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Leverage, Corporate Governance, and Real Earnings Management

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Abstract. *This study investigates the impact of leverage, independent commissioners, and board size on Real Earnings Management (REM) within the Indonesian construction sub-sector (2020–2024). Using purposive sampling (78 observations) and the Common Effect Model (CEM), the results demonstrate that leverage (Debt to Asset Ratio) significantly and positively affects REM. Conversely, the proportion of independent commissioners and board size exhibit no statistically significant influence. Simultaneously, these variables explain 16.23% of REM variation. The findings suggest that high financial debt catalyzes opportunistic operational manipulation in capital-intensive environments, while formal internal governance configurations serve primarily as regulatory compliance rather than substantive oversight against transaction-based adjustments.*

Abstrak. Penelitian ini menginvestigasi pengaruh leverage, komisaris independen, dan ukuran dewan terhadap Manajemen Laba Riil pada sub-sektor konstruksi di BEI periode 2020–2024. Menggunakan metode purposive sampling (78 observasi) dan regresi Common Effect Model (CEM), hasil penelitian menunjukkan bahwa leverage (Debt to Asset Ratio) berpengaruh positif signifikan terhadap REM. Sebaliknya, proporsi komisaris independen dan ukuran dewan tidak menunjukkan pengaruh signifikan. Secara simultan, variabel-variabel tersebut menjelaskan 16,23% variasi REM. Temuan ini mengindikasikan bahwa utang yang tinggi memicu manipulasi operasional oportunistik di sektor padat modal, sementara struktur tata kelola formal cenderung hanya menjadi pemenuhan regulasi daripada pengawasan substantif terhadap penyesuaian berbasis transaksi.

Keywords:
Construction Sector, Leverage, Real Earnings Management

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Introduction

Operational decisions and financial reporting within a business entity are fundamentally determined by the interaction between management (the agent) and capital owners (the principal). This relationship is inherently susceptible to conflicts of interest arising from information asymmetry (Jensen & Meckling, 1976; Widagdo et al., 2023). In the context of performance reporting, this conflict often manifests as earnings management, specifically Real Earnings Management (REM). REM involves manipulating earnings through actual operational decisions rather than accounting method choices (Roychowdhury, 2006). It presents a critical concern because it mimics legitimate business transactions, making it significantly harder for auditors and regulators to detect compared to accrual-earnings management. Consequently, REM directly distorts the financial information provided to investors and creditors (Cohen & Zarowin, 2010; Ivone et al., 2024).

Agency theory (Jensen & Meckling, 1976) serves as the primary framework to explain this phenomenon. As agents, managers have incentives to act opportunistically for personal gain, such as securing compensation, protecting reputation, or avoiding contractual pressures when their interests misalign with those of the shareholders or principals (Ivone et al., 2024). Debt-dominated capital structures introduce contractual pressures in the form of debt covenants, which drive managers to maintain safe financial ratios through real operational manipulation (Awad et al., 2024). Furthermore, within the internal oversight architecture, the presence of independent commissioners acts as an autonomous checking mechanism designed to bridge the information gap between management and capital providers, rooted firmly in classic agency configurations (Jensen & Meckling, 1976). From an agency perspective, while the broader board size represents collective monitoring capacity, the specific proportion of independent commissioners ensures that this oversight remains unbiased and free from managerial capture, thereby systematically constricting the strategic leeway required to execute undetected real operational manipulations (Prabowo & Pangestu, 2021). Conversely, the internal governance structure, reflected by the aggregate board size encompassing both the board of commissioners and the board of directors, serves as a critical monitoring framework. From an agency perspective, the collective scale of these corporate boards determines the organization's capacity for strategic oversight and comprehensive internal control. A well-proportioned board size is theorized to optimize the division of labor in supervision and provide diverse expertise, thereby curbing opportunistic managerial behavior and reducing the leeway for real operational manipulation (Attia et al., 2022).

This phenomenon is highly relevant to examine within the construction sub-sector listed on the Indonesia Stock Exchange (IDX). This sector possesses unique structural characteristics, including long-term project cycles and massive working capital requirements. A striking empirical phenomenon emerged within major state-owned construction enterprises (BUMN Karya), such as PT Wijaya Karya (Persero) Tbk and PT Waskita Karya (Persero) Tbk, where public financial disclosures reported net profits despite consistently suffering from negative operational cash flows (Khairunnisa et al., 2025; F. A. Wibowo et al., 2024). This severe mismatch between accounting profits and actual cash generation serves as a real-world reflection of REM practices, where operational activities or contract recognitions are aggressively structured to present a misleading facade of profitability (Permatasari Putri, 2022). Additionally, the governance dynamics within construction issuers, characterized by the varying representation of independent commissioners across private entities and state-owned enterprises (BUMN Karya), provide a compelling empirical setting to analyze this issue. Investigating this sector offers an empirical ground to test whether

the presence of independent oversight can substantively restrain aggressive operational trade-offs and cash flow mismatches, or if such positions are neutralized and reduced to mere regulatory compliance by the high-pressure operational environments inherent to large-scale infrastructure projects (Adi & Kusumaningtyas, 2021).

