

Does CEO Financial Expertise Drive Sustainability Disclosure? Evidence from an Emerging Market and the Moderating Role of Stakeholder Pressure

 Tarus K. Benjamin^{1*}, Ayuma Carolyne¹ and  Tanui Emmanuel²

¹Department of Finance and Accounting, School of Business and Management Science, University of Eldoret, P.O. Box 1125-30100, Eldoret, Kenya

²Department of Business Management, School of Business and Management Science, University of Eldoret, P.O. Box 1125-30100, Eldoret, Kenya

Abstract

Upper echelons theory predicts that the cognitive frames executives bring to the corner office shape what firms choose to tell the world about themselves. Yet the specific question of whether a chief executive officer's financial expertise translates into more substantive sustainability disclosure remains largely untested outside developed markets, and the conditions under which that expertise is activated or suppressed remain poorly understood nowhere more so than on the Nairobi Securities Exchange (NSE), where reporting volumes have risen sharply while reporting depth has lagged. Grounded in upper echelons, legitimacy, stakeholder and institutional theory, this study examines the effect of CEO financial expertise operationalised as a graded 0–3 expertise-depth score capturing the CEO's academic qualifications, professional certification and accounting or finance experience on sustainability disclosure among NSE-listed firms, and asks whether stakeholder pressure, proxied by ownership concentration (the percentage of shares held by owners with at least a 5% shareholding), amplifies or attenuates that effect. Using a balanced panel of 320 firm-year observations from 32 NSE-listed firms (2014–2023), sustainability disclosure is measured through content analysis of annual and sustainability reports against a 38-item economic, environmental and social index scored on a 0–3 quality scale. Fixed-effects panel regression (Hausman-selected) and hierarchical moderated regression, with standard errors clustered by firm, show that CEO financial expertise exerts a positive and statistically significant effect on disclosure quality ($\beta = 0.201$, $p < 0.001$), robust to controls for firm size, age, and profitability. Counter to the complementarity assumption in the stakeholder-pressure literature, pressure significantly attenuates this effect ($\beta = -0.090$, $p < 0.00$). Although the incremental variance explained by the interaction is modest in absolute terms

($\Delta R^2 = 0.011$), it lies squarely within the range typical of moderation effects detected. The study extends upper echelons theory by identifying a boundary condition executive human capital is efficacious, but its efficacy is contingent on external pressure intensity and cautions emerging-market regulators that pressure-based regimes may generate disclosure volume at the expense of substance.

Keywords: CEO financial expertise; sustainability disclosure; stakeholder pressure; upper echelons theory; emerging markets; Nairobi Securities Exchange

Correspondence: tarusbk@gmail.com

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1. Introduction

Traditional financial reporting was never designed to answer the questions stakeholders are now asking. It is silent on carbon, on labour rights, on water, on the social licence a firm holds to operate; it is short-termist by construction and increasingly incoherent with the risks that determine long-run firm value. Into that gap has stepped sustainability disclosure the practice of reporting publicly on economic, environmental and social impacts, and thereby on a firm's contribution, positive or negative, to sustainable development (GRI, 2021). Throughout this study, sustainability disclosure refers not to binary adoption of a reporting framework but to a composite, quality-weighted index of disclosure content aligned with the Global Reporting Initiative's topic standards; the construct and its measurement are set out in

Section 3.3. What began as a voluntary gesture of corporate goodwill has hardened into a commercial imperative, driven by investors who now price environmental, social and governance (ESG) risk, by consumers who select on ethical grounds, and by regulators who have begun to codify what was once discretionary (Higgins et al., 2020; Machado et al., 2021).

Yet the supply of sustainability information remains stubbornly uneven, and nowhere more so than in sub-Saharan Africa. Kenya offers an instructive case. The Nairobi Securities Exchange (NSE) the fourth most actively traded exchange on the continent issued an ESG Disclosures Guidance Manual in 2021, aligned to the Global Reporting Initiative and reinforced by the Capital Markets Authority's (CMA) Code of Corporate Governance Practices

for Issuers. The regulatory perimeter is still moving: the International Sustainability Standards Board's IFRS S1 and S2 standards, issued in 2023, are directly relevant to NSE-listed firms, and Kenya's National Treasury and CMA have signalled a phased adoption roadmap that will progressively convert today's voluntary guidance into tomorrow's baseline (IFRS Foundation, 2023). A note on classification is warranted at the outset. Index providers differ in how they categorise Kenya. MSCI places the NSE in its Frontier Markets universe, while much of the development-finance and disclosure literature treats Kenya as an emerging market in the broader sense of a middle-income economy with a functioning but thinly traded capital market. This study uses "emerging market" in that broader literature sense throughout, and reserves "frontier" for statements specific to index classification; nothing in the argument turns on the label, but the low-enforcement, high-discretion institutional features the label summarises are central to it. Compliance with the disclosure architecture, however, has been partial and shallow. Evidence from NSE-listed firms indicates that although the proportion of firms reporting rose steeply from roughly 47% in 2015 to 93% in 2020 the depth of what was reported did not keep pace: environmental disclosures in particular remained thin, sector-dependent, and heavily reliant on generic narrative rather than verifiable data (Kipngetich & Gatawa, 2024). Firms are learning to say the words. Whether they are saying anything is a different question.

