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Research Article

Influence of Financial Ratios and Firm Size on Stock Underpricing in IPO Companies at the Indonesia Stock Exchange (2021–2023)

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Abstract: This study delves into the dynamics between selected financial indicators, Return on Assets (ROA), Return on Equity (ROE), Debt to Equity Ratio (DER), Earnings per Share (EPS), and firm size, and the phenomenon of stock underpricing among firms undertaking Initial Public Offerings (IPOs) on the Indonesia Stock Exchange during 2021–2023. From a population comprising all IPO-listed companies within this period, purposive sampling yielded 124 firms, of which 14 were excluded as statistical outliers, resulting in 110 observations for analysis. Employing a quantitative framework, the research integrates classical assumption diagnostics with multiple linear regression to examine both collective and individual variable effects through F-tests and t-tests, respectively. The findings reveal that ROA and EPS exert significant negative influences on underpricing, aligning with signaling theory, while ROE, DER, and firm size do not demonstrate partial significance. Nonetheless, when considered jointly, all five variables exhibit a statistically significant impact, suggesting that investors may interpret financial signals in aggregate rather than isolation when navigating IPO valuations.

Keywords: Earning per Share; Firm Size; Return on Assets; Return on Equity; Underpricing

1. Introduction

The high level of competition in today's business world requires companies to have sufficient capital, especially for business development and expansion purposes. This expansion step not only aims to expand market share but also to maintain the company's survival amid increasingly complex competition (Ariyanti & Isynuwardhana, 2023). An upward trend in the issuance of equity shares by firms registered on the Indonesia Stock Exchange serves as an indicator of the dynamic evolution of capital market conditions. One option that can be considered by investors is shares from the primary market, which offer profit potential among the many available stock options (Widianto & Khristiana, 2021).

When internal company funds are no longer able to meet operational and business development needs, companies are required to seek alternative funding from outside sources. External sources such as creditors and investors become commonly taken solutions. One strategy used is by making public stock offerings through the capital market, known as Initial Public Offering (IPO) (Widyanti, 2017). IPO is not just a fundraising process but also a strategic step to support company expansion.

In the IPO process, price determination becomes a crucial aspect involving agreement between issuers and underwriters. The absence of historical prices that can be used as references makes this process full of challenges and uncertainties. A disparity between IPO and aftermarket prices, known as underpricing, may occur when shares trade higher post-listing. Such a condition undermines the issuer's ability to maximize proceeds from the initial sale (Sudarmanto et al., 2021).

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Underpricing phenomenon occurs when the valuation of shares in the initial offering is set below the price level formed in transactions in the secondary market, as explained by Sakawa and Watanabel (2020). For issuers, this condition is not beneficial because the funds obtained from the IPO become suboptimal. However, for investors, underpricing actually becomes an opportunity to obtain initial returns. In Indonesia, the underpricing trend is quite consistent in IPO implementation. Data shows that in 2023, 54 out of 79 companies conducting IPOs experienced underpricing. In the previous year, 46 out of 59 companies experienced the same thing, and in 2021, 42 out of 54 IPO companies experienced underpricing (www.idx.co.id).

Underpricing can be influenced by several factors, which have been previously investigated by several researchers, originating from internal companies, including ROE and ROA. Research results regarding the influence of ROA and ROE on underpricing show inconsistencies. Given the heterogeneity of previous empirical outcomes on the drivers of underpricing, a renewed examination employing varied temporal scopes and sample compositions is warranted. This study, therefore, reexplores the impact of ROA, ROE, DER, EPS, and firm scale on IPO underpricing for companies listed on the Indonesia Stock Exchange from 2021 to 2023.

2. Literature Review

Signalling Theory

Fahmi (2020) states that signaling theory describes how price movements in the market, including stocks and bonds, become references for investors in determining investment steps. Signals that are positive or negative will trigger various reactions: some investors immediately make purchases, and some choose to delay decisions by observing the situation first. A company's choice to undervalue its initial stock offering is often perceived as a calculated communicative gesture. In capital market settings, such pricing serves to transmit strategic cues to the investing public. This practice is known as underpricing and is used by companies to convey signals regarding their quality and long-term performance prospects (Putri, 2019).

