CEO Characteristics, Ownership, and Earnings Management in Indonesian Public Listed Companies with Two-Tier Boards

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ABSTRACT

The issue of how board characteristics and ownership concentration affect managerial behavior remains unresolved, especially in a two-tier governance system. This study investigated the impact of ownership concentration, CEO age, and gender on real earnings management (REM) in Indonesia. It determined how these factors affect managerial opportunism within REM, an underexplored area in Indonesian corporate governance. This study employed the Roychowdhury model and data from 191 Indonesian listed companies (2015-2019), analysing 955 observations with static panel analysis via OLS, random, and fixed effects. The findings indicated a positive, significant, but moderate association between ownership concentration and abnormal production costs, an indicator of REM activity. Additionally, the negative relationship between CEO age and abnormal discretionary expenses suggests that older CEOs are less likely to employ aggressive REM strategies. This study demonstrated that ownership concentration, CEO age, and CEO gender did not significantly impact grey earnings management in a two-tier board system. These results highlight the need for governance reforms to improve transparency, accountability, and ethical standards in Indonesia's financial reporting. They highlight aligning management practices with shareholder interests to reduce managerial opportunistic behaviour.

Keywords: Ownership Concentration, CEO Characteristics, Real Earnings Management, Two-Tier Board System, Indonesia.

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INTRODUCTION

Managerial opportunism presents significant governance challenges as it involves the manipulation of financial statements for personal gain or to enhance a company's

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financial prospects. These actions, which are manifested through unintentional errors and deliberate efforts to disguise the actual financial situation, undermine the quality of earnings and threaten the company's long-term financial stability and competitiveness (Siladjaja & Jasman, 2024; Svabova et al., 2020; Zang, 2012). This practice, known as earnings management (EM), has been linked to negative consequences such as corporate fraud, as highlighted by research conducted by previous studies (Jiraporn et al., 2008; Saona et al., 2020; Wasan, 2020). To address these issues, robust governance practices focusing on transparency, ethics, and integrity are crucial, particularly in two-tier board systems that aim to mitigate the risks associated with opportunistic behaviour in emerging markets. Effective governance plays a critical role in ensuring the accuracy and reliability of financial reporting and in maintaining trust among stakeholders. EM monitoring is essential to address conflicts of interest and reduce information asymmetry, as emphasized by the agency theory. Additionally, the positive accounting theory offers strategic solutions that underscore the importance of governance mechanisms in preserving the integrity of financial reporting.

Earnings management is divided into accrual earnings management (AEM) and real earnings management (REM). AEM involves changing the presentation of financial performance without changing the business operations, while REM involves adjusting business activities to influence financial results. This strategy requires careful consideration of economic decisions that impact cash flow, investment, or production in order to shape financial reporting and stakeholder perceptions (Diri, 2017; Gunny, 2010).

A significant number of companies in Indonesia demonstrate a high level of ownership concentration. In this country, the three largest shareholders typically control 70% of the company's capital, which positions Indonesia as having the highest ownership concentration in Southeast Asia (IFC, 2018; OECD, 2019). This concentration of ownership typically arises when a select group of individuals or families hold substantial shares, aligning the interests of management and shareholders and potentially fostering long-term strategic growth. Nevertheless, this scenario also presents challenges, particularly in family-owned or closely held companies, where the temptation to engage in real earnings management (REM) for personal gain is notably high (Goh et al., 2013; Putra & Setiawan, 2024; Setiawan et al., 2019). Moreover, Indonesia's underdeveloped capital markets, which lack sufficient shareholder protection and are prone to transaction failures, necessitate urgent improvements in oversight. The direct correlation between ownership concentration and the inclination towards opportunistic behaviour highlights the need for strategic interventions in earnings management to safeguard the integrity of financial reporting and uphold corporate governance standards (Ardiany et al., 2023; Goh et al., 2013; Saona et al., 2020; Setiawan et al., 2019, 2020; Suprianto & Setiawan, 2018).

Chief Executive Officer (CEO) characteristics are crucial in corporate governance as they significantly influence governance practices. Studies on the age

and gender of CEOs have shown their impact on ethical behaviour, risk management, and conservative approaches to earnings management (EM). These studies underline the moral and ethical principles that guide CEOs, which are essential in strategic decision-making (Ali & Zhang, 2014; Belot & Serve, 2018; Huang et al., 2012; Peni & Vähämaa, 2010). Studies have found that older, more experienced CEOs may reduce earnings management, while younger CEOs might be more susceptible to pressures, potentially increasing earnings management (Al-Begali & Phua, 2023; Belot & Serve, 2018; Huang et al., 2012; Le et al., 2020). In addition, female CEOs, often more risk-averse and ethical, can reduce earnings management, while male CEOs might exhibit varied impacts (Lonkani, 2019; Peni & Vähämaa, 2010; Vähämaa, 2016).

Empirical research in Indonesia have shown that a CEO's age does not affect earnings management, but their gender does. Female CEOs tend to engage less in both accrual (AEM) and real (REM) earnings management (Putri & Rusmanto, 2019). However, past research examining the influence of CEO characteristics, especially age and gender, on earnings management has produced mixed results (Bouaziz et al., 2020; Chou & Chan, 2018; Isidro & Gonçalves, 2011; Putra & Setiawan, 2024).These inconsistencies highlight the need for further investigations to clarify how CEO characteristics influence corporate governance in this context. This gap is significant considering the limited and inconclusive evidence regarding the relationship between CEO characteristics and CEOs' ability to enhance their leadership. Hence, the findings from this study are expected to offer valuable insights for companies, policymakers, and the broader academic community, contributing significantly to the discourse on corporate governance and financial reporting integrity.