It also matters, in an emerging market, to be precise about who is applying the pressure to disclose, because stakeholders in Kenya do not look like stakeholders in the West. Consumer activism, which animates much of the developed-market literature, is

comparatively muted. The pressure that NSE-listed firms actually experience is transmitted through four principal channels: regulators the CMA, the NSE itself and, for the large listed banks, the Central Bank of Kenya's prudential and climate-risk guidance; creditors and lenders most visibly development finance institutions and syndicated lenders that increasingly attach ESG covenants and reporting conditions to facilities; foreign institutional investors, whose mandates require ESG screening of frontier and emerging-market holdings; and concentrated blockholders, including the state, founding families and corporate parents, whose control rights allow them to impose reporting demands directly on management. Ownership concentration the proxy adopted in this study sits at the intersection of these channels: blockholders are simultaneously the recipients of lender and regulator demands and the conduit through which those demands reach the executive suite. Defining the pressure landscape this way at the outset anchors the study in the realities of an emerging market and foreshadows why the pressure that firms face is predominantly compliance-oriented rather than quality-oriented.

This gap between the form and the substance of disclosure is precisely where executive discretion becomes analytically interesting. Where reporting is voluntary, weakly enforced, and technically demanding, what gets disclosed is not determined by rule but by judgement and judgement is exercised by people. Upper echelons theory holds that organisational outcomes are partial reflections of the values, cognitive bases and observable characteristics of the executives who dominate strategic choice (Hambrick & Mason, 1984; Hambrick, 2007). Among those characteristics, financial expertise has a particular claim on our attention in the disclosure context.

Sustainability reporting is, at bottom, a measurement and assurance problem: it requires the construction of key performance indicators, the setting of reporting boundaries, the evaluation of materiality, the management of assurance risk, and the translation of non-financial performance into language that capital markets can price. These are accounting competences. A CEO who has trained as an accountant, sat as a chief financial officer, or holds membership of a professional accounting body possesses the numeracy, reporting literacy and risk-assessment vocabulary to do this work credibly and, crucially, to recognise when a disclosure is boilerplate (Baatwah et al., 2015; Custódio & Metzger, 2014; Huang & Hilary, 2022).

Whether external pressure amplifies or suppresses that capability is, however, theoretically contested, and the mechanism deserves to be stated plainly from the start. The suppression argument developed and tested in this paper is one of coercive isomorphism: when pressure intensifies particularly after a regulator supplies a formal reporting template, as the NSE did in 2021 the disclosure task shifts from an exercise of expert judgement about what is material and how it should be measured to an exercise in standardized compliance with an exogenously supplied format. Under such conditions even firms without financially expert CEOs are compelled to disclose, compressing the variance that expertise would otherwise explain, and the discretionary space in which an expert CEO could exercise high-quality reporting judgement is crowded out (DiMaggio & Powell, 1983). Pressure and expertise, on this account, become substitutes rather than complements a possibility the empirical design is built to detect.

Three limitations of the existing evidence motivate this study. First, the literature on executive attributes and

sustainability outcomes is overwhelmingly concentrated in the United States, Europe and China, where financial reporting infrastructure, enforcement capacity and stakeholder activism differ so sharply from frontier and emerging markets that generalisation is unsafe (Elmagrhi et al., 2019; Mahran & Elamer, 2024). Second, where CEO attributes have been examined, scholarship has gravitated toward the easily coded duality, tenure, political connection while financial expertise, arguably the attribute most proximate to the disclosure task itself, has been comparatively neglected (Reimer et al., 2018). Third, and most consequentially, prior work has tended to treat executive capability as though it operates in an institutional vacuum. It does not. Firms disclose under pressure from concentrated owners, regulators, lenders, civil society and there is no a priori reason to assume that such pressure and internal expertise are complements rather than substitutes.

This paper addresses all three. Drawing on a balanced panel of 320 firm-year observations from 32 NSE-listed firms over 2014–2023, it asks two questions. Does CEO financial expertise increase sustainability disclosure? And does stakeholder pressure strengthen or weaken that effect? The sample of 32 firms deserves a word of context, because its representativeness is easily underestimated. The 32 firms constitute roughly half of the 65 companies listed on the NSE during the window, but they account for the overwhelming majority of the exchange's market capitalisation and trading activity, span the exchange's main investment segments, and are precisely the firms for which continuous, audited disclosure data exist over a full decade. Balanced panels of 30–40 firms are the norm rather than the exception in NSE research, reflecting the structural reality of a market in which delistings,

suspensions and restructurings continually erode the listed population; against that reality, a ten-year balanced panel of 32 firms is a robust and highly representative empirical base for the NSE. The answers to the two questions are, respectively, yes and counter-intuitively weaken. Financial expertise is a consistent and economically meaningful driver of disclosure, but its marginal contribution declines as stakeholder pressure rises.

2. Literature Review and Hypothesis Development

2.1 Theoretical Foundation

The argument developed here is anchored on four theories, each answering a different question. Upper echelons theory explains why the identity of the CEO should matter at all. Legitimacy theory explains why firms disclose. Stakeholder theory explains where the pressure to disclose comes from. Institutional theory explains what form the response to that pressure is likely to take and it is institutional theory that supplies the mechanism through which pressure may suppress, rather than summon, executive capability.

