# Real Earnings Management and R&D Investment in Indonesia: Corporate Governance as a Moderator

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**Abstract.** This study examines the impact of real earnings management (REM) on firms' strategic investment decisions, specifically in research and development (R&D), and evaluates whether corporate governance mechanisms diminish this relationship. Utilizing panel data from publicly listed firms in Indonesia from 2020 to 2024, the results demonstrate that REM substantially undermines R&D investment, reflecting managerial short-termism that jeopardizes the firm's long-term value creation. The findings indicate that Board Independence and Audit Committee Quality significantly mitigate the adverse relationship between REM and R&D, illustrating their function in regulating operational decisions with long-term implications. This study offers theoretical novelty by explicitly combining Agency Theory and Resource Dependence Theory to demonstrate how governance strength shapes managerial behaviour, especially real activities. From this integration, the study introduces a new conceptual framework that called as Governance-Adjusted Managerial Real Behaviour (GMRB), to interpret governance mechanisms influence and stabilize REM, ensuring that strategic investment decisions are consistently aligned with sustainable value creation. This concept offers a fresh framework for understanding how governance reduces the erosion of innovation capacity arising from real activity manipulation. Overall, the findings provide both empirical and theoretical contributions by demonstrating that strong governance not only constrains opportunistic behaviour but also protects companies' long-term investments in innovation.

**Keywords:** real earnings management, R&D investment, corporate governance, emerging markets, GMRB

## 1 INTRODUCTION

Investing in research and development (R&D) is one of the most important things that affects long-term economic growth and makes businesses more competitive. The push to improve R&D fits with Indonesia's strategic agenda, which calls for the country to become a knowledge-based economy. However, efforts at the corporate level remain constrained by structural conditions. Data from the World Bank show that Indonesia's R&D expenditure ratio to Gross Domestic Product (GDP) in 2020 remains very low, at approximately 0.28% [1], far behind peer countries and the global average. This

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disincentive is likely aggravated by the opportunistic practices of real earnings management (REM) within Indonesian firms. In this research context, management under short-term earnings pressure tend to choose REM as a manipulation tool [2]. They consciously sacrifice R&D investment by cutting expenses that are directly charged to earnings, in order to meet current profit targets. It shows that there is a serious conflict of interest, where managers put short-term market expectations or bonuses over the firm's fundamental value which mostly comes from innovation.

Fundamentally, the opportunistic behaviour of managers who use REM has been empirically validated to have a significant negative impact on R&D investment, since R&D serves as the most easily adjustable discretionary expenditure [3]. Although the destructive impact on R&D investment has been empirically validated, a significant research gap emerges in identifying effective monitoring mechanisms to solve this matters. Tests on the role of Corporate Governance (CG) as a moderating variable continue to yield contradictory findings. Several scholars find that strong CG (for example, an independent board) successfully limits REM practices [4], [5]. On the other hand, some studies show that CG doesn't work or even makes it easier for less visible REM methods, like manipulating prices or sales policies, which are harder to audit than simple cost-cutting ([6]–[9]). These contradictions highlight the contingent nature of CG effectiveness and the necessity of testing the role of CG as a moderator.

The implications of empirical findings for practice and regulation constitute the primary foundation that places this research in a position of high urgency, particularly within the context of the Indonesian capital market. The ownership structure of companies listed on the IDX is uniquely concentrated; previous research shows that family ownership or conglomerates control more than 70% [10] of the total market capitalization. This structure gives rise to a second type of agency problem (principal–principal), in which majority shareholders may collude with management for personal interests, manifested through tolerance of earnings management that ultimately leads to sacrifice of firm value. Global Corporate Governance models often fail to specifically address this principal–principal problem. This research carries substantive novelty because it aims to fill a literature gap by testing an integrated moderation model within the context of an emerging market. Specifically, this study explicitly investigates the moderating role of CG in the negative relationship between REM and R&D investment, with a focus on principal–principal agency conflicts in Indonesia. This novelty is reinforced by the examination of specific indicators, namely the Independence of the Board of Commissioners and the multidimensional Audit Committee Quality (covering expertise, size, and meeting activity), which reflects the validation of Resource Dependence Theory in supervisory capability. In terms of theoretical contribution, these findings mediate the contradictions in the literature by providing empirical evidence that the effectiveness of monitoring mechanisms is key to addressing the impact of REM on long-term investment strategies such as R&D. Meanwhile, the practical contribution of this study is to provide evidence-based recommendations to regulators (OJK and IDX) for strengthening functional

qualification standards for board and audit committee members to ensure effective oversight.

## 2 Theoretical Framework And Hypotheses Development

### 2.1 Agency Theory

Jensen and Meckling [11] first came up with agency theory, which is a way to understand and deal with problems that come up between corporate executives (agents) and shareholders (principals). The theory posits that the objectives of shareholders and executives do not consistently coincide. Shareholders depend on executives to make good use of company resources and do what's best for the shareholders [12]. Because of this, executives have a professional and moral duty to make decisions that are good for business and make money for shareholders. When executives do this well, they usually get paid for it. The main idea behind agency theory is that principals and agents have different goals.

In the context of emerging markets with highly concentrated ownership, the focus of conflict shifts and expands into the Second-Type Agency Conflict (Principal-Principal agency problem) [13]. The conflict arises between controlling (majority) shareholders and non-controlling (minority) shareholders. The literature confirms that ownership concentration enables controllers to engage in wealth extraction or tolerate operational interventions that harm minority shareholders [14]. Corporate Governance (CG) mechanisms are examined as monitoring mechanisms to restrain opportunistic behavior and monitor these second-type agency problems [13].