This study investigated how corporate governance mechanisms, including ownership concentration and CEO characteristics (age and gender), influence real earnings management (REM) in a two-tier board system in Indonesia. In the system, there exists a clear division of responsibilities between the executive board and the board of directors, characterized as the supervisory boards (Board of Commissioners), which include non-executive members, as mandated by the Limited Liability Company Law (No. 40/2007) and the Investment Law (No. 25/2007) of Indonesia.

Building on existing literature (Alhmood et al., 2023; Goh et al., 2013; Jensen & Meckling, 1976; Saona et al., 2020; Watts & Zimmerman, 1986), this study addressed critical gaps in understanding the opportunistic nature of REM and its preference over accrual earnings management (AEM). Previous studies focused on AEM because it is easier for firms to use AEM for short-term opportunistic behaviour. However, according to Setiawan et al. (2019), many firms have changed their earnings management method from AEM to REM. REM involves real business activity, combining genuine decisions with manipulative actions, making it harder to detect than AEM. This change is driven by the sophistication of REM and their potential to avoid regulatory scrutiny. Hence, due to the company's preferred method

of earnings management as highlighted by Setiawan et al. (2019), this study focussed on REM as the measurement of earnings management.

Based on the Agency Theory as explained by Jensen & Meckling (1976) it was assumed that the high ownership concentration in Indonesian firms with a two-tier board system allows major shareholders to pressure managers (CEO's age and gender) to engage in real earnings management (REM) to achieve performance targets, thus highlighting the existence of principal-agent conflicts which lead to managerial behaviours. Similarly, the Positive Accounting Theory of Watts & Zimmerman (1986) suggests that managers exploit accounting flexibility to manipulate earnings through real activities, particularly in companies with ownership concentration, which can be influenced by CEO characteristics such as age and gender. This study contributes to understanding how ownership structure (ownership concentration) and CEO characteristics (CEO age and gender) affect earnings management practices, emphasizing managerial opportunistic behaviour.

The following section explains the theoretical background and the development of hypotheses. Section 3 describes the research methodology and the process of selecting the sample. Section 4 presents the findings, while the final section summarizes and concludes the study.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This study examined earnings management, specifically focusing on real earnings management (REM). REM involves modifying business actions to influence financial results by employing economic decision strategies that impact financial reporting and stakeholder perceptions (Diri, 2017; Gunny, 2010; Siladjaja & Jasman, 2024). Unlike accrual earnings management (AEM), which adjusts the presentation of financial performance without changing operational activities, REM directly affects the company's operational decisions. The focus on REM is due to its more profound impact on the company's real activities, making it potentially more detrimental to long-term performance and harder to detect and regulate. Understanding REM is crucial for developing more effective corporate governance mechanisms and ensuring the integrity of financial reporting. The study adopted Ronen and Yaari's (2008) classification of earnings management, which categorized it into three practices: benign (white earnings management), opportunistic (grey earnings management), and fraudulent (black earnings management). This research focussed on the significance of corporate governance in deterring opportunistic REMs through comprehensive board oversight, rigorous audit processes, and transparent reporting. By examining the interplay between ownership concentration, CEO characteristics (age and gender), and REM practices, this study aimed to contribute to the discourse on corporate governance and financial reporting ethics, particularly in the context of PLCs in Indonesia, which utilized the two-tier board system. It demonstrates how executive leadership and governance structures work together to ensure financial integrity and uphold high ethical standards.

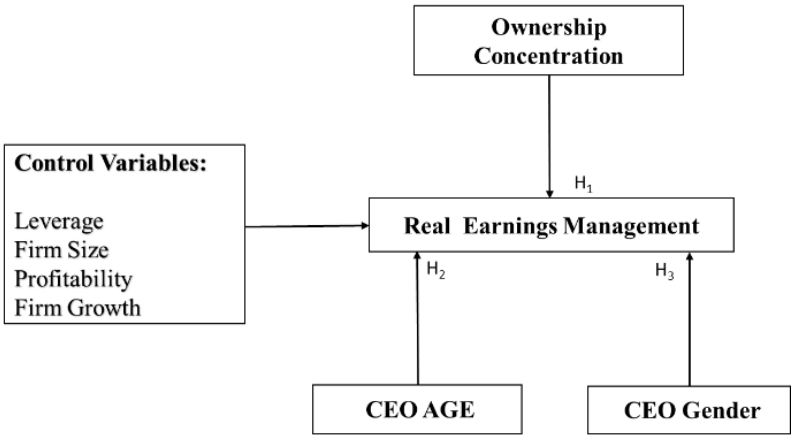

Figure 1. Framework

Ownership Concentration and Earnings Management

As shown in Figure 1, this research investigated variables related to ownership structure, specifically ownership concentration, as well as variables related to CEO characteristics, specifically CEO age and CEO gender, and their impact on real earnings management.

This analysis was framed within the Agency Theory , which asserts that ownership concentration can either decrease or worsen agency problems (Jensen & Meckling, 1976). In the meantime, the Positive Accounting Theory predicts that managers will engage in REM to maximize their utility earnings (Watts & Zimmerman, 1986, 1990). Previous literature suggests that high ownership concentration might diminish the necessity for rigorous board monitoring functions, as it inherently reduces agency problems (Abdallah & Ismail, 2017). Conversely, dispersed ownership weakens shareholder monitoring capabilities due to the "free-rider" problem, thus exacerbating agency conflicts (Madhani, 2016; Morck, 2000). Another study in Indonesia found that ownership concentration positively impacted earnings management, indicating that firms with significant ownership concentration are more likely to engage in such earnings management activities(Ardiany et al., 2023; Setiawan et al., 2019). Another literature in Indonesia indicated that family ownership positively impacted AEM, although this impact was not statistically significant (Widagdo et al., 2023). Despite mixed findings on the impact of ownership structures on earnings management, some studies suggested that dispersed ownership can mitigate earnings management by diluting the power of majority shareholders (Ali et al., 2007; Alves, 2012). Saona et al. (2020) introduced an inverse U-shaped relationship between investor ownership and earnings management, indicating that very low and high levels of ownership concentration led to greater opportunistic behavior, while a moderate level of ownership concentration is more effective in

mitigating earnings management, highlighting how ownership concentration influences earnings management.

