

Which Financial Signals Drive Stock Returns the Most? Evidence from Indonesia's Miscellaneous Industry Sector 2022–2024

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ABSTRACT: This study examines the effects of profitability, liquidity, company size, price-to-book value, and leverage on stock returns of companies in the Miscellaneous Industry Sector listed on the Indonesia Stock Exchange during the 2022–2024 period, grounded in signalling theory. The study employed a quantitative approach using purposive sampling, selecting 40 companies with a total of 120 observations across three years. Data were analysed using multiple linear regression, preceded by classical assumption testing including normality, multicollinearity, heteroscedasticity, and autocorrelation tests.

The results show that all independent variables simultaneously exert a significant effect on stock returns ($F = 12.267$; $p < 0.001$), with the model explaining 32.1% of the variation in stock returns. Partially, profitability measured by Return on Assets has a positive and significant effect on stock returns, while price-to-book value emerges as the most dominant predictor with a standardised coefficient of 0.605 and a p-value below 0.001. In contrast, liquidity measured by the current ratio, company size measured by total assets, and leverage measured by the debt-to-equity ratio show no significant effect on stock returns.

These findings suggest that investors in this sector respond more strongly to signals of profitability and market valuation than to liquidity, asset scale, or debt structure. This study contributes to the literature on financial signal-based investment decision-making in developing country capital markets and reinforces the practical relevance of signalling theory in emerging market contexts. Company management should prioritise improving profitability and managing stock market value to attract investor interest and sustain stock return growth.

KEYWORDS: Company Size, Leverage, Price-to-Book Value, Profitability, Stock Return, Signalling Theory.

INTRODUCTION

The capital market plays a strategic role in a country's economy by connecting those with excess funds to those requiring long-term capital (Hasibuan et al., 2025). The Indonesia Stock Exchange (IDX) continues to show significant growth year after year, reflected in increasing trading volume, a growing number of issuers, and an expanding retail investor base supported by government policies (Siska et al., 2023). As of May 2023, the number of capital market investors in Indonesia had reached 11,062,050, representing a 7.28% increase from the previous year (Bareksa.com, 2024). However, this growth has not insulated the market from volatility. On March 18, 2025, the Jakarta Composite Index (JCI) plunged more than 7%, triggering a trading halt, followed by a second halt on April 4, 2025, when the index fell 9.19%. These events reflect the structural vulnerability of the Indonesian capital market to global policy uncertainty, shifts in foreign investor sentiment, and domestic macroeconomic pressures, underscoring the urgency for investors to rely on solid fundamental analysis rather than market sentiment alone.

Stock returns are the primary goal of equity investment and serve as a reflection of management quality, company financial health, and overall market perception (Jabeen et al., 2022; Jia et al., 2021). Investors typically rely on financial ratios from official company reports published on the IDX to predict returns (Imamah et al., 2023; Kuppenheimer et al., 2023). These ratios enable both internal comparisons across time and external benchmarking across companies within the same industry. Among the most studied financial signals are profitability, liquidity, company size, price-to-book value, and leverage. Profitability, proxied by Return on Assets (ROA), measures how efficiently a company generates profit from its assets; a higher ROA signals stronger management capability and tends to drive stock price appreciation (Almustafa, 2025; Malchev & Lazarevska, 2024). Liquidity, proxied by the Current Ratio (CR), reflects a company's capacity to meet short-term obligations and signals financial stability to investors (Alaali, 2025). Company size (SIZE), measured by total assets, is associated with easier capital market access and greater profit-generating capacity



(Dewi et al., 2024; Zavalii et al., 2025). Price-to-book value (PBV) reflects the market’s valuation of a company relative to its invested capital, where a high PBV signals investor confidence in future value creation (Rukpanichsiri & Soonthornphisaj, 2024). Leverage, proxied by the Debt-to-Equity Ratio (DER), indicates the extent of debt financing; a high DER signals increased financial risk and may reduce investment attractiveness (Ghardallou, 2022; Karthikeyan et al., 2025).