The urgency of this research is further heightened by post-pandemic macroeconomic pressures facing the construction sector. The infrastructure sector index on the IDX has demonstrated significantly higher volatility compared to the main benchmark index, signaling micro-level financial distress. This pressure is compounded by restricted access to project financing and high capital costs, forcing construction companies to increasingly rely on debt as their primary source of funding. Under these high-leverage conditions, managers face intense contractual strain to prevent debt covenant defaults (Al-Shattarat, 2024; Sukma et al., 2019). This argument aligns with the empirical findings of Ivone et al. (2024), which demonstrate that high leverage significantly triggers REM practices in Indonesian public firms, as managers utilize operational trade-offs to satisfy creditors and protect their corporate standing.

Prior studies investigating the determinants of REM continue to yield inconsistent results. The effect of leverage on REM has been found to be significantly positive in several studies, yet insignificant in others conducted across different industries (Wibowo, 2022). Similarly, regarding the specific efficacy of independent commissioners, empirical consensus remains elusive. Some scholars have documented a significant negative relationship, suggesting that objective, non-partisan supervision from external directors serves as a powerful deterrent against transaction-based distortions (Prabowo & Pangestu, 2021). Conversely, alternative studies indicate that the proportion of independent commissioners fails to exert any meaningful influence on real earnings management, under the premise that formal independence often reflects mere regulatory compliance rather than substantive, active monitoring (Adi & Kusumaningtyas, 2021). Similar inconsistencies persist regarding the impact of board size as a governance attribute. Some researchers argue that a larger combined board introduces a broader spectrum of professional expertise and joint supervisory capabilities, which effectively mitigates REM practices. Conversely, others contend that an expanded board size breeds coordination fragmentation, communication bottlenecks, and a tendency toward free-riding behavior among board members, paradoxically granting operational managers greater autonomy to execute undetected transaction-based manipulations (Hakim et al., 2025; Herawaty et al., 2023).

Based on these research gaps, this study offers novelty in two respects. First, the 2020-2024 period captures the post-pandemic timeline relevant to the recent financial pressures in the construction sector, a timeframe that has not been widely targeted in REM studies specific to this industry. Second, this study simultaneously evaluates three determinants representing distinct dimensions within the agency theory framework: contractual pressure (leverage), board independence (the proportion of independent commissioners), and aggregate internal governance capacity (board size). These are integrated into a single coherent model within a sub-sector whose operational characteristics differ significantly from manufacturing, which has historically been the dominant empirical baseline for standard REM proxies. The objective of this study is to empirically examine the concurrent effects of leverage, the proportion of independent commissioners, and board size on Real Earnings Management. This research is expected to provide insights for management in optimizing capital structure and corporate governance, as well as for capital market regulators in evaluating the substantive effectiveness of collective monitoring

mechanisms in high-risk operational sectors like construction. Based on this background, the research problem addressed in this study is formulated as follows: does leverage affect real earnings management in construction sector companies listed on the Indonesia Stock Exchange? Does the proportion of independent commissioners affect real earnings management in this sector? Does board size affect real earnings management in this sector? This study is limited to the scope of construction sub-sector companies listed on the Indonesia Stock Exchange during the 2020-2024 period, and does not extend its findings to other industrial sectors with different capital structures and governance characteristics.

Based on the preceding discussion and the differences in previous research findings, the research hypothesis can be formulated as follows:

The Influence of Leverage on Real Earnings Management

Within the framework of agency theory, a high level of leverage, proxied by the Debt to Asset Ratio (DAR) which reflects the proportion of external financing relative to a company's total assets, triggers an escalation of agency conflicts between management as the agent and creditors as the principal. When a company bears a heavy debt burden, the scrutiny and intervention from creditors become increasingly stringent. To secure their positions, avoid covenant penalties, and mitigate potential default risks, managers possess opportunistic incentives to exploit information asymmetry through real earnings management, such as delaying asset maintenance or cutting discretionary expenses to present a facade of stable earnings.

