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Share Premium, IPO Overvaluation and Post-IPO Underperformance in an Emerging Markets: Evidence from Indonesia's Acceleration Board

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Abstract: This study investigates whether IPO valuation indicators predict the long-term post-IPO performance of companies listed on the Indonesia Stock Exchange (IDX) Acceleration Board. The study examines the effects of Price-to-Book Value (PBV), Price-to-Earnings Ratio (PER), Trading Volume Ratio (TVR), and Share Premium Ratio on post-IPO stock returns. Using a quantitative explanatory and predictive research design, this study analyzed the entire population of 43 Acceleration Board IPO firms listed between 2020 and 2024. Data were analyzed through descriptive statistics, Pearson correlation, multiple linear regression, binary logistic regression, and machine learning models. including Decision Tree and Random Forest for predictive analytics. The results reveal that more than two-thirds of Acceleration Board IPO firms experienced negative post-IPO returns across the 360-, 720-, and 1,080-day observation periods, indicating widespread long-term underperformance. However, the selected valuation indicators demonstrate limited explanatory and predictive power, with only PBV showing a significant positive association with 720-day returns. Overall, the findings suggest that long-term IPO performance is influenced by broader firm-specific and market-related factors beyond initial valuation metrics. The study also shows that Share Premium Ratio is not reliable indicator of IPO overvaluation, as it primarily reflects the legal and administrative structure of IPO pricing rather than firms' intrinsic economic value.

Keywords: IPO valuation, post-IPO underperformance, Price-to-Book Value, Share Premium Ratio, Indonesia Stock Exchange.

INTRODUCTION

Initial Public Offerings (IPOs) constitute an important financing mechanism through which private firms obtain external capital while enhancing corporate visibility and market credibility. The IPO pricing process is particularly critical because it determines both the amount of capital raised and investors' perceptions of a firm's future prospects. However, establishing an appropriate offering price remains challenging, especially for early-stage firms

characterized by limited operating histories, uncertain cash flows, and substantial information asymmetry. Consequently, IPO valuations are often influenced by investor expectations rather than solely by firms' financial fundamentals (Scott, 2015).

Recent studies suggest that startup valuation increasingly depends on growth expectations and market narratives instead of observable financial performance. (Damodaran, 2017) argues that corporate valuation combines accounting information with expectations regarding future scalability and business opportunities. Likewise, Imbierowicz & Rauch (2024) demonstrate that startup valuations are substantially affected by uncertainty, encouraging investors and underwriters to rely on subjective assessments when determining IPO prices.

One consequence of IPO pricing is the formation of share premium, defined as the difference between the offering price and the nominal value of shares. Although a high share premium may indicate investor confidence in future growth, it may also reflect excessive market optimism rather than intrinsic firm value. Agarwal et al. (2023) report that investors frequently overvalue young firms because of optimistic expectations regarding future growth. Similarly, Somaya & You (2024) find that IPO valuation is affected by investor sentiment, venture capital availability, and market timing, all of which may contribute to IPO mispricing.

As shown in Table 1, 26 out of 43 issuers, or approximately 60%, experienced a substantial decline in share prices within three months after the IPO compared with their initial offering prices. Furthermore, 31 issuers, or 72%, recorded share price declines within 360 days after the IPO, while 27 issuers, or 63%, and 30 issuers, or 70%, experienced post-IPO share price declines after 720 days and 1,080 days, respectively.

When IPO prices exceed firms' intrinsic values, the market often responds through post-IPO underperformance, whereby stock prices gradually decline as investors reassess corporate fundamentals. Laitinen (2019) explains that valuation uncertainty is particularly severe for early-stage companies because future cash flows remain difficult to estimate accurately. Consequently, optimistic IPO pricing frequently results in subsequent market corrections as additional information becomes available.

These issues are particularly relevant in the Indonesia Stock Exchange (IDX) Acceleration Board, which was established to facilitate capital access for early-stage companies. Compared with firms listed on the Main or Development Boards, Acceleration Board companies generally exhibit smaller asset bases, shorter operating histories, limited financial disclosure, and higher business uncertainty. Such characteristics intensify information asymmetry and increase the likelihood that IPO prices are influenced by investor expectations rather than objective corporate fundamentals.

Evidence from Indonesian IPOs between 2020 and 2024 supports this concern. A considerable proportion of companies listed on the Acceleration Board experienced substantial share price declines within one to three years after listing despite generating significant share premiums during their IPOs. This pattern suggests that optimistic IPO valuations were not always supported by firms' subsequent economic performance, raising concerns regarding IPO overvaluation and long-term pricing efficiency.