Capital Market

As a financial instrument that functions to connect fund owners with parties requiring financing, the capital market carries a vital function as a strategic instrument supporting accelerated growth and long-term economic sustainability. Through public offering mechanisms and securities trading, the capital market provides financing access for companies and government institutions, while opening share ownership opportunities for the wider public (Aryanti, 2018; Putri et al., 2022

Initial Public Offering (IPO)

The initial stock offering or IPO is the initial stage when a corporate entity (issuer) conducts an initial offering of its securities to the wider public. Before this process takes place, issuers are required to issue a prospectus document containing detailed information regarding the company's financial condition, operations, and business prospects. Functioning as a foundational document, the prospectus equips investors with essential insights. This allows for informed judgment regarding the plausibility and attractiveness of the investment offering (Paningrum, 2022)

Underpricing

Underpricing denotes a pricing disparity where the initial share value falls short of its secondary market valuation. Although this scenario generates early profits for investors, it hampers the issuer's ability to secure optimal proceeds, and its magnitude is determined using the following equation:

$$Underpricing = (Closing\ Price - Offering\ Price) / Offering\ Price \times 100\%$$

Return on Assets (ROA)

A firm's capacity to derive profit from its asset base is captured through the Return on Assets (ROA) metric. Enhanced operational efficiency leads to a higher ROA, which is computed using the equation shown below:

$$ROA = Net\ Income / Total\ Assets \times 100\%$$

Return on Equity (ROE)

A firm's proficiency in converting invested equity into profit is represented by the Return on Equity (ROE) metric. This financial indicator, which gauges the effectiveness of equity management, is calculated as shown below:

$$ROE = Net\ Income\ /\ Total\ Equity \times 100\%$$

Debt to Equity Ratio (DER)

As a measure of capital structure, the Debt to Equity Ratio compares the firm's obligations with its equity holdings. When this ratio is high, it implies intensified financial leverage and risk, and its value is derived using the following equation:

$$DER = Total\ Debt\ /\ Total\ Equity$$

Earning Per Share (EPS)

As a financial gauge, Earnings Per Share (EPS) encapsulates a firm's ability to convert profits into shareholder value while projecting future liquidity potential. Fahmi (2020) characterizes EPS as a mechanism for allocating earnings based on share quantity, and its computation follows the formula presented below:

$$EPS = Net\ Income\ /\ Number\ of\ Outstanding\ Shares$$

Firm Size

Firm size is a measure that shows the scale of a company, which can be viewed from several aspects such as total assets, sales, or market capitalization. Larger companies tend to have better access to capital, greater operational stability, and are considered less risky by investors. The measurement of firm size is derived from the natural logarithm of total assets reported by each company.

Previous Research

Several previous studies have examined factors affecting underpricing with varied results. Ariyanti and Isynuwardhana (2023) found that ROA, firm size, and industry type significantly influence the level of stock underpricing. Agustine (2020) revealed that DER, ROA, and underwriter reputation play an important role in determining the level of stock underpricing. Evitasari (2023) posits that DER fails to demonstrate a statistically robust linkage to underpricing behavior. Such findings indicate that leverage, as measured by DER, may not significantly affect IPO valuation gaps. These inconsistent results indicate the need for further studies to understand more deeply the relationship between financial ratios and underpricing phenomenon.

Research Framework and Hypotheses

Drawing upon insights from the literature and the framework of signaling theory, this research formulates the following hypotheses:

H1: Return on Assets (ROA) significantly influences underpricing in companies conducting IPOs during the period 2021-2023

H2: Return on Equity (ROE) significantly influences underpricing in companies conducting IPOs during the period 2021-2023

H3: Debt to Equity Ratio (DER) significantly influences underpricing in companies conducting IPOs during the period 2021-2023

H4: Earning per Share (EPS) significantly influences underpricing in companies conducting IPOs during the period 2021-2023

H5: Firm size significantly influences underpricing in companies conducting IPOs during the period 2021-2023

H6: ROA, ROE, DER, EPS, and firm size simultaneously influence underpricing in companies conducting IPOs during the period 2021-2023

3. Research Method

Research Type

Secondary data from IPO issuers listed on the Indonesia Stock Exchange in the 2021–2023 period serves as the foundation for this study's quantitative analysis. To examine the relationships among variables, multiple linear regression analysis is employed.

Population and Sample

A total of 192 companies listed through IPOs on the Indonesia Stock Exchange during the 2021–2023 period form the basis of this study's population. The sample was determined through purposive sampling, guided by predefined eligibility parameters:

a. Companies conducting IPOs during the period 2021-2023
b. Companies experiencing underpricing
c. Companies not experiencing losses
d. Complete availability of financial data required

A total of 124 firms satisfied the inclusion parameters established for this study. Subsequent outlier filtration resulted in a final dataset of 110 companies.

