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Testing Manipulation Limits: When Leverage and Size Meet Investor Interests

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ABSTRACT

Earnings management is a global issue and a rising concern in Indonesia. This study aims to examine how leverage and firm size influence earnings management. The objective of the paper is to analyze the moderating effects of foreign and institutional ownership on those relationships within the infrastructure sector. The research methodology applies panel data regression on 160 firm-year observations from publicly listed infrastructure companies in Indonesia between 2020–2023, using the Kothari performance-matched model to measure discretionary accruals. The general findings show that leverage and firm size have a significant and positive effect on earnings management. Foreign ownership significantly weakens the effect of leverage, suggesting stronger external monitoring, while institutional ownership surprisingly strengthens it, possibly due to passive monitoring behavior. Neither ownership type significantly moderates the relationship between firm size and earnings management. These results reinforce agency theory and emphasize the nuanced role of ownership structure in influencing reporting quality.

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1. INTRODUCTION

Earnings management has become a global issue that potentially undermines the accuracy of financial reports and hinders investors in making informed decisions. It refers to the practice of manipulating corporate earnings reports to present a more favorable financial performance (Claudia et al., 2024). This is commonly done by utilizing the discretion allowed in accounting regulations to modify the presentation of earnings., which can mislead investors and compromise the integrity of financial disclosures (Githaiga et al., 2022; Setiowati et al., 2023). Although such practices may offer short-term benefits, they pose significant risks to operational efficiency and threaten the long-run resilience and continuity of the enterprise (Nguyen et al., 2021; Safarida et al., 2023).

The phenomenon of earnings management occurs globally across various markets and regulatory environments. This was further demonstrated by Cade et al. (2025), who found that 26.8% of executives from companies listed in the Russell 3000 index in the United States admitted to engaging in at least one form of earnings manipulation between 2018 and 2023. Their study classified these manipulations into several categories: real earnings management (REM), reported by 18.0% in direct surveys and 29.9% using list experiments; accrual-based earnings management (AEM), reported by 6.6% of respondents; disclosure obfuscation (8.8%); and material omissions (3.9%). Remarkably, while none of the executives openly admitted to accounting fraud in direct surveys, 12.4% did so when asked indirectly.

In the Indonesian context, similar patterns of earnings manipulation have emerged, highlighting the persistent challenges in ensuring transparency and integrity in corporate financial reporting. For instance, in 2024, PT Delta—a leading manufacturing company—was suspected of inflating revenues and deferring the recognition of operational expenses to conceal substantial losses, aiming to maintain a favorable image among the public and investors (Fitrianingsih, 2024). Likewise, PT Indofarma Tbk (INAF) was implicated in financial irregularities resulting in state losses amounting to IDR 371.8 billion. A government audit by the Audit Board of Indonesia revealed that these discrepancies originated from its subsidiary and significantly contributed to the company's profit decline (Binekasri, 2024). These cases not only reflect the global nature of earnings management but also underscore the urgent need for stronger enforcement, stricter oversight mechanisms, and enhanced governance practices to prevent future financial misreporting in emerging markets such as Indonesia.

Among the various firm-specific factors contributing to earnings management, leverage and firm size have emerged as critical determinants, particularly when viewed through the lens of agency theory, which underscores the fundamental misalignment between executives and shareholders (Alrobai et al., 2025). Highly leveraged companies often face strict contractual obligations and performance thresholds, where failure to comply may trigger costly renegotiations or unfavorable terms (Awuye & Aubert, 2022). In such contexts, managers are incentivized to manipulate earnings to avoid covenant violations or to maintain an image of financial health, especially during periods of financial strain (Hussain et al., 2022; Mlawu et al., 2025; Sequeira et al., 2024). Studies have regularly found that firms carrying significant financial leverage are more inclined toward manipulating financial outcomes as a strategic response to debt-related pressures (Alrobai et al., 2025). Similarly, large firms are also prone to earnings manipulation, driven by heightened public scrutiny, complex operations, and increased expectations from regulators, analysts, and investors (Kamal & Khazalle, 2021; Song, 2022). Their substantial size not only affords greater flexibility in applying accounting standards but also

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imposes reputational pressure to report stable financial outcomes (Githaiga et al., 2022; Yuniarsih & Permatasari, 2022). These dynamics underscore how leverage and firm size, rather than deterring opportunistic behavior, may in fact amplify it—further reinforcing the relevance of agency conflicts in explaining earnings management practices across diverse corporate settings.