### 2.2 Resource Dependence Theory (RDT)

Resource Dependence Theory (RDT) by Pfeffer and Salancik [15] is used to provide a logical justification for the effectiveness of internal monitoring mechanisms. RDT argues that the effectiveness of the board depends heavily on the critical resources brought by its members. In this study, RDT explicitly associates Audit Committee Quality (ACQ) with financial expertise, membership size, and meeting activity as indicators of specialization or expertise. The financial expertise possessed by the Audit Committee is interpreted as a crucial resource that enhances monitoring capability. The literature emphasizes that this expertise is crucial for the critical evaluation of intricate accounting practices and operational interventions [3]. Thus, RDT explains that the ability of CG monitoring functions to weaken managerial opportunistic behaviour also depends on the resource capabilities held by the monitors.

### 2.3 R&D Investment

R&D investment are recognized to be intimately tied to uncertainty, they frequently produce results that are both beneficial and detrimental. There is no guarantee that R&D

operations will assist the company in the future. As a result, accounting standards also include a lot of controversy about the recording of R&D activities in business financial statements, such as being charged directly or capitalized [16]. This flexibility in R&D therefore motivates executives to maintaining it for their own purposes, such as earnings management.

### 2.4 Real Earnings Management (REM)

There are two main types of earnings management: real earnings management and accrual earnings management [12]. Real earnings management entails the manipulation of genuine business operations, including adjustments to production levels, sales timing, or discretionary expenditures to affect reported earnings. Accrual earnings management, on the other hand, means changing the numbers on financial statements by using accounting estimates and judgments, without affecting the business operations themselves [17]. Several studies by Rahman et al. [18] and Ratmono [19] indicate that top management often favors real earnings management due to its flexibility and lower detectability by external auditors. However, other findings highlight its potentially detrimental long-term effects. For instance, Cohen and Zarowin [20] emphasize that the use of real earnings management can adversely affect a firm's future profitability.

### 2.5 Real Earnings Management (REM) and R&D Investment

This study characterizes REM as an opportunistic operational intervention executed by management to achieve current-period earnings objectives. The main reason managers use REM is because of the Time Horizon Problem, which means that they tend to focus on short-term results. Healy [21] and Holthausen et al. [22] previously identified opportunism as a motive for executives to engage in earnings management. This aligns with agency theory, which posits that executives are driven to manipulate earnings for personal gain, such as annual compensation or other benefits. The implementation is carried out through adjustments to discretionary expenditures, such as prematurely reducing Research and Development (R&D) costs or marketing expenses, in order to increase the earnings reported in financial statements. Consistent empirical evidence supports this negative relationship [23], [24].

This leads to the formulation of the first hypothesis of this study:

**$H_1$: Opportunistic REM practices undermine firms' long-term R&D Investment.**

### 2.6 CG as a Monitoring Mechanism over REM

CG mechanisms function as a moderator, which are expected to weaken (positively moderate) the negative causal relationship between REM and R&D investment. This study posits that a high level of Board of Commissioners' Independence will serve as a primary monitoring mechanism to balance and control agency conflicts. A board with strong independence has strong incentives and legitimacy to exercise critical scrutiny

over managerial operational decisions. Specifically, they are responsible for reviewing decisions that have the potential to reduce long-term firm value, including discretionary adjustments to investment expenditures (such as R&D). Consequently, robust corporate governance will effectively limit managerial discretion and prevent the occurrence of opportunistic behavior [3].

The second key assumption underlying this study is that:

**$H_{2a}$: As a governance mechanism, Board Independence weaken the negative linkage between Real Earnings Management and R&D Investment.**

Additionally, the logical mechanism of the moderating role of Audit Committee Quality (ACQ) can also be examined through the framework of Resource Dependence Theory (RDT). ACQ is assessed through the dimensions of financial expertise (AC_Prop), membership size (AC_Size), and meeting activity (AC_Act). An Audit Committee can be considered strong if it possesses adequate resources such as expertise, the number of members, and the frequency/intensity of meeting activities. A sufficiently resourced Audit Committee is undoubtedly capable of enhancing detection capabilities regarding complex REM practices. This enhanced detection capability directly increases the risk of sanctions and monitoring for managers. The increase in monitoring risk, in turn, reduces managers' incentives to engage in REM that affects discretionary adjustments to investment expenditures such as R&D [3].

In addition, this research also hypothesizes that:

**$H_{2b}$: Consistent with Resource Dependence Theory, firms with higher Audit Committee Quality are expected to experience a weaker negative relationship between Real Earnings Management and R&D Investment.**

## 3 Methodology

The methodology of this study employs an empirical quantitative approach using panel data to test the causality and moderation hypotheses. This approach is chosen because it allows for controlling variations both across firms (cross-sectional) and over time (time-series).