The relationship between IPO valuation and subsequent stock performance can be explained through Institutional Theory, which argues that organizational decisions are influenced by institutional pressures and the pursuit of legitimacy rather than purely economic considerations. Firms entering public markets frequently seek legitimacy by promoting persuasive growth narratives to investors, thereby increasing the possibility that IPO prices reflect market expectations rather than underlying business fundamentals (Meyer & Rowan, 1977). Damodaran (2017) further suggests that growth narratives have become an increasingly important component of corporate valuation, particularly for firms with limited historical financial information.

Table 1. Post-IPO Stock Price Performance of Sample Companies

Share Code	Offering Price (A)	Nominal Price (B)	Share Price Post IPO (C)				Post-Performance IPO (D) = (C) - (A)			
	Rp / Share	Rp / Share	3 Months	12 Months	24 Months	36 Months	3 Months	12 Months	24 Months	36 Months
PGJO	80	80	59	40	81	76	-21	-40	1	-4
CASH	350	12	595	312	174	90	245	-38	-176	-260
SOFA	100	10	100	135	30	22	0	35	-70	-78
PPGL	110	22	274	76	147	119	164	-34	37	9
PLAN	112	80	108	30	34	31	-4	-82	-78	-81
LFLO	200	100	77	103	51	51	-123	-97	-149	-149
LUCY	100	10	41	115	175	136	-59	15	75	36
MGLV	135	20	125	170	44	63	-10	35	-91	-72
IPAC	120	10	214	110	127	92	94	-10	7	-28
FLMC	200	80	298	78	79	69	98	-122	-121	-131
RUNS	254	4	290	172	63	58	36	-82	-191	-196
IDEA	140	40	104	62	51	33	-36	-78	-89	-107
WGSH	140	20	184	144	49	45	44	4	-91	-95
SMKM	264	100	230	850	51	50	-34	586	-213	-214
NANO	100	10	52	26	18	24	-48	-74	-82	-76
IBOS	100	25	102	274	406	29	2	174	306	-71
OLIV	100	10	45	20	5	21	-55	-80	-95	-79
RCCC	135	25	112	186	330	108	-23	51	195	-27
AMMS	100	50	49	34	19	105	-51	-66	-81	5
EURO	70	5	166	216	188	238	96	146	118	168
KLIN	100	10	43	44	18	183	-57	-56	-82	83
NINE	75	10	34	10	50	310	-41	-65	-25	235
ISAP	96	10	39	11	9	30	-57	-85	-87	-66
SOUL	110	20	29	22	44	76	-81	-88	-66	-34
BMBL	188	40	50	22	15	54	-138	-166	-173	-134
NAYZ	100	10	163	16	112	56	63	-84	12	-44
PACK	162	10	176	40	2.480	1.875	14	-122	2.318	1.713
CHIP	160	10	1.035	2.250	1.435	1.345	875	2.090	1.275	1.185
KING	130	20	302	134	206	210	172	4	76	80
HAJJ	140	30	147	132	175	126	7	-8	35	-14
MENN	78	10	52	9	42	53	-26	-69	-36	-25
RELF	90	25	49	15	18	46	-41	-75	-72	-44
GRPM	120	25	61	44	49	84	-59	-76	-71	-36
WIDI	100	5	45	8	20	38	-55	-92	-80	-62
HBAT	108	25	43	25	102	374	-65	-83	-6	266
LMAX	200	20	193	28	72	199	-7	-172	-128	-1
MSIE	100	10	39	15	32	48	-61	-85	-68	-52
AEGS	100	50	80	36	42	59	-20	-64	-58	-41
LOPI	100	25	63	22	103	170	-37	-78	3	70
UDNG	100	10	97	49	3.090	5.200	-3	-51	2.990	5.100
MANG	100	20	199	97	61	61	99	-3	-39	-39
MEJA	103	20	140	304	104	104	37	201	1	1
SPRE	125	25	193	202	202	202	68	77	77	77
TOTAL EMITEN - POST IPO UNDER PERFORMANCE							26	31	27	29

Source: Processed secondary data from IDX (2020-2025)

The valuation process is also closely associated with the Efficient Market Hypothesis (EMH), which proposes that security prices should fully reflect available information. Nevertheless, previous studies indicate that emerging capital markets continue to exhibit varying degrees of informational inefficiency. Assaf et al. (2021) show that market efficiency differs across financial markets depending on institutional characteristics and information quality. In Indonesia, Nainggolan (2024) finds that stock price efficiency remains influenced by the quality of information available to investors. Furthermore, speculative trading behavior may temporarily distort price discovery, reducing market efficiency and causing prices to deviate from their underlying fundamentals Aloosh et al. (2023). Trading activities resembling

wash trading may further amplify these distortions by artificially increasing trading volume and creating misleading signals of market demand (Fonseka et al., 2025).