While prior studies have explored various determinants of earnings management, few have systematically examined the moderating role of ownership structure—particularly foreign and institutional ownership—within the context of agency theory. This study also responds to the research recommendation by Alrobai et al. (2025), who emphasized the need to assess governance-related moderating variables, and by Mlawu et al. (2025), who called for an evaluation of the capacity of governance structures to limit opportunistic financial reporting practices. Institutional investors, due to their substantial financial stakes and extended investment timeframes, are incentivized to supervise managerial behavior and enhance the transparency in disclosing financial information (Ali et al., 2024; Potharla et al., 2021; Solikhah et al., 2022). Their active role in corporate governance—through voting rights and board representation—serves as a strong external control mechanism that limits discretionary accruals and opportunistic reporting (Al-Duais et al., 2022; Tran et al., 2023). Likewise, foreign ownership contributes to earnings quality by introducing objective and independent oversight, informed by global investment standards and superior monitoring capabilities (Al-Matari, 2025; Lee, 2022; Nguyen et al., 2021). These governance channels help mitigate agency conflicts by aligning managerial incentives with shareholder interests, yet their interactive effects with firm-specific characteristics such as leverage and size remain underexplored.

Beyond incorporating ownership structure as a moderating variable, this study introduces further novelty through the application of Kothari's performance-matched model as a refined proxy for earnings management. This corresponds to the methodological suggestion by Githaiga et al. (2022), who highlighted the need to adopt alternative accrual models beyond the widely used Modified Jones model to yield more reliable results. Unlike the traditional approach, the Kothari model controls for firm performance (ROA), thereby reducing estimation bias and improving the accuracy of discretionary accrual detection (Acar & Coskun, 2020; Sundkvist et al., 2023). Additionally, this research focuses on the infrastructure sector, which remains underrepresented in earnings management literature despite its distinctive attributes—such as high leverage, long-term project horizons, and capital intensity—that increase the incentives for earnings manipulation (Latif, 2023). This sectoral choice is consistent with the recommendation by Yuniarsih & Permatasari (2022) to expand the research scope beyond manufacturing firms. While prior studies have largely concentrated on the manufacturing (Ajisman & Yurniwati, 2023; Muqsith & Murtianingsih, 2022; Susanti et al., 2022), banking (Septiadi & Daito, 2025), energy (Rama & Winedar, 2024), and food and beverage sectors (Claudia et al., 2024), as well as across various regions such as Europe (Awuye & Aubert, 2022), East Africa (Githaiga et al., 2022), Portugal (Sequeira et al., 2024), China (Ashraf & Qian, 2021; Dong et al., 2020), Egypt (Alrobai et al., 2025), South Korea (Song, 2022), India (Potharla et al., 2021), Vietnam (Nguyen et al., 2021), Malaysia (Kamal & Khazalle, 2021), and Indonesia (Perdana, 2019; Yuniarsih & Permatasari, 2022)—the infrastructure sector has yet to receive proportionate empirical attention. This focus is particularly relevant in emerging markets like Indonesia, where infrastructure development plays a critical role in national economic strategies.

