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DOES CHIEF AUDIT EXECUTIVE TENURE AFFECT CEO OVERCONFIDENCE IN REAL EARNINGS MANAGEMENT?

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Abstract

CEO overconfidence tends to make high-risk decisions, including engaging in real earnings management (REM); however, the role of Chief Audit Executive (CAE) tenure as a governance mechanism that may moderate this relationship remains underexplored. This study aims at examining the effect of CEO overconfidence on REM and the moderating role of CAE tenure in this relationship. The sample consists of manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the 2012–2019 period and was analyzed using a fixed-effects panel data regression model. The results showed that CEO overconfidence has a positive effect on REM, and longer CAE tenure effectively reduces REM practices. However, CAE tenure did not moderate the relationship between CEO overconfidence and REM. This study contributed by emphasizing the importance of considering CEO personality traits and CAE tenure length in formulating effective corporate governance policies.

INTRODUCTION

Upper echelon theory explains that the characteristics of company leaders will affect the direction of strategy and policy in running the company (Hambrick & Mason, 1984). In carrying out his duties, the Chief Executive Officer (CEO) is empowered to control the company, including access to all information related to company operations (Imasuen et al., 2022). However, CEO often focus on short-term opportunities rather than long-term ones (Ivanov, 2023). With his or her power, the CEO can manage net income to maximize bonuses and maintain his or her position in the future (Ozgen et al., 2025). This short-term orientation can be detrimental to the company.

One of the CEO's short-term strategies is to enhance the company's image through earnings management. In the accounting literature, earnings management is divided into two categories: accrual and real. Accrual earnings management is done through changes in accounting policies or estimates when preparing financial statements, while real earnings management involves abnormal operational practices (Roychowdhury, 2006; Zang, 2012). It is known that CEOs favour real earnings management techniques because they are easier to perform and harder to detect (Qi et al., 2018).

Several previous studies have found that CEO overconfidence encourages CEOs to engage in earnings management (Kouaib & Jarboui, 2016a; Li & Hung, 2013; Sutrisno, 2019; Zaher, 2019). It is known that overconfidence is one of the psychological characteristics of a person feeling better than others, leading to excessive expectations for the results to be achieved and to the ignoring of realistic evaluation suggestions (He et al., 2020). These excessive expectations lead to a bias that can prompt them to engage in earnings management when the company's performance does not meet their expectations (Schrand & Zechman, 2012). Likewise, Li & Hung (2013) stated that irrational CEO overconfidence could lead to irrational investment choices. Kouaib & Jarboui (2016b) also found that CEO overconfidence tends to be reflected in real earnings rather than accruals, as CEO manipulate sales activities and cut discretionary expenses to achieve revenue targets. In contrast, Burkhard et al. (2022) argued that CEO overconfidence did not always negatively impact firm performance. Kraft et al. (2025) found that CEO overconfidence tended to initiate significant changes that can lead to innovative strategies for the company.

On the other hand, the internal control function is expected to reduce the prevalence of real earnings management practices (Taufiq, 2023). Surveys conducted by the Association of Certified Fraud Examiners (ACFE) from 2014 to 2022 consistently indicate that the internal audit function is far more effective than external auditors at detecting fraudulent practices. An internal audit committee that performs well is considered to limit the impact of agency problems (Jensen & Meckling, 1976). Furthermore, the Chief Audit Executive (CAE) can be crucial in ensuring internal audit quality and successful governance (Taufiq, 2023). Likewise, Staden and Steyn 2009) highlighted the importance of the CAE profile in terms of qualifications, experience, and certification to improve internal audit quality.

However, the critical role of CAEs extends beyond their financial expertise and experience profiles; it is also reflected in their tenure. The study results show that CAE turnover negatively impacts financial reporting and internal control quality, especially when financial qualifications decline after a CAE replacement (Lobo et al., 2022). Similarly, Castellani & Nuralissa (2022) showed that the effectiveness of internal audit and whistleblowing systems significantly strengthens fraud prevention, reinforcing the relevance of internal audit functions such as the CAE in constraining opportunistic financial reporting. In addition, the tenure of directors, specifically the chief financial officer (CFO), has been shown to reduce earnings management and improve financial reporting quality (Liu et al. 2022). This result is also reinforced by the negative relationship between CEO tenure and earnings management in a company (Altarawneh et al., 2022). Research evidence is the basis for the crucial profile, particularly the tenure of company leaders, in shaping corporate governance.

The theoretical contribution of this study lies not merely in adding CAE tenure as a moderating variable, but in developing an integrative theoretical mechanism that explains how and why internal audit leadership constrains CEO overconfidence-driven earnings management. Prior research grounded in upper echelons theory (Hambrick & Mason, 1984) suggested that CEO overconfidence biases managerial judgment toward inflated optimism about future performance, leading executives to underestimate the risks of aggressive operational choices that manifest as real earnings management (Kouaib & Jarboui, 2016a; Sutrisno, 2019). However, this behavioral perspective has largely treated overconfidence as an unconditional driver of opportunistic reporting, without theorizing the internal governance conditions under which its effect may be attenuated.

This study addresses that gap by drawing on an expertise and authority-based view of internal audit governance, in which CAE tenure is theorized as a proxy for accumulated organizational knowledge, legitimacy, and structural power within the firm (Sarens & Abdolmohammadi, 2011). The authors argued that a longer-tenured CAE is better positioned to challenge CEO overconfidence because

tenure confers three interrelated capacities that short-tenured CAEs typically lack: (1) deeper firm-specific knowledge that enables more precise detection of operationally-embedded earnings manipulation, (2) greater legitimacy and professional standing that reduce dependence on management and strengthen the CAE's bargaining position within the top management team, and (3) established relationships with the audit committee and board that facilitate the escalation of concerns without fear of retaliation

By articulating this mechanism, the study moves beyond a purely additive empirical extension and offers a theoretical account of the interaction between executive psychological traits and internal audit authority, an account that has not been explicitly developed in prior literature, and one that is particularly relevant in emerging markets such as Indonesia, where internal audit functions are still consolidating their authority relative to top management.

This study also contributes by demonstrating that the effectiveness of internal audit should not be viewed solely through its monitoring function, but through the accumulated organizational knowledge, authority, and experience reflected in CAE tenure, positioning tenure as a theoretically grounded proxy for internal audit's capacity to constrain, rather than merely its presence. Consequently, the study enriches the literature by linking CEO behavioral traits, internal audit leadership, and real earnings management within a single, theoretically coherent empirical framework.