In the context of real earnings management (REM), Setiawan et al. (2019) demonstrated that in Indonesia, high institutional ownership tends to promote REM through production activities as a strategy to meet earnings targets. Institutional investors pressure management to achieve short-term earnings goals, leading to manipulative production adjustments. Building on these insights, this study hypothesized a relationship between ownership concentration and REM, and showed how the ownership concentration paradigm in Indonesia shaped managerial approaches regarding REM within the unique regulatory and corporate governance framework of the country.

H1: There is a significant relationship between ownership concentration and earnings management.

CEO age and Earnings Management

The Agency Theory distinguishes between ownership and control of the firm and analyzes opportunistic management behavior. This study applied the Theory to examine how CEO age affects earnings management, specifically real earnings management (REM). According to Dechow & Sloan (1991), there was a positive relationship between the approaching end of CEO tenure and earnings management through R&D reductions. Davidson et al. (2007) found that CEOs approaching retirement may increase discretionary accruals, indicating a trend toward accounting manipulation among older executives. However, studies have shown that older CEOs' ages could reduce earnings management (Huang et al., 2012; Le et al., 2020). However, Putra & Setiawan (2024) found different results. They discovered that older CEO age positively affected real earnings management but did not affect accrual earnings management in Indonesia. Previous literature has suggested that the characteristics of CEOs' age can influence the quality of their financial reporting.

Other literature suggests that younger CEOs may be more inclined toward earnings management, focusing on young CEOs (Andreou et al., 2017; Belot & Serve, 2018; Demerjian et al., 2020; Haider et al., 2019). Andreou et al. (2017) confirmed that stock price crashes are associated with younger CEOs. As a result, there is a need for broader implications regarding firm policies for CEO age. The results of Demerjian et al. (2020) ensured that younger CEOs are more likely to engage in positive earnings management, primarily to build their reputation. However, Bouaziz et al. (2020); Putra & Setiawan (2024); Putri & Rusmanto (2019) did not find a significant relationship between CEO age and earnings management, stating that managerial age did not directly influence financial reporting quality. They acknowledged potential incentives for older CEOs to manipulate accounting results. Given these contradictory findings, this study proposed that CEO age was significantly correlated with EM, suggesting that older CEOs may engage less in

earnings management to explore the impact of executive characteristics on financial information and corporate governance.

H2: There is a significant relationship between CEO's age and earnings management.

CEO Gender and Earnings Management

Emerging research suggests that female CEOs exhibit traits of ethics, conservatism, and risk aversion, which may extend to their approach to real earnings management (REM) (Lonkani, 2019; Na & Hong, 2017; Peni & Vähämaa, 2010; Qi et al., 2018; Zalata et al., 2018). These traits led them to prioritize long-term stability and ethical practices over short-term gains, resulting in more cautious financial management. This study explored how CEO gender influences REM practices within the corporate governance framework. Peni & Vähämaa (2010) support gender differences in financial decision-making using a modified Dechow-Dichev model, revealing that female CFOs prefer discretionary accruals that reduce earnings, indicating a conservative approach to financial decisions. According to Na and Hong (2017), male CEOs are generally more aggressive in using both AEM and REM than female CEOs. In addition, female CEOs tend to engage less in REM and approach AEM with more caution. Qi et al. (2018) supported this observation by finding that executives in Chinese companies, especially older, female, and highly educated individuals, showed a lower propensity toward REM. Bouaziz et al. (2020); Putra and Setiawan (2024), and Bouaziz et al., (2020) investigated the impact of various CEO characteristics, including gender, on earnings management using the modified Jones model. They identified a negative relationship between CEO gender and earnings management, suggesting that female CEOs are less likely to engage in such practices. Based on these insights, this study formulated hypothesis that proposed a differential relationship between CEO gender and REM, suggesting that female CEOs may exhibit a lower likelihood of engaging in REM, reflecting broader trends toward ethical and conservative financial reporting practices.

H3: There is a significant relationship between CEO's gender and earnings management.

METHODOLOGY

Data

This research investigated the dynamics of non-financial companies listed on the Indonesia Stock Exchange (BEI) from 2015 to 2019. The study collected a data set of 955 observations from 191 entities following a comprehensive sampling protocol. Financial companies were excluded from the analysis due to their distinct earnings management techniques. The data underwent rigorous cleaning to remove entries

with significant missing information. Ownership concentration and other data, such as financial metrics, were obtained from Eikon's database. This population resulted in a carefully vetted sample of 243 companies spanning ten sectors after manually verifying the age and gender breakdown of directors in the annual report of each company. This process emphasized the importance of thorough data cleaning, as recommended by Krejcie and Morgan (1970), to ensure the integrity of the data set and to ultimately determine the 243 companies based on refined selection criteria. Variables with kurtosis and skewness outside the range of −2 to +2 were log-transformed to assess normality and facilitate multivariate analysis using Stata software. The study employed stratified sampling to ensure proportional representation across sectors, adhering to rigorous empirical standards. Inclusion criteria required companies to be registered in the Eikon database for at least three years during the study period, with accessible data on ownership concentration, CEO age, gender, and all the necessary financial information to evaluate real earnings management in a two-tier board system in Indonesia.