Accordingly, the present research seeks to investigate how leverage and firm size impact earnings management, while also evaluating the moderating effects exerted by foreign and

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institutional ownership structures within the infrastructure sector in Indonesia. By integrating agency theory, refined empirical measurement via the Kothari performance-matched model, and a sectoral focus often overlooked in prior literature, this research seeks to offer a more comprehensive understanding of the interplay between governance structures and firm-level characteristics interact in shaping earnings management behavior. The findings are expected to contribute both conceptual and applied perspectives. In terms of theory, this study contributes to the academic discourse by filling gaps associated with patterns of shareholder structure moderation and sectoral diversity in accounting-based earnings manipulation research. Practically, the results provide valuable guidance for decision-makers, oversight bodies, and market participants—especially within developing economies—on the critical importance of ownership monitoring and leverage control in deterring earnings manipulation. The study further encourages enhanced governance enforcement and tailored accounting regulation, particularly in infrastructure firms where financial opacity can undermine long-term national development objectives.

Leverage and Earnings Management

Agency theory posits that the separation between ownership and control creates inherent conflicts of interest, where executives pursue their own objectives, potentially harming shareholder interests (Alrobai et al., 2025). Leverage, as a source of external financial pressure, exacerbates this conflict by compelling managers to present favorable financial outcomes to avoid violating debt covenants (Awuye & Aubert, 2022). Debt agreements often include performance thresholds based on accounting figures, and failure to meet these thresholds may lead to renegotiation or penalties, which incentivizes earnings manipulation (Sequeira et al., 2024). Research findings have validated this notion, showing that highly leveraged businesses have a greater tendency to engage in earnings management to meet these financial obligations or maintain their creditworthiness (Hussain et al., 2022; Mlawu et al., 2025). Moreover, Alrobai et al. (2025) highlights that firms with greater leverage often manage earnings more aggressively to attract potential investors or defer recognition of financial distress. This pattern reflects not only opportunistic behavior but also strategic efforts to avoid negative market responses or increased monitoring. Based on both theoretical reasoning and empirical evidence, the subsequent hypothesis is formulated:

H1: Leverage has a positive effect on earnings management.

Firm Size and Earnings Management

Firm size is another key factor that shapes managerial incentives and opportunities for earnings manipulation. While larger companies face increased attention from the public and stricter monitoring by regulators, they also possess more resources and discretion in financial reporting (Kamal & Khazalle, 2021). Agency theory suggests that this flexibility, combined with performance pressures, might encourage executives in bigger companies to adjust reported earnings to align with investor forecasts (Alrobai et al., 2025). Larger firms also tend to have complex operational structures, which can obscure managerial actions and facilitate the use of discretionary accruals (Githaiga et al., 2022). In addition, empirical studies report that large firms face substantial stakeholder pressure to report stable and positive financial results, thus increasing the likelihood of earnings smoothing or income inflation (Song, 2022; Yuniarsih & Permatasari, 2022). These firms may manage earnings not only to maintain a stable reputation but also to secure investor confidence and market valuation. Consequently, despite higher

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external monitoring, the combination of capability and incentive enhances the risk of earnings management in large firms. Thus, the next hypothesis is constructed:

H2: Firm size has a positive effect on earnings management.

Foreign Ownership as a Moderator

Agency theory explains that earnings management s frequently driven by agency conflicts, wherein managers act to maximize their own interests, thereby undermining the integrity of financial disclosures (Alrobai et al., 2025). This tendency becomes more pronounced under high leverage and in large firms, where pressures to meet debt obligations and stakeholder expectations are intense (Mlawu et al., 2025; Sequeira et al., 2024; Song, 2022). However, the presence of foreign ownership can play a critical role in mitigating such agency problems. Foreign investors, particularly institutional ones, are widely recognized for their strong governance orientation, long-term investment outlook, and independence from managerial influence (Al-Matari, 2025; Tran et al., 2023). Their active engagement in monitoring financial performance limits managerial discretion and promotes more transparent reporting (Al-Duais et al., 2022; Nguyen et al., 2021). When foreign investors acquire voting and control rights, they tend to enforce strict compliance with financial reporting standards, thereby curbing leverage-induced manipulation (Lee, 2022). In large firms, which often possess more flexibility in applying accounting policies, foreign ownership imposes discipline through global best practices and risk oversight frameworks, which helps prevent the use of earnings management to stabilize reported performance (Githaiga et al., 2022; Kamal & Khazalle, 2021). Furthermore, foreign shareholders' access to sophisticated investment knowledge enhances their monitoring capabilities, making them effective deterrents against opportunistic reporting (Al-Matari, 2025; Tran et al., 2023). As such, foreign ownership can be expected to attenuate the positive effects of both leverage and firm size on earnings management by enhancing external governance and reducing managerial autonomy in financial disclosures.

