

CEO AGE AND FINANCIAL RESTATEMENTS

BY

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ABSTRACT

In this study, the relationship between the age of chief executive officers (CEOs) and the number of restatements is investigated, and special attention is be given to the role of technological advancement as the moderator of this relationship. Based on a data pool of 6,278 financial restatements from US-listed firms during the period of 2000-2022, obtained from Audit Analytics and combined with Compustat and BoardEx data, this analysis aims to explore whether the older the CEO, the less likely it is for firms to commit financial restatements and whether technological advancement mitigates this relationship. Consistent with the hypothesis, it has been observed that the negative and statistically significant relationship exists between the age of the CEO and the chance of financial restatements, which implies that older CEOs act more carefully and vigilantly in preparing financial reports. Additionally, the data indicates that financial restatement decreases in proportion to the strength of corporate governance, as shown by the size of the audit committee and the independence of the board. On the other hand, there is a positive correlation between board size and financial restatement. In contrast to the hypothesis, the intangible assets ratio, a measure of technological advancement, does not function as a moderator between the variables of CEO age and financial restatement. This suggests that changes in the degree of technological advancement have no effect on the relationship between the variables of CEO age and financial reporting quality.

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INTRODUCTION

With earlier study emphasizing how managerial traits influence the integrity of financial disclosures (e.g., [Huang et al., 2012](#)), financial reporting quality continues to be a major focus of accounting research. One well-established finding is that older CEOs tend to produce higher-quality financial statements. These findings are consistent with managers becoming more ethical and conservative with age and being exposed to stronger reputational concerns, and shorter remaining career horizons ([Huang et al., 2012](#)). Moreover [Jia et al. \(2014\)](#) asserts a positive association between CEO testosterone and financial restatements. As testosterone is decreasing with age, this finding implies that CEO is likely negatively associated with the occurrence of restatements. However, over the past two decades, firms have increasingly adopted technology-driven reporting infrastructures, including enterprise resource planning (ERP) systems, robotic process automation (RPA), and AI-based compliance tools ([Shaikh, 2024](#)), tools that are likely assisting the firm in avoiding intentional and unintentional misreporting. From this perspective CEO age might become less relevant in terms of the incident of restatements. In other words, misreporting will be detected before false information is disclosed, thereby avoiding restatements in the first place.¹ This raises a timely and important question: Has the relationship between CEO age and GAAP reporting quality been lessened by technology advancements?

In the age of growing automation and computerized scrutiny, this study investigates whether the known correlation between age and restatements has altered. On the one hand, if older CEOs attribute to higher reporting quality (e.g., through conservatism), then increased automation may render the influence of CEO age less critical. On the other hand, the growing complexity of modern financial systems may require more experienced leadership, implying

¹ For example, by standardizing procedures and strengthening internal controls, these technologies may lessen the impact of individual executives on their level of reporting.

that CEO age might become increasingly relevant in recent periods as a safeguard against misreporting. Whether technology acts as a substitute for or a complement to CEO experience thus remains an open empirical question.

Our results are consistent with technology supporting the CEO in avoiding technical restatements. Our work adds three literary streams by examining this connection. First, we extend the upper-echelons literature ([Besar et al., 2017](#)) by showing that managerial traits such as age may become less influential in environments characterized by algorithmic control and standardized processes. Second, we complement research on the determinants of financial reporting quality ([Sievers & Soflikanitsch, 2019](#)) by introducing technology as a moderating factor in executive decision-making. Third, the findings shed light on policy debates regarding succession planning and the structuring of internal controls systems, specifically within technology-drive companies. As technology infrastructure decouples CEO experience, it suggests boards should reconsider the weightage given to age and time variables while hiring CEOs, particularly when companies are transforming along the technology route.

Literature Review and Hypotheses Development

CEO Age and financial restatements

According to [Matsunaga \(2008\)](#), CEOs with prior CFO expertise have an impact on the company's financial reporting and transparency guidelines. CEOs with CFO expertise typically have more income-decreasing (i.e., conservative) accruals, and following the hiring of an ex-CFO, accruals decrease more than those of comparable companies in the same industry that selected CEOs without CFO experience. [David and Garcia \(2023\)](#) asserted that inconsistencies in financial statements are more common among older CEOs and point to a complicated relationship between actual earnings management and CEO age. Additionally, the existence of

clawback provisions, which were made necessary for US-listed companies in October 2022, mitigates the impact of CEO age on the caliber of financial reporting ([SEC, 2022](#)).

Corporate financialization, as determined by the ratio of financial assets to total assets, is found to be significantly and favorably impacted by CEO age. ([Guizani, 2024](#)). The findings imply that the presence of aged CEOs with shortened career paths is driven by short-term benefits and therefore the increase in corporate financial investments. For firms with young CEOs, they tend to shun investing financially on a short-term basis and thus hinder corporate financialization. This is due to the longer career path and more worries about their futures.