Upper echelon theory explains that top management characteristics can significantly influence a company's performance and strategic decisions (Hambrick & Mason, 1984). Central to this influence is the concept of managerial discretion, which reflects the latitude top executives have in translating their cognitive and psychological characteristics into strategic action (Hambrick & Mason, 1984). This theory analyzes the perspectives, values, and cognitive abilities of a company's top management, which can significantly influence the organization's strategy and overall effectiveness. This theory also explains that top management actions can be influenced by both observable characteristics (e.g., age, experience, education, tenure) and psychological characteristics. Altarawneh et al. (2020) showed a relationship between CEOs' psychological and demographic factors and earnings management and financial reporting quality. One psychological characteristic inherent in individual leaders is overconfidence.

In the financial literature, overconfidence is a personal characteristic characterized by individuals who tend to overestimate their abilities and knowledge, thereby motivating them to achieve or exceed expectations and to be highly committed to performance outcomes, such as bonuses and professional reputation (Hsieh et al., 2018). Hirshleifer et al. (2012) explained that CEO overconfidence involves high confidence in one's own success, enthusiasm for risk, a liking for challenges, and a high level of innovation. In addition, CEOs are motivated to generate high profits to meet target expectations and to allocate resources innovatively to invest and expand the business (Hsieh et al., 2018).

Schrand and Zechman (2012) stated that CEO overconfidence is associated with accounting fraud. The characteristics of CEO overconfidence in achieving and even exceeding performance targets, making excessive investments, using debt funding, inaccuracies in estimating returns and risks, encourage CEO overconfidence to take actions such as accrual earnings management (Alqatamin et al., 2017; Kouaib & Jarboui, 2016a), real earnings management (Kouaib & Jarboui, 2016a; Sutrisno, 2019) which aims at demonstrating its ability to lead the company, enhance its professional reputation, meet specified profit targets, and raise cash flow for investment activities and business expansion.

CEOs with high self-confidence have an optimistic view of the future and are driven to increase corporate profits. CEO overconfidence leads to overestimating the company's ability to achieve or exceed financial targets. Thus, according to the upper echelons theory, the characteristics of CEOs with high overconfidence will affect the strategy or policies of the companies they lead.

CEO overconfidence tends to have an overly optimistic view of their abilities and the company's prospects (Malmendier & Tate, 2005). Billett and Qian (2008) explained that CEO overconfidence is driven by self-attribution bias, meaning they tend to attribute positive results to themselves but negative results to external factors. CEO overconfidence is often less responsive to feedback, leading them to repeat the same mistakes (Schumacher et al., 2020). In addition to internal factors, CEO overconfidence can be driven by compensation levels above market levels (Zyung & Shi, 2022).

Previous studies show that CEO overconfidence tends to have a negative impact on the company. CEO overconfidence characteristics tend to lead to riskier corporate decisions, such as high investment and debt levels, and to lower dividends, potentially hurting their reputation with investors and creditors (Khoo et al., 2025). CEO overconfidence also tends to lead to overinvestment when they have abundant resources. Unfortunately, CEO overconfidence leads to costly acquisition decisions by mismanaging firm resources (Malmendier & Tate, 2005). Furthermore, Liu & Lei (2026) found that CEO overconfidence is associated with stock price crash risk. Huang et al., (2022) also showed that CEO overconfidence leads to long-term underperformance for the firm and to increased R&D expenses. CEO overconfidence also manipulates financial statements to achieve specific performance targets or to meet market expectations (Gil, 2024). This high confidence often leads them to make riskier decisions regarding earnings management (Hirshleifer et al., 2012). This includes practices such as accrual adjustments and the manipulation of operating expenses to create the appearance of better-than-actual performance (Roychowdhury, 2006). Not surprisingly, CEO overconfidence is more likely to lead to actions that result in lawsuits (Banerjee et al., 2018).

However, CEO overconfidence can potentially have a positive impact on the company. CEO overconfidence is often associated with high-risk preferences to improve firm performance through strategic risk-taking (Burkhard et al., 2022). Moreover, a strong board of directors and personal investment experience can help a CEO overcome overconfidence and make better investment decisions (Betzer et al., 2023). CEO overconfidence is also found to be more innovative than non-CEO overconfidence (Hirshleifer et al., 2012). The actions of CEO overconfidence, and like to inform the public about the company's performance, can improve information efficiency and reduce mispricing of the company's share price in the market (Wei & Zhang, 2016). The CEO's characteristic overconfidence has also been found to increase stakeholder commitment, thereby facilitating the achievement of the same vision. With his ability, the CEO's overconfidence can align his decisions with shareholders' expectations without overcompensating investors (Phua et al., 2018).

CEOs tend to take risks and exceed targets encourages them to engage in real earnings management. Real earnings management is an earnings manipulation that involves sales activities, such as significant discounts, overproduction, and discretionary budget cuts (Roychowdhury, 2006; Cohen et al., 2008). CEO overconfidence is more likely to lead to the management of real earnings because it drives high financial performance (Sutrisno, 2019). Studies conducted by Schrand and Zechman (2012), Kouaib and Jarboui (2016a), Zaher (2019), Sutrisno (2019), Khlifi and Zouari (2021),andSafitri et al. (2024) also support the notion that CEO overconfidence positively influences real earnings management. This study predicts a positive relationship between CEO overconfidence and real earnings management. The following hypothesis:

H1: CEO overconfidence has a positive effect on real earnings management.

Upper echelons theory holds that organizational outcomes stem not from executive characteristics alone, but from the managerial discretion those executives are afforded, the extent to which their judgment can translate into strategic action rather than being absorbed by external and internal constraints (Hambrick, 2007). Discretion functions as a conditioning variable, widened or narrowed by forces at the task-environment, organizational, and individual levels (Hambrick & Mason, 1984). Viewed this way, CEO overconfidence is not a trait that automatically produces aggressive financial reporting, but a bias whose behavioral expression depends on how much the surrounding governance structure permits it to surface unchecked.

The Chief Audit Executive (CAE) specifically serves as an organizational-level constraint on this discretion. While upper echelons research has emphasized external and structural constraints (e.g., ownership concentration, board independence), it has paid less attention to constraints originating from internal audit itself, despite the CAE's embedded position within the firm's control architecture and direct visibility into internal controls, operational risk, and managerial judgment before financial reports are finalized. This positions the CAE as an internal actor capable of narrowing the very discretion through which executive psychology translates into organizational behavior; if CEO overconfidence operates through expanded discretion, a governance actor able to constrain that discretion should, by the theory's own logic, attenuate its behavioral effect.