These five factors have been extensively researched, yet empirical findings remain inconsistent. For profitability, Yin & Yang (2022) and Rahim et al. (2023) found a significant positive effect, while Akhtaruzzaman et al. (2021) found a negative effect and Yin et al. (2020) found no significant effect. For liquidity, Budhathoki et al. (2024) reported a positive effect, whereas Du & Hu (2021) found none. Regarding company size, Indupurnahayu et al. (2023) found a positive effect, while Amin et al. (2024) found a negative one. For PBV, Badruzaman et al. (2022) confirmed a positive effect, but Jadallah et al. (2023) did not. For leverage, Nguyen & Bao (2025) found a negative effect, Suidarma et al. (2025) found a positive effect, and Sosa et al. (2024) found no significant effect. These inconsistencies suggest that the influence of financial signals on stock returns is context-dependent, varying by sector characteristics, observation period, and macroeconomic conditions, constituting a clear research gap that warrants further investigation.

Theoretically, all five variables can be understood through the lens of Signalling Theory, first developed by Ross (1977), which argues that information asymmetry exists between management and investors. Management holds more complete information about the company’s condition and communicates signals through financial policies and performance disclosures to shape market perceptions (Connelly et al., 2025). High-quality companies intentionally signal their superiority through high ROA, solid CR, high PBV, or low DER, so that the market can distinguish them from lower-quality counterparts. To be effective, these signals must be credible and not easily imitated by less capable firms (Nofal et al., 2024; Seo & Choi, 2025). Rational investors interpret these signals as the basis for investment decisions, directly influencing share demand and ultimately shaping stock returns.

This study focuses on companies in the Miscellaneous Industry Sector listed on the IDX during 2022–2024. This sector was chosen for two reasons: first, its high operational heterogeneity, spanning cable manufacturing, automotive components, ceramics, and heavy equipment, provides a robust empirical laboratory for testing whether financial signals behave uniformly across diverse business characteristics. Second, the 2022–2024 period encompasses post-pandemic economic recovery, global interest rate normalisation, and exchange rate pressures, offering a contextually distinct setting that has not been widely explored in prior literature. This study therefore aims to empirically examine the effects of profitability (ROA), liquidity (CR), company size (SIZE), price-to-book value (PBV), and leverage (DER) on stock returns in this sector, with the following hypotheses: (H1) profitability has a positive effect on stock returns; (H2) liquidity has a positive effect on stock returns; (H3) company size has a positive effect on stock returns; (H4) price-to-book value has a positive effect on stock returns; and (H5) leverage has a negative effect on stock returns. The findings are expected to address existing research gaps and serve as a practical guide for fundamentals-based investment strategies in the Indonesian capital market.

MATERIALS AND METHODS

Study Design and Setting

This study employs a quantitative approach using multiple linear regression, suitable for examining the simultaneous effects of multiple independent variables on a single dependent variable. A panel data design combining cross-sectional and time-series observations was adopted to provide a comprehensive picture of variable relationships over multiple periods (Damani et al., 2021; Veeramani & Edalatpanah, 2022). The study setting is the Miscellaneous Industry Sector of the Indonesia Stock Exchange (IDX), covering the 2022–2024 observation period. The conceptual framework of this study is illustrated in Figure 1.