Despite the growing literature on IPO valuation, startup finance, and market efficiency, several research gaps remain. Existing studies generally examine valuation, market efficiency, or post-IPO performance separately, while limited attention has been devoted to investigating how accounting-based valuation indicators, trading activity, and share premium jointly explain long-term IPO performance. Moreover, empirical evidence concerning firms listed on Indonesia's Acceleration Board remains scarce despite their relatively high levels of uncertainty and information asymmetry.

Accordingly, this study develops a comprehensive framework by integrating Institutional Theory and the Efficient Market Hypothesis to examine whether Price-to-Book Value (PBV), Price-to-Earnings Ratio (PER), Trading Volume Ratio (TVR), and share premium ratio influence long-term post-IPO stock performance. Unlike previous studies that primarily focus on short-term IPO anomalies or developed capital markets, this research investigates companies listed on the Indonesian Acceleration Board and evaluates stock performance over 360, 720, and 1,080 days after listing. By doing so, the study contributes to a better understanding of IPO overvaluation, market mispricing, and long-term valuation efficiency in emerging capital markets while providing practical implications for investors, underwriters, and regulators.

METHODS

Research Design

This study employed a quantitative explanatory research design to examine the relationship between IPO valuation indicators and long-term post-IPO stock performance among firms listed on the Indonesia Stock Exchange (IDX) Acceleration Board. The explanatory approach was selected because the study aims to evaluate causal relationships between valuation variables and subsequent stock returns using statistical models. In addition, a predictive analytics approach was incorporated to assess the probability of post-IPO underperformance based on IPO valuation characteristics. This combined approach enables both hypothesis testing and prediction of future stock performance using financial indicators.

Population and Data Collection

The population consisted of all companies conducting an Initial Public Offering (IPO) on the IDX Acceleration Board between 2020 and 2024. The population of this study consists of all 43 firms that conducted IPO on the IDX Acceleration Board during 2020-2024 period. All firms possessed complete financial and market information, including IPO offering prices, nominal share values, book value per share (BVPS), earnings per share (EPS), post-IPO stock prices, trading volumes, and outstanding shares.. Because the study covers the entire population, it adopts a census or total population approach rather than a sampling technique. This approach miinimizes sampling bias and ensures complete coverage of the research object.

Secondary data were obtained from the Indonesia Stock Exchange (IDX) and firms' IPO prospectuses. Stock price and trading volume data were collected until 31 December 2025, allowing the observation of post-IPO performance over multiple investment horizons.

Variables and Measurements

The dependent variable was post-IPO underperformance, measured using stock returns over 360, 720, and 1,080 days after the IPO. Stock return was calculated as:

$$\text{Return} = \frac{P_t - P_{IPO}}{P_{IPO}} \quad (1)$$

where Pt represents the stock price at the observation date and PIPO denotes the IPO offering price. In addition to continuous return measures, a binary variable (DOWN) was constructed for logistic regression analysis, where firms experiencing negative post-IPO returns were coded as 1, while firms with zero or positive returns were coded as 0.

Four independent variables were employed to represent IPO valuation. Price-to-Book Value (PBV) measured the relationship between the IPO offering price and the firm's book value per share, reflecting the market valuation relative to accounting equity. Price-to-Earnings Ratio (PER) measured the relationship between the IPO offering price and earnings per share, indicating investors' willingness to pay for expected future earnings. Share Premium Ratio represented the premium of the IPO offering price over the nominal share value, capturing the additional capital contributed by investors above the legal par value. Finally, Trading Volume Ratio (TVR) measured trading intensity by dividing total trading volume by outstanding shares over the respective observation period. Higher TVR values indicate greater trading activity following the IPO.

Data Analysis

The empirical analysis consisted of three stages. First, descriptive statistics were employed to summarize the characteristics of IPO firms and all research variables. Second, Pearson correlation analysis was conducted to examine the relationships among valuation indicators prior to regression estimation.

Third, multiple linear regression was applied to examine the effects of PBV, PER, TVR, and Share Premium Ratio on post-IPO stock returns over 360, 720, and 1,080 days. The regression model is expressed as follows:

$$Return_t = \alpha + \beta_1 PBV + \beta_2 PER + \beta_3 TVR + \beta_4 SharePremium + \varepsilon \quad (2)$$

where Returnt represents stock returns over each observation period, α is the intercept, β1–β4 are regression coefficients, and ε is the random error term.

To examine the probability that an IPO experiences long-term underperformance, the study additionally employed binary logistic regression using the DOWN variable as the dependent variable. This analysis evaluates whether IPO valuation indicators significantly increase the likelihood of negative post-listing performance.