[Huang et al. \(2012\)](#) illustrated that aged CEOs were associated with improved quality-based financial reporting and that negative associations between CEO age and earnings restatement and achievement of forecasts existed. Younger CEOs were found to be more responsible for stock market crashes for underreporting negative performance information ([Andreou et al., 2017](#)). [Moncef \(2024\)](#) argued that young CEOs exhibit aversion to short-term investments and thus restrict corporate financialization, and family and female firms also showed reduced investments in financial assets. [Li et al. \(2024\)](#) argued that aged CEOs with rich experience and emphasis on transparency were more adept at leveraging quality-based financial information to augment investment efficiency and superior financial reporting.

[Desir et al. \(2024\)](#) proposed that CEO age negatively affects managerial ability in high-tech firms but positively affects it in highly regulated industries due to the value of older CEOs' experience and connections. They also discussed how age similarity between the CEO and board can either enhance M&A advisory effectiveness or reduce oversight due to personal closeness. In a more specific study, it is found that when the board and the CEO share more similarities in terms of age, it is associated with lower earnings management during M&A transactions by companies operating in the UK between 2001 and 2018 ([Nguyen et al., 2025](#)).

On the issue of adopting the Global Reporting Initiative (GRI), older CEOs are found to show reluctance to adopt the framework, but the negative relationship is moderated when the board has strong social capital, which is helpful for companies to decide on the direction of their social governance responsibilities (Hussain et al., 2023). Lastly, it is further supported by another study on CEOs' biological age, which has been found to influence CEOs' and companies' management decisions regarding motivation, such that 'young' CEOs are more motivated by non-monetary factors, such as reputation (Zeeshan et al., 2022).

Previous literature (Huang et al., 2012) has assessed analogous hypotheses by univariate and multiple regression analysis on a sample of 3,413 Compustat companies during 2005 to 2008. The present study attempts to extend the issue by using panel data compiled from Compustat companies during 2000 to 2022.

Current literature tends to focus more on financial restatements because of the implications associated with financial reporting (Habib et al., 2020). Financial restatements are often viewed as an indication of governance problems at the companies (GOA, 2002). Characteristics of the CEO including functional experience, tenure with the company, age, gender, and honorific appointments could be tested for possible influence on restating (Altarawneh et al., 2020; Besar et al., 2017). Additionally, corporate governance features such as audit type, ownership structure, and corporate size can be regarded as contributing factors for the quality of disclosures (C. Huang & Ciampaglia Nardi, 2020; Nahar Abdullah et al., 2010).

A restatement of finances can be found to be a sign for fraud and inaccuracies and the lack of good governance practices being dominated by management (Hasnan et al., 2008). The reason for the restatement can be traced back to inaccuracies found within the finances. In other words, the finances may be unreliable and subject to inaccuracies and inconsistencies. As per the US

General Accounting Office, misrepresentations attract the attention of regulators and lead to finances being restated (GOA, 2002).

As per the research conducted Besar et al. (2017), a functional experience for the CEO can lower the risk of financial statement restatement, especially if such experience is related to operations, accounts, and finance. Nevertheless, restatements also occur when a company is led by a CEO with throughput/output-related experience, which only suggests that such experience is not a guarantee of flawless reporting. According to a study by Altarawneh et al. (2020), the longer the tenure of a CEO, the more it is associated with an increased likelihood of restatements, and it may occur because of overconfidence, increased entrenchment, and reduced monitoring. Nevertheless, CEOs with honorary positions generally show fewer instances of restatements, and it is most likely due to their increased influence and reputation. How surprising is it to recognize that having female CEOs is more often associated with financial restatements than having CEOs who are male, at least when it came to Malaysian companies. Nevertheless, the negative association between the age and experience of CEOs and financial restatements is weak.

Older CEOs have been found to be more likely to restate financial statements prior to departure, possibly as an attempt to secure final performance-based compensation (Ishak & Yusof, 2013). However, forced turnover reduces this likelihood, likely because outgoing CEOs lose control over financial matters, which then shift to the board. The frequency of restatements is strongly correlated with firm-specific attributes such market-to-book ratio, firm size, and connection with Big Four auditors.

Tech advancement and financial restatements

A developing area of research in accounting is how the quality of financial reporting affects technology use, specifically how technology use affects the frequency of financial

restatements. Financial restatements, the process of amending the issued statements because of some errors or inaccuracies, worry investors, regulators and the firms themselves. Some of the emerging literature argues that the ability to carry out information technology, the role of digital financing, and IT within the governance structure of firms exercising governance over the financial reporting process are perhaps critical elements in the reporting outcomes.