General Model

The regression model was presented as an equation, as shown below. This research used static panel analysis, specifically examining Pooled OLS, random effects, or fixed effects from different perspectives. Various diagnostic checks were conducted, including tests for multicollinearity, serial correlation, cross-sectional dependence, heteroscedasticity, firm impact, and year effect. Additionally, two economic tests, namely the Breusch-Pagan LM test and the Hausman test, were employed to determine the appropriate model estimation in multiple regression analysis (Law, 2018; Studenmund & Johnson, 2016).

$$EM_{it} = \beta_0 + \beta_1 OC1_{it} + \beta_2 CAGE_{it} + \beta_3 CEOG_{it} + \beta_{11} CV_{it} + \varepsilon_{it} \quad (1)$$

where i stands for firm, t for time, and ε for error.

Dependent Variables

This study calculated Total real earning management measured as abnormal production cost (APC) + (− 1) × abnormal cash flows of operation (ACFO) + (− 1) × abnormal discretionary expenses (ADE). Based on Roychowdhury (2006), the research used three metrics to analyze the extent of real earnings management: abnormal levels of cash flow from operations (ACFOi,t), production costs (APCi,t), and discretionary expenses (ADEi,t). The first component of Roychowdhury (2006) the cash flow of operation, where the calculation of production costs was as follows:

$$\frac{CFO_{it}}{A_{it-1}} = \beta_0 + \beta_1 \frac{1}{A_{it-1}} + \beta_1 \frac{Sales_{it}}{A_{it-1}} + \beta_2 \frac{\Delta\, Sales_{it}}{A_{it-1}} + \varepsilon_{it} \quad (2)$$

In this model, 'CFO' represented operating cash flows, 'Sales' represented the current period's revenue, and 'ΔSales' represented the change in revenue. 'A_{it-1} ' was used to indicate the average total assets at the beginning and end of the period in order to mitigate potential heteroscedasticity. Our analysis utilized a cross-sectional model

with annual estimations for industries categorized by their four-digit SIC codes. Additionally, 'e' represented the unexplained remainder of the equation, and '$\beta_0, \beta_1, \beta_2$' referred to the beta coefficients of the independent variables.

$$\frac{Prod_{it}}{A_{it-1}} = \beta_0 + \beta_1 \frac{1}{A_{it-1}} + \beta_1 \frac{Sales_{it}}{A_{it-1}} + \beta_2 \frac{\Delta\, Sales_{it}}{A_{it-1}} + \beta_3 \frac{\Delta\, Sales_{it-1}}{A_{it-1}} + \varepsilon_{it} (3)$$

In this analysis, the variable '$Prod_{it}$' represented the total cost of goods sold for company 'i' in the current year. Production costs were calculated by adding the cost of goods sold (COGS) to the inventory (INV) change during the year. The term ' $\Delta\, Sales_{it}$' denoted the difference in sales between the previous year and the year before it (year t-2) for the same company. Additionally, 'ε_{it}' referred to the residual term for firm 'i' in the current year, capturing any discrepancies not explained by the model. The coefficients ' β_0', 'β_1', β_2 and 'β3' were beta coefficients that quantified the impact of independent variables on the dependent variable within the model.

Next, Roychowdhury (2006) identified discretionary expenses as the third component of Real Earnings Management (REM). This component was crucial for analyzing "Abnormal Discretionary Expenses (ADE)." The study model's discretionary expenses were based on lagged sales to calculate discretionary expenses. Specifically, Roychowdhury used a model that estimated the normal levels of discretionary expenses by examining the relationship between these expenses and sales figures from previous periods.

$$\frac{DiscExp_{it}}{A_{it-1}} = \beta_0 + \beta_1 \frac{1}{A_{it-1}} + \beta_2 \frac{Sales_{it-1}}{A_{it-1}} + \varepsilon_{it} \qquad (4)$$

In this model, the term 'ADEit' referred to the discretionary expenses in period t, specifically the selling, administrative, and general administration expenses of company 'i' for the current year. On the other hand, 'εi,t' represented a residual term that accounted for any variance in the model's dependent variable that as not explained by the independent variables. The parameters 'β_0 ', 'β_1'were beta coefficients that quantified the impact of the independent variables on the dependent variable within the model.

Independent Variables and Control Variables

This study examined the relationship between ownership concentration and real earnings management (REM). Specifically, this study focussed on the natural logarithm of the largest shareholder's equity percentage (LnOC1). Using a regression model (REM = β0 + β1OC1 + β2LnCAGE + β3CEOG + ε), this study aimed to gain a deeper understanding of how executive characteristics can influence the impact of ownership concentration on financial practices in real earnings management. The study was also conducted by Saona et al. (2020), Bouaziz et al. (2020), Gonçalves (2019) and Gull et al. (2018). Additionally, this study also included several key financial metrics, such as leverage, firm size, profitability, and firm growth, as control variables to comprehensively understand their effects on corporate strategies and outcomes. This approach allowed for a nuanced analysis of earnings management

practices, drawing on extensive prior research, and provides insights into the complex interplay between corporate control, executive traits, and financial performance. The measurements of the variables above are presented in Table 5 of this study, which can be found in the appendix.