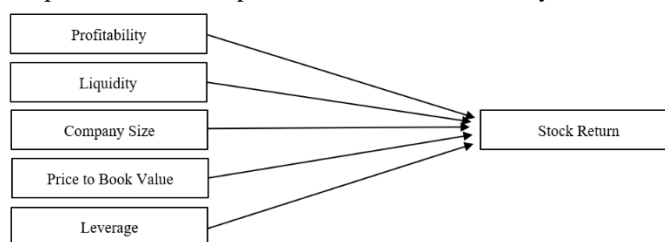


Figure 1. Research Model

Population, Samples, and Data Sources

The study population comprised 65 companies in the Miscellaneous Industry Sector listed consecutively on the IDX during 2022–2024. Purposive sampling was applied within a non-probability sampling framework to select samples meeting specific research-aligned criteria (Memon et al., 2024). The selection criteria were: (1) listed consecutively on the IDX throughout 2022–2024; (2) publishing accessible financial reports during that period; (3) reporting non-zero stock returns; and (4) presenting financial reports in Indonesian Rupiah. Based on these criteria, 40 companies qualified, yielding 120 observational data points across three years. Data were sourced from audited annual financial reports officially published on the IDX. We acknowledge that using purposive sampling limits the generalizability of the findings beyond the defined sample characteristics.

Data Collection and Measurement Procedures

Stock return (RS), the dependent variable, was measured as the difference between the current and previous year-end stock prices divided by the previous year-end stock price (Khan et al., 2025). The independent variables were measured as follows: ROA was calculated as net profit after tax divided by total assets (İltüz, 2023); CR was calculated as current assets divided by current liabilities (Allahverdiyev et al., 2025); SIZE was measured using the natural logarithm of total assets; PBV was measured as market price per share divided by book value per share (Badruzaman et al., 2022); and DER was calculated as total debt divided by total equity (Khusna & Rahadian, 2025). The regression model used in this study is as follows:

$$RS = \alpha + \beta_1ROA + \beta_2CR + \beta_3SIZE + \beta_4PBV + \beta_5DER + e$$

Statistical and Analytical Methods

Data were analyzed using multiple linear regression with SPSS version 23.0 for Windows. Prior to regression estimation, classical assumption tests were conducted to ensure model validity and reliability (Bansal & Singh, 2023). Normality was tested using the Kolmogorov–Smirnov test at a significance level of 0.05. Multicollinearity was assessed using Tolerance and Variance Inflation Factor (VIF) values, where Tolerance > 0.1 and VIF < 10 indicate the absence of multicollinearity. Autocorrelation was evaluated using the Durbin–Watson test, and heteroscedasticity was assessed using the Glejser test, with p-values above 0.05 confirming the homoscedasticity assumption. Overall model fit was evaluated using the F-test and Adjusted R², while partial effects of each independent variable on stock returns were assessed using the t-test at a significance level of 0.05.

RESULTS

A total of 120 valid observational data points were analyzed from 40 companies in the Miscellaneous Industry Sector listed on the Indonesia Stock Exchange (IDX) during the 2022–2024 period. All data met the established purposive sampling criteria and were suitable for statistical analysis.

Descriptive Statistics

Table 1. Descriptive Statistics – Miscellaneous Industry Sector, IDX (2022–2024)

Variable	Mean	Maximum	Minimum	Std. Deviation	Observation
Stock Return (RS)	0,1520	8,96	−0.81	1.0456	120
Profitability (ROA)	0,0309	0,30	−0.25	0.0827	120
Liquidity (CR)	2,4938	11,40	0.13	2.2973	120
Company Size (SIZE)	74,9227	1694,81	0.48	262.2848	120
Price-to-Book Value (PBV)	1,4417	17,93	−3.72	2.3406	120
Leverage (DER)	0,8305	41,48	−21.59	4.6647	120

Source: SPSS, 2025

Table 1 presents the descriptive statistics for all study variables across 120 observations. Stock return (RS) recorded a mean of 0.152 with a standard deviation of 1.046, which substantially exceeds the mean, reflecting high cross-firm variation in investor returns over the observation period. Profitability (ROA) averaged 0.031, indicating modest asset-based earnings among Miscellaneous

Industry companies, with values ranging from -0.25 to 0.30. Liquidity (CR) averaged 2.494, suggesting a moderate capacity to meet short-term obligations, though the wide range of 0.13 to 11.40 indicates considerable dispersion across firms. Price-to-book value (PBV) averaged 1.442, meaning that on average, market value slightly exceeds book value; however, the presence of negative PBV values (minimum of -3.72) in certain firms signals market concerns regarding their underlying asset quality. Leverage (DER) averaged 0.831, suggesting that companies in this sector rely more on equity than debt financing, although extreme values reaching 41.48 indicate that a subset of firms carries substantial financial risk (Khan et al., 2025).