This agency premise is empirically supported by Adi and Kusumaningtyas (2021) and Ivone et al. (2024), who found that leverage has a positive effect on real earnings management practices among Indonesian firms, demonstrating that substantial debt clearly induces agents to manipulate real operational activities. However, a contrasting result was reported by Adi et al. (2020), showing that leverage has no significant effect within the mining sector. This anomaly strongly indicates that variations in managerial responses are highly dependent on specific sectoral structures and characteristics. Given that the construction sector features long physical operational cycles and relies heavily on massive injections of external financing, agency conflicts driven by leverage pressures are assumed to operate with a much higher intensity. Therefore, the hypothesis proposed is:

H1: Leverage has a positive effect on real earnings management.

The Influence of Independent Commissioner on Real Earnings Management

The representation of independent commissioners serves as a vital component of internal corporate governance designed to provide autonomous oversight and ensure the institutionalization of sound corporate practices. Within the framework of Agency Theory, the presence of independent board members is highly critical because it functions as a monitoring apparatus to mitigate agency frictions between managers acting as agents and shareholders as principals. As postured by Jensen and Meckling (1976), the decoupling of corporate management from ownership structures inherently breeds information asymmetry that can stimulate opportunistic behaviors. Consequently, the strategic inclusion of independent commissioners is required to constrict such asymmetry and guarantee that managerial decisions remain strictly aligned with the long-term wealth objectives of equity providers.

The empirical nexus between board independence and the magnitude of financial manipulation has generated divergent paradigms within the accounting literature. Prabowo and Pangestu (2021) documented that the ratio of independent commissioners exerts a significant negative effect on real earnings management, suggesting that unbiased supervision from external directors is highly effective in curbing transaction-based operational distortions. Conversely, alternative evidence presented by Adi and Kusumaningtyas (2020) indicates that the proportion of

independent commissioners fails to significantly influence real earnings management. This perspective argues that formal board independence frequently falls short of achieving substantive monitoring capacity, a deficiency that may stem from inadequate professional competence, weak ethical integrity, or a tendency to treat governance configurations as mere regulatory compliance. Notwithstanding these inconsistent findings, the structural independence of the board theoretically fortifies corporate oversight in suppressing detrimental managerial choices. Consequently, the following hypothesis is proposed:

H2: The proportion of independent commissioners affects real earnings management.

The Influence of Board Size on Real Earnings Management

Framed within Agency Theory, board size serves as a vital component of internal corporate governance designed to curb opportunistic managerial behaviors driven by information asymmetry. The corporate board, encompassing both commissioners and directors, is conceptualized as an objective monitoring apparatus designated to oversee operational strategies and restrict the managerial latitude required to execute real earnings management for self-serving motives. However, agency literature introduces a critical caveat, suggesting that the ultimate efficacy of this supervisory function is highly contingent upon the absolute number of board members. Expansive boards are theoretically prone to escalated communication frictions and coordination overheads, which frequently impede decision-making velocity and exacerbate the free-rider dilemma, thereby diluting institutional control over managerial opportunism due to overly diffused monitoring obligations.

This theoretical dysfunction finds substantial empirical backing in the work of Fitrasari (2023), who demonstrated that an expanded board serves as an inefficient control mechanism that actually exhibits a positive association with real earnings management intensity. Conversely, Attia et al. (2022) offered a countervailing perspective, documenting that board size correlates negatively with specific REM proxies, indicating that a larger collective board can yield enhanced monitoring capacity to safeguard investor interests under distinct structural conditions. Notwithstanding this empirical divergence, the scale of the board fundamentally dictates the quality of corporate oversight required to realign managerial actions with the long-term objectives of equity providers ; consequently, the hypothesis is formulated as follows:

H3: Board size affects real earnings management.