H3: Foreign ownership weakens the positive effect of leverage on earnings management.

H4: Foreign ownership weakens the positive effect of firm size on earnings management.

Institutional Ownership as a Moderator

In addition to foreign investors, institutional ownership also acts as a powerful governance mechanism capable of reducing managerial opportunism. Rooted in agency theory, the monitoring role of institutional investors stems from their large financial stakes, voting power, and orientation toward long-term returns (Alrobai et al., 2025; Solikhah et al., 2022). These attributes compel them to actively supervise management practices, particularly those related to financial reporting and earnings quality (Al-Duais et al., 2022; Dong et al., 2020). In leveraged firms, institutional investors are positioned to detect and deter earnings manipulation used to avoid covenant breaches or to mislead creditors (Hussain et al., 2022; Potharla et al., 2021). Empirical evidence shows that institutional ownership constrains discretionary accruals and limits real activity manipulation, leading to higher-quality earnings (Ali et al., 2024; Potharla et al., 2021). Likewise, in large firms—where managers may exploit greater flexibility in financial reporting—institutional investors act as critical overseers who demand accountability and transparency (Kamal & Khazalle, 2021; Yuniarsih & Permatasari, 2022). Institutions often implement formal governance structures that monitor depreciation policy and working capital management, two common tools of earnings manipulation (Potharla et al., 2021). Their

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consistent and vigilant supervision not only discourages aggressive accounting behavior but also promotes sustainable performance reporting (Solikhah et al., 2022). Institutional ownership is presumed to weaken the influence of leverage and company size on earnings management by constraining managerial actions aimed at achieving short-term financial outcomes.

H5: Institutional ownership weakens the positive effect of leverage on earnings management.

H6: Institutional ownership weakens the positive effect of firm size on earnings management.

2. METHODOLOGY

The research applies statistical analysis to explore the relationship between leverage, firm size, and the extent of earnings management, while considering the moderating roles of foreign and institutional ownership. The study focuses on infrastructure companies publicly listed on the Indonesia capital market, a sector chosen due to its capital-intensive nature, long-term project cycles, and high leverage dependency—factors that potentially heighten the risk of earnings manipulation.

The research focuses on infrastructure firms listed in the capital market over the 2020–2023 period. A purposive sampling method is applied to select companies that consistently disclosed audited financial statements and ownership structures during the observation period. Following the application of selection criteria, the final dataset comprised 160 firm-year observations. The sample selection is summarized below:

Table 1. Sample Selection Criteria

Description	Total
Infrastructure sector companies listed on IDX	70
Excluded: not listed since at least 2020	(16)
Excluded: lacking complete annual reports for 2020–2023	(7)
Excluded: no ownership composition disclosure	(7)
Final sample (4-year observation period)	160

Source: Indonesia Stock Exchange (2025)

Secondary data derived from companies' annual and financial reports form the basis of this study. The operational definitions and measurement methods of the variables are detailed in the table below:

Table 2. Variables Measurement

Variables	Code	Measurements	References
Earnings Management	EM	Discretionary accruals using Kothari's performance-matched model $\frac{Accrual}{TAt-1} = a^1\left(\frac{1}{TAt-1}\right) + a^1\left(\frac{\triangle REV - \triangle REC}{TAt-1}\right) + a^3\left(\frac{PPEt}{TAt-1}\right) + a^4(ROA) + \mathcal{E}t$	(Acar & Coskun, 2020; Sundkvist et al., 2023)
Leverage	LEV	$\frac{Total\ Liabilities}{Total\ Assets}$	(Awuye & Aubert, 2022;