Classical Assumption Tests

Table 2. Classical Assumption Test Results

Test	Method	Result	Conclusion
Normality	Kolmogorov–Smirnov	p = 0.192	Normally distributed
Multicollinearity	VIF & Tolerance	VIF < 10; Tolerance > 0.1	No multicollinearity
Heteroscedasticity	Glejser Test	All Sig. > 0.05	No heteroscedasticity
Autocorrelation	Durbin–Watson	DW = 1.838	No autocorrelation

Source: SPSS, 2025

Table 2 summarizes the results of the classical assumption tests conducted prior to the main regression analysis. The Kolmogorov–Smirnov normality test yielded a p-value of 0.192, which exceeds the 0.05 threshold, confirming that the model residuals were normally distributed (Sulewski & Stoltmann, 2026). The multicollinearity test showed that all VIF values were below 10 and all tolerance values exceeded 0.1, indicating no problematic multicollinearity among the independent variables (Kyriazos & Poga, 2023). The Glejser test confirmed the absence of heteroscedasticity, as all variables returned p-values above 0.05. Finally, the Durbin–Watson statistic of 1.838 falls within the acceptable range of $du < DW < 4 - du$ ($1.789 < 1.838 < 2.211$), confirming that the model is free from autocorrelation (Khoza, 2025). Collectively, these results confirm that all classical assumptions were satisfied and that the regression model is valid for further analysis.

Correlation Analysis

Table 3. Pearson Correlation Matrix

Variable	RS	ROA	CR	SIZE	PBV	DER
Stock Return (RS)	1	0.271**	0.052	0.068	0.579**	-0.119
Profitability (ROA)	0.271**	1	0.190**	-0.060	0.286**	-0.212*
Liquidity (CR)	0.052	0.190**	1	-0.189**	0.107	-0.232**
Company Size (SIZE)	0.068	-0.060	-0.189**	1	0.107	0.176
Price-to-Book Value (PBV)	0.579**	0.286**	0.107	0.107	1	-0.185*
Leverage (DER)	-0.119	-0.212*	-0.232**	0.176	-0.185*	1

** Significant at $p < 0.01$ (2-tailed); * Significant at $p < 0.05$ (2-tailed) Source: SPSS, 2025

Table 3 presents the Pearson correlation matrix among all study variables. Among the independent variables, PBV demonstrated the strongest positive correlation with stock returns ($r = 0.579$, $p < 0.01$), indicating that higher market valuation relative to book value is closely associated with higher investor returns. ROA also showed a moderate and statistically significant positive correlation with stock returns ($r = 0.271$, $p < 0.01$), suggesting that more profitable companies tend to generate better returns for investors. In contrast, CR ($r = 0.052$), SIZE ($r = 0.068$), and DER ($r = -0.119$) exhibited weak and statistically insignificant correlations with stock returns, indicating limited direct linear associations between these variables and returns. Regarding inter-predictor relationships, ROA showed a significant negative correlation with DER ($r = -0.212$, $p < 0.05$), suggesting that more profitable firms tend to carry less debt. CR and DER were also negatively correlated ($r = -0.232$, $p < 0.01$), indicating that firms with higher liquidity tend to maintain lower leverage levels. These inter-variable correlations, however, remain within acceptable limits as confirmed by the multicollinearity test results in Table 2 (Janse et al., 2021).