Tenure rather than mere CAE presence is theoretically central here, because discretion-constraining capacity accumulates through experience, not position alone, via three mechanisms. First, tenure builds firm-specific knowledge of operating processes and controls, a precondition for recognizing departures from normal patterns. Second, it confers organizational legitimacy and relational capital with the audit committee and board, without which a constraint lacks the credibility to be effective. Third, it enables pattern recognition that distinguishes overconfidence-driven deviations from ordinary business variation. Overall, these mechanisms have operationalized the discretion-constraining role upper echelons theory attributes to governance forces, consistent with prior evidence linking CAE tenure to stronger internal control and reporting quality (Bills et al., 2020; Martino et al., 2021).

Yet extended tenure carries a countervailing risk; excessive familiarity with senior management can erode professional skepticism, objectivity, and independence (Chu et al., 2018; Taufiq, 2023), such that the tenure and audit quality relationship is not uniformly positive (Singer & Zhang, 2018). This represents a discretion trade-off; tenure narrows discretion through accumulated knowledge and legitimacy, but excessive familiarity may simultaneously widen it by weakening the CAE's willingness to exercise that authority.

Within the Indonesian governance context, we argue the discretion-narrowing benefits outweigh this erosion risk, as internal auditors operate under professional standards, codes of ethics, and audit committee oversight that help preserve objectivity even as tenure lengthens. Longer CAE tenure is therefore expected to narrow the managerial discretion through which CEO overconfidence would otherwise translate into real earnings management. Therefore, the following hypothesis is proposed:

H2: CAE tenure weakens the positive relationship between CEO overconfidence and real earnings management.

METHOD

The research sample is manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2012-2019. This research focuses on manufacturing companies because they are more suitable for calculating the real value of earnings management. The research period began in 2012, when Indonesia fully adopted International Financial Reporting Standards (IFRS). Meanwhile, 2019 is the final year of the study to avoid data fluctuations due to the COVID-19 pandemic. The research data are obtained from the Thomson Reuters database for the manufacturing industry group on the Indonesia Stock Exchange. Table 1 shows the sampling process, which is described as follows:

Table 1. Sampling Process

Description	N
Companies listed on IDX from 2012-2019	637
Companies in the financial industry	(143)
Unclassified and no longer active industries	(8)
Companies other than manufacturing	(268)
Total Company	218

Source: data processed

The final dataset spans the 2012–2019 observation period across 218 manufacturing companies but does not form a fully balanced panel, since not every firm reports complete data across all years and variables, particularly CAE tenure, which is hand-collected from annual reports and not consistently disclosed for every firm-year. As a result, the dataset constitutes an unbalanced panel, and the number of usable observations varies slightly across model specifications, being somewhat lower in models that include CAE tenure and its interaction with CEO overconfidence.

Real earnings management is measured by abnormal activity reflected in over-sales (abnormal operating cash flow), over-production (abnormal production costs), and discretionary expense cutting

(abnormal discretionary expenses), using the model developed by Putra and Setiawan (2024); Roychowdhury (2006); Cohen et al. (2008).

$$\text{REM} = \text{abnormal PROD} - \text{abnormal CFO} - \text{abnormal DISEXP} \quad (1)$$

$$\frac{\text{Prod (t)}}{\text{Assets (t}-1)} = \alpha 0 \frac{1}{\text{Assets (t}-1)} + \beta 1 \frac{\Delta\text{Sales (t)}}{\text{Assets (t}-1)} + \beta 2 \frac{\Delta\text{Sales (t}-1)}{\text{Assets (t}-1)} + e(t) \quad (2)$$

$$\frac{\text{CFO (t)}}{\text{Assets (t}-1)} = \alpha 0 \frac{\text{Sales (t)}}{\text{Assets (t}-1)} + \beta 1 \frac{\Delta\text{Sales (t)}}{\text{Assets (t}-1)} + e(t) \quad (3)$$

$$\frac{\text{Discretionary Expense (t)}}{\text{Assets (t}-1)} = \alpha 0 \frac{1}{\text{Assets (t}-1)} + \beta 1 \frac{\text{Sales (t}-1)}{\text{Assets (t}-1)} + e(t) \quad (4)$$

CFO(t) is the operating cash flow in period t, Prod(t) is the production cost in period t, and Discretionary Expense(t) is the total selling, general, and administrative, and research and development expenses. ΔSales(t) is the change in sales in period t, Assets(t-1) is total assets in period t-1, and ΔSales(t-1) is the change in sales in period t-1. Abnormal PROD, Abnormal CFO, and Abnormal DISEXP are the residuals of equations (2), (3), and (4), respectively. The REM value is derived by combining the standardized residuals of these three abnormal components.

CEO Overconfidence (CEOV) refers to a psychological bias in which CEOs systematically overestimate their abilities, underestimate risks, and exhibit excessive optimism about future firm performance. Because this trait is inherently unobservable, the behavioral corporate finance literature relies on observable managerial actions as indirect proxies, including option-holding behavior, stock ownership, investment decisions, financing choices, earnings forecasts, and linguistic characteristics. However, no single proxy has gained universal acceptance, as each captures only one specific manifestation of the underlying bias rather than the psychological trait itself (Malmendier & Tate, 2015).

This study therefore adopts the composite measure (Sutrisno et al., 2023), which combines five financial and non-financial indicators: (1) overinvestment, (2) financial leverage (debt-to-total assets), (3) dividend policy (dividend yield), (4) narrative tone, and (5) net emotion disclosed in annual reports. The financial indicators capture CEOs' tendencies toward aggressive investment, financing, and payout decisions, while the textual indicators reflect managerial optimism and emotional expression communicated to external stakeholders.

Tone is calculated following Ataullah et al. (2018), as the difference between the frequencies of positive and negative words divided by their total frequency, with word identification based on the financial dictionary (Henry, 2008). Net emotion is measured as the difference between positive and negative words disclosed in annual reports, benchmarked against the industry median and profitability median (Sutrisno et al., 2023).

Following Sutrisno et al. (2023), each of the five indicators is first transformed into a binary measure, then averaged with equal weighting to form the composite CEOV index. Equal weighting is adopted because there is no established theoretical or empirical basis for prioritizing one behavioral manifestation over another, thereby avoiding subjective researcher judgment while remaining consistent with the original measure.