Table 1. Sample Selection Criteria.

No	Description	Total
1	Companies conducting IPOs during 2021-2023 at Indonesia Stock Exchange	192
2	Companies not experiencing underpricing	(52)
3	Companies experiencing losses	(16)
4	Outlier data	(14)
5	Final sample	110

Source: Processed data, 2024

Data Collection

Drawn from www.idx.co.id and additional relevant platforms, the secondary data used in this research includes financial disclosures and IPO documentation of companies listed on the Indonesia Stock Exchange.

Research Variables

Underpricing serves as the dependent variable in this research, while ROA, ROE, DER, EPS, and firm size are treated as independent variables. The operational definitions for each of these variables are outlined below:

Table 2. Variable Operationalization.

Variable	Definition	Measurement
Underpricing (Y)	The difference between closing price and offering price	(Closing Price - Offering Price) / Offering Price × 100%
ROA (X1)	Company's ability to generate profit from total assets	Net Income / Total Assets × 100%
ROE (X2)	Company's ability to generate profit from shareholders' equity	Net Income / Total Equity × 100%
DER (X3)	Comparison between total debt and total equity	Total Debt / Total Equity
EPS (X4)	Profit earned per outstanding share	Net Income / Number of Outstanding Shares
Firm Size (X5)	Measure showing company scale	Ln (Total Assets)

Source: Author, 2025

3.5. Data Analysis Technique

Descriptive statistical methods, assumption diagnostics (normality, multicollinearity, heteroscedasticity, and autocorrelation), and multiple regression analysis form the core of this study's analytical approach. Hypothesis testing was conducted via t-test and F-test procedures, with data processed using SPSS version 26.

4. Results and Discussion

Descriptive Statistics

To depict the overall distribution of the data, this study applies descriptive statistical techniques. These encompass the calculation of minimum and maximum values, average scores, and standard deviations for all variables.

Table 3. Descriptive Statistics Results

Variable	N	Minimum	Maximum	Mean	Std. Deviation
ROA	110	-4.61	-1.90	-3.1478	0.80140
ROE	110	-4.61	-1.61	-2.8375	0.80178
DER	110	-4.61	0.46	-1.0093	0.99191
EPS	110	-4.61	-0.52	-2.3127	1.14430
Firm Size	110	-2.19	1.73	0.4755	0.79191
Underpricing	110	-4.61	0.86	-0.8182	0.79208

Source: SPSS output (processed data, 2024)

According to Table 3, the descriptive statistics indicate that underpricing has a mean of -0.8182 and a dispersion of 0.79208. ROA and ROE report mean values of -3.1478 and -2.8375, respectively, with nearly identical standard deviations of approximately 0.80. DER's mean stands at -1.0093 with a variability of 0.99191, while EPS averages -2.3127 and varies by 1.14430. Firm size, in contrast, shows a positive mean of 0.4755 and a standard deviation of 0.79191.

Classical Assumption Test Results

a. Normality Test

Normality testing serves to verify whether the residuals conform to a Gaussian distribution within the regression framework. The Kolmogorov-Smirnov test produced an Asymp. Sig. value of 0.200, suggesting that the residuals exhibit a statistically normal pattern.

b. Multicollinearity Test

This diagnostic procedure examines the extent to which overlapping relationships among predictors may undermine the integrity of the regression estimates. The analysis reveals that all predictors meet the acceptable thresholds, Tolerance > 0.10 and VIF < 10, indicating a stable model free from multicollinearity concerns.

Table 4. Multicollinearity Test Results

Variable	Tolerance	VIF	Conclusion
ROA	0.526	1.901	No multicollinearity
ROE	0.539	1.857	No multicollinearity
DER	0.771	1.297	No multicollinearity
EPS	0.697	1.434	No multicollinearity
Firm Size	0.827	1.209	No multicollinearity

Source: SPSS output (processed data, 2024)

c. Heteroscedasticity Test

Heteroscedasticity testing evaluates whether the residuals exhibit unequal variance across observations in the regression framework. A non-systematic spread of data points around the zero line on the Y-axis, as shown in the scatterplot, confirms the presence of homoscedasticity.

d. Autocorrelation Test

Autocorrelation testing evaluates whether error terms in the regression model exhibit sequential dependence between adjacent time periods. The Durbin-Watson score of 1.518 lies within the acceptable range, suggesting that the residuals are independently distributed.