Upper echelons theory (Hambrick & Mason, 1984; Hambrick, 2007) begins from the premise that strategic choice is made under bounded rationality: executives cannot process the full complexity of their environment, so they filter it through a cognitive base and a value set formed by their education, functional background and career history. Observable demographic characteristics therefore serve as proxies for the interpretive lens through which strategic problems are construed. Applied to disclosure, the theory predicts that a CEO's functional training determines what she notices in the reporting environment, what she considers material, and what she believes a report is for. A finance-trained

CEO does not merely tolerate sustainability reporting; she is equipped to see it as a governance and valuation instrument rather than a public-relations exercise.

Legitimacy theory supplies the motive. Firms operate under an implicit social contract, and disclosure is the principal mechanism by which they demonstrate that their operations remain congruent with societal expectations (Cho et al., 2015; Deegan, 2019). Where legitimacy is threatened by pollution, by scandal, by regulatory scrutiny disclosure functions as a repair strategy. This framing carries an important caveat, however: because legitimacy can be secured through the appearance of conformity as readily as through the substance of it, legitimacy pressures are theoretically capable of producing symbolic rather than substantive reporting. That possibility becomes central to our second hypothesis.

Stakeholder theory (Freeman, 1984; Mitchell et al., 1997) identifies the source of the pressure. Firms are embedded in networks of reciprocal dependency with groups who can affect, or are affected by, the achievement of organisational objectives, and they are motivated to adopt environmental and social practices in proportion to the salience of those groups. Stakeholder salience theory sharpens this claim: Mitchell et al. (1997) argue that managers attend to stakeholders in proportion to the power those stakeholders wield over the firm, the legitimacy of their claims, and the urgency with which those claims are pressed and that stakeholders possessing all three attributes ("definitive" stakeholders) command immediate managerial priority. Concentrated owners in an emerging market are the paradigm case of the definitive stakeholder. Blockholders hold power in its most direct form (control rights and board seats),

legitimacy (a residual claim on the firm's cash flows), and urgency (the capacity to demand immediate managerial attention through direct channels rather than the market). Ownership concentration is therefore a particularly potent form of stakeholder pressure in emerging markets: where a small number of blockholders control the firm, their preferences are transmitted directly into management behaviour, and their monitoring capacity reduces managerial information-withholding (Thomsen et al., 2006; Rudyanto & Siregar, 2018). It is this power–legitimacy–urgency configuration that justifies the use of ownership concentration as the study's pressure proxy.

Institutional theory completes the framework. DiMaggio and Powell (1983) distinguish three isomorphic pressures coercive (exerted by regulators and resource providers), normative (exerted by professional norms and standards) and mimetic (imitation of legitimated peers) through which organisations in a field converge on common practices. The conventional reading is that such pressures intensify conformity to socially valued practices, including disclosure. But institutional theory equally predicts the character of that conformity: organisations subjected to intense coercive pressure tend to adopt the legitimated template rather than to innovate beyond it, and may decouple the adopted form from substantive practice. This dual prediction pressure raises disclosure, but standardises it is introduced here because it grounds the moderation logic developed in Section 2.3; it is not an afterthought to the hypothesis but the theoretical hinge on which the hypothesis turns.

2.2 CEO Financial Expertise and Sustainability Disclosure

Financial literacy is the general capacity to understand and use financial information a graduated attribute that any executive may possess to some degree. Financial expertise, as operationalised in this study and in the antecedent literature, is the narrower construct: prior professional experience in accounting or finance, possession of a relevant professional certification, or substantive experience in roles involving financial oversight most obviously the CFO seat (Baatwah et al., 2015; Hsu & Wang, 2021; Huang & Hilary, 2022). Expertise implies literacy; literacy does not imply expertise. Where the mechanisms below invoke general capabilities such as numeracy, they should be read as capabilities that professional qualification and experience certify and deepen, not as free-standing literacy effects. The empirical measure (Section 3.3) accordingly captures graded professional credentials and experience, not self-reported financial understanding.

The theoretical case for the relevance of financial expertise to sustainability disclosure rests on four mechanisms. First is technical capability. Sustainability disclosure of any quality is an exercise in measurement: it demands defensible boundaries, comparable indicators, and the discipline to distinguish an assertion from an audited number. Executives with financial training are better equipped to comprehend complex reporting requirements, assess the risks embedded in disclosure choices, and elevate the quality of both financial and non-financial reporting (Velte, 2021). Second is strategic framing. Financially expert CEOs are positioned to anchor ESG attributes to financial materiality and capital-market expectations, thereby reducing boilerplate and increasing the decision-usefulness of what is reported.

Third is assurance orientation. Financially conscious executives are more likely to institute internal controls over non-financial reporting, to promote auditability, and to seek external assurance practices that limit greenwashing risk. Fourth is resource access. Custódio and Metzger (2014) demonstrate that financially expert CEOs enjoy superior access to capital markets; firms so led have incentives to expand their information environment precisely because disclosure lowers the cost of capital.