Multiple Linear Regression Analysis

Table 4. Multiple Linear Regression Results

Variable	B	Std. Error	β	t	p-value
Constant	-0.193	0.126	—	-1.531	0.129
Profitability (ROA)	2.773	1.076	0.219	2.577	0.011
Liquidity (CR)	0.021	0.038	0.045	0.534	0.594
Company Size (SIZE)	0.000	0.000	0.056	0.710	0.479
Price-to-Book Value (PBV)	0.270	0.036	0.605	7.525	<0.001
Leverage (DER)	-0.033	0.017	-0.145	-1.864	0.065
R ²					0.350
Adjusted R ²					0.321
F-statistic					12.267
Sig. F					<0.001

Dependent Variable: Stock Return (RS) Source: SPSS, 2025

Table 4 presents the results of the multiple linear regression analysis. The overall model was statistically significant ($F = 12.267$; $p < 0.001$), with an Adjusted R^2 of 0.321, indicating that profitability, liquidity, company size, price-to-book value, and leverage collectively explain 32.1% of the variance in stock returns, while the remaining 67.9% is attributable to factors outside the model. ROA demonstrated a positive and significant effect on stock returns ($B = 2.773$; $\beta = 0.219$; $t = 2.577$; $p = 0.011$), confirming H1. PBV emerged as the strongest predictor of stock returns ($B = 0.270$; $\beta = 0.605$; $t = 7.525$; $p < 0.001$), confirming H4. In contrast, CR ($B = 0.021$; $p = 0.594$), SIZE ($B = 0.000$; $p = 0.479$), and DER ($B = -0.033$; $p = 0.065$) did not reach statistical significance, leading to the rejection of H2, H3, and H5, respectively. These findings indicate that among the five financial signals examined, profitability and market valuation are the most reliable predictors of stock returns in the Miscellaneous Industry Sector during the 2022–2024 period (Janse et al., 2021).

DISCUSSION

Interpretation of Main Results in the Context of Existing Literature

This study examined the effects of five financial signals: profitability, liquidity, company size, price-to-book value, and leverage on stock returns in Indonesia's Miscellaneous Industry Sector during 2022–2024, grounded in signaling theory. The findings reveal that only profitability (ROA) and price-to-book value (PBV) exert statistically significant effects on stock returns, while liquidity (CR), company size (SIZE), and leverage (DER) do not.

The positive and significant effect of ROA on stock returns ($\beta = 0.219$; $p = 0.011$) is consistent with signaling theory, which posits that strong earnings performance serves as a credible signal of management quality and future value creation, thereby driving investor demand and stock price appreciation (Fan & Zhou, 2026). This finding aligns with prior studies by Yin & Yang (2022) and Rahim et al. (2023), which similarly confirmed ROA as a key driver of stock returns in developing market contexts. The result implies that investors in this sector actively respond to profitability disclosures as meaningful signals of company health.

PBV emerged as the most dominant predictor of stock returns in this study ($\beta = 0.605$; $p < 0.001$), reinforcing the theoretical premise that market valuation relative to book value directly reflects investor confidence in a company's ability to generate value beyond its invested capital (Tan & Chen, 2022). This finding is consistent with Badruzaman et al. (2022), who confirmed a significant positive relationship between PBV and stock returns among Indonesian listed companies. The dominance of PBV over other financial signals in this study suggests that market perception plays a more central role than operational fundamentals in determining stock return movements within this sector.

The absence of a significant effect for liquidity (CR) on stock returns is consistent with Du & Hu (2021), who found that liquidity's influence on returns is limited in a multiple regression context. This indicates that investors in this sector do not treat short-term debt repayment capacity as a primary investment signal, particularly when other more market-oriented variables such as PBV are available. Similarly, company size (SIZE) showed no significant effect, corroborating Amin et al. (2024), who found that asset scale



does not guarantee higher returns. Empirical patterns in this study support this view, as larger companies such as UNTR recorded negative returns in certain periods, while smaller firms such as KBLI and KBLM demonstrated more stable performance, suggesting that asset management efficiency matters more than asset magnitude. Finally, the insignificant effect of leverage (DER) on stock returns, despite its negative direction, is consistent with Sosa et al. (2024) and may reflect investors' willingness to overlook debt levels when profitability and market valuation signals are deemed attractive (Suidarma et al., 2025).