RESULTS AND DISCUSSION

Descriptive Statistics

This dataset as in Table 1, consisting of 955 observations from 191 companies, analyzed real earnings management and corporate governance variables, shedding light on the intricate details of financial and CEO leadership metrics. The Total Real Earnings Management (TTREM) had a slightly positive mean (0.01) and ranged from -5.52 to 6.66, indicating a wide range of real earnings management practices among companies. Abnormal Operating Cash Flow (ACFO) and Abnormal Production Costs (APC) showed small average deviations (-0.002 and 0.01) but exhibited considerable variability in their ranges -1.00 to 2.56 for ACFO and -5.56 to 6.69 for APC, suggesting differences in the financial operations of the companies. Ownership concentration (OC1) indicated a moderate concentration of shareholders (average 0.54), while CEO age (CAGE) had an average of 55.12 years, signifying experienced leadership, albeit with a wide age range (32 to 87 years). CEO Gender (CEOG) revealed a disparity in gender representation in leadership roles (mean 0.06).

These variables displayed a combination of skewness and kurtosis, indicating a rightward skew and weighting in the distribution. This descriptive analysis reflected the intricate interplay among these companies' corporate governance, executive leadership characteristics, and financial management practices.

Table 1. Descriptive Statistics of Variables

Variable	Obs	Mean	Std.dev.	Min	Max	Skewness	Kurtosis
ACFOit	955	-0.002	0.12	-1	2.56	8.36	204.17
APCit	955	0.01	0.61	-5.56	6.69	2.06	42.01
ADEit	955	-0.001	0.13	-0.85	1.29	0.73	22.15
TTREM	955	0.01	0.65	-5.52	6.66	1.17	29.3
OC1	955	0.54	0.28	0.08	3.09	3.66	33.85
CAGE	955	55.12	9.46	32	87	-0.16	6.27
CEOG	954	0.06	0.23	0	1	3.8	15.41
LEVERAGE	955	0.52	0.25	0.01	1.95	1.3	8.05
FIRMSIZE	955	29.38	2.5	0.02	33.49	-8.33	98.76
PROFITABILITY	955	0.09	0.14	0	2.39	7.71	96.91
FIRMGROWTH	955	0.19	0.88	0	21.59	17.9	392.98

Correlation Analysis

The correlation between TTREM and Abnormal Discretionary Expenses (ADEit) was moderate ($r = 0.41$, $p < 0.01$), suggesting a weaker but still present relationship between discretionary expenses and real earnings management.

Table 2 shows a pairwise correlation analysis of a data set containing 955 observations from 191 companies, revealing significant relationships between various financial and governance variables. Specifically, there was a strong positive correlation ($r = 0.94$, $p < 0.00$) between Total Real Earnings Management (TTREM) and Abnormal Production Costs (APC), indicating that as firms adjust production costs, it significantly impacted real earnings management practices. The correlation between TTREM and Abnormal Discretionary Expenses (ADEit) was moderate ($r = 0.41$, $p < 0.01$), suggesting a weaker but still present relationship between discretionary expenses and real earnings management.

Table 2. Pearson Correlation Coefficient Matrix

	TTREM	ACFOit	APCit	ADEit	LnOC1	LnCAGE	CEOG	LnLEVERAGE	FIRMSIZE	LnPROFITABILITY	LnFIRMGROWTH
TTREM	1.00										
ACFOit	0,12***	1.00									
APCit	0,95***	-0.13	1.00								
ADEit	0,41***	0.26***	0,17***	1.00							
LnOC1	0.06*	0.01	0,054*	0.02	1.00						
LnCAGE	0.00	-0.03	-0.01	0.03	0.00	1.00					
CEOG	0,06*	0.04	0.05	0.01	-0.04	-0.04	1.00				
LnLEVERAGE	0,09***	0.05	0,08**	-0.01	-0,07**	-0.01	-0,07**	1.00			
FIRMSIZE	0,06**	-0.03	0,09***	-0,06*	0.03	0,06*	-0,07**	0,14***	1.00		
LnPROFITABILITY	-0,14***	-0,16***	-0,08**	-0,16***	0.01	-0.03	0.01	-0.03	-0,07**	1.00	
LnFIRMGROWTH	-0.20***	-0,19***	-0,16***	-0.04	-0.01	0.01	-0,06***	-0,06*	0,08**	-0,14***	1.00

Note: ***, ** and * denote the significant level at 1%, 5% and 10% respectively

Ownership concentration (LnOC1) exhibited a very weak correlation with TTREM ($r = 0.06$, $p = 0.09$), implying that the direct effect of ownership concentration on real earnings management can be disregarded. CEO Gender (CEOG) and Leverage (LnLEVERAGE) showed weak positive correlations with TTREM ($r = 0.06$, $p = 0.09$ and $r = 0.09$, $p = 0.01$, respectively), indicating minimal influence on the practice of real earnings management. Interestingly, firm size

showed a weak positive correlation with TTREM ($r = 0.06$, $p = 0.05$), suggesting minimal impact. Profitability (LnPROFITABILITY) and firm growth (LnFIRMGROWTH) were both negatively correlated with TTREM ($r = -0.13$, $p < .001$ and $r = -0.20$, $p < .001$, respectively), indicating that higher levels of profitability and firm growth may be associated with lower levels of actual earnings management. These results underscored the complex interactions between firm characteristics, governance, and financial management strategies, highlighting how variables can influence firms' financial practices.