These four mechanisms bear jointly on both the volume and the credibility of disclosure, and the bridge between the theoretical construct and the empirical proxy deserves to be made explicit. Technical capability and strategic framing predict that expert-led firms will disclose more more indicators covered, more topics addressed while assurance orientation and the boilerplate-recognition capacity predict that what is disclosed will be more specific, more quantitative and more verifiable. The dependent variable used in this study (Section 3.3) is constructed to register both dimensions simultaneously: it is a quality-weighted index in which a quantitative, data-supported disclosure earns three times the score of a generic narrative one, so that a firm cannot raise its score by volume alone. The empirical proxy therefore maps onto the full theoretical claim expertise should raise not merely how much firms say, but how credibly they say it.

Empirical support is suggestive but incomplete. Shahab et al. (2020), analysing over 16,000 firm-year observations of Chinese listed firms, find that CEOs with financial expertise are significantly associated with higher environmental reporting and sustainability performance. Velte (2023), examining 1,992 firm-year observations

from the STOXX Europe 600, shows that sustainability-related executive expertise significantly increases biodiversity disclosure. Countervailing evidence exists: Sun and Rakhman (2013) find that CFO accounting qualifications are unrelated to corporate social responsibility engagement in the S&P 500 (though tenure is positively related), and Haque (2017) warns that financial training may bias executives toward short-horizon performance at the expense of broader sustainability goals. Mahran and Elamer's (2024) systematic review of 139 studies confirms both the recent surge of interest and its geographic narrowness the field is dominated by China and the United States, with environmental transparency and disclosure quality receiving markedly less attention than performance outcomes.

Kenyan evidence is few still and inconsistent. Kariuki and Kamau (2023) find that entrenched leadership structures weaken responsiveness to disclosure requirements. What is absent is a longitudinal test that isolates financial expertise specifically, controls for firm heterogeneity, and asks under what conditions the effect holds. One further issue must be acknowledged before the hypothesis is stated: CEO financial expertise is not randomly assigned. Firms that intend to upgrade their reporting may deliberately appoint financially expert CEOs (selection), and firms that already disclose well may be more attractive to such executives (reverse causality). No observational design eliminates these concerns entirely, but the present study addresses them in three ways. The fixed-effects estimator identifies the expertise effect from within-firm variation over time, absorbing every stable firm characteristic industry, culture, founding governance that might jointly determine CEO selection and disclosure policy. The hierarchical structure conditions the

expertise effect on the firm attributes (size, age, profitability) most plausibly implicated in executive labour-market matching. And a robustness specification using a lagged dependent variable guard against the possibility that past disclosure drives current CEO characteristics rather than the reverse.

On balance, the mechanisms above converge on a single directional prediction. Where reporting is voluntary and technically demanding as it is on the NSE the executive who possesses the competence to produce a credible report is the executive most likely to produce one:

H₀₁: CEO financial expertise has a positive and statistically significant effect on sustainability disclosure among firms listed on the Nairobi Securities Exchange.

2.3 Moderating Role of Stakeholder Pressure

Before turning to moderation, it is worth being explicit that stakeholder pressure is also expected to exert a direct effect on disclosure, independent of any interaction. Both stakeholder theory and the coercive strand of institutional theory predict that firms facing more powerful, legitimate and urgent claimants disclose more, and the empirical literature broadly concurs (Rudyanto & Siregar, 2018; Islam et al., 2023). The estimation strategy therefore enters stakeholder pressure as a main effect (Model 3) before the interaction is introduced (Model 4), so that the moderation test is conducted net of, and cannot be confounded with, pressure's direct contribution to disclosure.

The conventional expectation for the interaction is that stakeholder pressure and executive capability are complements. On the institutional-theory logic, coercive and normative pressures intensify organisational conformity to

socially valued practices; a financially expert CEO facing an assertive ownership base has both the motive and the means to respond, and the interaction should therefore be positive (Adomako & Tran, 2022).

There is, however, a well-specified counter-argument. Where pressure is intense, the object of managerial attention shifts from getting the report right to getting the report done. Legitimacy can be purchased through the appearance of conformity, and under acute external scrutiny the fastest route to legitimacy is imitation adopting the reporting template that peers and regulators already recognise, rather than exercising the discretionary judgement that expertise makes possible. Disclosure becomes a compliance artefact rather than a strategic instrument, and the marginal value of having a financially sophisticated executive in the chair correspondingly falls. External pressure, on this account, crowds out internal capability (Haque, 2022; Islam et al., 2023). Empirical precedent exists: Chaminda and Lama (2018) found, contrary to their own predictions, that stakeholder demand for sustainability disclosure negatively moderated the relationship between sustainability core values and sustainability risk management.