e. Multiple Linear Regression Analysis

By applying multiple linear regression, this study investigates the extent to which the independent variables collectively account for variations in the dependent variable. The statistical results are outlined in the following section:

Table 5. Multiple Linear Regression Analysis Results

Variable	B Coefficient	Std. Error	t-statistic	Sig.	Conclusion
Constant	-5.371	4.570	-1.175	0.243	-
ROA	-0.265	0.124	-2.132	0.035	Significant
ROE	0.029	0.125	0.230	0.818	Not Significant
DER	0.019	0.080	0.237	0.813	Not Significant
EPS	-0.190	0.070	-2.734	0.007	Significant
Firm Size	0.169	0.110	1.533	0.128	Not Significant

Source: SPSS output (processed data, 2024)

Drawing from the statistical output in Table 5, the formulation of the multiple linear regression equation is as follows:

$$Y = -5.371 - 0.265X_1 + 0.029X_2 + 0.019X_3 - 0.190X_4 + 0.169X_5$$

According to the regression equation, the intercept value of -5.371 reflects the baseline underpricing when no independent variables exert influence. The negative coefficients for ROA and EPS indicate inverse relationships, where each unit increase in ROA and EPS results in a decline in underpricing by 0.265 and 0.190 units, respectively.

Hypothesis Testing

a. Partial Test (t-test)

To determine the separate influence of each predictor on the outcome variable, this study applies the t-test. The findings from this analysis are presented below:

- The influence of ROA on underpricing is statistically significant ($p = 0.035$), supporting hypothesis H1.
- ROE does not significantly affect underpricing ($p = 0.818$), leading to the rejection of H2.
- DER fails to show a meaningful impact on underpricing ($p = 0.813$), resulting in the rejection of H3.
- EPS significantly reduces underpricing ($p = 0.007$), confirming hypothesis H4.
- Firm size does not have a significant effect ($p = 0.128$), and therefore H5 is not supported.

b. Simultaneous Test (F-test)

To evaluate the joint effect of all predictors on the outcome variable, this study employs the F-test. An F-statistic of 3.187 with a p-value of 0.010 confirms that ROA, ROE, DER, EPS, and firm size significantly influence underpricing when considered together, validating hypothesis H6.

c. Coefficient of Determination Test

This test gauges how effectively the model captures variance in the dependent construct. An Adjusted R Square of 0.091 suggests that ROA, ROE, DER, EPS, and firm size collectively account for 9.1% of the underpricing variation, while the remaining 90.9% stems from unobserved or excluded variables.

Discussion

a. The Influence of ROA on Underpricing

The test results show that ROA significantly influences underpricing with a negative regression coefficient of -0.265. The inverse relationship between ROA and underpricing indicates that firms with stronger asset profitability experience less pricing distortion during IPOs. This outcome supports signaling theory, where high ROA conveys favorable performance cues to investors, narrowing the gap in information and lowering underpricing. Such firms exhibit operational efficiency, which reassures investors of promising future returns.

These findings support the research of Ariyanti and Isynuwardhana (2023) which found that ROA significantly influences underpricing during the period 2016-2020. Similarly, Agustine (2020) and Sartika et al. (2022) also found that ROA has a significant influence on underpricing with a negative coefficient direction. However, these results differ from the findings of Devi (2019) who stated that ROA does not affect underpricing. This difference may be caused by differences in research periods and samples used, where market conditions and investor characteristics during the research period can influence the relationship between ROA and underpricing.

b. The Influence of ROE on Underpricing

With a significance value of 0.818 > 0.05, ROE is shown to lack a meaningful influence on underpricing. This implies that investors tend to overlook ROE as a key consideration in IPO assessments. This may be because ROE is more relevant for companies that are already mature and have a stable capital structure, while companies conducting IPOs generally still have an unstable capital structure and tend to focus on business growth rather than maximizing returns to shareholders.

These findings support the research of Elan (2022) and Hayati et al. (2021) which found that ROE has no significant influence on underpricing. However, these results differ from the findings of Apriliyanti et al. (2021) and Jayanarendra and Wiagustini (2019) who found that ROE influences stock underpricing. These differences may be caused by differences in sample characteristics used, where companies conducting IPOs in different periods may have different capital structures and business strategies.

c. The Influence of DER on Underpricing

Test results reveal that DER fails to demonstrate a significant relationship with underpricing, given its p-value of 0.813. This indicates that the level of company leverage is not a major consideration for investors in assessing companies conducting IPOs. This may be because investors are more focused on growth potential and company performance rather than capital structure. Additionally, in the IPO context, companies usually use the funds obtained to reduce debt levels, so existing debt levels are not considered a significant long-term risk.