The five indicators are not intended as interchangeable reflective measures of a single latent construct, but rather as complementary behavioral manifestations. This approach aligns with the view that multidimensional composite measures offer a more comprehensive representation of CEO overconfidence than any single proxy, since they reduce the risk that an individual indicator merely reflects firm-specific characteristics rather than managerial overconfidence itself (Sumiyana et al., 2023). For instance, stock ownership primarily reflects incentive alignment, while media-based measures capture only CEOs' public communication and visibility; neither alone adequately represents the broader cognitive bias. By combining multiple complementary indicators, the composite index reduces dependence on any single behavioral manifestation.

CAE Tenure (CAE_T), consistent with Taufiq (2023), is defined as the number of consecutive years an individual has served as Chief Audit Executive at the sample company during the observation period, capturing firm-specific tenure rather than cumulative career experience across organizations, since the study focuses on the accumulation of knowledge relevant to internal audit effectiveness within the focal firm. CAE tenure data were manually collected from each firm's annual report, particularly the corporate governance or internal audit section disclosing the CAE's profile, appointment year, or service history (Lobo et al., 2022; Taufiq, 2023).

Longer tenure enables CAEs to accumulate organizational knowledge and enhance monitoring effectiveness (Lobo et al., 2022; Taufiq, 2023), but may also reduce auditor independence due to increased familiarity with management, potentially weakening monitoring and increasing earnings management risk (Taufiq, 2023). CAE tenure thus reflects the trade-off between the benefits of accumulated firm-specific knowledge and the potential costs of reduced objectivity.

Following prior REM literature (Cohen & Zarowin, 2010; Cohen et al., 2008; Roychowdhury, 2006), this study has included firm-specific control variables to reduce omitted variable bias and isolate the effects of CEO overconfidence and CAE tenure on REM. CAE characteristics are also controlled for, as internal audit quality may influence monitoring effectiveness and firms' propensity to engage in REM. Following Lobo et al. (2022), CAE_F is measured as the sum of professional certification, outside leadership experience, and inside leadership experience. Certifications reflect technical auditing competence, while leadership experience, both internal and external, enhances organizational knowledge, governance expertise, and monitoring capability. CAEs with stronger qualifications and broader leadership experience are expected to perform more effective oversight, reducing managerial opportunities for REM. CAE_F is therefore included to account for differences in internal audit quality independent of CEOV and CAE_T.

Market capitalization is controlled for firm size and capital market visibility. Larger firms face greater scrutiny from investors, analysts, regulators, and media, which may discourage opportunistic reporting, but also face stronger pressure to meet market expectations and stable earnings, potentially raising REM incentives. Controlling for market capitalization thus isolates the effect of CEO overconfidence from firm size and market pressure (Cohen & Zarowin, 2010; Cohen et al., 2008; Roychowdhury, 2006).

Firm age is controlled because organizational maturity affects governance quality, operational stability, and reporting practices. Older firms typically have more established internal controls that may curb aggressive earnings management, yet also face stronger incentives to sustain historical performance and reputation (Hamzah et al., 2022). This aligns with Gozali et al. (2021) find that firm age and size significantly affect earnings management. Jonathan & Lindrianasari (2025) show that firm size significantly influences earnings management among Indonesian manufacturing firms.

Profitability (ROA) is controlled because performance level shapes earnings management incentives; less profitable firms may manipulate operations to avoid reporting poor results, while highly profitable firms may manage earnings to sustain market expectations (Cohen et al., 2008; Roychowdhury, 2006; Zang, 2012).

Financial leverage is included because highly leveraged firms face greater pressure to comply with debt covenants and creditor expectations; per debt covenant theory, this creates stronger incentives to manipulate earnings to avoid covenant violations and preserve access to external financing (Cohen & Zarowin, 2010; Cohen et al., 2008; Roychowdhury, 2006).

Sales growth (GROW) captures growth opportunities and expansion pressure. High-growth firms face greater uncertainty and stronger expectations to sustain growth trajectories, which may encourage REM to avoid disappointing investors (Cohen et al., 2008; Roychowdhury, 2006; Zang, 2012).

In detail, Table 2 shows the operational definitions of the variables are described in the following table:

Table 2. Variable's Definitions

Variable	Descriptions
REM	The sum of the standardized residual values of abnormal production, abnormal sales, and abnormal discretionary spending (Cohen et al., 2008; Kouaib & Jarboui, 2016a): $REM = abnormal\ PROD - abnormal\ CFO - abnormal\ DISEXP$
CEOV	The sum of the five measures of CEO Overconfidence is divided by the total value of all measures (Sutrisno et al., 2023). The five measurements are: • Overinvestment: the regression residual with the highest score (25%) is assigned a value of 1, indicating the company is overinvesting; a value of 0 otherwise. • Debt-to-total assets (DTA): value equal to one if DTA is higher than the industry median in a specific period, value zero otherwise. • Dividend yield: value equal to one if the dividend yield, value zero otherwise. • Tone Analysis: equal to 1 if the firm's tone exceeds the industry median and profitability is lower than the annual profitability averages, zero otherwise. • Net emotion equals one if the firm's net emotional value is higher than the industry median per year, and zero otherwise.
CAE_T	CAE tenure during the observation period (Taufiq, 2023).
CAE_F	Sum of CAE Certification, Outside Leader, and Inside Leader (Lobo et al., 2022): 1. CAE_C: CAE certification is one if the head of internal audit has CPA, CIA, CA, or QIA certifications, and zero otherwise (Lobo et al., 2022). 2. CAE_O: The outside leader is present if the head of internal audit is in charge of finance or accounting, such as the finance, accounting, or internal audit department director at another company, or the manager of a public accounting firm; zero otherwise (Lobo et al., 2022). 3. CAE_I: The inside leader is one of the heads of internal audit within the accounting/finance department of the company; zero otherwise (Lobo et al., 2022).
CAP	The total market value of shares outstanding is divided by total assets.
AGE	Age of the company, calculated from the date of founding.
ROA	Return on Assets is calculated as Net Income / Total Assets.
LEV	Debt-to-asset, which is calculated from Total Debt divided by Total Assets.
GRO	The company's sales growth from one year to another.
DACC	Accruals Earnings Management was modified by Dechow et al. (1995). $TAC_{it}/A_{it-1} = \beta_1(1/A_{it-1})+\beta_2((\Delta REV_{it}-\Delta REC_{it}/A_{it-1}))+\beta_3(PPE_{it}/A_{it-1})+ \varepsilon$ Description: TAC_{it}: Total accrual of the company in year t (Net Income - Operating Cash Flow) A_{it-1}: Total assets of the company in the previous year ΔREV_{it}: Change in company income ΔREC_{it}: Change in the company's accounts receivable PPE_{it}: Gross property, plant, and equipment