### 3.1 Population and Sampling Technique

The population of this study consists of all non-financial firms that were consistently listed on the Indonesia Stock Exchange (IDX) during the five-year period from 2020 to 2024. The selection of non-financial sectors is a scientific necessity to ensure the homogeneity of accounting practices and the validity of the REM measurement models, which are specifically designed for operational activities of non-financial firms. Based on these criteria, the initial population comprises 785 firms. The sample is determined

using a purposive sampling technique with strict selection criteria, particularly requiring firms to report positive R&D expenditures in their annual reports and to have complete data throughout the observation period. Although prior studies often yielded relatively small samples due to data limitations in Indonesia, this study targets a larger sample due to the broader coverage of non-financial sectors (including technology) and the more recent observation window (2020–2024). Following the screening process, the final sample consists of 105 firms, producing a total of 525 firm-year observations. This number reflects the increasing trend of R&D-intensive firms being listed on the exchange. The resulting panel data are analysed using the econometric software EViews.

## 3.2 Variable Measurement

### Dependent Variable: R&D Investment (R&D)

The dependent variable in this study is R&D, which represents the firm's commitment to long-term value creation and innovation. This variable is measured as the total Research and Development expenditure incurred by the firm in a given year scaled by the firm's Total Assets at the end of the same period [25]. Scaling by total assets is necessary to control for size effects and to ensure comparability across firms.

### Independent Variable: Real Earnings Management (REM)

The independent variable is Real Earnings Management (REM). The measurement in this study adopts the standard Roychowdhury [26] model, which serves as the theoretical foundation for detecting earnings management executed through real operational activities. Although the model is fundamental, its validity has been reaffirmed by comprehensive contemporary literature reviews [27]. REM is measured to capture the extent of abnormal managerial intervention in operational decisions undertaken to manage reported earnings. This approach focuses on quantifying deviations from normal operational activities, specifically Abnormal Cash Flow from Operating Activities (ABCFO), Abnormal Discretionary Expenditures (ABDISEXP), and Abnormal Production Costs (ABPROD). The normal components of CFO, DISEXP and PROD are estimated using cross-sectional regressions that incorporate sales growth and firm size, after which the residuals are extracted. REM is then computed as the sum of these abnormal components [28].

The formulas for ABCFO, ABDISEXP and ABPROD are presented below:

$$CFOt / At\text{-}1 = \alpha 0 + \alpha 1\ (1/At\text{-}1) + \alpha 2\ (St/At\text{-}1) + \alpha 3\ (\Delta St/At\text{-}1) + \varepsilon t \quad (1)$$

Where At is the total assets at the end of period t, St is the sales during period t and $\Delta St = St - St\text{-}1$

The next is the formula for ABDISEXP:

$$DISEXPt / At-1 = \alpha 0 + \alpha 1\ (1/At-1) + \alpha 2\ (\Delta St-1/At-1) + \varepsilon t \quad (2)$$

Where DISEXP is discretionary expenses of the firm at the end of period t

For ABPROD, the formula is:

$$PRODt / At-1 = \alpha 0 + \alpha 1\ (1/At-1) + \alpha 2\ (St/At-1) + \alpha 3\ (\Delta St/At-1) + \alpha 4\ (\Delta St-1/At-1) + \varepsilon t \quad (3)$$

Where PROD is production cost of the firm for the year t.

Those models are estimated for each industry-year. The residuals obtained from Model (1), Model (2) and Model (3) represent the abnormal CFO, abnormal discretionary expenditures and abnormal production costs for firm i in year t.

**Moderating Variable: Corporate Governance (CG)**

The moderating variables consist of two key Corporate Governance (CG) constructs. The first construct is Board Independence (BoCI), measured as the proportion of independent commissioners to the total number of board members [29]. The second construct is Audit Committee Quality (ACQ). Although this variable represents a single conceptual construct for Hypothesis 2b, its multidimensional nature requires it to be operationalized into three separate indicators for empirical testing. The first indicator, the Proportion of Financial Expertise (AC_Prop), is measured as the ratio of audit committee members with an accounting or finance background to the total number of committee members, which offers a more sensitive approach than using a dummy variable [30]. The second indicator is Audit Committee Size (AC_Size), measured by the number of audit committee members. The third indicator is Audit Committee Activity (AC_Act), measured as the natural logarithm of the annual frequency of committee meetings [31].

As a notes, this study doesn't use lagged corporate governance variables to deal with any simultaneity problems. One technique to reduce the chance of a two-way relationship (reverse causation) between the independent and dependent variables is to use a lagged variable. This methodology was not employed in this study due to the relatively stable characteristics of corporate governance in Indonesia, which exhibit minimal volatility annually. Regulatory provisions and long-term strategy decisions usually set the rules for corporate governance structures including board composition, ownership, and the presence of committees. This means that they don't change when a company's performance changes in the short term. Given these attributes, corporate governance factors are regarded as exogenous variables in the empirical model. Consequently, the likelihood of simultaneity bias is regarded as quite insignificant and does not necessitate further management through the implementation of lag factors.

Nonetheless, this study continues to depend on theoretical reasoning and institutional characteristics as the foundation for addressing the exogeneity of corporate governance variables.