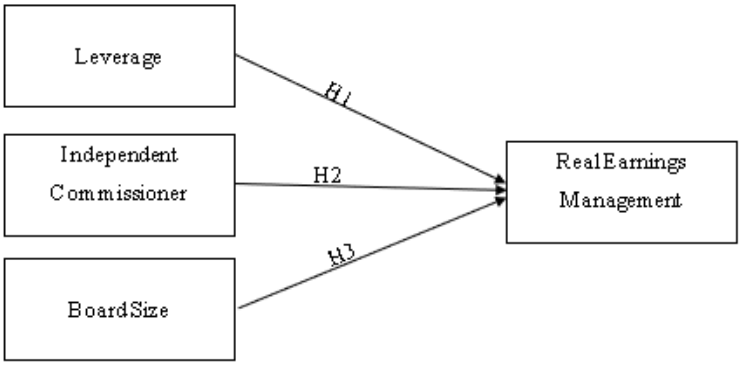


Figure 1. Conceptual Framework

Research Methods

This study employs a quantitative research design aimed at evaluating the empirical relationships among distinct variables through a structured and methodical analysis (Creswell & Creswell, 2023). Specifically, this approach is applied to investigate the effects of leverage, the proportion of independent commissioners, and board size on real earnings management. The initial research population consists of 29 companies operating within the construction sub-sector listed on the Indonesia Stock Exchange (IDX) across a five-year observation window from 2020 to 2024. This specific timeframe was selected to capture the post-pandemic financial performance and operational dynamics of construction firms within the Indonesian capital market. Secondary data utilized in this research were gathered from the companies' audited annual reports using the documentation method, which involved accessing official corporate websites and the formal IDX repository. For the statistical computations, panel data regression analysis was executed using EViews 13 software. Furthermore, the final research sample was determined using a purposive sampling technique based on the following specific criteria:

Table 1. Research Sample Selection Process

No	Criteria	Amount
1	Construction sub-sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period.	29
2	Companies that do not publish complete annual reports during the 2020–2024 research period.	(8)
3	Companies with incomplete data related to the research variables (leverage, board size, independent commissioners, and real earnings management components).	(5)
4	Total final sample companies meeting the criteria	16
	Total observations (16 companies × 5 years)	80

Source: Data processed by researchers, 2026

Based on the purposive sampling criteria, an initial sample of 16 companies yielded a total of 80 observations (16 companies × 5 years). However, during the data screening process, 2 observations were identified as extreme outliers that violated the normality assumption. To ensure data normality and preserve the validity of the statistical model, these 2 observations were excluded, resulting in a final adjusted dataset of 78 observations. This data screening was conducted strictly to satisfy the classical linear regression assumptions and optimize model specification, rather than to alter the significance or probability values of the hypothesis testing.

This research utilizes panel data regression analysis to evaluate the empirical relationships between the independent variables and the dependent variable. Following the characteristics of panel data, model estimation can be conducted through three approaches: the Common Effect Model (CEM), the Fixed Effect Model (FEM), or the Random Effect Model (REM). To determine the most appropriate model for the regression analysis, formal specification tests will be performed sequentially. The testing sequence begins with the Chow test to choose between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). If FEM is preferred, the Hausman test is subsequently conducted to compare FEM against the Random Effect Model (REM). Conversely, if the Chow test favors CEM, the selection process bypasses the Hausman test and proceeds directly to the Lagrange Multiplier test to evaluate the superiority of CEM over REM. Furthermore, the estimation process necessitates meeting classical assumption tests, including normality, multicollinearity, heteroscedasticity, and autocorrelation diagnostics, to guarantee that the final regression model functions as a Best Linear Unbiased Estimator (BLUE) (Napitupulu et al., 2021). All

statistical computations and data processing stages in this study were analyzed using EViews 13 software.

Table 2. Measurement of Research Variables

Variables	Measurement Indicators	Source
Real Earnings Management(Y)	$REM_{i,t} = (-AbnCFO_{i,t}) + AbnPROD_{i,t}(-AbnDISEXP_{i,t})$	Vinchen & Santioso (2021)
Leverage (X1)	$DAR_{i,t} = \frac{Total\ Debt_{i,t}}{Total\ Assets_{i,t}}$	Attia et al.(2022)
Independent Commissioner (X2)	$Independent\ Commissioner_{i,t} = \frac{Total\ \text{Independent Commissioner}_{i,t}}{Total\ Commissioner_{i,t}}$	Herawaty et al. (2023)
Board Size (X3)	$\text{Board Size}_{i,t} = (\text{Total number of Commissioners} + \text{Total Number of Direct}$	Fitrasari (2023)

Source: Data processed by researchers, 2026

Results and Discussion

Descriptive Statistical Analysis

Table 3. Descriptive Statistical Analysis Results

	X1	X2	X3	Y
Mean	0.60	0.43	9.49	0.01
Median	0.59	0.40	9.00	0.02
Maximum	1.05	0.67	14.00	0.16
Minimum	0.24	0.33	5.00	-0.26
Std. Dev.	0.20	0.10	2.60	0.09
Observations	78	78	78	78

Source: Data processed by EViews 13, 2026

The descriptive statistical summary across the 78 observations reveals distinct distributional characteristics for each variable under study. For the first independent variable, leverage (X1), the empirical values range from a minimum of 0.24 to a maximum of 1.05, yielding an average score of 0.60 with a standard deviation of 0.20. Independent commissioner (X2) exhibits a minimum value of 0.33 and a maximum value of 0.67, maintaining a mean of 0.43 and a standard deviation of 0.10. Regarding board size (X3), the dataset spans from a minimum configuration of 5.00 members to a maximum of 14.00 members, centering around an average scale of 9.49 with a standard deviation of 2.60. Finally, the dependent variable, Real Earnings Management (Y), displays a minimum value of -0.26 and a maximum value of 0.16, establishing a mean of 0.01 and a standard deviation of 0.09.