According to [Abernathy et al. \(2023\)](#), companies in metropolitan statistical regions (MSAs) with a higher qualified IT workforce nearby typically have less internal control issues and reporting errors. Their research sheds some light on how the employee class IT professionals that have had ability to navigate IT education and specialize in some areas of IT. They can change the financial data reliability in the databases from being a collection of unsorted information ([Sumathi & Esakkirajan, 2007](#)). IT education, particularly where systems and processes are integrated, is more impactful in predicting outcomes than general education configured at the base of a firm.

According to [Brazel & Dang \(2008\)](#), ERP systems improve decision-making by allowing management to view real-time accounting reports. However, unrestricted access to organizational records can facilitate opportunistic decisions which lower the quality of financial reporting. Usually, IT proficient staff members diet the scope of such maneuvers. As per [Abernathy et al. \(2023\)](#), IT systems can have positive and negative implications. It is the decision of the employees that determines whether the consequences of technology for the quality of reporting are positive or negative.

In addition to internal capabilities of a firm, governance structures such as audit committees (ACs) with information technology (IT) skills also affect outcomes of reporting. [Ashraf et al. \(2020\)](#) indicates that audit committees with proficient IT members tend to have lower rates of material restatements, fewer IT-related internal control weaknesses, and timelier earnings

announcements. These results imply that IT savvy AC members can assess critically the technology driven reporting systems. However, their study also shows that IT knowledge does not significantly affect immaterial restatements or non-IT weaknesses. This means that the oversight of IT systems is relevant only for technological driven problems. This adds to the prior literature that has pointed out the importance of financial AC members for restatement reduction ([Abbott et al., 2000, 2004](#); [Bédard & Gendron, 2010](#); [Cohen et al., 2014](#); [Dhaliwal et al., 2016](#); [Klein, 2002](#)). In combination, these studies demonstrate that the presence of specialized knowledge, be it IT or accounting, strengthens oversight and decreases the risk of financial misstatement.

Apart from the IT governance and labor, the technology transformation such as digital finance technology has also changed reporting practices. [Ma et al. \(2025\)](#) show that the digital finance technology usage has greatly inhibited the financial restatements of the listed firms in China from 2011-2022. The restatement inhibition has both breadth and depth, and the effect prevails across various legal environments, indicating the effect is strong and lasts for long periods of time. The rest of the report also indicates that the restatement and financial reporting relationship is controlled and mediated by internal controls, meaning that the reporting environment is made better because of the digital finance controls. [Fedyk et al. \(2022\)](#) also show that expenditures on Artificial Intelligence (AI) enhances the audit quality and reduces the audit fees, though the displacement of labor is a gradual effect. These works indicate that digital finance and AI is more than conventional IT solutions, because they incorporate sophisticated data systems and automation into the reporting and auditing systems, decreasing the chances of erroneous reporting and manipulation.

According to [Lawrence et al. \(2018\)](#), failures in IT systems, including data breaches, are positively correlated with future internal control deficiencies, restatements, SEC comment letters, and increased audit fees. This data illustrates that IT can improve the quality of reporting

but implemented with poor cybersecurity and oversight may increase the chances of reporting misstatements.

Existing literature ([Altarawneh et al., 2020](#); [Besar et al., 2017](#); [Huang et al., 2012](#)) assert that older CEOs are typically associated with more conservative financial reporting due to greater risk aversion, concern for reputation, and shorter career horizons, which generally result in higher GAAP quality and fewer restatements. Recent theoretical framing suggests that CEO age and technological advancement are both important determinants of GAAP reporting quality. We suggest that advancement in technology is believed to improve internal controls and process automation, reducing opportunities for discretionary misreporting regardless of CEO traits. We test the hypotheses:

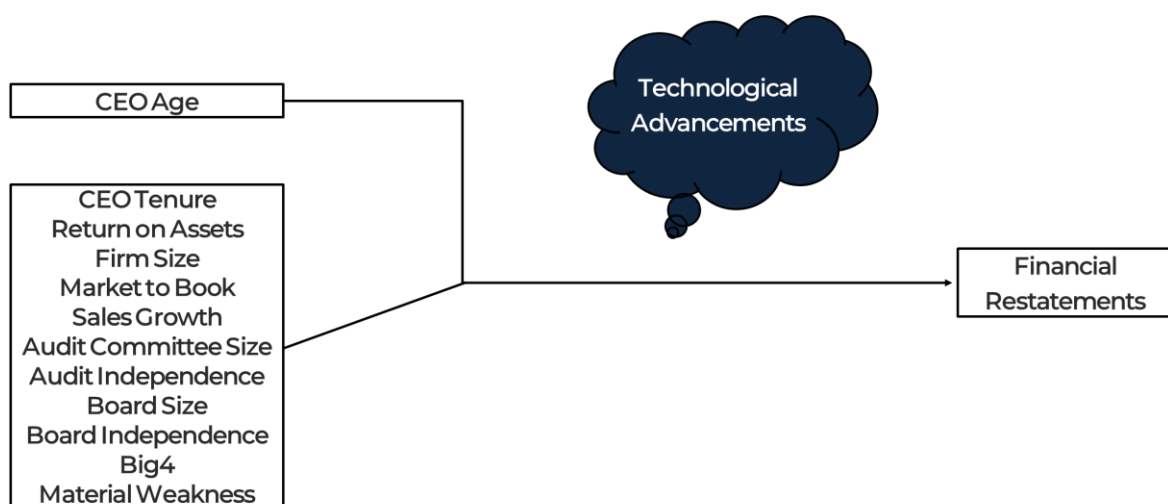
H1: Firms with older CEOs are less likely to have financial restatements.