Data Analysis

When analyzing the impact of ownership concentration on a company's real earnings management, robustness tests and pooled ordinary least squares (OLS) analysis were used to examine the relationship between abnormal production costs (APC) and real earnings management (REM). The results of the robustness tests as presented in Table 3 indicated a marginally significant relationship between ownership concentration and APC (coefficient = 0.06, $z = 1.65$, $p = 0.1$), suggesting that higher ownership concentration may lead to higher APC. However, no significant impact was observed on REM (coefficient = 0.06, $z = 1.41$, $p = 0.16$). The findings from the pooled OLS analysis confirmed a moderate significance in the relationship between ownership concentration and APC (coefficient = 0.07, $z = 1.83$, $p = 0.07$), and also indicated a near-significant effect on REM (coefficient = 0.08, $t = 1.95$, $p = 0.05$). These results emphasized the potential relationship between ownership concentration and APC as well as REM. Thus, borderline significance indicated the potential for managerial opportunistic behaviour in APC. In this context, ownership concentration allowed managers to engage in subtle forms of earnings manipulation that fall into a grey area in accounting practice. The variations in significance levels suggested the need for further research to gain a better understanding of this relationship.

This behaviour aligned with the Agency Theory, highlighting the conflict between shareholders' desires for high earnings and potential long-term costs (Jensen & Meckling, 1976). It was also consistent with the Positive Accounting Theory, which suggested that managers use accounting methods to benefit personal objectives or influential stakeholders (Watts & Zimmerman, 1986).

This research supports Setiawan et al. (2019), who found a positive correlation between ownership concentration and abnormal production costs. Ardiany et al. (2023) also found that firms with significant ownership concentration were more likely to engage in earnings management. Alhmood et al. (2023) suggested that REM can be reduced when combining ownership concentration with CEO characteristics such as experience, tenure, and political connections. This result suggested that including different CEO characteristics may diminish the positive effect of earnings management.

Next, the age of the CEO was found to be inversely related to abnormal discretionary expenses (ADE) according to three econometric effects tests: fixed,

random, and robust effects tests. The robustness test revealed a slightly significant negative coefficient of -0.01 ($z = -1.75$, $p = 0.08$), indicating that ADE decreased as CEO age increased. This finding was consistent in the Random Effects Model, with identical coefficients and a z value of -1.80 ($p = 0.07$), thereby strengthening the significance of the relationship.

In the Fixed Effects Model, a more pronounced effect was observed as the negative relationship between CEO age and ADE was further strengthened, as evidenced by a coefficient of -0.02 ($z = -1.96$, $p = 0.05$), which reached the conventional significance level. These results highlighted a pattern where older CEOs tended to have lower ADE, suggesting the possibility of more conservative financial decision-making with age and helping curb some forms of grey earnings management, particularly in discretionary expenses. Decreased manipulation of discretionary expenses reflected a decline in managerial opportunistic behaviour. This proposition aligned with prior research, such as Huang et al. (2012), which suggested that CEO age demonstrated a dedication to the ethics of financial reporting, thereby emphasizing the importance of executive traits in shaping corporate governance and financial ethics, especially on ADE. This finding is contrary to the findings of Chou and Chan (2018); Putra and Setiawan (2024), who reported a negligible positive impact on REM.

In statistical tests examining the impact of CEO gender on real earnings management (REM), the analysis produced insignificant results across multiple models. The pooled OLS model yielded a coefficient of 0.14 with a t-value of 1.60 and a p-value of 0.11, indicating a lack of significant impact. Similarly, the Fixed Effects Model showed a coefficient of 0.07, a lower t-value of 0.36, and a p-value of 0.72. The Random Effects Model reported a coefficient of 0.13 with a z-value of 0.99 and a p-value of 0.32. The robustness test consistently confirmed the lack of significance, with a coefficient of 0.13, a z-value of 0.95, and a p-value of 0.34. These findings suggested that CEO gender did not affect REM statistically significantly within the tested sample. This condition also applied to all aspects of real earnings management, including ACFO, APC, and ADE, indicating that the relationship between CEO gender and all real earnings management proxy measures lacked significance.

Table 3: REM Result of Static Panel Data Analysis

	Pooled OLS				Fixed Effects				Random Effects				Robustness			
	TTREM	ACFO	APC	ADE	TTREM	ACFO	APC	ADE	TREM	ACFO	APC	ADE	TREM	ACFO	APC	ADE
LnOC1	0.08*	0	0.07*	0.01	0.06	0	0.06	-0.01	0.06	0	0.06	0	0.06	0	0.06*	0
t/z	1.95	0.3	1.83	0.7	0.65	-0.06	0.72	-0.57	1.13	0.13	1.16	-0.35	1.41	-0.1	1.65	-0.33
LnCAGE	-0.01	-0.01	-0.02	0.02	-0.03	0.01	-0.02	-0.02*	-0.02	0	-0.02	-0.01*	-0.02	0.01	-0.02	-0.01*
t/z	-0.16	-0.83	-0.25	1.14	-0.37	0.46	-0.27	-1.96	-0.35	-0.19	-0.31	-1.8	-0.56	0.55	-0.39	-1.75
CEOG	0.14	0.01	0.13	0	0.07	0	0.09	-0.019	0.13	0.01	0.12	-0.01	0.13	0	0.12	-0.01
t/z	1.6	0.73	1.51	0.1	0.36	0.08	0.43	-0.86	0.99	0.65	0.97	-0.7	0.95	0.29	1.25	-0.7
LnLEVERAGE	0.08**	0.01	0.07**	0	0.07	0.03**	0.02	0.01**	0.08*	0.02**	0.05	0.01*	0.08**	0.03	0.05	0.01
t/z	2.23	1.56	2.06	-0.12	1.26	2.53	0.42	2.23	1.73	2.03	1.14	1.76	2.32	1.05	1.2	1.29
FIRMSIZE	0.02**	0	0.02***	0.00**	0.01	0.04***	0	-0.03***	0.02	0	0.02	-0.01***	0.02	0.04	0.02*	-0.01*
t/z	1.97	-0.96	2.72	-2.07	0.15	2.88	0	-4.92	1.11	-0.56	1.6	-3.22	1.46	0.91	1.7	-1.72
LnPROFITABILITY	-0.08***	-0.02***	-0.05***	-0.02***	-0.03	0	-0.01	-0.01***	-0.04***	-0.01***	-0.02	-0.01***	-0.04***	0	-0.02**	-0.01***
t/z	-5.1	-6.18	-2.92	-5.41	-1.36	-0.37	-0.8	-4.3	-2.61	-3.87	-1.55	-4.28	-3.58	-0.37	-2.24	-3.88
LnFIRMGROWTH	-0.09***	-0.02***	-0.07***	-0.01*	-0.04**	-0.01**	-0.04**	0.00**	-0.06***	-0.01***	-0.05***	0.00*	-0.06***	-0.01*	-0.05**	0
t/z	-6.77	-6.73	-5.36	-1.79	-2.28	-2	-2.06	2.46	-4.01	-4.75	-3.49	1.84	-2.58	-1.97	-2.24	0.94
_cons	-0.82**	-0.01	-0.77**	-0.03	-0.25	-1.25***	0.01	1.00***	-0.55	-0.02	-0.65	0.35***	-0.55	-1.25	-0.65	0.35*
t/z	-2.15	-0.12	-2.14	-0.41	-0.14	-2.93	0	5.15	-1.1	-0.25	-1.4	3.5	-1.31	-0.95	-1.44	1.86