Finally, predictive analytics was implemented using machine learning techniques in KNIME Analytics Platform. Two classification algorithms were utilized: Decision Tree, to identify the most influential valuation rules associated with post-IPO underperformance, and Random Forest, to evaluate the relative importance of PBV, PER, TVR, and Share Premium Ratio in predicting future stock price declines. The predictive model classified firms into two categories, namely IPOs experiencing post-listing price declines (DOWN = 1) and IPOs maintaining non-negative returns (DOWN = 0).

RESULTS AND DISCUSSION

Descriptive Statistics

This study analyzed all 43 companies that conducted Initial Public Offerings (IPOs) on the Indonesia Stock Exchange (IDX) Acceleration Board between 2020 and 2024 using a census approach. Each firm satisfied the research criteria by providing complete information on IPO valuation indicators, trading activity, and post-listing stock performance. The dataset includes Price-to-Book Value (PBV), Price-to-Earnings Ratio (PER), Share Premium Ratio, Trading Volume Ratio (TVR), and stock returns measured over 360, 720, and 1,080 days after the IPO, thereby allowing the examination of both medium- and long-term post-IPO performance.

Table 2. Characteristics of the Object Research

Variable	Mean	Median	Std. Dev.	Min	Max
Premium Rate (%)	79.60	85.19	18.61	0.00	98.43
PBV IPO (times)	7.24	6.05	7.01	0.99	47.25
PER IPO (times)	151.38	90.82	202.48	-77.10	854.78
Share Premium Ratio (times)	8.12	5.75	10.05	0.00	62.50
TVR360 (%)	226.11	129.11	242.66	0.93	1026.36
TVR720 (%)	159.28	115.63	164.99	0.65	900.02
TVR1080 (%)	160.06	107.82	163.59	0.47	900.02
Return360 (%)	8.40	-55.71	218.94	-92.00	1306.25
Return720 (%)	100.48	-58.00	522.70	-95.00	2990.00
Return1080 (%)	151.13	-32.05	802.21	-81.06	5100.00

Source: Processed secondary data from IDX (2020-2025)

The descriptive statistics indicate considerable variation among IPO firms listed on the Acceleration Board. As presented in Table 2, the average Premium Rate reached 79.60%, indicating that most companies offered shares substantially above their nominal values. However, because nominal value primarily serves an administrative function within corporate capital structures, a high premium should not automatically be interpreted as evidence of superior firm quality.

Table 2 indicates substantial variation in IPO valuation across Acceleration Board firms. The average PBV of 7.24 and PER of 151.38 suggest that investors were willing to pay prices considerably above firms' book values and current earnings at the time of listing. Such relatively high valuation multiples are consistent with the notion that IPO pricing in early-stage firms is largely driven by expectations regarding future growth rather than current financial performance. This finding is consistent with the valuation framework proposed by Damodaran (2017), which emphasizes the increasing importance of growth narratives in determining startup valuations.

Similarly, the average Share Premium Ratio of 8.12 indicates that IPO offering prices were generally set substantially above the nominal value of shares. Nevertheless, because nominal value primarily serves an administrative rather than an economic function, a large share premium should not automatically be interpreted as evidence of superior firm value. Instead, it may simply reflect the pricing mechanism adopted during the IPO process rather than the firm's intrinsic worth.

The descriptive statistics also reveal considerable dispersion in post-listing trading activity. Average TVR exceeded 200% during the first 360 days before declining in subsequent observation periods, indicating that trading intensity was concentrated shortly after listing. This pattern suggests that newly listed stocks initially attracted substantial investor attention, followed by gradually declining trading activity as additional firm-specific information became available.

More importantly, stock return distributions exhibit a clear divergence between mean and median values. Although average returns remain positive across all observation horizons, median returns are consistently negative, reaching −55.71%, −58.00%, and −32.05% for the 360-, 720-, and 1,080-day periods, respectively. This discrepancy indicates that a small number of extremely successful IPOs substantially increased average returns, whereas most firms experienced declining stock prices after listing. Therefore, the median provides a more representative measure of the typical post-IPO performance observed among Acceleration Board firms. Similar return asymmetry has frequently been associated with valuation uncertainty and heterogeneous investor expectations in emerging capital markets (Agarwal et al., 2023).

To further illustrate the prevalence of post-IPO underperformance, the proportion of firms experiencing negative returns over each observation period is presented in Table 3.