H2: Technological advancement moderates the negative relationship between CEO age and GAAP reporting quality.

H2a: CEO age matters more in complex tech settings.

H3: Does technology moderate the association between CEO age and financial restatements?

Figure 1: Conceptual Framework



METHODOLOGY

We examine whether companies with older CEOs are less likely to undergo financial restatements in order to look at the relationship between CEO age and the quality of financial reporting (Huang et al., 2012). In keeping with the above literature, we examine a simple indicator for the integrity of GAAP reporting that is contingent on whether the company has restated their accounts or not. In the principal test, the emphasis is on the probability of restatement and the interaction between CEO age and exposure to technology and whether the interaction between CEO age and exposure to technology modifies such a probability. As suggested by Hypothesis 1, this interaction explains whether greater CEO age affects the probability of restating accounts negatively. This is suggested by the rationale from previous literature that greater CEO age is associated with greater conservatism and higher ethical norms (Huang et al., 2012; Jia et al., 2014; Li et al., 2024). In addition, we will explore the role of technological advancement on such a relationship. In Hypothesis 2, it is hypothesized that the moderator influence of technological advancement on the relationship between CEO age and financial reporting integrity changes. In turn, we propose in Hypothesis 2a that the moderator effect could be more significant when more advanced technology is used, and more robots are utilized within industries. To empirically test these hypotheses, we estimate the following logistic regression model:

$$\begin{aligned} RESTATE_{it} = & \alpha + \beta_1 CEO_AGE_{it} + \beta_2 TECH_{it} + \beta_3 (CEO_AGE \times TECH)_{it} + CONTROLS \\ & + RANDOM\ EFFECT_{it} + \epsilon_{it} \end{aligned}$$

Where:

RESTATE = is a binary variable equal to 1 if firm (i) at time (t) issues a financial restatement.

CEO_AGE = is the age of the CEO in years.

TECH = captures firm-level technological intensity.

CONTROLS = is a vector of firm and CEO controls, including size, ROA, market-to-book ratio, sales growth, LnMVE, Big4, Market-to-Book, cash flows, CEO tenure, board independence, and independent audit committee.

RANDOM EFFECTS = Random effects are included at the firm level to account for unobserved, time-invariant heterogeneity across firms.

ϵ = error term

Controls

We use a wide range of control factors in our empirical specification in order to reliably determine the impact of CEO age and technical intensity on financial reporting quality. These variables, represented by **CONTROLS**, account for both firm-specific and CEO-specific characteristics that prior literature ([Huang et al., 2012](#); [Davis & Garcia-Cestona, 2023](#)) has shown to influence the likelihood of financial restatements and other measures of reporting quality. By including these controls, the bias caused by omitted variables is reduced and the focused correlations between CEO age, technological innovation, and GAAP-quality outcomes may be estimated more accurately.

We incorporate the natural log of the market value of equity (LnMVE) at the firm level to regulate the firm's size. Large firms tend to attract more attention from investors and management. Large firms tend to be more well-organized with checks and balances within the company. This is important for preventing mistakes within the cash flow reports. The return on assets is added to increase model precision by measuring the earnings of firms. More profitable firms tend to be less tempted to manipulate earnings and therefore less likely to restate their finances. Less profitable firms tend to be tempted to manipulate finances to meet existent performance demands.

We also include the market-to-book ratio (MTB) and sales growth on the regression model as proxies for valuation and growth path, respectively. Firms with high growth may be under more

pressure to ensure a positive market image and this may increase earnings management practices ([Zamri et al., 2013](#)).

We add some governance and CEO-related variables. CEO tenure is calculated by controlling the number of years the current CEOs have been at the helm. Longer tenures might be perceived as contributing to managerial entrenchment, resulting in board monitoring and reporting quality ([Ali & Zhang, 2015](#)). As employed by other studies such as [Chen et al., \(2019\)](#), CEO tenure is quantified by calculating the natural logarithm of the number of years after being surfaced for the first time under the ExecuComp database as a CEO. For additional corporate governance considerations, the number of independent directors on the board is included as a percentage to represent the degree of the board being independent ([Zhao & Chen, 2008](#)). Additionally, independent boards tend to be more efficient at overseeing management and reducing aggressive reporting.

