indonesia, Salemba Empat Publishers, Jakarta.
- Tryfino. 2009. The Smart Way to Invest in Stocks. Jakarta: Transmedia Pustaka.
- Kusmuriyanto. 2005. Basic Financial Accounting. Semarang: UPT. UNNES Press
- Riyanto, Bambang. 2002. Fundamentals of Corporate Spending, 4th Edition, BPFE, Yogyakarta.
- Sugiyono. 2002, Business Research Methods, Book 1, Publisher: Alfabeta, Bandung.
- Indonesia stock exchange. [On line].www.idx.co.id
- Stella, 2009, Effect of Price to Earning Ratio, Debt to Equity Ratio, Return on Assets and Price to Book Value on Stock Market Prices, Journal of Business and Accounting, Vol. 11, no. 2, August, 97 – 106.
- Jumhana, RCS, 2016, The Influence of PER and PBV on the Company's Share Price PT Lippo Karawaci Tbk, Proceedings of the National Scientific Seminar, Postgraduate University of Pamulang.
- Irfrianto, I., 2015, The Influence of Price Earning Ratio (PER), Net Profit Margin (NPM), and Return On Equity (ROE) on Share Prices of Telecommunication Sub-Sector Companies on the Indonesia Stock Exchange, Business Administration eJournal, Vol. 3, No. 2, 416–429.
- Savitri, LA, and Oetomo, HW, 2016, Effect of Leverage, Price Earning, Dividend Payout on Stock Prices in Automotive Companies, Journal of Management Science and Research, Vol. 5, No. 7, July.
- Agustini, Pongtuluran, Y., and Irwansyah, 2015, Factors Influencing the Capital Structure and Stock Prices of Pharmaceutical Companies Listed on the Indonesia Stock Exchange, Executive Journal, Vol. 12, No. 1, June.