Table 3. Distribution of Post-IPO Underperformance

Observation Period	Firms with Negative Returns	Percentage
360 days	31 of 43	72.09%
720 days	27 of 43	62.79%
1080 days	29 of 43	67.44%

Source: Processed secondary data from IDX (2020-2025)

The results demonstrate that post-IPO underperformance represents a dominant phenomenon among Acceleration Board companies. More than two-thirds of IPO firms experienced negative returns across all observation horizons, suggesting that many offering prices were not sustained after trading in the secondary market. This descriptive evidence supports the argument that optimistic IPO valuations may gradually adjust as investors reassess firms' operating performance and long-term prospects. Such patterns are broadly consistent with studies reporting that early-stage firms often experience valuation corrections after listing because initial market expectations exceed realized corporate performance (Imbierowicz & Rauch, 2024).

Correlation Analysis

Before estimating the regression models, Pearson correlation analysis was conducted to examine the direction and strength of the relationships among the principal valuation indicators and post-IPO returns. The correlation matrix is presented in Table 4.

Table 4. Correlation between IPO Valuation Indicators and Post-IPO Returns

Variable	Return360	Return720	Return1080
PBV IPO	-0.07	0.40	0.21
PER IPO	-0.14	-0.03	-0.05
Share Premium Ratio	0.08	0.07	0.04
TVR	-0.10	-0.08	-0.06

Source: Processed secondary data from IDX (2020-2025)

Overall, the correlation coefficients are relatively weak, indicating that no single valuation indicator exhibits a strong linear relationship with long-term post-IPO performance. Nevertheless, several noteworthy patterns emerge.

PER consistently demonstrates negative correlations across all observation periods, implying that firms with relatively higher earnings multiples tended to experience lower subsequent returns. Although the relationships are weak, their direction is consistent with the overvaluation hypothesis, which argues that investors paying excessively high prices relative to current earnings may subsequently experience lower investment performance. Similar observations have been reported in studies examining IPO valuation under conditions of substantial uncertainty (Agarwal et al., 2023).

Likewise, TVR exhibits weak negative correlations with stock returns throughout the observation periods. This finding suggests that elevated trading activity immediately following an IPO does not necessarily translate into superior long-term performance. Instead, high trading intensity may partly reflect speculative behavior rather than informed investment decisions, a pattern frequently observed in relatively illiquid emerging markets. Such evidence is consistent with the argument that market activity alone cannot be interpreted as a reliable indicator of firm quality or pricing efficiency (Assaf et al., 2021).

The Share Premium Ratio displays only negligible correlations with post-IPO returns, indicating that the premium paid above nominal share value is not closely associated with subsequent stock performance. This finding suggests that share premium primarily reflects the administrative structure of IPO pricing rather than firms' long-term economic prospects. Consequently, share premium appears to possess limited explanatory power for post-IPO underperformance.

Although PBV exhibits positive correlations with returns over the longer observation horizons, these relationships should be interpreted cautiously because the dataset contains several extreme positive-return observations that may disproportionately influence correlation estimates. Therefore, the correlation analysis serves primarily as preliminary evidence, while more rigorous inference regarding the determinants of post-IPO performance is provided through the multivariate regression analyses presented in the following section.

Multiple Linear Regression Analysis

To examine whether IPO valuation indicators explain long-term post-listing performance, three multiple linear regression models were estimated using stock returns measured over 360, 720, and 1,080 days after the IPO. The independent variables consisted of Price-to-Book Value (PBV), Price-to-Earnings Ratio (PER), Trading Volume Ratio (TVR), and Share Premium Ratio. The regression results are summarized in Table 5.

Table 5. Multiple Linear Regression Results

Variables	Return360	Return720	Return1080
PBV IPO	-2.096	33.062***	28.030
p-value	0.697	0.008	0.156
PER IPO	-0.110	-0.361	-0.414
p-value	0.552	0.373	0.534
TVR	-0.074	-0.149	-0.189
p-value	0.613	0.752	0.810
Share Premium Ratio	1.718	-3.542	-3.321
p-value	0.643	0.664	0.805
R^2	0.034	0.180	0.058
Adjusted R^2	-0.068	0.094	-0.042
Prob. F-statistic	0.856	0.102	0.678

**p < 0.01.

Source: Processed secondary data from IDX (2020-2025)

Overall, the regression models exhibit relatively limited explanatory power. The coefficients of determination range from 3.4% to 18.0%, indicating that IPO valuation variables explain only a small proportion of the variation in post-IPO stock returns. These findings suggest that long-term stock performance is influenced by numerous factors beyond IPO pricing, including firm fundamentals, post-listing operational performance, industry conditions, investor sentiment, and broader market dynamics.