Model Selection Test

Table 4. Model Selection Test Results

Model	Probability	Model Results
Chow Test	0.1521	Common Effect Model (CEM)
Lagrange Multiplier Test	0.4128	Common Effect Model (CEM)

Source: Data processed by EViews 13, 2026

Based on the model selection results, the Chow test yields a probability value of 0.1521, which is greater than the 0.05 significance level, indicating that the Common Effect Model (CEM) is preferred over the Fixed Effect Model (FEM). Furthermore, the

Lagrange Multiplier test results show a probability value of 0.4128, confirming that CEM is also superior to the Random Effect Model (REM). Consequently, the Common Effect Model (Pooled OLS) is selected as the best-fitting model for this study. According to Wooldridge (2025), executing panel data analysis through the Pooled OLS framework requires strictly satisfying the standard classical linear regression assumptions encompassing normality, multicollinearity, heteroscedasticity, and autocorrelation diagnostics to guarantee that the parameter estimates function as the Best Linear Unbiased Estimator (BLUE).

Normality Test

Data normality is assessed utilizing the Jarque-Bera test. Under this statistical method, the dataset is considered normally distributed if the resulting probability value is greater than 0.05. Conversely, a probability value less than 0.05 indicates that the data fails to meet the normality assumption, signifying a non-normal distribution.

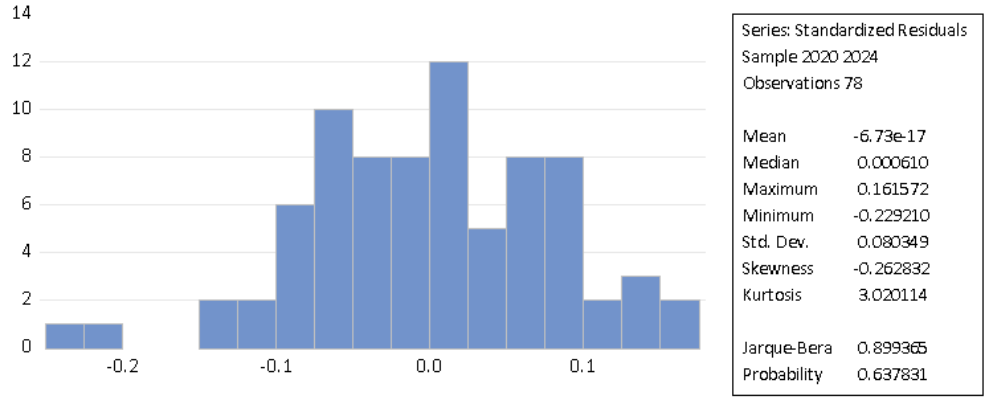


Figure 2. Normality Test Results

Based on the calculation results presented in Figure 2, the probability value is greater than 0.05 (0.637831 > 0.05). This empirical evidence confirms that the residuals follow a normal distribution, thereby validating that the normality assumption has been successfully satisfied.

Multicollinearity Test

The Variance Inflation Factor (VIF) is utilized to assess multicollinearity and detect potential linear dependencies among the independent variables within the regression model. An appropriate regression model must be free from severe multicollinearity to ensure that the estimated coefficients remain stable and unbiased. In accordance with standard econometric diagnostic criteria, the model is deemed free from multicollinearity issues if the centered VIF value for each independent variable is less than 10. The results of the VIF-based multicollinearity examination are presented in the table below:

Table 5. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.002638	30.63506	NA
X1	0.003680	16.86586	1.708536
X2	0.009062	20.74092	1.017967
X3	2.22E-05	24.91260	1.722567

Source: Data processed by EViews 13, 2026

Based on the multicollinearity test results presented in Table 5, the centered Variance Inflation Factor (VIF) values for all independent variables are substantially

below the critical threshold of 10. Specifically, variable X1 (leverage) exhibits a centered VIF of 1.708536, variable X2 (independent commissioner) records a centered VIF of 1.017967, and variable X3 (board size) shows a centered VIF of 1.722567. Because none of the centered VIF values exceed the benchmark of 10, it can be concluded that the regression model is completely free from multicollinearity problems, confirming that the independent variables are stable and suitable for panel data regression analysis.