## 4 Results And Discussions

The results of the descriptive statistical analysis in this study are presented in the following table:

**Table 1.** Descriptive Statistic Results

| | REM | R&D | BoCI | AC_Prop | AC_Size | AC_ACT |
|---|---|---|---|---|---|---|
| N | 525 | 525 | 525 | 525 | 525 | 525 |
| Maximum | 5.169 | 0.034 | 0.551 | 0.802 | 5 | 2.341 |
| Minimum | -0.610 | 0.001 | 0.179 | 0.226 | 3 | 1.184 |
| Mean | 2.982 | 0.012 | 0.372 | 0.542 | 3.780 | 1.748 |
| Std. Dev. | 1.742 | 0.008 | 0.087 | 0.116 | 0.861 | 0.290 |

Table 1 shows the descriptive statistics for all the variables that were used in the empirical analysis. The Real Earnings Management variable (REM) shows a lot of variation (Mean = 2.982; SD = 1.742), which means that there is a lot of difference in the way that firms manipulate their real earnings. The average value of R&D Investment (R&D) is very low (Mean = 0.012), which is in line with the fact that companies in emerging economies usually don't spend much on research and development. From the perspective of Corporate Governance (CG) mechanisms, Board Independence (BoCI) shows a moderate level of compliance with recommended governance practices (Mean = 0.372), suggesting that the proportion of independent commissioners among the sampled firms is generally adequate.

The proportion of financial expertise on the audit committee (AC_Prop) averages 0.542, indicating that more than half of audit committee members possess accounting or finance backgrounds relevant to effective oversight. Audit committee size (AC_Size) appears relatively homogeneous (Mean = 3.780; SD = 0.861), reflecting the consistency of committee structures with regulatory requirements in Indonesia. Audit committee activity (AC_ACT), measured as the natural logarithm of annual meeting frequency, has an average value of 1.748 (equivalent to approximately five to six meetings per year), suggesting a reasonably active level of monitoring engagement. Overall, the descriptive statistics reveal significant variation in real earnings management practices alongside persistently low levels of R&D investment. In contrast, the corporate governance indicators appear relatively stable, reflecting governance structures that align with common practices among publicly listed firms in Indonesia.

**Table 2.** Model Selection Test Results

| Model Selection | Model Estimation | Prob. Value | Selected Models |
|---|---|---|---|
| Chow Test | CEM vs FEM | 0.0000 | *Fixed Effect Model* |
| Hausman Test | FEM vs REM | 0.1851 | *Random Effect Model* |
| Lagrange Multiplier Test | CEM vs REM | 0.0000 | *Random Effect Model* |

It is important to find the estimation model that best fits the structure of the data when doing panel data regression analysis. Table 2 shows the results of a series of model selection tests that were done to find the best way to estimate panel data. First, the Chow Test is used to see how the Common Effect Model (CEM) and the Fixed Effect Model (FEM) stack up against each other. The probability value of 0.0000 shows that the results are statistically significant at the usual levels ($p < 0.05$). This means that the null hypothesis is not true and that FEM is better than CEM. This result suggests the presence of significant firm-specific characteristics that must be accounted for through fixed effects. Next, the Hausman Test is used to choose between FEM and the Random Effect Model (REM). The test gives a probability value of 0.1851, which is higher than 5 percent. So, the null hypothesis cannot be rejected, and REM is thought to be more reliable and effective than FEM. This means that the individual effects in the model are not related to the explanatory variables, which makes the random-effects approach better.

Lastly, the Lagrange Multiplier (LM) Test is done to see if REM is better than CEM. A probability value of 0.0000 shows that the result is very statistically significant, which supports the choice of REM over CEM. This finding shows that the random component's variance is not small and should be included in the panel data structure. The three tests produce coherent results when considered collectively. The Chow Test shows that firm-level effects need to be taken into account, while the Hausman and LM Tests together show that the Random Effect Model is the best and most consistent way to estimate the panel data in this study.

The application of the Random Effect Model (REM) in this study is substantiated by the empirical findings of the Chow, Hausman, and Lagrange Multiplier tests, as well as robust theoretical underpinnings. REM is conceptually suitable in the presence of individual heterogeneity. In this case, firm-specific traits are thought to be random and not related to the model's independent variables [32]. This method is more efficient for estimating because it uses both within-entity and between-entity variation. The Fixed Effect Model (FEM), on the other hand, only uses within-entity variation. Additionally, REM is especially pertinent in capital market and corporate governance research within developing economies, where firm-level heterogeneity frequently results from external influences such as industry regulations, market size, and macroeconomic conditions that are not directly observable yet significantly impact the structure of panel data. REM can capture this kind of variation because its error component structure explicitly models the random effects. Econometric theory also says that REM is better when cross-sectional units (firms) are a sample from a larger population rather than the whole

population [33]. This study employs a sample of publicly listed firms that exemplify the broader population of non-financial companies in Indonesia, thereby validating the assumption in relation to the use of REM. Consequently, from both theoretical and empirical viewpoints, REM stands out as the most coherent, impartial, and effective model for examining the interconnections between real earnings management, R&D investment, and corporate governance mechanisms in this research.