Among the explanatory variables, PBV is the only variable that achieves statistical significance, and only in the 720-day model ($\beta = 33.062$, $p < 0.01$). Surprisingly, the estimated coefficient is positive rather than negative, contradicting the initial expectation derived from the IPO overvaluation hypothesis. However, this result should be interpreted cautiously because the descriptive statistics reveal several observations with exceptionally large positive returns, exceeding 1,000% and even 2,000%. These extreme observations are likely to exert substantial leverage on ordinary least squares estimation, thereby influencing both the magnitude and direction of the regression coefficient. Consequently, the positive PBV coefficient does not necessarily imply that firms with higher IPO valuations consistently

generate superior long-term performance. Instead, it highlights the sensitivity of the regression model to outlier observations.

In contrast, PER consistently exhibits negative coefficients across all three investment horizons, although none reaches statistical significance. The negative direction is nevertheless consistent with the theoretical expectation that excessively high earnings multiples may reflect optimistic IPO pricing, which subsequently leads to weaker stock performance after listing. Previous research has similarly suggested that valuation based primarily on growth expectations may increase the likelihood of pricing errors under conditions of considerable uncertainty (Agarwal et al., 2023). The absence of statistical significance in the present study indicates that PER alone cannot adequately explain the variation in long-term returns among Acceleration Board IPOs.

Likewise, TVR demonstrates negative but statistically insignificant coefficients throughout the observation periods. These findings suggest that elevated trading activity immediately following the IPO is not necessarily associated with superior stock performance. Instead, active trading during the early post-listing period may reflect speculative transactions rather than information-driven investment decisions. Such evidence is broadly consistent with the argument that high trading intensity does not always indicate efficient price discovery, particularly in relatively small and less liquid markets where investor sentiment may dominate trading behavior (Assaf et al., 2021).

The Share Premium Ratio also fails to demonstrate a statistically significant relationship with post-IPO returns. Although the coefficient is positive in the first model and negative in the longer investment horizons, none of these effects is statistically distinguishable from zero. This result suggests that the premium paid above nominal share value is not an important determinant of subsequent stock performance. Because nominal share value primarily fulfills legal and administrative requirements rather than reflecting firms' intrinsic economic value, the Share Premium Ratio appears to capture pricing structure rather than valuation quality. This finding supports the argument that share premium should not be interpreted as a direct indicator of IPO overvaluation.

Taken together, the regression results indicate that the selected valuation indicators only partially explain post-IPO performance. While descriptive evidence clearly demonstrates widespread post-listing price declines, multivariate analysis suggests that such declines cannot be attributed solely to PBV, PER, trading activity, or share premium. Instead, post-IPO underperformance likely emerges from a more complex interaction among firm fundamentals, investor expectations, and market conditions.

Robustness Test

To verify the stability of the regression findings, additional analyses were performed. First, diagnostic tests indicated no evidence of serious multicollinearity, as all independent variables exhibited Variance Inflation Factor (VIF) values close to one. Therefore, the explanatory variables can be included simultaneously without creating substantial estimation bias. However, residual diagnostics suggested departures from normality, primarily because several IPO firms generated extremely high positive returns. Consequently, supplementary analyses were conducted using binary logistic regression, which is less sensitive to deviations from normal residual distributions.

Binary logistic regression was estimated by classifying firms into two groups: companies experiencing post-IPO underperformance (negative returns) and companies reporting non-negative returns. The objective was to examine whether IPO valuation indicators increase the probability that an IPO subsequently experiences long-term price declines.

Table 6. Robustness Test Using Binary Logistic Regression

Model	Negative Returns	PBV OR	PER OR	TVR OR	Share Premium OR	Pseudo R^2	Accuracy
Down360	31	1.014	1.000	1.000	1.023	0.010	72.09%
Down720	27	0.925	1.002	0.999	1.054	0.046	67.44%
Down1080	29	0.926	1.000	0.998	1.040	0.052	72.09%

Source: Processed secondary data from IDX (2020-2025)

The logistic regression results largely confirm the findings obtained from the linear regression models. Across all investment horizons, Pseudo R^2 values remain very low, ranging from 0.010 to 0.052, indicating that the selected valuation variables explain only a limited proportion of the probability of post-IPO underperformance. Similarly, the estimated odds ratios remain close to one, suggesting that changes in PBV, PER, TVR, or Share Premium Ratio have only modest effects on the likelihood of negative post-listing returns.

Although the classification accuracy ranges between 67% and 72%, these values should be interpreted cautiously because the majority of firms in the dataset experienced negative returns. Consequently, relatively high classification accuracy may simply reflect the imbalance between firms with positive and negative performance rather than strong predictive capability. Therefore, accuracy alone should not be regarded as evidence of a well-performing classification model.