This study employs a panel data regression using a fixed effects model based on the results of the Hausman test. The Hausman test indicates that the fixed effects specification is more appropriate than the random effects model, and therefore the fixed effects estimator is adopted in this analysis. The classical assumption tests showed that there were no issues of multicollinearity or autocorrelation; however, heteroskedasticity was detected in the model. To address this issue, robust standard errors are applied to obtain consistent and reliable estimates despite the presence of heteroskedasticity. This research model is described as follows:

Model 1

$$REM=\beta_0+\beta_1 CEOV+\beta_2 CAE_T+\beta_3 CAE_F+\beta_4 CAP+\beta_5 AGE+\beta_6 ROA+\beta_7 LEV+\beta_8 GRO+\varepsilon \quad \text{.....(5)}$$

Model 2

$$REM=\beta_0+\beta_1 CEOV+\beta_2 CAE_T+\beta_3 CEOV*CAE_T+\beta_4 CAE_F+\beta_5 CAP+\beta_6 AGE+\beta_7 ROA+\beta_8 LEV+\beta_9 GRO+\varepsilon \quad (6)$$

REM is real earnings management; CEOV is CEO Overconfidence; CAE_T is CAE Tenure; CAE_F is CAE Financial Quality; CAP is market capitalization; AGE is the firm's Age; ROA is return on assets; LEV is financial leverage, and GRO is sales growth.

This study also acknowledges the potential for endogeneity in the relationship between CEO overconfidence and real earnings management. Endogeneity may arise from several sources. First, reverse causality is possible if firms already engaged in aggressive earnings management tend to select or retain CEO overconfidence, rather than CEO overconfidence being the sole driver of REM. Second, omitted variable bias may occur if unobserved firm-level factors such as corporate culture, board composition, or industry-specific risk-taking norms jointly influence both CEO selection and earnings management behavior. Third, CEO overconfidence itself may be correlated with unobserved managerial ability or firm-specific strategic orientation that also affects REM independently of overconfidence. Furthermore, to mitigate these concerns, this study employs a fixed-effects panel regression model, which controls for time-invariant firm-level heterogeneity that could otherwise confound the relationship between CEO overconfidence and REM.

RESULTS

Table 3. Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
REM	0.00007	1.86724	-15.79	8.66
CEOV	0.23093	0.23756	0	1
CAE_T	2.81519	1.76545	1	7
CAE_F	0.24144	0.47253	0	2
CAP*	1.47136	1.91920	.17	16.58
AGE	31.61407	18.73247	1	108
ROA*	0.03761	0.09308	-.38	.43
LEV*	0.30670	0.21363	0	1.089
GRO*	0.10887	0.24439	-.51	1.11

REM = real earnings management; CEOV = CEO Overconfidence; CAE_T = CAE Tenure; CAE_F = CAE Financial Quality; CAP = market capitalization; AGE = firm's Age; ROA = return on assets; LEV = financial leverage; GRO = sales growth.
* Winsorizing (1, 99) for ROA and (2, 98) for CAP, LEV, and GRO to remove outlier data.

Table 3 presents that real earnings management averages 0.00007 with a minimum value of -15.79 and a maximum of 8.66. CEO overconfidence has a mean of 0.231, indicating that 23.1% of CEO in the sample exhibit it. CAE tenure has a mean of 2.82, indicating that CAE tenure in a company is approximately 3 years. CAE financial quality has a mean of 0.241, indicating that very few CAEs hold expertise certifications or concurrent positions within or outside the company. Market capitalization averages 1.47, indicating that the sample of companies has a market value above their book value. Firm age averages 31.614, indicating that the sample of companies has an establishment age of 32 years. ROA averages 0.038, indicating that the sampled companies generate profits on average. Leverage averages 0.307, indicating that the sampled companies have relatively good solvency. The average growth rate is 0.109, indicating that the sampled companies exhibit a sales growth rate of approximately 11 percent per year.

Table 4. Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) REM	1								
(2) CEOV	0.203***	1							
(3) CAE_T	-0.010	0.035	1						
(4) CAE_F	0.002	0.017	0.020	1					
(5) CAP	-0.344***	-0.089***	-0.061*	0.050	1				
(6) AGE	-0.187***	0.101***	0.060*	0.031	0.171***	1			
(7) ROA	-0.410***	-0.345***	-0.051	-0.050	0.379***	0.207***	1		
(8) LEV	0.261***	0.396***	0.043	0.038	-0.085***	-0.096***	-0.454***	1	
(9) GRO	-0.041	0.079***	-0.051	-0.021	0.046	-0.104***	0.170***	0.013	1

Notes: *, **, *** significant at 10%; 5%; 1%

The correlation results in Table 4 indicate that CEO overconfidence positively correlates with REM, suggesting that CEO overconfidence is associated with real earnings management practices. Companies with high leverage tend to practice real earnings management. Companies with high market capitalization, long company age, high profitability, and high growth rates negatively correlate with real earnings management. Companies with high market capitalization and high profitability tend to be led by CEO overconfidence. In contrast, long-established companies with high leverage and sales growth tend to be led by CEO overconfidence. Companies with high market capitalization tend to have CAEs with relatively low tenure. Meanwhile, long-established companies have CAEs with fairly long tenures.

Table 5 presents the multicollinearity test results based on the Variance Inflation Factor (VIF) and tolerance (1/VIF) values for all independent and control variables used in the regression model. The results indicate that all VIF values are below the commonly accepted threshold of 10 (Gujarati & Porter, 2009; Hair et al., 2010), ranging from 1.08 (CAP) to 5.53 (CEOV). Correspondingly, all tolerance values exceed the minimum threshold of 0.10, ranging from 0.180946 (CEOV) to 0.923706 (CAP). These findings confirm that the regression model is free from serious multicollinearity problems, indicating that the estimated coefficients of CEO overconfidence (CEOV) and chief audit executive tenure (CAE_T) on real earnings management are not distorted by high inter-correlation among the explanatory variables, thereby supporting the reliability of the regression estimates.