**Table 3.** Classical Assumption Test Results

| Assumption | Test Used | Result | Conclusion |
|---|---|---|---|
| **Normality** | Kolmogorov-Smirnov Test | Sig. value = 0.200 (p > 0.05) | Residuals are normally distributed |
| **Multicollinearity** | Variance Inflation Factor (VIF) | VIF values: REM = 1.03 | No multicollinearity (VIF < 10) |
| **Heteroscedasticity** | Glejser Test | Sig. values > 0.05 for all independent variables | No heteroscedasticity |
| **Autocorrelation** | Durbin-Watson Test | DW value = 1.89 (between 1.5 and 2.5) | No autocorrelation |

The classical assumption tests were done to make sure that the regression model meets the statistical requirements for making BLUE (Best Linear Unbiased Estimator) estimates. Table 3 shows the results of these tests. The Kolmogorov–Smirnov test for normality has a significance level of 0.200, which is higher than 0.05. This means that the normality assumption is met because the residuals are normally distributed. This research also used the Variance Inflation Factor (VIF) to see if there was multicollinearity, and all of the independent variables had VIF values that were much lower than the critical cutoff of 10 (for example, REM = 1.03). This means that the explanatory variables didn't have strong relationships with each other. As a result, the model does not have multicollinearity, which makes it easier to understand the coefficient estimates on their own. Nest, this research used the Glejser Test to look for heteroscedasticity. It indicated that all independent variables possessed significance values exceeding 0.05. This finding indicates that the residual variance is constant (homoskedastic), signifying that the model is devoid of any variance bias associated with heteroskedasticity. Finally, the Durbin–Watson (DW) Test for autocorrelation gives a value of 1.89, which is in the range of 1.5 to 2.5 that is acceptable. This means that the model doesn't show either positive or negative autocorrelation, also that the residuals are independent and follow the rule that error terms aren't correlated. The classical assumption tests show that the regression model used in this study meets all the necessary statistical standards. Furthermore, the estimation results will be valid, reliable, and good for further inferential analysis.

**Table 4.** Hypotheses Testing Results

| Variables | Coefficients | t-Statistic | Prob. | Sig | Decision |
|---|---|---|---|---|---|
| **C (Constant)** | 0.412 | 3.228 | 0.001 | *** | |
| **REM** | **–0.298** | **–3.441** | **0.001** | *** | **$H_1$ accepted** |
| **BoCI** | **0.214** | **2.912** | **0.004** | *** | **$H_{2a}$ accepted** |
| **AC_Prop** | **0.221** | **2.918** | **0.004** | *** | **$H_{2b}$ accepted** |
| **AC_Size** | **0.089** | **1.901** | **0.058** | * | **$H_{2b}$ accepted** |
| **AC_Act** | **0.177** | **2.448** | **0.015** | ** | **$H_{2b}$ accepted** |
| **REM × BoCI** | **0.181** | **2.421** | **0.016** | ** | **$H_{2b}$ accepted** |
| **REM × AC_Prop** | **0.144** | **2.127** | **0.034** | ** | **$H_{2b}$ accepted** |
| **REM × AC_Size** | **0.121** | **2.002** | **0.046** | ** | **$H_{2b}$ accepted** |
| **REM × AC_Act** | **0.163** | **2.210** | **0.028** | ** | **$H_{2b}$ accepted** |
| **R-squared** | 0.314 | | | | |
| **Adjusted R-squared** | 0.297 | | | | |
| **F-statistic (Prob.)** | 12.441 | | 0.000 | *** | |
| **Hausman Test Prob.** | 0.185 | | | | |
| **LM Test Prob.** | 0.000 | | | | |
| **DW-statistic** | 1.89 | | | | |

The table above displays the outcomes of all regression models. These regressions analyze the relationship between real earnings management (REM), R&D investment intensity (R&D), Board of Commissioners Independency (BoCI), and lastly Audit Committee Quality (ACQ). R&D refers to the firm's R&D expenditure, scaled by total assets for the year t. Roychowdury [26] states there are three ways to measure REM, and Cohen and Zarowin [28] say that these three ways should be combined into one score called the REM Index. BoCI is the number of independent commissioners divided by the total number of board members. Finally, ACQ is measured by three things: proportion (AC_Prop), size (AC_Size), and activities (AC_Act).The symbols *, **, and *** show that the results are statistically significant at the 1%, 5%, and 10% levels, respectively.

### 4.1 The Effects of REM on R&D Investment

The estimation results indicate that Real Earnings Management (REM) has a negative and significant effect on R&D Investment ($\beta = –0.298$; $p = 0.001$), which leads to the **acceptance** of initial hypothesis $\mathbf{H_1}$. This finding suggests that when managers intensify real earnings manipulation activities, firms tend to reduce their allocation of funds for research and development. Theoretically, this result is consistent with Agency Theory, which posits that managers possess short-term incentives to maximize reported earnings, even when doing so requires sacrificing the firm's long-term value [34]. REM is a type of management intervention that works by changing real operational activities instead of manipulating accounting records based on accruals. Some of these activities are cutting back on discretionary spending like marketing, training, and especially

research and development; speeding up revenue recognition by giving unusual sales discounts; and raising production levels to temporarily lower the cost of goods sold through fixed-cost spreading [19], [26]. From the standpoint of organizational theory and information economics, these actions exemplify an intertemporal trade-off, wherein long-term performance is sacrificed for short-term performance enhancements.

This vulnerability is caused by three main things: (1) the fact that R&D spending is completely up to the company, (2) the fact that results are very unpredictable and technology is still developing, and (3) the fact that there are no immediate benefits to earnings. When managers want to boost short-term reported earnings, R&D budgets are an easy and appealing target because of these features [23]. To put it another way, R&D is the most flexible and easy-to-change part of REM mechanisms. This makes it the main way to meet short-term reporting goals, but it also makes the company's ability to innovate weaker. Technically, reductions in real activities such as R&D not only alter the firm's cost structure but also erode the creativity and innovation that underpins its long-term competitive advantage. Recent empirical corporate finance literature highlights that cutting R&D as part of REM can lead to an "innovation deficit," a condition characterized by declines in patents, research output, and the firm's ability to respond to future technological change. These effects are not temporary, as REM-induced R&D cuts may create persistent losses in innovation capacity due to the long gestation period of research activities and the need for sustained investment.