Heteroscedasticity Test

The heteroscedasticity diagnostic was evaluated utilizing the Glejser test, where the absolute residuals were regressed against all independent variables. The outcomes of the heteroscedasticity test are displayed in the table below:

Table 6. Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.108638	0.029496	3.683150	0.0004
X1	-0.006610	0.034833	-0.189749	0.8500
X2	0.017458	0.054664	0.319376	0.7503
X3	-0.005035	0.002705	-1.861315	0.0667

Source: Data processed by EViews 13, 2026

Based on the calculation results on table 6, the probability values for X1 (0.8500), X2 (0.7503), and X3 (0.0667) are all greater than the 0.05 significance threshold. Because none of the independent variables significantly influence the absolute residuals, it can be concluded that the regression model is completely free from heteroscedasticity issues.

Autocorrelation Diagnostics

Autocorrelation was evaluated utilizing the Durbin-Watson (DW) test. Based on the regression output, the computed DW statistic is 1.721261. This value is compared with the critical values from the Durbin-Watson table at a 5% significance level with n = 78 observations and k = 3 independent variables, which provides a lower bound (dL) of 1.5534 and an upper bound (dU) of 1.7131.

Table 7. Autocorrelation Test Results

Durbin-Watson stat	1.721261

Source: Data processed by EViews 13, 2026

The formal decision rule dictates that a regression model is entirely free from first-order serial correlation if the empirical DW statistic satisfies the condition of dU < DW < 4 - dU. For a dataset comprising 78 observations and 3 independent variables evaluated at a 5% significance level, the statistical thresholds are established at a lower bound (dL) of 1.5535 and an upper bound (dU) of 1.7129. Given that the computed DW statistic yields a value of 1.721261, it strictly adheres to this prerequisite framework, positioning itself safely between the upper threshold and its converse value (1.7129 < 1.721261 < 2.2871). Consequently, the panel regression model formally demonstrates an absolute absence of critical autocorrelation symptoms and is fully valid for further hypothesis testing.

Panel Data Regression Analysis

Based on the panel data regression analysis, the empirical model is formulated using the regression coefficients derived from the Common Effect Model (CEM). The estimated regression equation is expressed as follows:

$$Yit = -0.1254 + 0.1416\ X1it + 0.0031\ X2it + 0.0056\ X3it$$

The empirical estimation results for the panel regression equation yield specific directional coefficients for each analyzed variable. The constant value is recorded at -0.1254, signifying that if all independent variables, including leverage (X1), the

proportion of independent commissioners (X2), and board size (X3), are fixed at zero, the intensity of real earnings management (Y) will be valued at -0.1254. The coefficient for X1 is +0.1416, indicating a positive relationship with the dependent variable. This implies that higher leverage accelerates real earnings management practices, where a one-unit increase in X1 corresponds to an increase of 0.1416 in the Y variable. Furthermore, the coefficient for X2 stands at +0.0031, demonstrating a positive direction. This suggests that the proportion of independent commissioners is positively associated with real earnings management, with a one-unit increase in X2 expanding the Y variable by 0.0031. Finally, the coefficient for X3 is reported at +0.0056, which also exhibits a positive direction. This shows that board size has a positive influence on real earnings management, meaning that a one-unit increase in X3 will lead to an increase of 0.0056 in the Y variable.

Partial Significance Test (T-Test)

Table 8. Partial Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.125481	0.051366	-2.442895	0.0170
X1	0.141663	0.060660	2.335375	0.0222
X2	0.003126	0.095195	0.032840	0.9739
X3	0.005601	0.004711	1.188930	0.2383

Source: Data processed by EViews 13, 2026

The partial t-test evaluates the individual significance of each independent variable within the regression model. Under this framework, a research hypothesis is supported if the empirical significance probability (p-value) falls below the established alpha threshold of 0.05, demonstrating that the independent variable exerts a statistically significant effect on the dependent variable. Conversely, a p-value exceeding 0.05 indicates the absence of a statistically significant relationship, thereby necessitating the rejection of the proposed hypothesis. Based on the empirical output generated under the Common Effect Model (CEM) framework with an alpha level of 0.05, the specific testing results for each hypothesis are detailed as follows:

1. The first hypothesis (H1) postulates that leverage has a positive effect on real earnings management. The statistical results reveal a positive regression coefficient of 0.141663, a t-statistic of 2.335375, and a significance level of 0.0222, which is strictly below the 0.05 threshold. Consequently, the first hypothesis (H1) is accepted. This confirms that higher leverage significantly intensifies real earnings management practices within the sampled construction companies.
2. The second hypothesis (H2) states that the proportion of independent commissioners affects real earnings management. The t-test output demonstrates a minor positive coefficient of 0.003126, a t-statistic of 0.032840, and a high significance level of 0.9739, which deeply exceeds the 0.05 benchmark. Therefore, the second hypothesis (H2) is rejected, indicating that the proportion of independent commissioners does not exert a statistically significant influence on real earnings management intensity.
3. The third hypothesis (H3) states that board size affects real earnings management. The empirical output exhibits a regression coefficient of 0.005601, a t-statistic of 1.188930, and a significance probability of 0.2383. Because the p-value is greater than the 0.05 significance threshold, the third hypothesis (H3) is rejected. This demonstrates that the collective scale of the board fails to provide a statistically significant impact on real earnings management practices in this model.