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			Sequeira et al., 2024; Tullah et al., 2022)
Firm Size	SZ	Natural Logarithm of Total Assets	(Githaiga et al., 2022; Song, 2022)
Foreign Ownership	FO	Percentage of shares held by foreign investors	(Alrobai et al., 2025; Tran et al., 2023)
Institutional Ownership	IO	Percentage of shares held by institutional investor	(Ali et al., 2024; Alrobai et al., 2025)

The analysis in this study is conducted through the estimation of three panel regression models. The first model examines the direct impact of firm size and leverage on earnings management. The second model incorporates foreign ownership as a moderating variable, to assess whether it weakens the correlation between leverage, firm size, and earnings management. The third model introduces institutional ownership as a moderator, aiming to evaluate its role in dampening the extent to which leverage and firm size drive earnings management practices.

Data analysis was conducted using multiple linear regression within a moderation model framework, utilizing EViews 9 software. To ensure the reliability of the regression results, a multicollinearity test was performed as part of the classical assumption checks. Moderating effects were assessed through the inclusion of interaction terms. The selection of the most suitable panel data model was determined using the Chow test, Hausman test, and Lagrange Multiplier test.

3. RESULTS AND DISCUSSION

Research data must satisfy the traditional assumptions in order for regression modeling to be accurate. A multicollinearity test was performed in this panel data analysis to guarantee the correctness of the model. The test results indicated that the model did not suffer from multicollinearity, as evidenced by the correlation coefficients between variables not exceeding the threshold of 0.85. Additionally, model selection procedures were conducted to identify the most appropriate regression specification. The results indicated that the Fixed Effect Model (FEM) provided the best fit for the regression analysis, both in the baseline model and in the models incorporating interaction terms for moderation.

Table 3. Regression Results from EViews

Variable	B	P-value	Effect	Adjusted R-squared
LEV → EM	0.000105	0.0014	Significant positive	0.632583
SZ → EM	0.049896	0.0030	Significant positive	
LEV + FO → EM	-0.000504	0.0001	Significant negative	0.671156
SZ + FO → EM	4.63E-06	0.8771	Not significant	
LEV + IO → EM	0.000765	0.0003	Significant positive	0.667315

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SZ + IO → EM	5.61E-07	0.9862	Not significant

Source: Processed data using EViews 9

Effect of Leverage on Earnings Management

Leverage is found to exert a significant and positive influence on the extent of earnings management (β = 0.000105, p = 0.0014). It implies that highly indebted companies have a higher propensity to manage reported earnings, often to avoid covenant violations or present a stable financial position to creditors. This finding supports agency theory, highlighting how divergent objectives between agents and principals can foster opportunistic conduct, especially when financial pressure is involved (Alrobai et al., 2025). In highly leveraged firms, managers are incentivized to manipulate earnings to comply with loan agreements and maintain creditor confidence, as breaching debt covenants may result in severe financial consequences, such as unfavorable renegotiations or restricted access to capital (Awuye & Aubert, 2022; Sequeira et al., 2024). The manipulation of earnings thus becomes a strategic tool to meet profitability thresholds imposed by lenders. Empirical evidence also confirms that firms with substantial debt obligations tend to adjust their financial statements to appear more solvent, aligning with prior findings that leverage can intensify manipulative financial reporting practices (Hussain et al., 2022; Mlawu et al., 2025). Therefore, the positive association found in this study underscores the role of leverage not merely as a financial risk but acting as a central influence behind financial reporting distortions arising from principal-agent disputes.