Accordingly, the findings of this study reinforce the argument that REM affects more than just reported earnings; it fundamentally alters the firm's operational decision-making structure. The empirical evidence demonstrates that REM directly reduces the allocation of resources to strategically valuable activities, thereby weakening the firm's ability to invest in initiatives that drive long-term value creation. From the perspective of corporate governance and agency theory, this negative relationship reflects inherent conflicts of interest, whereby managers favour short-term reporting strategies that are misaligned with the long-term interests of shareholders and the sustainability of the firm. Thus, the consistency of these findings with the recent literature provides important insights into how REM operates through distortions in real business decisions and why such practices systematically undermine the firm's innovation capacity and future value creation potential.

### 4.2 Board Independence as a Moderating Variable

The interaction test results show that Board Independence significantly weaken the negative relationship between REM and R&D Investment ($\beta = 0.181$; $p = 0.016$). The positive coefficient of the interaction term indicates that a higher proportion of independent commissioners weakens the adverse effect of REM on corporate R&D spending. Theoretically, independent directors constitute a central pillar of corporate governance architecture, functioning to reduce information asymmetry and constrain opportunistic managerial behavior. This role arises from their structural detachment from internal power dynamics and their non-involvement in day-to-day operational

activities, which collectively enhance their ability to conduct objective evaluations and provide monitoring oriented toward the firm's long-term value [29]. Therefore, it can be concluded that the second hypothesis **$H_{2a}$** is **accepted**. Also, because BoCI remain significant in the direct effect on REM, these variables function as **quasi-moderators**.

From the perspective of modern governance theory, board independence extends beyond mere regulatory compliance; it operates as a governance lever that strengthens the board's capacity to oversee operational decisions with significant strategic risk implications. Recent empirical literature documents that more independent board structures are associated with intensified monitoring of decisions that may distort performance information quality, including real activity adjustments that jeopardize the firm's long-run investment balance [35]. In this sense, board independence facilitates stricter supervision of intertemporal distorting decisions, which is managerial choices that generate short-term gains at the expense of long-term value creation. Technically, independent directors internalize long-term shareholder value considerations into the monitoring process, making them more sensitive to patterns of resource allocation that diverge from the firm's long-term growth strategy. Reductions in strategic investments, including R&D expenditures, often reflect short-term performance pressures. However, more independent boards can intervene and constrain such decisions by enforcing managerial discipline and emphasizing the necessity of sustaining high-risk, high-value strategic investments.

The empirical evidence from this study demonstrates that the role of independent commissioners is not merely symbolic but significantly effective in mitigating managerial inclinations to reallocate resources from long-term value-creation activities to short-term reporting objectives. In other words, board independence is a way to discipline managers that stops them from making short-term decisions and keeps investment decisions in line with the company's long-term goals. This finding corroborates theoretical assertions that boards exhibiting greater independence are more effectively equipped to oversee distortions in investment allocation caused by short-term performance pressures. These findings improve our understanding of how strong governance mechanisms work, especially when independent commissioners are involved in the decision-making process to protect strategic investments and create long-term value. This shows that how well the board monitors is a key factor in stopping managers from doing things that could hurt the company's growth.

### 4.3 Audit Committee Quality as a Moderating Variable

The results of the tests for hypothesis **$H_{2b}$** indicate that Audit Committee Quality, measured using three indicators, which are AC_Prop, AC_Size, and AC_Act consistently weakens the negative effect of REM on R&D investment. All interaction terms yield positive and significant coefficients: REM×AC_Prop ($\beta = 0.144$; $p = 0.034$), REM×AC_Size ($\beta = 0.121$; $p = 0.046$), and REM×AC_Act ($\beta = 0.163$; $p = 0.028$). Because AC_Prop and AC_Act remain significant in the direct effect on REM, these variables function as **quasi-moderators**, whereas AC_Size, which is not directly

associated with REM, operates as a **pure moderator**. Based on these results, the third hypothesis **$H_{2b}$** is **accepted**.

These findings align with the core propositions of Resource Dependence Theory, which conceptualizes the audit committee as a strategic control mechanism responsible for managing the firm's dependence on critical information and resources. Within this framework, the attributes of the audit committee, such as its members' financial expertise, its adequate size, and the intensity of its engagement through meeting frequency enhance the board's ability to assess, verify, and oversee operational decisions with long-term consequences [30], [31]. Technically, audit committees with greater financial expertise enhance the accuracy of assessing the economic consequences of discretionary operating activities. In the econometric context of firm behaviour, this expertise strengthens monitoring effectiveness by enabling the detection of operational patterns that deviate from the normal production function or discretionary spending that does not align with long-term value strategies. This monitoring capacity reduces the likelihood that managers engage in opportunistic actions that reallocate resources away from strategic investments, such as cutting R&D budgets [23]. Furthermore, larger audit committees offer a wider range of viewpoints and stronger decision-making processes, which research shows makes governance more effective at keeping an eye on decisions that reduce the company's ability to innovate. In the same way, more meetings mean more oversight, which lets the audit committee keep checking to see if the company's current operational performance is in line with its long-term strategic goals.

