THE EFFECT OF INVESTMENT OPPORTUNITY SET AND FINANCIAL DISTRESS ON PROFIT MANAGEMENT IN INFRASTRUCTURE, TRANSPORTATION, AND LOGISTICS COMPANIES IN INDONESIA

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Abstract

This study aims to analyze the effect of the investment opportunity set (IOS) and financial distress on earnings management practices in infrastructure, transportation, and logistics sector companies listed on the Indonesia Stock Exchange. IOS is measured using the capital expenditure to book value of asset ratio (CAPBVA), financial distress is measured by the modified Altman Z-Score, and earnings management is measured using discretionary accruals with the modified Jones model. The research sample consists of 34 infrastructure, transportation, and logistics companies listed on the IDX during the 2020–2023 period, selected using a purposive sampling technique. The analysis method used is multiple linear regression with SPSS version 25. The results of the study show that (1) the investment opportunity set has a significant positive effect on earnings management with a coefficient value of 0.317 and a significance level of 0.008; (2) financial distress has a significant negative effect on earnings management with a coefficient value of -0.263 and a significance level of 0.012. The implications of the study highlight the importance of monitoring companies with high investment prospects and those experiencing financial distress as indicators of potential earnings management.

Keywords: Investment opportunity set, financial distress, earnings management, infrastructure, transportation, logistics

Introduction

The infrastructure, transportation, and logistics sectors play a strategic role in Indonesia's economic development, particularly in supporting interregional connectivity and goods distribution (Kamilah & ZH, 2023). In recent years, these sectors have faced significant challenges due to the COVID-19 pandemic, followed by a recovery driven by government policies aimed at accelerating infrastructure development as a catalyst for economic growth. Amid these dynamics, companies in these sectors are confronted with complex investment decisions and financial challenges that may affect the quality of their financial reporting. Earnings management refers to managers' actions in modifying financial reports to achieve certain objectives (Healy & Wahlen, 2023). This practice can be carried out through the selection of accounting methods or the arrangement of transactions that influence profit figures. Although it does not always imply a violation of accounting standards, earnings management can reduce the transparency and relevance of financial information for investors and other stakeholders.

The investment opportunity set (IOS) reflects the extent of a company's investment opportunities (Myers, 1977). Firms with a high IOS tend to have strong growth prospects and significant funding needs. However, the pressure to meet market expectations may encourage managers to engage in earnings management, especially when performance-based incentives are involved (Saputri & Mulyani, 2022). This condition is particularly relevant for infrastructure companies that

require substantial capital expenditures for long-term projects. On the other hand, financial distress indicates a condition of financial difficulty that may lead to bankruptcy (Altman & Hotchkiss, 2019). Companies under financial pressure may be driven to practice earnings management to conceal poor performance or to meet debt covenant requirements (Wijaya & Ardiana, 2021). This is particularly critical in the infrastructure and transportation sectors, which are characterized by high financial leverage and significant working capital needs.

Previous studies have shown mixed results regarding the relationship between these variables. Gomariz and Ballesta (2021) found that IOS has a positive effect on earnings management, while Puteri and Rohman (2022) identified a negative effect of financial distress on earnings management. However, there remains a lack of research specifically examining the relationship between these variables within the context of Indonesia's infrastructure, transportation, and logistics industries. Based on the above background, this study aims to: (1) analyze the effect of the investment opportunity set on earnings management in infrastructure, transportation, and logistics companies; and (2) analyze the effect of financial distress on earnings management in infrastructure, transportation, and logistics companies.

Methods

Research Design

This study employs a quantitative approach with a causal-explanatory research design. The research is aimed at examining the effects of the investment opportunity set and financial distress on earnings management in companies within the infrastructure, transportation, and logistics sectors.

Population and Sample

The population of this study consists of all companies in the infrastructure, transportation, and logistics sectors listed on the Indonesia Stock Exchange during the 2020–2023 period. The sampling technique used is purposive sampling with the following criteria :

1. Listed on the IDX under the infrastructure, transportation, and logistics sectors throughout 2020–2023
2. Not delisted during the research period
3. Published complete annual financial statements, and
4. Possessed complete data related to the research variables

Based on these criteria, a total of 34 companies were selected as the sample, resulting in 136 observations (over four years).

Data Analysis Techniques

Data analysis was conducted using multiple linear regression with SPSS version 25. The analysis procedures included :

1. Descriptive statistical analysis
2. Classical assumption tests
    a. Normality test (Kolmogorov-Smirnov)
    b. Multicollinearity test (VIF and tolerance)

c. Heteroscedasticity test (Glejser test)

d. Autocorrelation test (Durbin-Watson)

3. Multiple linear regression analysis with the model : $DA = \alpha + \beta_1 CAPBVA + \beta_2 Z\text{-}Score + \varepsilon$

4. Hypothesis testing :

   a. t-test (partial test)

   b. F-test (simultaneous test)

   c. Coefficient of determination (R^2)

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Table 1 presents the descriptive statistics of the research variables from the 34 sampled companies over the 2020–2023 period (136 observations).