Table 5. Multicollinearity Test

Variable	VIF	1/VIF	Conclusion
CEOV	5.53	0.180946	No multicollinearity
CAE_T	2.73	0.365863	No multicollinearity
CAE_F	1.22	0.819571	No multicollinearity
CAP	1.08	0.923706	No multicollinearity
AGE	4.40	0.227315	No multicollinearity
ROA	1.36	0.736676	No multicollinearity
LEV	4.17	0.239683	No multicollinearity
GRO	1.22	0.822698	No multicollinearity

Table 6. CAE Tenure, CEO Overconfidence, and Real Earnings Management

	Model 1		Model 2		Model 3	
Variables	Coeff	p-value	Coeff	p-value	Coeff	p-value
CEOV	0.638**	(0.026)	0.680**	(0.021)	1.194***	(0.010)
CAE_T			-0.155***	(0.000)	-0.107**	(0.039)
CEOV*CAE_T					-0.175	(0.149)
Control variables						
CAE_F	-0.042	(0.815)	-0.109	(0.550)	-0.115	(0.529)
CAP	0.161**	(0.021)	0.091	(0.184)	0.101	(0.144)
AGE	-0.058**	(0.017)	0.033	(0.323)	0.034	(0.305)
ROA	-0.497	(0.584)	-0.374	(0.678)	-0.347	(0.700)
LEV	1.479***	(0.007)	1.546***	(0.005)	1.572***	(0.004)
GRO	-1.153***	(0.000)	-1.030***	(0.000)	-1.031***	(0.000)
Constant	1.429	(0.120)	-1.349	(0.251)	-1.554	(0.189)
Adj. R^2	0.077		0.009		0.011	
F sig.	0.000		0.000		0.000	
F test	7.56		6.98		6.45	
Observations	761		727		727	

Notes: p-value in parentheses *** p < 0.01, ** p < 0.05

The results for Hypothesis 1 show $p \leq 0.05$ across all three models, indicating that CEO overconfidence positively influences real earnings management. The economic magnitude is also meaningful; in Model 1, a one-unit increase in CEOV (moving from exhibiting none to all five overconfidence indicators) is associated with a 0.638-point increase in REM. Given CEOV's standard deviation (SD) of 0.238, a one-SD increase corresponds to a REM increase of approximately 0.152 points, about 8% of REM's standard deviation (1.867). Although modest in absolute terms, this is economically non-trivial since REM captures combined abnormal deviations across production, cash flow, and discretionary expenses, meaning even moderate shifts reflect discernible changes in operational manipulation. This finding suggests overconfident CEOs are more likely to manipulate profits to present more favorable financial performance, consistent with Schrand & Zechman (2012); Kouaib & Jarboui (2016a); Zaher (2019); Sutrisno (2019); Khlifi & Zouari (2021).

In Model 2, CAE tenure is significant at $p \leq 0.01$, with a coefficient of –0.155, meaning each additional year of tenure is associated with a 0.155-point reduction in REM. Given CAE_T's standard deviation of 1.765 years, a one-SD increase (1.8 years) corresponds to a REM reduction of about 0.274 points, roughly 15% of REM's standard deviation, a substantially larger effect than CEOV's. Practically, a CAE with 4.6 years of tenure (one SD above the sample mean of 2.8 years) is associated with meaningfully lower REM than a newly appointed CAE, underscoring CAE retention as a governance lever rather than a marginal control variable. Longer tenure improves a CAE's understanding of company structure, culture, and operations, enabling more effective monitoring of REM practices, consistent with the role of experience and leadership consistency in strengthening internal controls (Bills et al., 2020; Lobo et al., 2022).

As presented in Hypothesis 2, the CEOV×CAE_T interaction is statistically insignificant ($p \geq 0.05$), indicating CAE tenure does not significantly moderate the CEOV–REM relationship. Although the coefficient is negative (–0.175) and directionally consistent with a weakening effect, it cannot be statistically distinguished from zero and should not be interpreted as evidence of moderation. In other words, the CEOV–REM relationship remains statistically unchanged regardless of CAE tenure, even though tenure independently reduces overall REM levels. This distinction matters economically; CAE tenure acts as a direct constraint on REM but not as a conditioning factor dampening the behavioral bias from CEO overconfidence. A plausible explanation is that strategic and operational authority remains primarily with the CEO, limiting the CAE's capacity to directly counter decisions driven by CEO psychological traits regardless of tenure (Brahma & Economou, 2024). Overconfidence is also a

relatively stable individual trait not easily offset by external organizational factors such as CAE tenure or experience (Hsieh et al., 2018).

Regarding control variables, significance patterns shift across the three model specifications (Table 6). In Model 1, CAP is positively associated with REM ($\beta = 0.161$, $p < 0.05$) and AGE is negatively associated ($\beta = –0.058$, $p < 0.05$); both become insignificant once CAE tenure and the interaction term are added in Models 2 and 3. LEV and GRO remain significant with stable coefficients throughout, indicating robust associations with REM, while ROA and CAE_F remain insignificant across all models.

Diagnostic tests (VIF) confirm all values are below common thresholds, ruling out multicollinearity as the cause of these shifts. Instead, the pattern reflects the incorporation of theoretically relevant governance variables; since CAE tenure more directly captures internal monitoring effectiveness and managerial discretion, it absorbs variation in REM previously attributed to CAP and AGE in Model 1, reducing their unique explanatory contribution. Because CAP and AGE coefficients remain stable in magnitude and direction across models, this supports the interpretation that the shift stems from added governance variables rather than misspecification, indicating that CAE tenure provides incremental explanatory power beyond baseline firm characteristics.

In terms of economic magnitude, LEV shows the largest and most stable effect among controls (coefficients 1.479–1.572), where a one-SD increase in leverage (0.214) raises REM by approximately 0.32–0.34 points (17–18% of REM's SD), suggesting debt-covenant pressure is an economically meaningful driver of REM, comparable to CAE tenure's effect. GRO shows a similarly robust negative effect: a one-SD increase in sales growth (0.244) reduces REM by approximately 0.25–0.28 points (13–15% of REM's SD).