Our model incorporates the use of random effects to capture unobserved features that firms may exhibit without changing over time. This method ensures that the model accounts for slowly changing variables such as the age and governance structure of the CEOs while controlling any differences within firms. Fixed effects for year capturing overall economic conditions and events that occur annually for all firms are included.

On aggregate, with the inclusion of these firm and CEO-level controls and fixed effects, a stringent test can be carried out on our hypotheses. More specifically, these controls allow for the estimation of coefficients on CEO age and technological intensity and their interaction such that the tests on hypotheses H1 (that firms with older CEOs tend to be less likely to issue restatements on their finances), H2 (that technological intensity moderates the association between CEO age and GAAP quality), and H2a (that the effect of CEO age is more pronounced within more complex technological conditions) can be more rigorously accomplished.

DATA

TABLE 1

Panel A: Restatement sample selection (n = 660 restatement firms)

	Number of restatements
AuditAnalytics Accounting restatement (2000-2022)	20973
Less: Restatements by firms not covered in Compustat	-7756
Less: Restatements by firms not covered in BoardEx	-4806
Less: Duplicates	-2,133
Final sample of restatements (2000 to 2022)	6278

Table 1, Panel A provides a summary description of the process for building the restatement sample for this study. The starting sample is taken from Audit Analytics and consists of 20,973 announcements of accounting restatements made by companies within the US between 2000 and 2022. However, for this empirical analysis involving the combination of financial statement data from Compustat and governance data from BoardEx, two significant exclusion criteria were applied. First, due to the unavailability of companies from Compustat with repeating observations across the final sample (representing firms with unobservable financial profile information via Compustat), 7,756 restatement observations were excluded from the sample. Second, to add CEO and board-of-directors structural information (as demanded within this study design and for this analysis), a further exclusion involving unavailability of BoardEx for another 4,806 restatement observations was necessary. Finally, to remove any potential observed anomalies and for preventing multiple observations from being used more than once within this analysis (because for the dataset with repeating observations amounting to a total number of 2,133 duplicate observations across the sample), this number was deleted from the sample as well. In all, the final restatement sample is made up of observations amounting to 6,278 instances occurring over the course of the next 23 years. This cleaned dataset forms the

foundation for examining the relationship between CEO age and financial reporting quality, as well as the influence of governance and technological factors on restatement likelihood.

TABLE 2**Panel B: Industry distribution**

Industry	Full Sample
Mining, Quarrying, and Oil & Gas Extract	163
Utilities	16
Construction	27
Manufacturing	1890
Wholesale, Retail, and Some Services	323
Transportation and Warehousing	64
Information	945
Admin Support, Waste Mgmt & Remediation	131
Real Estate and Rental and Leasing	472
Professional, Scientific, and Technical	296
Educational Services	58
Health Care and Social Assistance	122
Arts, Entertainment, and Recreation	18
Accommodation and Food Services	154
Other	1599
Total restatements	6278

Panel C: Year distribution

2000	59
2001	54
2002	60
2003	78
2004	88
2005	96
2006	139
2007	342
2008	359
2009	380
2010	388
2011	392
2012	389
2013	393
2014	396
2015	378
2016	362
2017	359
2018	337
2019	313
2020	312
2021	308
2022	296
	6278

TABLE 3
Control Variables

Variable	Control for...	References
<i>CEO level controls</i>		
Ceo age	main independent variable	
Ceo tenure	the CEO's experience within the firm, as longer-tenured CEOs may have better knowledge of operations and stronger influence on reporting practices.	Hill & Phan (1991), Huang et al., (2012)
<i>TECH control</i>		
Intangible Assets Intensity	Firms with higher intangible assets (e.g., R&D-heavy companies) may have more flexibility in reporting, increasing the risk of misstatements.	Ashraf et al. (2020)
<i>Firm level controls</i>		
Return on assets	Controls of firm performance, since poorly performing firms may be more incentivized to manage earnings.	Abbott et al. (2004), Romanus et al. (2008), Huang et al. (2012)
Market to book	Captures growth opportunities; firms with high growth pressure may be more likely to manipulate earnings.	
Sales growth	High-growth firms may face incentives to sustain trends, influencing reporting behavior.	
Lnmv	for differences in investor attention and monitoring. Controls for firm size.	Frankel et al., (2002), Matsumoto, (2002), Huang et al., (2012)
<i>Governance controls</i>		
Big4	Firms audited by Big 4 auditors are subject to higher audit quality, lowering restatement risk.	Frankel et al. (2002), Huang et al., (2012), Ashraf et al. (2020)
Board independence	A more independent board is expected to provide stronger oversight, reducing earnings manipulation.	Lin et al. (2006), (Zhang et al. (2007), Romanus et al. (2008), Huang et al. (2012), Ashraf et al., (2020)
Board size	for board monitoring capacity; very small or very large boards can both be ineffective.	
Audit committee size	Larger audit committees may provide stronger oversight.	
Audit independence	the detection and prevention of misreporting.	