Overall, the robustness analysis reinforces the principal conclusion of this study. The descriptive statistics clearly reveal that post-IPO underperformance is widespread among companies listed on the IDX Acceleration Board. However, neither the multiple linear regression models nor the logistic regression analysis identifies PBV, PER, TVR, or Share Premium Ratio as dominant determinants of this phenomenon. These findings imply that long-term IPO performance is influenced by broader economic and firm-specific factors that extend beyond the valuation indicators examined in this study. Such evidence also suggests that market corrections following IPOs are more likely driven by investors' gradual reassessment of corporate fundamentals than by any single pricing metric established at the offering stage (Damodaran, 2017; Imbierowicz & Rauch, 2024).

Predictive Analytics

To complement the inferential statistical analysis, this study employed predictive analytics to evaluate the capability of IPO valuation indicators in predicting post-IPO underperformance. Three classification models were implemented, namely Logistic Regression, Decision Tree, and Random Forest. Model performance was evaluated using five widely adopted metrics: accuracy, precision, recall, F1-score, and Receiver Operating Characteristic–Area Under the Curve (ROC-AUC). The results are presented in Table 7.

Table 7. Predictive Performance of Machine Learning Models

Horizon	Model	Accuracy	Precision	Recall	F1-score	ROC-AUC
360 Days	Logistic Regression	67.44%	70.73%	93.55%	80.56%	16.67%
	Decision Tree	62.79%	71.43%	80.65%	75.76%	45.56%
	Random Forest	65.12%	70.00%	90.32%	78.87%	26.34%
720 Days	Logistic Regression	60.47%	61.90%	96.30%	75.36%	17.13%
	Decision Tree	41.86%	53.13%	62.96%	57.63%	32.75%
	Random Forest	53.49%	58.97%	85.19%	69.70%	11.11%
1080 Days	Logistic Regression	67.44%	68.29%	96.55%	80.00%	42.61%
	Decision Tree	51.16%	63.33%	65.52%	64.41%	27.96%

Random Forest	62.79%	67.57%	86.21%	75.76%	32.51%

Source: Processed secondary data from IDX (2020-2025)

The predictive analysis demonstrates that all classification models achieved relatively high recall values, particularly Logistic Regression, which consistently identified more than 90% of firms experiencing post-IPO underperformance. These findings indicate that the selected valuation indicators possess reasonable sensitivity in detecting IPOs that subsequently generate negative stock returns.

However, the overall predictive capability of the models remains limited. Although classification accuracy ranges between approximately 42% and 67%, most models produce ROC-AUC values below 0.50, indicating weak discriminatory power and suggesting that the selected IPO valuation indicators are insufficient to reliably distinguish underperforming from non-underperforming firms. In other words, while the models successfully identify the majority of underperforming IPOs, they struggle to distinguish them reliably from firms exhibiting more favorable post-listing performance.

The relatively weak predictive performance may be attributed to several characteristics of the dataset. First, the study includes only 43 IPO firms, limiting the amount of information available for machine learning algorithms. Second, several firms generated exceptionally large positive returns, producing considerable class heterogeneity and reducing model stability. Third, the prediction models rely exclusively on IPO valuation indicators without incorporating additional firm-specific or market-related variables such as profitability, leverage, firm size, underwriter reputation, industry classification, or market conditions. Consequently, the selected variables appear insufficient to capture the multidimensional determinants of long-term IPO performance.

Despite these limitations, the machine learning analysis provides additional insights beyond conventional regression analysis. The Random Forest model indicates that PBV, PER, and TVR contribute more substantially to prediction than the Share Premium Ratio, suggesting that accounting-based valuation indicators contain greater predictive information regarding future stock performance than the premium paid above nominal share value. This finding is broadly consistent with the regression results, which also indicate that Share Premium Ratio possesses relatively limited explanatory power.

Discussion

The findings of this study provide strong descriptive evidence that post-IPO underperformance represents a common characteristic of firms listed on the Indonesia Stock Exchange Acceleration Board. More than two-thirds of the sampled companies experienced negative returns across all observation horizons, indicating that IPO offering prices were frequently not sustained after secondary market trading began. This pattern supports the proposition that IPO pricing for early-stage firms is highly influenced by optimistic growth expectations that are subsequently revised as additional information regarding corporate performance becomes available. Such valuation dynamics are consistent with previous studies emphasizing the uncertainty surrounding startup valuation and the tendency for investors to overestimate firms' future growth prospects (Damodaran, 2017). Similar arguments are advanced by Agarwal et al. (2023), who demonstrate that optimistic investor expectations may contribute to IPO overvaluation, particularly among firms characterized by substantial information asymmetry.