Simultaneous Significance Test (F-Test)

The simultaneous F-test is employed to evaluate the collective capacity of all independent variables in explaining the variations within the dependent variable. The overarching joint hypothesis in this study posits that leverage, the proportion of independent commissioners, and board size concurrently influence real earnings management.

Table 9. Simultaneous Test Results

F-statistic	5.973826
Prob(F-statistic)	0.001054

Source: Data processed by EViews 13, 2026

Based on the empirical findings table 9. generated from the panel regression, the model yields an F-statistic of 5.973826 with a corresponding significance probability (Prob. F-statistic) of 0.001054. Because the probability value falls substantially below the standard alpha threshold of 0.05, the simultaneous hypothesis is formally supported. Consequently, it can be statistically substantiated that leverage, the proportion of independent commissioners, and board size collectively exert a highly significant joint impact on the intensity of real earnings management across the sampled construction companies.

Coefficient of Determination (R^2)

The coefficient of determination is used to measure the extent to which independent variables influence fluctuations in the dependent variable.

Table 10. Coefficient of Determination Test Results

	p-value
Adjusted R-squared	0.162329

Source: Data processed by EViews 13, 2026

Based on the results presented in Table 10, the adjusted R-squared value is 0.162329. This indicates that 16.23% of the variation in real earnings management can be explained by the three independent variables in this study, namely leverage, the proportion of independent commissioners, and board size. Meanwhile, the remaining 83.77% of the variation is influenced by other variables outside the scope of this empirical model. This level of coefficient of determination is common in earnings management research, as real operational decisions are highly complex and heavily driven by other unobserved factors, such as specific managerial incentives, audit quality, ownership structures, or macroeconomic dynamics unique to the construction sector in Indonesia.

Discussion

The Influence of Leverage on Real Earnings Management

Leverage (X1), as measured by the Debt to Asset Ratio (DAR), yielded a significance value of 0.0222, which is below the 0.05 threshold, with a t-statistic of 2.335375 and a positive regression coefficient of 0.141663. These results indicate that leverage has a significant positive effect on real earnings management, and the first hypothesis (H1) is accepted. Within the framework of Agency Theory, a high level of debt acts as a contractual pressure that intensifies the conflict of interest between management as the agent and external creditors as the principal. When debt pressures mount, managers face stricter monitoring and the risk of violating debt covenants, giving them an opportunistic incentive to manipulate real operational activities to mask potential financial distress and maintain a facade of financial health (Ivone et al., 2024).

This finding is consistent with the research conducted by Adi and Kusumaningtyas (2021) and Ivone et al. (2024), which also demonstrated that

leverage has a positive effect on real earnings management, implying that higher debt levels serve as an indicator of increased manipulation practices. This consistency is based on the premise that a heavy debt burden expands information asymmetry between the agent and the principal, where managers utilize their operational discretion to meet immediate financial commitments. Conversely, this result differs from the study by Adi et al. (2020), which found that leverage did not significantly affect real earnings management in the mining sector, suggesting that the pressure to manipulate earnings to avoid default may vary across different industry classifications. Consequently, in the construction sector, higher leverage serves as a strong driver that compels managers to engage in real manipulation such as sales manipulation or overproduction to ensure the company appears capable of fulfilling its long-term liabilities

The Influence of Independent Commissioner on Real Earnings Management

The proportion of independent commissioners (X2) recorded a significance value of $p > 0.05$, with an empirical p-value of 0.9739 and a positive coefficient of 0.003126, showing that this variable does not affect real earnings management and the second hypothesis (H2) is rejected. This lack of significant influence implies that the presence of independent members within the supervisory board is not a primary factor in mitigating agency conflicts related to operational manipulation. Under the standard premises of Agency Theory, independent commissioners are conceptualized as objective guardians representing shareholder interests, tasked with restricting information asymmetry and realigning managerial strategies. However, the empirical reality of Indonesian construction entities suggests that the appointment of these commissioners serves primarily as a mechanism for formal regulatory compliance rather than substantive, active oversight. Consequently, firms with both high and low proportions of independent commissioners exhibit uniform vulnerability to transaction-based earnings adjustments, rendering this structural governance attribute non-determinant in curbing operational manipulation.