Note: ***, ** and * denote the significant level at 1% , 5% and 10% respectively

Table 4: REM Result of Static Panel Data Analysis (Continued)

	Pooled OLS Effects				Fixed Effects			
	TTREM	ACFO	APC	ADE	TTREM	ACFO	APC	ADE
R squared (%)	0.08	0.08	0.05	0.04	0.01	0.03	0.01	0.06
BP-LMTest	474.90	81.98	386.12	1392.10	474.90	81.98	386.12	1392.10
P-Value	0.00***(RE)	0.00***(RE)	0.00***(RE)	0.00***(RE)	0.00***(RE)	0.00***(RE)	0.00***(RE)	0.00***(RE)
Hausman Test	11.33	36.78	5.02	31.75	11.33	36.78	5.02	31.75
P-Value	0.25(RE)	0.00***(FE)	0.83 (RE)	0.00***FE	0.25(RE)	0.00***(FE)	0.83 (RE)	0.00***FE
Multicollinearity (Mean VIF)	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Heteroskedasticity (M-Wald)	27000000	2500000	170000000	2100000	27000000	2500000	170000000	2100000
P-Value	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Serial Corr (Woolridge Test)	30.70	0.11	4.59	12.02	30.70	0.11	4.59	12.02
P-Value	0.00***	0.74	0.03**	0.00***	0.00***	0.74	0.03**	0.00***
F Statistic or Wald chi2	9.33	9.36	6.00	4.21	1.07	2.32	0.67	5.74
Prob > F	0.00***	0.00***	0.00***	0.00***	0.38	0.01**	0.74	0.00***
Total observation	955	955	955	955	955	955	955	955

	Random Effects				Robustness Effects			
	TTREM	ACFO	APC	ADE	TREM	ACFO	APC	ADE
R squared (%)	0.08	0.08	0.05	0.01	0.08	0.00	0.05	0.01
BP-LMTest	474.90	81.98	386.12	1392.10	474.90	81.98	386.12	1392.10
P-Value	0.00***(RE)	0.00***(RE)	0.00***(RE)	0.00***(RE)	0.00***(RE)	0.00***(RE)	0.00***(RE)	0.00***(RE)
Hausman Test	11.33	36.78	5.02	31.75	11.33	36.78	5.02	31.75
P-Value	0.25(RE)	0.00***(FE)	0.83 (RE)	0.00***FE	0.25(RE)	0.00***(FE)	0.83 (RE)	0.00***FE
Multicollinearity (Mean VIF)	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Heteroskedasticity (M-Wald)	27000000	2500000	170000000	2100000	27000000	2500000	170000000	2100000
P-Value	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Serial Corr (Woolridge Test)	30.70	0.11	4.59	12.02	30.70	0.11	4.59	12.02
P-Value	0.00***	0.74	0.03**	0.00***	0.00***	0.74	0.03**	0.00***
F Statistic or Wald chi2	29.19	41.75	20.75	37.73	30.30	1.42	20.25	3.74
Prob > F	0.00***	0.00***	0.01**	0.00***	0.00***	0.18	0.02**	0.00***
Total observation	955	955	955	955	955	955	955	955

Note: ***, ** and * denote the significant level at 1% , 5% and 10% respectively

This present study contrasts with Putra & Setiawan (2024), which found that CEO gender significantly reduced AEM and REM. The findings also suggested that CEO gender only negatively impacted REM through the ADE indicator and had no significant effect on ACFO, APC, or total REM when excluding the COVID-19 period.

However, this study is in line with the study by Chou & Chan (2018), which stated that companies with female CEOs did not significantly reduce earnings management. This finding was also echoed by Harris et al. (2019), who observed a similar, but non-significant, effect of the presence of a female CEO on earnings management. These findings suggest that simply having a female CEO may not effectively curb earnings management. Therefore, this highlights the need for broader strategies beyond gender diversity in leadership to address earnings management issues. This empirical evidence does not support the prediction that female CEOs could significantly reduce real earnings management. These results suggest that CEO gender does not significantly influence grey earnings management or managerial opportunistic behavior. However, it is still crucial to promote gender diversity to achieve balanced decision-making and ethical governance.