Although descriptive statistics strongly indicate widespread post-IPO underperformance, the regression analyses reveal that PBV, PER, TVR, and Share Premium Ratio individually possess relatively limited explanatory power. These findings suggest that long-term stock performance cannot be adequately explained by IPO valuation metrics alone. Instead, post-

listing performance appears to reflect the interaction of multiple firm-specific and market-related factors, including subsequent operating performance, investor learning, corporate governance, liquidity, and changing macroeconomic conditions. This interpretation is consistent with Imbierowicz & Rauch (2024), who argue that startup valuation uncertainty extends well beyond the IPO event and continues to evolve as investors acquire additional information.

The findings also contribute to the application of Institutional Theory within IPO research. Firms entering public markets seek legitimacy by presenting favorable growth narratives and convincing investors of their future potential. Such institutional pressures may encourage offering prices that exceed values justified by current financial fundamentals, particularly among firms with limited operating histories. However, once firms become publicly traded, investors gradually reassess these narratives using realized corporate performance, resulting in market corrections whenever expectations are not fulfilled. Accordingly, the widespread post-IPO underperformance observed in this study can be interpreted as the market's gradual adjustment from institutionally driven expectations toward more fundamental valuations, consistent with the theoretical perspective introduced by Meyer & Rowan (1977).

The empirical findings likewise provide insights into the Efficient Market Hypothesis (EMH). Under a fully efficient market, IPO prices should immediately incorporate all publicly available information, leaving little opportunity for systematic post-listing price adjustments. Nevertheless, the persistence of negative returns across the majority of IPO firms suggests that price discovery in the Indonesian Acceleration Board remains incomplete at the time of listing. Instead, market participants appear to revise their expectations gradually as new information becomes available. These findings therefore support previous evidence indicating that informational efficiency in emerging capital markets remains constrained by limited disclosure quality and substantial uncertainty (Assaf et al., 2021). Similar conclusions are reported by Nainggolan (2024), who finds that the efficiency of the Indonesian equity market remains strongly influenced by the availability and quality of corporate information.

Another important contribution concerns the role of Share Premium Ratio. Unlike PBV and PER, share premium consistently demonstrates weak statistical relationships with both stock returns and the probability of post-IPO underperformance. This evidence suggests that the premium paid above nominal share value primarily reflects the legal and administrative structure of IPO pricing rather than firms' underlying economic value. Consequently, share premium should not be interpreted as a reliable indicator of IPO overvaluation or future stock performance. Instead, accounting-based valuation multiples such as PBV and PER appear to provide more meaningful information regarding firms' economic valuation, even though their explanatory power remains limited.

Finally, the predictive analytics results reinforce the principal conclusions obtained from the regression analysis. Although machine learning models successfully identify many underperforming IPOs, their relatively weak discrimination capability indicates that post-IPO performance cannot be predicted reliably using IPO valuation indicators alone. This finding highlights the multidimensional nature of IPO performance and suggests that future studies should incorporate additional financial, governance, and market variables to improve predictive accuracy. By integrating conventional econometric analysis with machine learning techniques, this study provides a more comprehensive understanding of IPO valuation and long-term stock performance in emerging capital markets while demonstrating that IPO underperformance represents a complex phenomenon that extends beyond initial offering characteristics.

CONCLUSION

This study examined the influence of Price-to-Book Value (PBV), Price-to-Earnings Ratio (PER), Trading Volume Ratio (TVR), and Share Premium Ratio on the long-term post-IPO performance of companies listed on the Indonesia Stock Exchange (IDX) Acceleration Board. The findings reveal that post-IPO underperformance is a dominant phenomenon, as the majority of IPO firms experienced negative stock returns across the 360-, 720-, and 1,080-day observation periods. Nevertheless, the regression and predictive analyses indicate that the selected valuation indicators possess limited explanatory and predictive power, suggesting that post-IPO performance is influenced by a broader interaction among firm fundamentals, investor expectations, and market conditions rather than IPO valuation metrics alone. The study further demonstrates that Share Premium Ratio is not a reliable predictor of post-IPO performance but instead reflects the pricing structure of IPO issuance. These findings extend the application of Institutional Theory and the Efficient Market Hypothesis by showing that IPO prices in emerging capital markets are shaped by institutional legitimacy and market expectations, which are subsequently adjusted as investors reassess firms' underlying fundamentals.

The findings provide practical implications for investors, underwriters, and regulators by emphasizing the importance of comprehensive fundamental analysis and more transparent IPO valuation practices to reduce information asymmetry and improve pricing efficiency. Despite these contributions, the study is limited by its relatively small sample size and its focus on a restricted set of valuation variables. Future research should incorporate additional firm-specific, governance, and macroeconomic variables, employ alternative measures of long-term stock performance such as Buy-and-Hold Abnormal Returns (BHAR) or Cumulative Abnormal Returns (CAR), and explore more advanced predictive models to improve the understanding of IPO valuation and post-listing performance in emerging capital markets..

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