TABLE 4									
Descriptive Statistics									
Variable	<u>Non-Restatement</u>			<u>Restatement</u>			diff	tstat	
	Mean	Median	SD	Mean	Median	SD			
Age	57.754	59.000	8.901	52.698	53.000	6.533	5.056	11.170	***
Tenure	1.628	1.791	0.785	1.500	1.609	0.786	.127	3.151	***
RoA	0.021	0.033	0.239	0.004	0.025	0.140	.016	1.385	
Growth	0.263	0.097	5.136	0.146	0.083	0.453	.117	.451	
LnMVE	4.107	1.148	4.451	2.449	0.000	3.092	1.658	7.338	***
MoB	0.191	0.000	4.206	0.327	0.000	1.549	-.136	-.645	
Intan	0.211	0.109	0.232	0.227	0.130	0.237	-.015	-1.286	
ACSize	6.514	6.000	1.613	4.268	4.000	1.302	2.245	25.871	***
BDSIZE	18.459	17.000	8.513	17.174	15.000	7.454	1.284	2.794	***
BDInd	0.893	0.923	0.188	0.798	.828	.175	.095	9.339	***
ACInd	0.997	1.000	0.053	1.000	1.000	0.000	-.002	-1.012	
Big4	0.000	0.000	0.000	0.708	1.000	.455	-.708	-119.419	***
MatWeak	0.000	0.000	0.000	0.097	0.000	.296	-.097	-25.158	***

From Table 5, the t-test indicates a significant and statistically significant difference between the average CEO ages of companies which issued financial restatements and companies which did not. In fact, CEOs of companies within the non-restatement sample are, on average, significantly older (average age of 57.75 years) than the CEOs of companies which issued restatements (average age of 52.70 years), by a difference of approximately 5.06 years, which is well within a tight confidence interval ranging between 4.17 and 5.94. The small standard errors further add to the validity of the result, which clearly suggests the presence of a trend wherein the CEOs are, on average, younger within restatement companies, implying the importance of the role of CEO age within financial reporting.

TABLE 5**t-Test of CEO Age Across Restatement and Non-Restatement Groups**

Group	Obs	Mean	Std. err.	Std. dev.	95% conf. interval	
0	5,877	57.75447	0.1161187	8.901843	57.52683	57.9821
1	401	52.69825	0.326285	6.533852	52.05681	53.3397
Combined	6,278	57.43151	0.1117712	8.856062	57.2124	57.65062
Diff		5.056212	0.4526485		4.168866	5.943558

RESULTS AND DISCUSSIONS

$$RESTATE_{it} = \alpha + \beta_1 CEO_AGE_{it} + CONTROLS + RANDOM\ EFFECT_{it} + \epsilon_{it}$$

Table 6 presents the results of a random-effects logistic regression examining the determinants of financial restatements.

TABLE 6				
Regression Results				
Variable ²	Coefficient	Std. Error	z-stat	p-value
CEO_age	−0.141	0.046	−3.03	0.002
CEO_tenure	0.858	0.487	1.76	0.078
Return_on_assets	−3.618	1.389	−2.60	0.009
Sales_growth	−1.239	0.962	−1.29	0.198
Ln(MVE)	−0.196	0.901	−2.18	0.029
Market-to-book	−0.001	0.071	−0.02	0.928
Audit Committee Size	−5.601	0.675	−8.29	P<0.001
Board Size	0.333	0.065	5.07	P<0.001
Board Independence	−3.560	1.654	−2.15	0.031
Constant	22.608	4.214	5.36	P<0.001
Year fixed effects	Controlled			

The results provide important insights into the determinants of financial restatements and highlight several dynamics also emphasized in prior literature, including [Huang et al. \(2012\)](#).

² Random-effects parameters:

$\sigma_u^2=3.854$; $\rho=0.819$ Wald $\chi^2(28) = 77.25$ ($p = 0.0000$) Log-likelihood = −166.961 Observations = 5,011; Firms = 660 Standard errors are clustered at the firm level.

The age of the CEO matters. The number of restatements is fewer for older CEOs. It is negative and significant ($\beta = -0.141$, $p\text{-value} = 0.002$). It seems that senior managers tend to be more conservative and honest and worry more about their reputation. The results of (Huang et al., 2012) support our first hypothesis (H1), which states that companies with elder CEOs typically have fewer restatements.