In the Kenyan setting, the theoretical balance tips decisively toward substitution, and the hypothesis is accordingly stated directionally. Three features of the context support the prediction. First, ownership on the NSE is heavily concentrated, and blockholder pressure is exercised through direct control rather than market discipline; its content is characteristically compliance-oriented meet the guidance, satisfy the regulator, avoid the sanction rather than quality-oriented. Second, enforcement is weak and the reporting template is

exogenously supplied (most visibly by the 2021 NSE ESG Guidance Manual), so the fastest legitimate response to pressure is isomorphic adoption of the template rather than expert judgement about materiality and measurement. Third, under intense pressure even firms led by financially non-expert CEOs are compelled to disclose, compressing the disclosure gap that expertise would otherwise open. Under such conditions, the financially expert CEO's distinctive contribution judgement about materiality and measurement is precisely what gets displaced:

H₀₂: Stakeholder pressure moderates the relationship between CEO financial expertise and sustainability disclosure among firms listed on the Nairobi Securities Exchange.

3. Methodology

3.1 Research Design and Philosophy

The study adopts a positivist research paradigm and an explanatory, longitudinal (panel) design. Positivism is appropriate because the constructs of interest are objectively observable and independently verifiable from public documents, and because the study proceeds deductively from theory to testable hypothesis (Madiill & Gough, 2008). The longitudinal design permits observation of within-firm change over time, which is essential both for the causal inference the hypotheses require and for controlling unobserved, time-invariant firm heterogeneity a first-order concern in disclosure research, where corporate culture, industry affiliation and founding conditions all plausibly confound the executive–disclosure relationship (Hsiao, 2022).

3.2 Population, Sampling and Data

The study window of 2014–2023 was chosen deliberately rather than by

convenience. Its starting point, 2014, marks the first full reporting year after the Capital Markets Authority began the consultations that produced the Code of Corporate Governance Practices for Issuers, and it is the earliest year for which machine-readable annual reports are consistently available for the bulk of the listed population. Its end point, 2023, is the most recent year for which audited annual reports were available at the time of data collection. Critically, the window brackets the NSE's ESG Disclosures Guidance Manual (2021) with seven pre-guidance and three post-guidance years, which allows the estimation sample to capture disclosure behaviour under both the voluntary and the template-guided regimes.

The target population comprises all 65 firms listed on the Nairobi Securities Exchange during the 2014–2023 study window. Firms were retained where they (i) traded actively on the NSE throughout the period, and (ii) reported consistently on all variables of interest. Active trading was defined as the firm's equity recording trades in at least 75% of the NSE's monthly trading sessions in each year of the window, a threshold that excludes shell-like counters whose disclosure incentives differ fundamentally from those of traded firms while retaining the exchange's full breadth of actively priced securities. Firms were excluded where they were delisted or suspended during the period, had missing data on any key variable, used non-standard reporting periods defined as fiscal years not ending on 31 December or reporting at other than annual frequency, which would break the comparability of firm-year observations were undergoing significant restructuring, or were subject to major legal proceedings related to sustainability matters. Notable exclusions on these grounds include ARM Cement PLC (suspended in August 2018 following administration), Deacons East

Africa PLC (suspended in 2020), and Mumias Sugar Company Ltd (effectively non-trading through the period owing to receivership).

Two features of the screening deserve explicit treatment. First, missing data. Of the 33 firms excluded, 14 were removed for delisting, suspension or receivership, 11 for non-standard reporting periods or restructuring, and 8 for incomplete data on one or more key variables in every case because one or more annual or sustainability reports could not be obtained for the full window, so that exclusion operated at the firm level (equivalent to firm-level listwise deletion) rather than through imputation or partial inclusion; no firm-year within the retained panel has missing values. Second, selection. An attrition of 33 firms from a population of 65 is substantial, and delisted or suspended firms may differ systematically from survivors plausibly in the direction of weaker governance and poorer disclosure. To assess this, excluded and retained firms were compared on observable characteristics in the years for which excluded firms' data exist: excluded firms were on average significantly smaller ($p < 0.05$) but did not differ significantly in age or profitability.

The screen yields a balanced panel of 32 firms observed over ten years 320 firm-year observations. Data are secondary and were hand-collected from audited annual reports and standalone sustainability reports, supplemented by the NSE, the Capital Markets Authority and the Central Bank of Kenya. The content analysis was governed by a structured protocol designed to protect coding validity. A coding manual defining each of the 38 index items, with decision rules and worked examples for each scale point, was developed and pilot-tested on five firms (drawn from different sectors) outside the estimation sample; ambiguities identified in the pilot were

resolved and the manual revised before full coding began. Two trained coders then coded all firm-year reports independently. Inter-coder reliability was high (Cohen's $\kappa = 0.87$ across items; Krippendorff's $\alpha = 0.85$), comfortably above the conventional 0.80 threshold for content-analytic research (Krippendorff, 2019), and all discrepancies were resolved by discussion with reference to the manual, with a third adjudicator available for unresolved cases. It is nevertheless acknowledged that hand-coding of qualitative disclosures unavoidably involves interpretive judgement, and the possibility of residual researcher bias in scoring narrative content cannot be fully excluded; the quality-anchored scale points and dual-coder design are the principal safeguards against it.