Effect of Firm Size on Earning Management

The result indicating a positive and significant association between firm size and earnings management (β = 0.049896, p = 0.0030) supports the premises of agency theory, indicating that larger firms, due to their complex organizational structures and broader stakeholder base, experience heightened agency conflicts among corporate executives and equity holders (Alrobai et al., 2025). These firms often face intense pressure to meet market expectations and sustain a consistent earnings trajectory, prompting managers to engage in income-smoothing behaviors. Despite increased public scrutiny, large companies possess greater discretion in applying accounting standards and navigating financial reporting practices, making earnings management more feasible (Githaiga et al., 2022; Kamal & Khazalle, 2021). As highlighted by Song (2022), the need to satisfy a diverse group of stakeholders further motivates such behavior, potentially compromising earnings quality. Yuniarsih & Permatasari (2022) also notes that while large firms may appear more cautious in financial disclosures, they still engage in manipulation to preserve corporate image and perceived stability. Thus, the empirical result affirms that firm size, rather than deterring earnings management, often facilitates it under agency-driven incentives.

The Moderating Effect of Foreign Ownership on The Relationship Between Leverage and Earnings Management

The interaction between leverage and foreign ownership yields a negative and significant coefficient (β = -0.000504, p = 0.0001), indicating that foreign ownership weakens the previously positive effect of leverage on earnings management. In the base model, leverage was found to have a positive and significant impact on earnings manipulation, as firms with high debt levels are often pressured to meet debt covenants and maintain favorable financial appearances (Alrobai et al., 2025; Awuye & Aubert, 2022; Sequeira et al., 2024). However, when foreign ownership is introduced as a moderating variable, this effect is reversed—suggesting that foreign investors play a pivotal role in constraining managerial discretion. Foreign investors bring with

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them a higher demand for transparency, independence from internal politics, and adherence to global governance standards (Al-Matari, 2025; Nguyen et al., 2021). Their influence, exercised through voting rights and continuous performance monitoring, reduces managers' ability or willingness to engage in opportunistic earnings management (Lee, 2022; Tran et al., 2023). This shift in the direction of the leverage coefficient underscores the effectiveness of foreign ownership as a governance mechanism that mitigates agency problems in leveraged firms.

The Moderating Effect of Foreign Ownership on The Relationship Between Firm Size and Earnings Management

The moderating effect of foreign ownership on the relationship between firm size and earnings management is not statistically significant (β = 4.63E-06, p = 0.8771). This suggests that foreign investors do not substantially influence how firm size relates to earnings manipulation. One plausible explanation lies in the structural complexities and operational breadth of large firms, which can diminish the effectiveness of external monitoring, even when exercised by foreign stakeholders. According to agency theory, effective governance mechanisms are essential to mitigate agency conflicts between managers and shareholders (Al-Matari, 2025; Alrobai et al., 2025). While foreign investors are generally perceived as objective and long-term oriented monitors who emphasize transparency and profitability (Nguyen et al., 2021; Tran et al., 2023), their influence may be limited in large organizations due to geographic distance, language barriers, and limited direct access to internal operations (Agustin, 2022; Kurniawan & Hidayanti, 2024). In such cases, managers may exploit these monitoring gaps to continue discretionary accounting practices.

The Moderating Effect of Institutional Ownership on The Relationship Between Leverage and Earnings Management

Surprisingly, the interaction between leverage and institutional ownership has a positive and significant coefficient (β = 0.000765, p = 0.0003), indicating that institutional ownership strengthens the positive effect of leverage on earnings management. This contradicts the theoretical expectation that institutional investors act as effective external monitors who constrain opportunistic behavior. While agency theory suggests that strong governance mechanisms—such as institutional oversight—should reduce managerial discretion (Alrobai et al., 2025; Solikhah et al., 2022), this result suggests a possible governance failure. One plausible explanation is the passive or transient nature of some institutional investors, who may prioritize short-term earnings performance over long-term governance objectives (Davis & García-Cestona, 2023; Feliana & Salim, 2025). Rather than exercising effective control, these investors might tacitly support earnings management practices that enhance short-term stock performance, particularly in highly leveraged firms facing intense financial pressure (Awuye & Aubert, 2022; Sequeira et al., 2024). Thus, instead of mitigating agency conflicts, institutional ownership under these conditions may inadvertently reinforce managerial incentives to distort earnings, especially when investor activism is weak or absent.