These findings support the research of Evitasari (2023), Sisharini and Kutu (2022), and Ariyanti and Isynuwardhana (2023) which found that DER has no significant influence on underpricing. However, these results differ from the findings of Yandes (2023), Agustine (2020), and Sartika et al. (2022) who found that DER influences underpricing. These differences may be caused by differences in research periods, where market and economic conditions can influence how investors perceive financial risk related to company leverage.

d. The Influence of EPS on Underpricing

With a regression coefficient of -0.190 and a significance level of 0.007, EPS is shown to significantly and negatively influence underpricing. In other words, as EPS rises, the level of underpricing tends to decline. EPS is widely regarded by investors as a reliable indicator of a company's earnings capability. When EPS is high, it reflects solid financial health, mitigates information asymmetry, and reduces the tendency for underpricing. Firms with strong EPS figures are generally

perceived as having favorable future profitability, which boosts investor confidence.

These findings support the research of Retnowati (2013) which found that EPS has a negative and significant influence on underpricing. However, these results differ from the findings of Pangesti (2020) who found that EPS has no influence on the level of underpricing. This difference may be caused by differences in sample characteristics and research periods used, where investors' focus on the EPS indicator may vary depending on market conditions and the type of industry of companies conducting IPOs.

e. The Influence of Firm Size on Underpricing

With a p-value of 0.128, surpassing the 0.05 threshold, firm size is shown to have no statistically significant effect on underpricing. This indicates that investors are likely to prioritize other financial indicators over company size when assessing IPO opportunities. This may be because investors are more focused on growth potential and company performance rather than company size. Additionally, in the IPO context, both large and small companies can experience underpricing depending on other factors such as market conditions, industry reputation, and financial performance.

These findings support the research of Syofian and Sebrina (2021) and Sartika et al. (2022) which found that firm size has no significant influence on underpricing. However, these results differ from the findings of Ariyanti and Isynuwardhana (2023) and Yuniarti and Syarifudin (2020) who found that firm size significantly influences underpricing. These differences may be caused by differences in research periods and sample characteristics, where market conditions and investor preferences may change over time.

f. The Simultaneous Influence of ROA, ROE, DER, EPS, and Firm Size on Underpricing

With an F-statistic of 3.187 and a significance value of 0.010, the study confirms that ROA, ROE, DER, EPS, and firm size jointly affect underpricing in a statistically significant manner. While some variables may lack individual significance, their simultaneous contribution helps explain variation in underpricing. This finding reflects how investors consider a broad spectrum of financial indicators when evaluating IPO opportunities. Nonetheless, the model's Adjusted R Square of 0.091 indicates limited explanatory power, suggesting that 90.9% of underpricing variation stems from external factors not captured in this study, such as reputational signals, firm maturity, and broader economic conditions.

5. Conclusions

The findings of this study reveal that Return on Assets (ROA) and Earnings per Share (EPS) significantly and negatively affect underpricing among companies conducting IPOs during 2021–2023. Higher values of ROA and EPS are associated with lower levels of underpricing. These results align with signaling theory, suggesting that strong profitability indicators such as ROA and EPS serve as credible signals to investors, thereby reducing information asymmetry and underpricing. In contrast, Return on Equity (ROE), Debt to Equity Ratio (DER), and firm size do not exhibit significant partial effects on underpricing. This implies that investors may place greater emphasis on direct profitability metrics rather than structural or size-related indicators when evaluating IPO firms.

However, when tested simultaneously, ROA, ROE, DER, EPS, and firm size together have a significant influence on underpricing. This shows that although some variables do not have significant influence individually, collectively these variables can explain variation in underpricing. Investors consider various aspects of company financial performance comprehensively in making investment decisions in the IPO market. Reflected by an Adjusted R Square of 9.1%, indicates limited explanatory power of the selected variables. A substantial portion of underpricing variation

remains attributable to unobserved influences like underwriter credibility, auditor standing, firm maturity, prevailing market conditions, and macroeconomic trends. In light of these findings, it is imperative that future investigations broaden the analytical scope by integrating supplementary variables potentially linked to underpricing, thereby enriching the interpretive depth of IPO valuation dynamics.

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