Table 1. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
CAPBVA (X_1)	136	0.014	0.385	0.109	0.078
Z-Score (X_2)	136	-3.176	4.825	1.734	1.562
DA (Y)	136	0.006	0.217	0.073	0.047

Source: SPSS 25 output (processed data, 2025)

The average CAPBVA value of 0.109 indicates that the sampled companies allocated approximately 10.9% of their total assets to capital expenditures. The average Z-Score of 1.734 suggests that most companies fall within the grey zone, indicating a moderate risk of financial distress. The average discretionary accruals (DA) value of 0.073 reflects a relatively moderate level of earnings management within the infrastructure, transportation, and logistics sectors.

Classical Assumption Test

Normality Test

Table 2. Results of the Kolmogorov-Smirnov Normality Test

Information	Unstandardized Residual
N	136
Kolmogorov-Smirnov Z	0.067
Asymp. Sig. (2-tailed)	0.200

Source: SPSS 25 output (processed data, 2025)

The results of the normality test show a significance value of 0.200, which is greater than 0.05, indicating that the residuals are normally distributed.

Multicollinearity Test

Table 3. Multicollinearity Test Results

Variable	Tolerance	VIF	Conclusion
CAPBVA (X_1)	0.873	1.146	There is no multicollinearity
Z-Score (X_2)	0.873	1.146	There is no multicollinearity

Source: SPSS 25 output (processed data, 2025)

Tolerance values > 0.10 and VIF < 10 for all independent variables indicate that there is no multicollinearity in the regression model.

Heteroscedasticity Test

Table 4. Results of Glejser Heteroscedasticity Test

Variable	t	Sig.	Conclusion
CAPBVA (X_1)	1.487	0.139	There is no heteroscedasticity
Z-Score (X_2)	-1.365	0.174	There is no heteroscedasticity

Source: SPSS 25 output (processed data, 2025)

The results of the Glejser test show a significance value > 0.05 for all independent variables, so it can be concluded that there is no heteroscedasticity.

Autocorrelation Test

Table 5. Durbin-Watson Autocorrelation Test Results

Model	Durbin-Watson	du	4-du	Conclusion
1	1.893	1.746	2.254	Tidak terjadi autokorelasi

Source: SPSS 25 output (processed data, 2025)

The Durbin-Watson value of 1.893 is between du (1.746) and 4-du (2.254), indicating that there is no autocorrelation in the regression model..

Multiple Linear Regression Analysis

Table 6. Results of Multiple Linear Regression Analysis

Variable	Coefficient	t	Sig.	Conclusion
(Constant)	0.065	9.314	0.000	
CAPBVA (X_1)	0.192	2.675	0.008	Significant
Z-Score (X_2)	-0.008	-2.545	0.012	Significant

Source: SPSS 25 output (processed data, 2025)

R^2 = 0.156; Adjusted R^2 = 0.144; F = 12.321; Sig. F = 0.000

Based on the results of the regression analysis, the following equation was obtained :

DA = 0,065 + 0,192 CAPBVA - 0,008 Z-Score + ε

This equation can be interpreted :

1. The constant value of 0.065 indicates that if the independent variables are zero, the value of discretionary accruals will be 0.065.
2. The CAPBVA coefficient of 0.192 indicates that each one-unit increase in CAPBVA will increase discretionary accruals by 0.192 units.
3. The Z-Score coefficient of -0.008 indicates that each one-unit increase in the Z-Score (a decrease in financial distress) will reduce discretionary accruals by 0.008 units.

Hypothesis Testing

t-Test (Partial)

t-Test Results (Table 6):

1. The CAPBVA variable has a t-statistic of 2.675 with a significance value of 0.008 (< 0.05), indicating that CAPBVA has a significant positive effect on discretionary accruals. Thus, H1 is accepted.
2. The Z-Score variable has a t-statistic of -2.545 with a significance value of 0.012 (< 0.05), indicating that Z-Score has a significant negative effect on discretionary accruals. Given that a higher Z-Score indicates lower financial distress, this result suggests that financial distress has a positive effect on earnings management. Therefore, H2 is rejected.

F-Test (Simultaneous Test)

The F-statistic value of 12.321 with a significance level of 0.000 (< 0.05) indicates that the independent variables simultaneously have a significant effect on earnings management.

Coefficient of Determination (R^2)

The adjusted R^2 value of 0.144 indicates that 14.4% of the variation in earnings management can be explained by the investment opportunity set and financial distress variables, while the remaining 85.6% is explained by other variables outside the research model.

Discussion

The Effect of Investment Opportunity Set on Earnings Management

The results of the study show that the investment opportunity set has a significant positive effect on earnings management in infrastructure, transportation, and logistics companies. This finding confirms the first hypothesis (H1) and is consistent with the studies of Gomariz and Ballesta (2021) as well as Saputri and Mulyani (2022). The positive effect can be explained through the lens of agency theory. Companies with a high IOS face greater information asymmetry regarding the value of investment projects and future prospects. Managers with superior information about investment potential may exploit this advantage through earnings management to influence investor perceptions and secure external funding at lower costs (Smith & Watts, 2023).