These findings converge with the evidence documented by Adi & Kusumaningtyas (2021), who demonstrated that the ratio of independent commissioners fails to influence real earnings management practices. They argue that mere numerical representation does not dictate managerial reporting choices, particularly when a lack of specialized industrial competence or robust integrity limits the board's capacity to detect subtle operational adjustments. Conversely, these results contrast with Prabowo & Pangestu (2021), who reported a significant negative relationship between board independence and REM. This empirical divergence indicates that the monitoring efficacy of independent boards is not universal but highly contingent upon industry dynamics. In the construction sub-sector, massive working capital demands and severe post-pandemic macroeconomic constraints introduce intense operational pressures that effectively overwhelm the supervisory capability of external commissioners, thereby leaving the proportion of independent board members with no substantive impact on real earnings management.

The Influence of Board Size on Real Earnings Management

The collective board size (X3), representing the aggregate number of directors and commissioners, recorded a significance value of $p > 0.05$, with an empirical p-value of 0.2383 and a positive coefficient of 0.005601, indicating that this variable does not affect real earnings management and the third hypothesis (H3) is rejected. This statistically insignificant relationship implies that the structural scale of the corporate board within Indonesian construction firms is not a primary determinant in modulating agency conflicts related to operational manipulation. Within the framework of Agency Theory, corporate boards are conceptualized as critical internal

oversight mechanisms tasked with supervising management and safeguarding shareholder wealth. Theoretically, the expansion of board size presents a structural trade-off between broader supervisory expertise and escalating governance frictions. While a larger board scale potentially introduces diverse analytical competencies, agency literature cautions that outsized boards frequently suffer from coordination breakdowns, communication bottlenecks, and the free-rider dilemma, where individual members diffuse their monitoring obligations. Consequently, these findings indicate that the structural scale of boards in the sampled issuers has not been optimized substantively to restrict managerial discretion over real transaction alterations.

These empirical results contrast with the divergent paradigms documented in the primary literature, highlighting the highly contextual nature of board oversight. The outcome diverges from Fitrasari (2023), who demonstrated that an expanded board size acts as an inefficient governance tool that correlates positively with earnings distortion due to marginal monitoring benefits being offset by high organizational friction. Conversely, this outcome also contrasts with Attia et al. (2022), who observed a significant negative correlation between board scale and REM proxies, arguing that larger boards enhance external environmental engagement and stakeholder alignment. This systemic divergence underscores that numerical capacity alone is insufficient to intercept subtle transaction-based adjustments in capital-intensive sectors. In the construction sub-sector, managers maintain a profound information advantage regarding day-to-day operational mechanics, such as the timing of contract recognitions and the deferral of discretionary expenditures. Because standard board configurations focus primarily on formal aggregate numbers rather than specialized operational synchronization, mere quantity fails to provide the granular oversight needed to intercept transactional manipulation. Therefore, the findings suggest that optimizing corporate governance in high-risk operational environments requires a strategic pivot toward qualitative competency and functional board coordination rather than simple numerical expansion.

Conclusion and Recommendations

This study concludes that leverage exerts a significant positive effect on real earnings management within construction companies listed on the Indonesia Stock Exchange, whereas the proportion of independent commissioners and board size exhibit no statistically significant influence. These empirical insights theoretically enrich Agency Theory by confirming that external contractual distress, driven by high leverage, acts as a primary catalyst that intensifies information asymmetry and opportunistic operational manipulation in capital-intensive industries, while exposing the structural limitations of quantitative internal governance controls. From a practical perspective, these results indicate that external stakeholders, particularly creditors and auditors, must execute rigorous oversight over highly indebted firms to intercept transaction-based distortions. Furthermore, capital market investors are cautioned not to rely blindly on formal governance configurations, as mere regulatory compliance regarding board scale and independence ratios fails to guarantee substantive protection against subtle operational earnings manipulation.

Acknowledging the limitations of this research, which isolates a single operational sub-sector within a temporal scope from 2020 to 2024, several strategic recommendations are advanced for future inquiry. Future researchers are highly encouraged to broaden the empirical framework by executing cross-sector comparative designs to capture wider macroeconomic variations across distinct industry profiles. Additionally, subsequent empirical models should adopt qualitative corporate governance indexes rather than relying strictly on nominal board

proportions to evaluate actual monitoring efficacy. Finally, it is recommended to integrate more dynamic alternative variables affecting managerial incentives, such as audit committee financial literacy, managerial ownership dispersion, or operational cash flow volatility, to generate a more comprehensive and holistic diagnostic framework for the determinants of real earnings management.

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