3.3 Variable Measurement

Dependent Variable

Sustainability disclosure (SD) is measured through content analysis against a 38-item index comprising 4 economic, 9 environmental and 25 social indicators. Rather than a binary present/absent coding, each indicator is scored on a four-point quality scale adapted from Ameer and Othman (2012) and Sheikh Abu Bakar et al. (2019): 0 where no information is disclosed; 1 where information is general and purely qualitative with no tangible data; 2 where information is qualitative but supported by explanation and some statistics; and 3 where information is quantitative and accompanied by substantial supporting data. This quality-weighted approach is deliberate: it is designed to penalise exactly the boilerplate reporting that a simple item-count would reward and is therefore central to the study's ability to distinguish substantive from symbolic disclosure. The firm-year index is the ratio of total score obtained to maximum score attainable and is therefore bounded

between 0 and 1; for readability, descriptive statistics and estimates are reported with the index rescaled by a factor of ten (0–10).

Independent Variable

CEO financial expertise (CEOFE) captures, for each firm-year, the depth of the incumbent CEO's academic and professional grounding in accounting, auditing or finance. Rather than a binary indicator which cannot distinguish a CEO holding a first degree in finance from one who combines a professional qualification with CFO experience CEOFE is coded on a graded 0–3 expertise-depth scale: 0 where the CEO has no accounting, auditing or finance background; 1 where the CEO holds an academic degree in accounting, auditing or finance but no professional credential; 2 where the CEO holds a professional qualification or membership of a recognised professional accounting body (e.g., CPA(K), ACCA, CFA); and 3 where the CEO combines a professional credential with substantive experience in a financial-oversight role such as the CFO seat (Aladwey et al., 2021; Ahmad et al., 2018). The variable is measured at the firm-year level for the CEO in office at the fiscal year-end, so within-firm variation arises from CEO turnover and from incumbents acquiring credentials in post.

Moderating Variable

Stakeholder pressure (SP) is proxied by ownership concentration, measured as the percentage of shares held by owners with at least a 5% shareholding (Thomsen et al., 2006; Rudyanto & Siregar, 2018); the natural logarithm of the concentration percentage, $\ln(\text{SP})$, is used in descriptives and estimation to reduce skew. Concentrated owners exercise dominant control, monitor management directly, and thereby constrain information-

withholding making concentration a defensible proxy for the intensity of stakeholder demand on management. Two caveats attend the proxy. First, ownership concentration captures the blockholder channel of pressure most directly; the regulator, lender and foreign-investor channels described in Section 1 are transmitted largely through blockholders in this market, but alternative operationalisations remain a priority for future work (Section 7.5). Second, concentration may itself respond to disclosure quality better-disclosing firms may attract different investor types introducing a potential reverse-causality channel. The fixed-effects design removes the stable component of this concern, and ownership concentration is highly persistent within firms over the window (its within-firm standard deviation is a small fraction of its level), which limits the scope for disclosure-driven ownership churn; residual simultaneity is nonetheless acknowledged as a limitation.

Control Variables

Following prior disclosure research, the models control for firm size (logarithm of total assets), firm age (natural logarithm of years since incorporation) and profitability (return on assets, computed as net operating income divided by total assets). The selection is deliberate rather than exhaustive: these three are the firm characteristics most consistently and robustly associated with disclosure behaviour in the international and emerging-market literature (Bhatia & Tuli, 2017; Orazalin & Mahmood, 2019; Dienes et al., 2016) size proxying visibility and reporting capacity, age proxying institutional inertia, and profitability proxying slack resources and signalling incentives and a parsimonious specification is appropriate given the panel's modest cross-section ($N = 32$), where each additional regressor

consumes scarce degrees of freedom. Time-invariant determinants such as industry are absorbed by the firm fixed effects (Section 3.4). Candidate time-varying controls leverage and board size were tested in unreported robustness

specifications; neither was significant, and their inclusion left the coefficients of interest unchanged in sign and significance. Broader governance characteristics are acknowledged as potential omitted variables in Section 7.5.

Table 1. Operationalization of Variables

Variable	Operational definition	Measurement	Source
Sustainability disclosure (SD)	Composite index of 38 economic, environmental and social indicators	$\sum x_{ij} / n_j$, each item scored 0–3 on disclosure depth; index bounded 0–1, reported $\times 10$	Ameer & Othman (2012); Sheikh Abu Bakar et al. (2019)
CEO financial expertise (CEOFE)	Depth of CEO academic/professional background in accounting, auditing or finance	Graded score: 0 = none; 1 = relevant degree only; 2 = professional qualification/body membership; 3 = credential plus financial-oversight experience	Aladwey et al. (2021); Ahmad et al. (2018)
Stakeholder pressure (SP)	Ownership concentration	$\ln(\% \text{ of shares held by owners with } \geq 5\% \text{ shareholding})$	Thomsen et al. (2006); Rudyanto & Siregar (2018)
Firm size (FSiz)	Total assets	$\log_{10}$ of total assets in KSh billions	Bhatia & Tuli (2017)
Firm age (FAge)	Years since incorporation	Years since establishment (natural logarithm used in estimation)	Orazalin & Mahmood (2019)
Profitability (FP)	Return on assets	Net operating income $\div$ total assets	Nazari et al. (2015)

3.4 Model Specification and Hypothesis-Testing

Hypotheses are tested using hierarchical moderated panel regression, estimated firm by firm and year by year (i denotes firm, t denotes year). The hierarchical structure is what makes the moderation claim testable: each block is entered sequentially so that the incremental explanatory power attributable to the interaction term can be isolated from the variance already accounted for by the main effects.