The salience of leverage is consistent with Firmansyah et al. (2024) finding that real earnings management, unlike accrual earnings management, is positively associated with the cost of debt among Indonesian manufacturing firms, suggesting operationally based manipulation carries observable consequences for creditors' pricing decisions. Relatedly, Mukhlasin (2024) shows that real earnings management sends a positive signal reflected in firms' cash holding behavior, and that this signal is strengthened when firms are audited by industry specialist auditors, indicating that REM's capital market consequences extend beyond the debt channel examined here.

The robustness of leverage and sales growth as REM determinants also aligns with Zurriah et al. (2025) reporting that leverage and sales growth are among the significant firm-level drivers of real earnings management in Indonesian manufacturing companies, alongside firm size and profitability, reinforcing that operationally based earnings manipulation in this sector is jointly shaped by financing pressure and growth-related performance expectations.

Finally, although adjusted R^2 values range from 0.009 to 0.077, these are comparable to prior REM studies, where firm behavior is shaped by numerous managerial, governance, operational, and external factors not fully captured by a single model. All regression models are jointly significant (F-statistics, $p < 0.001$), confirming the explanatory variables collectively account for meaningful variation in REM. As an additional test, this study also examines accrual earnings management; Table 6 presents the regression results for CAE tenure and CEO overconfidence in relation to this alternative measure.

Table 7. CAE Tenure, CEO Overconfidence, and Accrual Earnings Management

	Model 1		Model 2		Model 3	
Variables	Coeff	p-value	Coeff	Variables	Coeff	p-value
CEOV	0.164***	(0.000)	0.137***	(0.001)	0.130**	(0.046)
CAE_T			0.001	(0.894)	0.00003	(0.996)
CEOV*CAE_T					0.003	(0.878)
Control variables						
CAE_F	-0.010	(0.739)	-0.002	(0.923)	-0.002	(0.926)
CAP	-0.013	(0.262)	0.007	(0.483)	0.007	(0.494)
AGE	-0.001	(0.903)	-0.002	(0.598)	-0.002	(0.596)
ROA	0.899***	(0.000)	0.816***	(0.000)	0.815***	(0.000)
LEV	0.0137	(0.876)	0.038	(0.627)	0.037	(0.631)
GRO	-0.120***	(0.001)	-0.176***	(0.000)	-0.176***	(0.000)
Constant	-0.034	(0.819)	0.012	(0.944)	0.015	(0.930)
Adj. R^2	0.042		0.074		0.075	
F sig.	7.77		8.54		7.58	
F test	0.000		0.000		0.000	
Observations	758		724		724	

Notes: p-value in parentheses *** p < 0.01, ** p < 0.05

Table 7 presents that CEO overconfidence is positively and significantly associated with accrual earnings management (AEM) ($p \leq 0.05$), suggesting that CEO overconfident are more likely to engage in accrual-based manipulation to achieve desired reporting outcomes. This is consistent with prior studies linking managerial overconfidence to earnings management (Zaher, 2019; Marzouki & Ben Amar, 2024), and aligns with the REM findings indicating CEO overconfidence drives both types of manipulation, albeit through different mechanisms.

Economically, the CEOV coefficient in the AEM model (0.130–0.164 across specifications) is substantially smaller than in the REM model. Since discretionary accruals are typically scaled to total assets and exhibit a narrower empirical range than REM, a one-SD increase in CEOV (0.238) corresponds to an AEM increase of only about 0.031–0.039 points. Though statistically significant, this suggests CEO overconfidence exerts greater economic influence through operational channels (REM) than through accounting-estimate channels (AEM), consistent with the theoretical distinction developed below.

In contrast, CAE tenure is not statistically significant in explaining AEM across all specifications ($p \geq 0.05$), suggesting it does not directly constrain accrual-based manipulation. This may be because AEM is primarily driven by managerial discretion in financial reporting decisions, authority that resides mainly with the CEO and CFO. While the CAE contributes accounting expertise and reporting oversight, their influence over discretionary accrual decisions may be limited given the hierarchical nature of decision-making and the judgment-based character of accrual accounting. Similarly, the CEOV×CAE_T interaction is insignificant ($p \geq 0.05$), indicating CAE tenure does not moderate the CEOV–AEM relationship; even greater firm-specific knowledge and accounting expertise from longer tenure appears insufficient to curb opportunistic accrual reporting driven by CEO psychological traits.

These findings highlight a key distinction between REM and AEM; CAE tenure constrains REM but not AEM. This difference reflects the fundamentally different nature of the two manipulation types. REM operates through operational decisions, abnormal production, discretionary expenditures, and sales activities that directly affect day-to-day business processes (Roychowdhury, 2006). Because these activities are routinely evaluated during internal audits, experienced CAEs with deep firm-specific knowledge and understanding of internal controls are better positioned to detect unusual operating decisions and challenge opportunistic behavior (Bills et al., 2020; Lobo et al., 2022; Taufiq, 2023), making longer tenure more effective for monitoring within this operational scope.

AEM, by contrast, relies on managerial discretion in applying accounting estimates and policies rather than altering underlying business activities; managers might exercise discretion over provisions, depreciation, impairment, or revenue recognition within the flexibility permitted by accounting standards (Dechow & Skinner, 2000). Because such judgments are embedded in financial reporting and often reflect legitimate discretion, they are inherently less observable and harder to distinguish from normal practice, even for experienced CAEs, meaning accumulated organizational experience alone may not suffice to constrain accrual-based manipulation.

From an upper echelons theory perspective, these findings suggest that governance mechanism effectiveness depends on the type of managerial discretion exercised; experienced CAEs are more effective at constraining operational discretion than discretion embedded in accounting judgments. This extends the theory by showing that governance mechanisms do not uniformly influence all forms of earnings management; their effectiveness depends on whether discretion operates through operational activities or accounting choices. Practically, extending CAE tenure may strengthen oversight of operational activities and reduce REM, but mitigating AEM likely requires complementary mechanisms such as stronger audit committee oversight, higher external audit quality, and more rigorous review of accounting estimates and reporting policies. The CAE's governance role thus appears particularly important for operational oversight, while additional monitoring mechanisms remain necessary to constrain accrual-based earnings management.

DISCUSSION

The main findings show that CEO overconfidence has a positive and significant effect on both real earnings management and accrual earnings management across all model specifications. This suggests CEO overconfident are more prone to earnings manipulation as a response to performance pressure and overly optimistic expectations about future firm performance, overestimating their ability to control outcomes rather than perceiving risk conservatively, which leads to more aggressive financial reporting.