CONCLUSION

This research provides new insights into the complex relationship between ownership concentration and CEO characteristics, such as age and gender, in relation to real earnings management (REM). With respect to the direct relationship between ownership concentration and REM, particularly in terms of abnormal production costs (APC), a positive and significant relationship was found, consistent with the findings of Dong et al. (2020) and Tran & Dang (2021) , highlighting the nuanced role of ownership concentration in REM. However, despite the significant impact of ownership concentration on APC, its overall effect on broader REM practices was limited. This finding suggests that while ownership concentration may prioritize operational efficiency, it may not necessarily result in a comprehensive strategy against all forms of earnings management.

In addition, there are indications of combining other factors related to CEO characteristics to integrate ownership concentration with CEO characteristics. This suggestion mitigates REM practices (Alhmood et al., 2023). The findings revealed that ownership concentration positively affected APC as a REM indicator.

Furthermore, this research suggests that ownership concentration may unintentionally facilitate grey real earnings management, as it allows for operational manipulation under the guise of financial objectives. This finding potentially undermines the transparency and integrity of financial reporting (Dong et al., 2020; Ronen & Yaari, 2008). Moreover, the findings indicate that CEO age plays a crucial role in impeding gray real earnings management activities, suggesting a relationship between executive age and ethical financial reporting practices (Lapointe-Antunes et al., 2022; Ronen & Yaari, 2008). This finding implies that there is an ethical dimension to financial decision-making that is influenced by CEO age, as older CEOs

are less likely to engage in practices that compromise earnings integrity. This finding is supported by Huang et al. (2012) , who found that older CEOs tend to prioritize ethical considerations in reporting, thereby influencing corporate ethical standards, particularly in the context of abnormal discretionary expenses (ADE).

This research provides new insights into the complex dynamics between CEO characteristics, such as age and gender, and ownership concentration in real earnings management (REM). Based on previous research (Belot & Serve, 2018; Bouaziz et al., 2020; Huang et al., 2012; Peni & Vähämaa, 2010), this study highlights the significant impact of CEO characteristics on financial ethics and decision-making. These findings emphasize the importance of strategic reassessment to improve governance practices, promote transparency, and foster leadership diversity to mitigate earnings management and improve the integrity of financial reporting.

Implementing a two-tier board structure in Indonesia can significantly improve corporate governance. This study suggests that ownership concentration, CEO age, and CEO gender do not significantly impact grey earnings management in this system. The strong supervisory controls inherent in the two-tier board structure effectively mitigate risk and encourage ethical financial practices. It is recommended that the conservative practices of older CEOs be leveraged, gender diversity should be encouraged for balanced governance, and ownership concentration should be closely monitored to avoid managerial entrenchment or opportunistic behaviour. These strategies can help mitigate grey earnings management or managerial opportunistic behaviour and promote transparency and ethical financial reporting. Therefore, the two-tier board system in Indonesia, as recommended by the CG code, can guarantee strong governance and ethical financial practices (KNKG, 2019).

Some limitations of this study may open new avenues for future research. This research, conducted on non-financial public companies in Indonesia between 2015 and 2019, provides valuable insights and also highlights areas that need further exploration. Future studies may also suggest that these findings provide an opportunity to investigate the effects of various economic conditions, such as the impact of COVID-19 or terminal value (Siladjaja & Jasman, 2024). This condition is essential because the environment and regulations can affect the economy differently.

The limited focus on Indonesia may limit the generalizability of these findings across regions and sectors, given Indonesia's unique corporate governance dynamics, such as the prevalence of a two-tier board system. Furthermore, this research emphasizes CEO age and gender as determinants of earnings management, perhaps ignoring other influential factors on corporate governance. Future research would benefit from a broader examination of executive and board characteristics, expanding on the seminal study by Saona et al. (2020). It will enable a comprehensive assessment of the combined influence of these characteristics on governance outcomes and the implementation of earnings management practices. Exploring how these factors interact with various corporate governance structures and financial reporting standards will enrich the discourse on mitigating opportunistic behaviour among managers.

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APPENDIX

Table 5. Variable definitions

VARIABLES	OPERATIONALIZATION	
Dependent variable		
TTREM	REM model emphasizes three aspects of the component model, namely abnormal cash flow of operation (ACFO), abnormal production costs (APC), abnormal discretionary expenses (ADE). Total real earning management (TTREM) measured as abnormal production cost + (− 1) × abnormal cash flows + (− 1) × abnormal discretionary expenses.	(Roychowdhury, 2006; Zalata et al., 2022)
Independent Variable		
LnOC1	LnOC1 is natural log from ownership concentration. OC is the percentage of outstanding shares owned by the controlling shareholder /largest shareholder.	(Saona et al., 2020)
LnCAGE	LnCAGE is natural log from CEO age. CEOs ageit are calculated by Natural log of age of CEO of firm i in year t.	(Bouaziz et al., 2020; Haider et al., 2019; Huang et al., 2012)
CEOG	The CEO Gender is measured by looking at the gender of the CEO. The measurement uses a dummy variable where if the company has a female CEO is measured equal to 1 and a male CEO is 0 or vice versa.	(Bouaziz et al., 2020; Gull et al., 2018)
Control Variables		
LnLEVERAGE	Total Liabilities/Total Assets	(Bouaziz et al., 2020; Goh et al., 2013)
FIRMSIZE	Natural logarithm of the total assets of the company	(Goh et al., 2013)
LnPROFITABILITY	Net Income Before Taxes divided by Year-End Assets	(Saona et al., 2020)
LnFIRMGROWTH	Capital Expenditures/Sales	(Jiraporn et al., 2008; Wasan & Mulchandani, 2020)