Overall, the empirical findings demonstrate that audit committee quality functions not only as a governance safeguard but also as a disciplinary mechanism capable of preventing managerial distortions that threaten innovation-driven investment. In other words, a high-quality audit committee helps ensure that short-term performance pressures do not disrupt long-term strategic investment decisions essential for sustaining the firm's competitive advantage. Collectively, these results provide strong empirical support for the view that an effective audit committee can internalize long-term strategic perspectives into financial oversight processes, thereby reducing the risk of myopic decision-making and enhancing the coherence of corporate governance with sustainable value creation objectives.

## 5 Conclusion

This study discusses the mechanisms by which real earnings management (REM) affects strategic investment decisions, specifically in research and development (R&D), within publicly traded companies. The data show that REM is linked to less R&D spending. This finding expands the fundamental principles of agency theory by illustrating that managerial short-termism under reporting pressure is not limited to accrual-based manipulation; it also occurs in actual operational decisions that have direct consequences for long-term value creation. In other words, managers' focus on

the short term shows up in operational decisions that make it harder to invest in new ideas. This shows that the agency problem has effects that go beyond what has usually been talked about in the literature.

The research indicates that corporate governance mechanisms, particularly board independence and audit committee quality, are essential in enhancing managerial discipline for the maintenance of long-term investment decisions. Independent directors and audit committee characteristics serve as sources of strategic resources, expertise in finance, and governance frameworks that improve the precision of assessing long-term risks. These results align with the tenets of resource dependence theory (RDT), which asserts that organizations depend on robust governance to obtain strategic resources and navigate internal and external uncertainties. In this context, governance serves not only as a monitoring mechanism but also as a center of expertise that aids in evaluating the long-term consequences of managerial operational decisions.

The primary theoretical novelty of this study is the combination of agency theory and resource dependence theory to better understand the relationship between activity-based managerial behavior and strategic investment decisions. This integration produces a new conceptual framework known as Governance-Adjusted Managerial Real Behavior (GMRB), which denotes the degree to which managerial conduct in overseeing operational activities (REM) can be directed, influenced, and stabilized by governance mechanisms, ensuring that long-term investment decisions remain consistent with sustainable value-creation goals. The GMRB concept thus offers a novel framework for comprehending how robust corporate governance can regulate and stabilize managerial actions that could potentially undermine long-term value. This theoretical contribution enhances the accounting and finance literature by providing an interdisciplinary perspective on the interplay between incentive structures and governance quality in shaping operational decisions. The study enhances the explanatory capacity of agency theory and underscores the significance of resource dependence theory in elucidating the variability in governance effectiveness regarding strategic investment decisions.

## References

1. World Bank, “Research and development expenditure (% of GDP) - Indonesia,” 2020. https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS?locations=ID (accessed Dec. 28, 2025).
2. B. J. Bushee, “The influence of institutional investors on myopic R&D investment behavior,” *Account. Rev.*, vol. 73, no. 3, pp. 305–333, 1998.
3. M. S. M. Al-absy, “Board chairman characteristics and real earnings management,” *Sustain.*, vol. 14, no. 22, pp. 1–17, 2022.
4. B. Hamdi, A. Houcine, and T. Mejri, “Corporate governance and real earnings management in France: The moderating effect of political connections,” *Int. J. Bus. Gov. Ethics*, vol. 1, no. 1, pp. 1–34, 2024, doi: 10.1504/ijbge.2024.10067211.
5. M. G. K. Indarti, F. Faisal, E. N. A. Yuyetta, and J. Widiatmoko, “Corporate governance mechanisms and real earnings management : Evidence from Indonesia,” *Proc. First Int.*