The Moderating Effect of Institutional Ownership on The Relationship Between Firm Size and Earnings Management

The interaction between firm size and institutional ownership is not significant (β = 5.61E-07, p = 0.9862). This result suggests that institutional investors have limited influence in altering the link between firm size and earnings manipulation. It indicates that their presence alone may not effectively deter such practices within large-scale organizations. While institutional ownership is

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theoretically positioned to reduce agency conflicts by providing robust monitoring (Ali et al., 2024), practical limitations may hinder its effectiveness—especially in large organizations characterized by complex operations and multilayered decision-making structures (Alrobai et al., 2025). Prior studies have questioned the real-world effectiveness of institutional investors in such settings, noting their passive role and focus on short-term returns rather than long-term governance (Muqsith & Murtianingsih, 2022; Orbawan & April, 2023). As observed by Wirianata (2020), institutional owners may act more as temporary shareholders rather than committed monitors, which weakens their ability to detect or prevent earnings manipulation. This result underscores the need to reassess the presumed strength of institutional monitoring in large firms and suggests that firm size can overshadow governance mechanisms unless paired with active and sophisticated oversight structures.

Coefficient of Determination

The adjusted R-squared values across the three models demonstrate varying explanatory power of the independent and moderating variables on earnings management. In the base model, which includes leverage and firm size as predictors, the adjusted R-squared is 0.6326. This indicates that approximately 63.26% of the variance in earnings management can be explained by leverage and firm size alone, suggesting a strong influence of these firm characteristics in driving earnings manipulation practices (Alrobai et al., 2025; Githaiga et al., 2022).

Upon incorporating foreign ownership as a moderating variable in Model 2, the adjusted R-squared increases to 0.6712. This improvement suggests that foreign ownership enhances the explanatory power of the model, likely due to its role in influencing managerial behavior and reducing the tendency for opportunistic financial reporting in leveraged firms. The increase reinforces the theoretical proposition that foreign investors act as effective external monitors, contributing to improved financial reporting quality (Lee, 2022; Nguyen et al., 2021; Tran et al., 2023).

In contrast, Model 3—where institutional ownership is added as a moderating variable—yields an adjusted R-squared of 0.6673, a slight decrease compared to the model with foreign ownership. Although this value still reflects a relatively strong model fit, the smaller gain implies that institutional ownership does not improve the model's explanatory power as effectively as foreign ownership. This outcome may indicate variation in the monitoring effectiveness of institutional investors or the presence of passive institutional investors who do not actively constrain earnings management (Davis & García-Cestona, 2023; Feliana & Salim, 2025; Wirianata, 2020).

4. CONCLUSION

This study investigates the effect of leverage and firm size on earnings management, and further examines how foreign and institutional ownership moderate these relationships. The findings confirm that both leverage and firm size significantly and positively influence earnings management practices, supporting agency theory which highlights the role of pressure and discretion in managerial decision-making. Notably, foreign ownership is found to weaken the positive effect of leverage on earnings management, affirming its role as an effective external monitor. Conversely, institutional ownership strengthens the relationship between leverage and earnings management, suggesting that some institutional investors may act passively or align

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with managerial interests. Both moderating variables do not significantly influence the firm size–earnings management relationship, indicating possible limitations in oversight effectiveness when faced with large and complex corporate structures.

These results offer fresh empirical insights by integrating ownership structure as moderating variables into agency-based models of earnings manipulation, with specific reference to infrastructure firms operating in Indonesia. The novelty of this study lies in its simultaneous testing of two ownership structures across different firm attributes, providing a richer understanding of when and how external monitoring may succeed or fail. By using panel regression and moderation analysis across a multi-year period, this research enhances the body of knowledge on corporate governance by showcasing the situational relevance of ownership mechanisms in deterring opportunistic behavior. Notwithstanding its contributions, this research acknowledges certain limitations, including its focus on a single sector and reliance on secondary data. Future research should consider expanding the sectoral scope, incorporating qualitative insights, or exploring other governance mechanisms such as board characteristics or audit quality o enhance the overall understanding of the variables driving earnings manipulation.

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