Turnover duration has a positive but only marginally significant influence ($\beta = 0.858$, $p = 0.078$). This is suggestive, but not definitive, evidence of a tendency toward more monitoring and potentially greater entrenchment on the part of CEOs with longer tenure. As Huang et al. (2012) indicate, it is not uncommon to observe nonsignificant coefficients on the numerous variables studied, suggesting little systematic difference due to tenure on restatement behavior. Profitability, which is defined by return on assets, has a robustly negative and significant beta ($\beta = -3.618$, $p = 0.009$). This result is consistent with the notion that financially strong companies are less peak-sensitive. Huang et al. (2012) further explain that financial performance variables are potentially important but also potentially unstable and idiosyncratic, and therefore, the strong result obtained is deemed to be an important contribution.

On the other hand, sales growth is found to be insignificant ($\beta = -1.239$, $p = 0.198$). As Huang et al. identified growth as a significant and positive predictor for their sample, they posit that high growth firms may be subject to pressures that increase misreporting risk. This analysis implies that growth pressures might be less applicable within the context of this sample environment and may be driven by improvements within the reporting framework and industry dynamics. On the other hand, size (lnMVE) is found to be significant and negatively associated with restatements ($\beta = -0.197$, $p = 0.029$), echoing the notion that firms with larger sizes tend to possess more efficient and reliable management and internal controls. Market/book ratio is again found insignificant ($\beta = -0.001$, $p = 0.983$), supporting the argument made by Huang et al. (2012). that several market/book ratios tend to be irrelevant with respect to risk associated with restatements.

There exist obvious trends in corporate governance. The size of the audit committee has a strong negative significant effect ($\beta = -5.602$, $p < 0.001$) on restatements. This suggests that a well-funded audit committee reduces financial reporting failure. This result supports the statement made by [Huang et al. \(2012\)](#) that the structure of the audit committee has a significant influence on the quality of governance. The size of the board has a positive significant effect on restatements ($\beta = 0.333$, $p < 0.001$). This finding validates the suggestion that greater size makes boards less efficient in terms of speed of action. According to Huang et al., larger boards have more restatements.

The independence of the board has a significantly negative effect ($\beta = -3.561$, $p = 0.031$). Though the independence of the board was shown to have no significant effect in previous studies like [Huang et al. \(2012\)](#), the negative effect of the independence of the board shown in the result demonstrates that the independent members of the board in the sample may monitor the business more effectively.

Big 4 Auditor, Audit Independence, and Material Weakness are not included in the model because there isn't enough variation in them or they present problems for the estimated coefficients of the random effects logistic model. These governance and audit variables change slowly or remain approximately the same for a corporation. They therefore pose difficulties with the model in distinguishing their effects from the random component in the model. These factors cannot therefore be given to the coefficients in the model even though they affect the financial reporting outcome.

$$RESTATE_{it} = \alpha + \beta_1 CEO_AGE_{it} + \beta_2 TECH_{it} + \beta_3 (CEO_AGE \times TECH)_{it} + CONTROLS \\ + RANDOM\ EFFECT_{it} + \epsilon_{it}$$

Table 7 presents the results of a random-effects logistic regression examining the determinants of financial restatements with the incorporation of technological advancements.

TABLE 7				
Regression Results				
Variable³	Coefficient	Std. Error	z-stat	p-value
CEO_age	−0.144	0.060	−2.38	0.017
Intan_Assets	1.400	10.046	0.14	0.889
CEO_age_Intan_Asset	−0.079	0.195	−0.41	0.683
CEO_tenure	0.740	0.542	1.36	0.173
Return_on_assets	−4.230	1.558	−2.71	0.007
Sales_growth	−1.030	1.036	−0.99	0.320
Ln(MVE)	−0.273	0.105	−2.60	0.009
Market-to-book	−0.005	0.068	−0.08	0.939
Audit Committee Size	−6.523	0.844	−7.73	P<0.001
Board Size	0.402	0.080	4.99	P<0.001
Board Independence	−3.448	1.816	−1.90	0.058
Constant	25.326	5.058	5.01	P<0.001
Year fixed effects	Controlled			

Hypotheses H2, H2a, and H3 predicted a negative association between the combination of CEO age and the presence of restatements of accounts due to the influence of technology intensity.

There are no results to support these predictions.

³ Random-effects parameters:

$\sigma_u^2=4.526$; $\rho=0.861$ Wald χ^2 (28) = 70.18 (p = 0.0000) Log-likelihood = −156.143 Observations = 4,907; Firms = 658 Standard errors are clustered at the firm level.

The focus of interest for CEO age is still important in the restatement of risk, which is consistent with earlier studies. CEOs who are older are less likely to oversee financial restatements, according to the negative and significant coefficient for CEO_age ($p = 0.017$). Additionally, this corroborates the suggestion that older CEOs may be more risk-averse or less prone to reporting errors. Note that the overall influence of CEO_age retains relevance despite the controls.