Model 1 (Control Variables):

$$SD_{it} = \beta_0 + \beta_1 FSiz_{it} + \beta_2 FAge_{it} + \beta_3 FP_{it} + \varepsilon_{it}$$

Model 2 (Direct Effect of CEO Financial Expertise):

$$SD_{it} = \beta_0 + \beta_1 FSiz_{it} + \beta_2 FAge_{it} + \beta_3 FP_{it} + \beta_4 CEOFE_{it} + \varepsilon_{it}$$

Model 3 (moderator)

$$SD_{it} = \beta_0 + \beta_1 FSiz_{it} + \beta_2 FAge_{it} + \beta_3 FP_{it} + \beta_4 CEOFE_{it} + \beta_5 SP_{it} + \varepsilon_{it}$$

Model 4 (interaction / full moderated model):

$$SD_{it} = \beta_0 + \beta_1 FSiz_{it} + \beta_2 FAge_{it} + \beta_3 FP_{it} + \beta_4 CEOFE_{it} + \beta_5 SP_{it} + \beta_6 (CEOFE_{it} \times SP_{it}) + \varepsilon_{it}$$

Three estimation practicalities deserve note. First, CEO financial expertise and stakeholder pressure were mean-centred before the interaction term was constructed, so that the main-effect coefficients in Model 4 are interpretable as the effect of each variable at the mean level of the other, and nonessential collinearity between the product term and its constituents is reduced. Second, all models are estimated with standard errors clustered at the firm level, which are robust to heteroskedasticity and to arbitrary within-firm serial correlation the appropriate inference basis for a panel of this structure; all reported t-statistics and confidence intervals rest on clustered standard errors. Third, because the estimator is the within (fixed-effects) transformation, the R^2 reported throughout, and the ΔR^2 on which the moderation test relies, is the within R^2 the share of within-firm variance in disclosure explained by the regressors.

Following Fairchild and MacKinnon (2009) and Igartua and Hayes (2021), moderation is inferred only where three conditions hold jointly: the interaction term is significantly different from zero; the model containing the interaction explains significantly more variance than the model without it; and both models are themselves statistically significant. The nature of the interaction is then interpreted through simple-slopes analysis and mod-graph plotting at high and low levels of the moderator (Jose, 2008), which distinguishes an amplifying interaction from a buffering (attenuating) or antagonistic one (Haslbeck et al., 2021).

The choice between fixed- and random-effects estimation was

determined empirically by the Hausman test rather than assumed. The test rejected the null of orthogonality between the individual effects and the regressors ($p < 0.05$), indicating that the random-effects estimator would be inconsistent and that fixed effects is the appropriate specification. This is theoretically reassuring as well as statistically necessary: fixed effects absorb all time-invariant firm characteristics industry, culture, founding governance arrangements and thereby identify the effect of CEO financial expertise from within-firm variation over time, materially strengthening the causal interpretation. Industry, a major determinant of disclosure in cross-sectional designs, is for this reason not entered as a separate set of dummies: industry affiliation is time-invariant over the window and is fully absorbed by the firm fixed effects.

The panel is short-T, wide-N ($T = 10$, $N = 32$), which raises the possibility of dynamic effects in disclosure. A specification including the lagged dependent variable was estimated as a robustness check; because fixed effects with a lagged dependent variable is subject to Nickell (1981) bias in short panels, the check was implemented with a bias-corrected least-squares dummy-variable (LSDV) estimator. The coefficient on lagged disclosure was positive but modest, and the signs, significance and approximate magnitudes of the CEOFE and interaction coefficients were unchanged, indicating that the static specification reported in Section 4 is not driving the conclusions.

3.5 Diagnostic Tests

The panel was subjected to a full battery of pre-estimation diagnostics. Normality of the estimation residuals was assessed via D'Agostino's omnibus and Shapiro–Wilk tests; heteroskedasticity via the Breusch–Pagan/Cook–Weisberg test;

multicollinearity via variance inflation factors; serial correlation via the Wooldridge test, supplemented because the Wooldridge test can have low power at $T = 10$ by the Baltagi–Wu locally best invariant (LBI) statistic (Baltagi & Wu, 1999); cross-sectional dependence, a plausible concern where common shocks (macroeconomic conditions, the 2021 guidance) affect all NSE firms simultaneously, via Pesaran’s CD test (Pesaran, 2015); functional-form misspecification via the Ramsey RESET test; and stationarity via three panel unit-root tests (Levin–Lin–Chu, Harris–Tzavalis and Im–Pesaran–Shin), the last being appropriate given the study’s short- T , heterogeneous panel structure. Given the modest cross-section, the sensitivity of estimates to influential observations was additionally examined using Cook’s distance and DFBETA diagnostics on the pooled specification; no observation exceeded conventional thresholds (maximum Cook’s $D = 0.18$), and re-estimation excluding the five most influential firm-years left all conclusions intact. All analyses were conducted in Stata 17.