*Conf. Econ. Bus. Entrep. ICEBE 2020*, 2021, doi: 10.4108/eai.1-10-2020.2304918.
6. M. Aluchna and M. Krol, "Board composition and real earnings management: The role of board independence and gender diversity," *Corp. Gov. Int. J. Bus. Soc.*, vol. 24, no. 1, pp. 163–181, 2024.
7. O. J. H. Guedhami and H. Lee, "Corporate governance and real earnings management: The moderating role of earnings quality," *Br. Account. Rev.*, vol. 53, no. 4, 2021.
8. F. Gangi, A. Meles, and R. Vigano, "Real earnings management and sustainability: Evidence from an international setting," *Corp. Soc. Responsib. Environ. Manag.*, vol. 28, no. 5, pp. 1546–1560, 2021.
9. A. Habib, D. Ranasinghe, J. Yonghua, P. Kumar, and B. Fawad, "Real earnings management : A review of the international literature," *Account. Financ.*, vol. 62, no. 4, pp. 4245–4627, 2022, doi: 10.1111/acfi.12968.
10. M. Setiawan, R. Indiastuti, A. K. Hidayat, and E. Rostiana, "R&D and industrial concentration in the Indonesian manufacturing industry," *J. Open Innov. Technol. Mark. Complex.*, vol. 7, no. 2, p. 112, 2021, doi: 10.3390/joitmc7020112.
11. C. Jensen and H. Meckling, "Theory of the firm : Managerial behavior, agency costs and ownership structure," *J. Financ. Econ. 3*, vol. 3, no. 4, pp. 305–360, 1976, doi: 10.1016/0304-405X(76)90026-X.
12. W. R. Scott, *Financial accounting theory*, 7th ed. Toronto: Pearson Canada Inc., 2015. doi: 10.4324/9780203784655.
13. B. Panda and N. M. Leepsa, "Agency theory : Review of theory and evidence on problems and perspectives," *Indian J. Corp. Gov.*, vol. 10, no. 1, pp. 74–95, 2017, doi: 10.1177/0974686217701467.
14. M. W. Peng and Y. Jiang, "rincipal-principal conflicts during crisis," *Asia Pacific J. Manag.*, vol. 28, no. 4, pp. 683–695, 2010, doi: 10.1007/s10490-009-9186-8.
15. J. Pfeffer and G. R. Salancik, "The external control of organizations: A resource dependence perspective," *Univ. Illinois Urbana-Champaign's Acad. Entrep. Leadersh. Hist. Res. Ref. Entrep.*, 1978.
16. T. Dinh, H. Kang, and W. Schultze, "Discretionary capitalization of R&D -- The trade-off between earnings management and signaling," *Eur. Account. Assoc. Annu. Congr. 2010*, no. August 2014, 2014, doi: 10.2139/ssrn.2404296.
17. J. Sun, G. Lan, and G. Liu, "Independent audit committee characteristics and real earnings management," *Manag. Audit. J.*, vol. 29, no. 2, pp. 153–172, 2014, doi: 10.1108/MAJ-05-2013-0865.
18. R. A. Rahman, S. Saliza, E. S. Fadel, and K. Soheil, "Earnings management and fraudulent financial reporting: The Malaysian story," *J. Mod. Account. Audit.*, vol. 12, no. 2, pp. 91–101, 2016, doi: 10.17265/1548-6583/2016.02.003.
19. D. Ratmono, "Manajemen laba riil dan berbasis akrual: Dapatkah auditor yang berkualitas mendeteksinya?," *Pros. Simp. Nas. Akunt. XIII Purwokerto*, pp. 1–23, 2010.
20. D. A. Cohen and P. Zarowin, "Accrual-based and real earnings management activities around seasoned equity offerings," *J. Account. Econ.*, vol. 50, no. 1, pp. 2–19, 2010, doi: 10.1016/j.jacceco.2010.01.002.
21. P. Healy, "The effect of bonus schemes on accounting decisions," *J. Account. Econ.*, vol. 7, no. 1–3, pp. 85–107, 1985, doi: 10.1016/0165-4101(85)90029-1.
22. R. W. Holthausen, D. F. Larcker, and R. G. Sloan, *Annual bonus schemes and the manipulation of earnings*, vol. 19, no. 1. 1995. doi: 10.1016/0165-4101(94)00376-G.
23. R. Guidara and Y. Boujelbene, "R&D-based earnings management and accounting performance motivation," *Int. J. Acad. Res. Accounting, Financ. Manag. Sci.*, vol. 4, no. 2, pp. 81–93, 2014, doi: 10.6007/IJARAFMS/v4-i2/805.
24. G. Markarian, L. Pozza, and A. Prencipe, "Capitalization of R&D costs and earnings management: Evidence from Italian listed companies," *Int. J. Account.*, vol. 43, no. 3, pp. 246–267, 2008, doi: 10.1016/j.intacc.2008.06.002.

25. P. Santosuosso, "What R&D assets say about firm profitability," *Int. Bus. Res.*, vol. 9, no. 6, pp. 64–71, 2016, doi: 10.5539/ibr.v9n6p64.
26. S. Roychowdhury, "Earnings management through real activities manipulation," *J. Account. Econ.*, vol. 42, pp. 335–370, 2006, doi: 10.1016/j.jacceco.2006.01.002.
27. S. Verbruggen, J. Christaens, and K. Milis, "Earnings management : a literature review," *HUB Res. Pap.*, vol. 14, pp. 1–28, 2008.
28. D. Cohen and P. Zarowin, "Economic consequences of real and accrual-based earnings management sctivities," *Account. Rev.*, vol. 83, no. 3, pp. 758–787, 2008.
29. G. Batta, R. S. Heredia, and M. Weidenmier, "Political connections and accounting quality under high expropriation risk," *Eur. Account. Rev.*, vol. 23, no. 4, pp. 485–517, 2014.
30. F. Imen and J. Anis, "The moderating role of audit quality on the relationship between auditor reporting and earnings management: empirical evidence from Tunisia," *EuroMed J. Bus.*, vol. 16, no. 4, pp. 416–430, 2021.
31. I. C. Lourenço *et al.*, "Corruption and earnings management in developed and emerging countries," *Corp. Gov. Int. J. Bus. Soc.*, vol. 18, no. 1, pp. 35–51, 2018, doi: 10.1108/CG-12-2016-0226.
32. B. H. Baltagi, *Econometrics analysis of panel data*, 3rd ed. Chichester: John Wiley & Sons, Ltd, 2005.
33. C. Hsiao, *Analysis of panel data*. Cambridge University Press, 2022.
34. C. S. Armstrong, J. L. Blouin, A. D. Jagolinzer, and D. F. Larcker, "Corporate governance , incentives , and tax avoidance," *J. Account. Econ.*, vol. 60, no. 1, pp. 1–17, 2015.
35. L. R. D. Fernando, D. H. S. W. Dissanayake, and M. O. S. Mendis, "The impact of corporate governance on dividend policy: An empirical evidence from listed companies in Sri Lanka," *South Asian J. Financ.*, vol. 1, no. 1, pp. 35–47, 2021, doi: 10.4038/sajf.v1i1.26.

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