But technology did not affect the nature of this relationship, disproving H2 and H3. The intangible asset intensity, a typical proxy for the tech complexity of the business, was not significant ($p = 0.889$). This was indicative of the point that greater tech investment by itself does not influence probability restatement. More significantly, the interaction of CEO age and intangible asset intensity was also not significant ($p = 0.683$). There was no evidence to show that technology modifies, amplifies, or reduces the influence of CEO age on the reporting process. The sign of the coefficient was the correct one, however, intimating that in tech environments, the influence of CEO age may be a touch greater. But the estimate was not very precise to arrive at a conclusive result. Thus, H2 & H3 are rejected.

Likewise, H2a, which hypothesized that in more complex tech environments, the CEO's age would become more important to the quality of reporting, was also not supported. There was no evidence that high-level tech environments affect the salience of the CEO's age to the quality of reporting. This suggests that the difficulties of complex tech environments may not be adequately measured by intangible values or that overall tech environments in a company have no effect on the characteristics of the CEO.

Limitations of the Study

There are several limitations in this study. This includes the following: First, the research focuses on the analysis of US-listed firms. Hence, the findings may not necessarily be true for

firms in different countries. Second, the research measures advancement in tech in terms of intangible asset intensity. This measures the past investment in tech. Such measures may not give information about the present usage of tech or how effectively the business operates. There may also be some difficulties in accurately representing the effect of technology on the connection between the ages of CEOs and the quality of financial reporting.

On the other hand, the research may fail to consider the dynamic nature of technological change across the different companies. There may be intangible assets whose reporting may be late or their recognition different for the different firms. Additionally, the limits of the information may have presented problems since some of the information, for example, audit independence, BIG4 engagement in the audit, material weaknesses, became excluded in the regression analysis since they remained constant. The random effects logistic regression model has the assumption that the effects of the characteristics of the different firms have no relation to the remaining characteristics.

Finally, the restatements of finances may be underestimated since some companies correct mistakes without submitting a form 8-K item 4.02 to the relevant body. Such cases may not be counted in the restatements of finances.

Sensitivity Analysis

Prior research demonstrates that earnings management tends to occur when the CEO also serves as the board of directors' chair ([Zhao & Chen, 2008](#)). A new variable named CEO_Chair was incorporated to determine its influence on restatements. Despite adding the new variable CEO_Chair, the negative relation to the CEO's age remains significant. This implies that older CEOs have a lesser likelihood of having restatements. The new variable CEO_Chair remains positive and significant. This denotes that when the CEO also serves as the board of directors' chair in a company, there appears to be a greater likelihood of restatements.

CONCLUSION

This study unequivocally shows how the age of the CEO and technological advancements affect the accuracy of financial reporting, particularly when US-listed companies undergo financial restatements. Regarding the first hypothesis (H1), the data shows that older CEOs are much less likely to oversee the financial statement restatement. This indicates that their prudence helps to maintain the financial statement quality at a high level. While the effect of CEO tenure was only just significant, several of the firm's performance indicators interact in complex ways.

Governance characteristics also have a material effect on the quality of reporting. Larger audit committees and boards associated with a smaller number of restatements reflect positive monitoring on a well-structured board. Larger boards are also associated with a higher number of restatements. This corroborates some existing research that larger boards may have difficulties in both coordinating action and making decisions to the point of being less accountable.

Regarding technological advancement, the study hypothesized that intangible asset intensity would moderate the relationship between CEO age and restatements (H2, H2a, H3), particularly in complex technology settings. However, the empirical results provide no support for these propositions. Intangible asset intensity was neither a significant predictor of restatements nor did it meaningfully interact with CEO age. This suggests that, within the current sample, technological sophistications measured by capitalized intangible assets—does not amplify or diminish the effect of CEO experience on financial reporting outcomes. The lack of support for these hypotheses may reflect limitations in the proxy for technological complexity or indicate that the influence of CEO characteristics on reporting quality is relatively robust across varying technological contexts.

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APPENDIX

Variable Definitions

Variable	Definition	Data Source
<i>RESTATE</i>	= 1 if a firm has accounting restatement (issues an Item 4.02-restated 10-K or 10-Q filing for year t (a “Big R” non-reliance restatement) and an adverse audit opinion, and 0 otherwise	Audit analytics
<i>CEO_AGE</i>	= CEO age in years	BoardEx
<i>TECH controls</i>		
<i>MANAGEMENT_IT</i>	= 1 if firm i in year t shows that at least one senior manager, excluding the chief information officer, has IT expertise, and 0 otherwise.	BoardEx
<i>IT_MATERIAL_WEAKNESS</i>	= 1 when the auditor’s SOX 404 report on internal control over financial reporting indicates firm i exhibits at least one IT-related material weakness in year t, and 0 otherwise. An IT-related material weakness is a material weakness that Audit Analytics categorizes using code 22 (information technology, software, security and access), 42 (segregations of duties/design of controls), 76 (journal entry control issues), 12 (untimely or inadequate account reconciliations), 77 (non-routine transaction control issues), or 57	Audit Analytics