In the context of Indonesia's infrastructure, transportation, and logistics sectors, the characteristics of large-scale, long-term projects further strengthen this relationship. Companies with substantial capital expenditures require significant financing and need to demonstrate consistent performance to gain investor trust. Adhikari et al. (2023) found that infrastructure firms in Asia with high investment opportunities tend to engage in income smoothing to stabilize reported earnings and reduce perceived risk).

The Effect of Financial Distress on Earnings Management

The analysis shows that the Z-Score has a significant negative effect on earnings management. Since a higher Z-Score indicates lower financial distress, this finding suggests that financial distress has a positive effect on earnings management. This result contradicts the second hypothesis (H2), which predicted a negative effect. This finding is consistent with the study by Habib et al. (2023), which found that companies experiencing financial distress tend to engage in income-increasing earnings management to avoid violating debt covenants. Positive accounting theory suggests that firms at risk of breaching debt agreements are more likely to adopt accounting policies that increase reported earnings (Watts & Zimmerman, 1990).

In Indonesia's infrastructure, transportation, and logistics sectors, companies facing high levels of financial distress may be motivated to engage in earnings management to maintain the confidence of creditors and investors. Given the sector's characteristics of high financial leverage and substantial working capital needs, distressed companies strive to present better financial performance to avoid increased funding costs or rejection of financing for strategic projects. However, this finding contrasts with studies by Wijaya and Ardiana (2021) and Puspitasari and Januarti (2023), which found a negative relationship between financial distress and earnings management. The differences in results may be attributed to variations in sample characteristics, research periods, or variable measurement methods.

Conclusion

Based on the results of the study and discussion, it can be concluded that :

1. The investment opportunity set (IOS) has a significant positive effect on earnings management in infrastructure, transportation, and logistics companies in Indonesia. This result confirms that companies with high investment opportunities tend to engage in more aggressive earnings management practices, likely to secure external funding at lower costs or meet market expectations related to growth.

2. Financial distress has a significant positive effect on earnings management in infrastructure, transportation, and logistics companies in Indonesia. This finding indicates that companies in financial distress are more likely to engage in earnings management to avoid breaching debt covenants and maintain stakeholder confidence.

3. Simultaneously, the investment opportunity set and financial distress have a significant effect on earnings management, contributing 14.4%. This indicates that the majority of the variation in earnings management (85.6%) is explained by other factors outside the research model.

Bibliography

Adhikari, A., Banerjee, S., & Severino, F. (2023). Investment opportunity and earnings management: Evidence from infrastructure firms in Asia. Journal of Accounting in Emerging Economies, 13(2), 245-267

Altman, E. I., & Hotchkiss, E. (2019). Corporate financial distress, restructuring, and bankruptcy (5th ed.). John Wiley & Sons

Gomariz, M. F. C., & Ballesta, J. P. S. (2021). Investment opportunities and earnings management: Effects of corporate governance. Journal of Corporate Finance, 68, 101929

Habib, A., Uddin Bhuiyan, B., & Islam, A. (2023). Financial distress and earnings management: A meta-analysis. Journal of Business Research, 158, 113603

Healy, P. M., & Wahlen, J. M. (2023). A review of the earnings management literature and its implications for standard setting. Contemporary Accounting Research, 40(1), 137-168.

Kamilah, A. N., & ZH, M. H. R. (2023). The Management of Study Time and Part-Time Work for Sharia Economics Students at UIN Sunan Ampel Surabaya. *International Conference on Islam and Global Civilization 2022*.

Myers, S. C. (1977). Determinants of corporate borrowing. Journal of Financial Economics, 5(2), 147-175

Puspitasari, R., & Januarti, I. (2023). Financial distress dan manajemen laba: Studi pada perusahaan infrastruktur di Indonesia. Jurnal Akuntansi dan Keuangan Indonesia, 20(1), 72-89

Puteri, N. A., & Rohman, A. (2022). The impact of financial distress on earnings management with corporate governance as moderating variable. International Journal of Financial Research, 13(1), 34-47

Saputri, H. D., & Mulyani, S. (2022). Pengaruh investment opportunity set dan asimetri informasi terhadap manajemen laba. Jurnal Ilmiah Akuntansi dan Bisnis, 17(1), 156-168

Smith, C. W., & Watts, R. L. (2023). The investment opportunity set and corporate financing, dividend, and compensation policies. Journal of Financial Economics, 32(3), 263-292

Watts, R. L., & Zimmerman, J. L. (1990). Positive accounting theory: A ten year perspective. The Accounting Review, 65(1), 131-156

Wijaya, A. L., & Ardiana, P. A. (2021). Financial distress dan manajemen laba: Bukti empiris dari Indonesia. Jurnal Akuntansi dan Bisnis, 21(2), 217-228