Advancement of Knowledge and Practice

This study makes several contributions to the existing literature. First, it provides empirical evidence from a sector characterized by high operational heterogeneity, spanning cable manufacturing, automotive components, ceramics, and heavy equipment, demonstrating that financial signals do not behave uniformly across diverse business types within a single sector classification. This contrasts with most prior studies that focus on homogeneous sectors such as banking or manufacturing, where signal behavior tends to be more consistent. Second, the study's observation period of 2022–2024 captures a contextually distinct phase encompassing post-pandemic recovery, global interest rate normalization, and heightened market volatility, providing findings that are more temporally relevant than those derived from pre-pandemic datasets. Third, by integrating all five financial signals simultaneously within a single regression framework, this study offers a more comprehensive and comparative picture of their relative predictive power than studies examining these variables in isolation.

Strengths and Limitations

This study has several notable strengths. The use of panel data across three years and 40 companies provides a balanced representation of the sector's performance over time. The application of rigorous classical assumption testing, including normality, multicollinearity, heteroscedasticity, and autocorrelation, ensures the statistical validity of the regression model. Furthermore, the use of signaling theory as a unifying theoretical framework provides a coherent basis for interpreting all five variables within a single conceptual lens.

However, several limitations must be acknowledged. First, the use of purposive sampling restricts the generalizability of findings beyond the Miscellaneous Industry Sector and the specific observation period. Second, the model's Adjusted R² of 32.1% indicates that a substantial portion of stock return variation (67.9%) remains unexplained by the five variables examined, suggesting the presence of other influential factors not captured in this study, such as macroeconomic indicators, investor sentiment, or governance-related variables. Third, the study relies exclusively on quantitative financial data from published reports, which may not fully capture qualitative dimensions of company performance that also influence investor behavior.

Implications and Directions for Future Research

The findings carry practical implications for both investors and company management. For investors, the dominance of PBV as a predictor suggests that market-based valuation metrics should be prioritized alongside profitability indicators when constructing fundamental-based investment strategies in this sector. For company management, the results show that sustaining profitability and actively managing stock market value are the primary levers for attracting investor interest and sustaining return growth over time. Future research is encouraged to extend this analysis to other sectors of the IDX to determine whether the dominance of PBV and ROA as stock return predictors holds across different industry contexts. Additionally, incorporating macroeconomic variables, such as inflation, interest rates, and exchange rates, as moderating or control variables may help explain a greater proportion of stock return variance. The application of more advanced analytical approaches, such as panel data regression with fixed or random effects, or machine learning-based models, could also yield more robust and nuanced findings. Finally, longitudinal studies covering longer observation windows would help determine whether the identified signal patterns are stable over time or sensitive to specific macroeconomic phases.

CONCLUSION

This study examined the effects of profitability (ROA), liquidity (CR), company size (SIZE), price-to-book value (PBV), and leverage (DER) on stock returns among companies in the Miscellaneous Industry Sector listed on the Indonesia Stock Exchange during the 2022–2024 period, grounded in signaling theory. Based on the results of multiple linear regression analysis, two principal findings emerge. First, profitability (ROA) exerts a positive and significant effect on stock returns, confirming that earnings



performance serves as a credible financial signal that investors actively respond to when making investment decisions. Second, price-to-book value (PBV) is the most dominant predictor of stock returns in this sector ($\beta = 0.605$), indicating that market valuation relative to book value plays a more central role than operational fundamentals in shaping investor returns. In contrast, liquidity (CR), company size (SIZE), and leverage (DER) did not demonstrate statistically significant effects, suggesting that these signals carry limited weight in investment decision-making within this sector and observation period.

These findings contribute to the literature in three ways: by providing evidence from a sector with high operational heterogeneity, by capturing a contextually distinct post-pandemic observation period, and by offering a simultaneous comparative assessment of five financial signals within a unified signaling theory framework. For investors, the findings reinforce the importance of prioritizing market valuation and profitability metrics in fundamental-based investment strategies. For company management, sustaining profitability and managing stock market value remain the most effective strategies for attracting investor interest and supporting long-term stock return growth.

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