This is consistent with prior evidence that managerial psychological biases shape earnings management decisions. Khlifi & Zouari (2021) show that CEO overconfident are more likely to manipulate earnings through real activities, driven by belief in their ability to manage operational outcomes; Sumiyana et al. (2023) similarly find that overconfidence increases earnings management as executives strive to meet performance benchmarks; and Schrand & Zechman (2012) argued that overconfident managers systematically distort financial reporting due to overly optimistic beliefs, driving both accrual-based and real manipulation.

These findings align with evidence on related CEO traits in the Indonesian context: Fionita et al. (2024) found that CEO narcissism, another bias tied to inflated self-assessment, negatively affects state-owned firms' financial performance, suggesting biased executive self-perception can be value-destroying even outside earnings management. This reinforces the relevance of dispositional executive biases, whether framed as overconfidence or narcissism, within governance research grounded in upper echelons theory.

From the upper echelons perspective (Hambrick & Mason, 1984), these results support the argument that organizational outcomes reflect top executives' cognitive bases, values, and psychological traits. CEO overconfidence, as a cognitive bias, shapes strategic decision-making, including financial reporting behavior. This study extends the theory by showing executive psychological traits directly affect earnings quality, not just strategic decisions, responding to calls from Bement & Boivie (2025) for greater knowledge consolidation by testing established executive-trait relationships (e.g., overconfidence) jointly with internal governance constructs, an approach this study adopts by examining CEO overconfidence and CAE tenure together.

Regarding CAE tenure, results show a significant negative effect on REM, indicating longer tenure strengthens internal monitoring and reduces operational manipulation. This reflects the accumulation of firm-specific knowledge and improved understanding of internal processes over time, enhancing the ability to detect and constrain opportunistic behavior in visible, traceable operational

decisions (Lobo et al., 2022; Taufiq, 2023). This is consistent with Alshare et al. (2023) find that extended auditor tenure is associated with lower earnings management, and with Kalembe et al., (2024), who find that the positive association between internal audit function quality and earnings quality weakens significantly when CEO power is high, suggesting even an experienced, tenured CAE's practical reach can be constrained by CEO power and psychological dominance.

However, the CEOV×CAE_T interaction is statistically insignificant. Rather than simply interpreting this as "CEO power dominating CAE influence," a more precise explanation follows the distinction developed earlier between the level and source of managerial discretion. The significant direct effect of CAE tenure indicates experienced CAEs reduce overall REM by narrowing management's general operating latitude, but the insignificant interaction suggests this discretion-narrowing capacity operates largely independently of, rather than specifically targeting, discretion generated by CEO overconfidence. CAE tenure thus appears to function as a uniform monitoring mechanism constraining opportunistic behavior regardless of its psychological driver, rather than a bias-specific mechanism calibrated to counteract overconfidence.

This distinction carries theoretical significance, implying a boundary condition on how internal governance interacts with executive cognitive traits. Unlike more observable governance risks (weak controls, aggressive compensation incentives), overconfidence manifests through subtle judgment patterns, optimistic forecasts, understated risk assessments, and confidently justified operational decisions that may be indistinguishable from legitimate managerial judgment even to an experienced CAE. Consistent with the knowledge-based mechanism theorized earlier, CAE tenure builds firm-specific operational knowledge that improves detection of abnormal patterns, but detecting abnormality differs conceptually from diagnosing its specific psychological driver. A CAE may identify and constrain unusual production or expenditure patterns without recognizing or being positioned to attribute them to CEO overconfidence specifically. This suggests the discretion CAE tenure narrows is predominantly procedural (deviations from normal routines), while overconfidence-driven discretion may be more strategic and forward-looking (embedded in optimistic assumptions at the point decisions are made, before manifesting as observable deviations).

A further explanation concerns the organizational locus of authority implied by upper echelons theory itself. Hambrick & Mason (1984) suggested that discretion was shaped not only by individual executive latitude but also by relative power distribution among organizational actors. Despite accumulated tenure, the CAE typically remains subordinate to the CEO in the firm's authority structure, reporting through the audit committee rather than holding direct decision rights over strategic or operational policy. Tenure may thus enhance the CAE's capacity to detect discretion-driven behavior without proportionally enhancing their authority to override decisions once a CEO overconfident has committed to a course of action. This reframes the null interaction not as a simple contest of power between two actors, but as a structural asymmetry between a governance mechanism's monitoring function and its enforcement function, an asymmetry upper echelons theory has not fully addressed with respect to internal audit leadership specifically. This null result thus contributes to the theory by identifying tenure-based monitoring capacity and hierarchical enforcement authority as two distinct dimensions of internal governance effectiveness that do not necessarily move together as tenure accumulates.

Taken together, these findings suggest internal governance and executive behavioral traits operate through partially separate channels in shaping REM; CAE tenure directly reduces the overall opportunity for opportunistic operating decisions, while CEO overconfidence independently drives the motivation for such decisions, with limited evidence that one channel moderates the other. This refined interpretation extends upper echelons theory by clarifying that internal governance mechanisms may constrain the manifestation of managerial discretion generally, without necessarily constraining the psychological antecedents that give rise to specific forms of biased decision-making.

CONCLUSION

This study aims at examining the effect of CEO overconfidence on real earnings management and the moderating role of CAE tenure in this relationship, and the research objectives are achieved. The findings show that CEO overconfidence is positively associated with both real and accrual earnings management, while longer CAE tenure significantly reduces REM. However, CAE tenure does not moderate the relationship between CEO overconfidence and earnings management, indicating that CAE tenure strengthens general monitoring capacity but does not specifically constrain overconfidence-driven managerial discretion.

Theoretically, this study contributes to upper echelons theory by distinguishing between internal audit's monitoring capacity and its enforcement authority over CEO driven strategic discretion. Practically, the findings suggest that boards, regulators, internal audit practitioners, and investors should treat CAE tenure as a valuable but insufficient safeguard, one that needs to be paired with CEO specific oversight mechanisms.

This study has several limitations, including a relatively low explanatory power, a sample restricted to the pre-COVID-19 period, potential endogeneity in the CEO overconfidence and REM relationship, and CAE tenure measured only from observed consecutive years rather than full appointment history. Future research should incorporate additional governance and institutional variables, extend the analysis to post-COVID-19 and cross-country settings, apply causal identification strategies such as instrumental variables, and explore more direct measures of CAE authority, such as reporting lines and board access.

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During the preparation of this work, the author used Grammarly Premium to improve language and readability. After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.