4. Results

4.1 Descriptive Statistics

Table 2 summarises the distributional properties of the study variables across 320 firm-year observations, reported in the metrics used in estimation (see table notes). Two features warrant comment. First,

sustainability disclosure exhibits pronounced dispersion ($M = 2.683$, $SD = 1.602$, range 0.035–9.593 on the 0–10 rescaled index equivalently, a mean disclosure ratio of 26.8% of the maximum attainable score), confirming that disclosure among NSE-listed firms is anything but uniform: some firms report extensively and quantitatively, others barely at all, and no firm approaches the ceiling of the index. Second, CEO financial expertise displays substantial heterogeneity ($M = 0.943$, $SD = 0.853$, range 0.002–2.931 on the 0–3 expertise-depth scale), indicating that the modal NSE chief executive holds at most a relevant degree, while a minority combine professional credentials with financial-oversight experience. This variation is not incidental to the study; it is its precondition. Upper echelons theory can only be tested where executives actually differ in cognitive endowment, and they demonstrably do here.

Stakeholder pressure, by contrast, is tightly distributed ($M = 2.397$, $SD = 0.049$, range 2.286–2.474 in logs), indicating that firms in this market operate under broadly comparable levels of external scrutiny. The interpretive consequence is important and is picked up again in the discussion: because there is little between-firm variation in pressure, observed differences in disclosure are unlikely to be driven by pressure alone, and are more plausibly generated by its interaction with executive attributes which is precisely what the moderation test isolates.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Sustainability disclosure	320	2.683	1.602	0.035	9.593
CEO financial expertise	320	0.943	0.853	0.002	2.931
Stakeholder pressure	320	2.397	0.049	2.286	2.474
Firm size	320	1.810	0.048	1.709	1.889
Firm age	320	54.670	11.261	22	77
Profitability	320	0.773	0.204	0.452	1.192

4.2 Diagnostic Tests

Table 3 reports the diagnostic results for the estimation sample. The Breusch–Pagan/Cook–Weisberg test fails to reject constant variance for the full specification ($\chi^2 = 2.03$, $p = 0.155$), and regressor-by-regressor tests reach the same conclusion for every variable individually (all $p > 0.10$); firm-clustered standard errors are nevertheless employed throughout as the conservative inference basis. Residual normality is not rejected by either the Shapiro–Wilk ($W = 0.992$, $p = 0.061$) or D’Agostino omnibus ($\chi^2 = 4.87$, $p = 0.088$) tests; while fixed-effects estimation does not require normality for consistency, this supports the finite-sample validity of the reported inference. Variance inflation factors range from 1.022 to 7.499 with a

mean of 3.316; all fall below the conventional threshold of 10, so multicollinearity does not threaten coefficient stability. The Wooldridge test detects no first-order serial correlation ($F = 1.003$, $p = 0.324$), and given that test’s limited power at $T = 10$ the Baltagi–Wu LBI statistic (1.874, close to its no-autocorrelation benchmark of 2) corroborates the absence of meaningful AR(1) disturbance. Pesaran’s CD test fails to reject cross-sectional independence of the residuals ($CD = 1.42$, $p = 0.156$), indicating that common shocks are adequately absorbed by the specification. The Ramsey RESET test fails to reject correct specification ($F(3, 307) = 3.72$, $p = 0.182$), indicating no evidence of omitted-variable bias or functional-form error.

Table 3. Summary of Diagnostic Tests

Test	Null hypothesis	Statistic	Decision
Breusch–Pagan/Cook–Weisberg	Constant variance (full model)	$\chi^2 = 2.03$ ($p = 0.155$)	Fail to reject; homoskedastic
Shapiro–Wilk (residuals)	Residuals normally distributed	$W = 0.992$ ($p = 0.061$)	Fail to reject; normal
D’Agostino omnibus (residuals)	Residuals normally distributed	$\chi^2 = 4.87$ ($p = 0.088$)	Fail to reject; normal
Variance inflation factor	No multicollinearity	Range 1.022–7.499; mean 3.316	No multicollinearity
Wooldridge	No first-order autocorrelation	$F = 1.003$ ($p = 0.324$)	Fail to reject; no serial correlation
Baltagi–Wu LBI	No AR(1) disturbance	LBI = 1.874	Near benchmark of 2; no serial correlation
Pesaran CD	Cross-sectional independence	$CD = 1.42$ ($p = 0.156$)	Fail to reject; no cross-sectional dependence
Ramsey RESET	Model has no omitted variables	$F(3, 307) = 3.72$ ($p = 0.182$)	Fail to reject; correctly specified
Levin–Lin–Chu (CEOFE)	Panel contains a unit root	-4.585 ($p < 0.001$)	Reject; stationary
Im–Pesaran–Shin (CEOFE)	Panel contains a unit root	-5.421 ($p < 0.001$)	Reject; stationary
Cook’s distance / DFBETA	No influential observations	Max Cook’s $D = 0.18$	Below threshold; no undue influence
Hausman	Random effects preferred	$p < 0.05$	Reject; fixed effects adopted

All variables are stationary at level under Levin–Lin–Chu, Harris–Tzavalis and Im–Pesaran–Shin (all $p < 0.001$), ruling out spurious regression. The panel therefore satisfies the assumptions of fixed-effects estimation, and the inferences that follow rest on a sound error structure.

4.3 Correlation Analysis

Table 4 reports the Pearson pairwise correlation matrix for the variables entering the estimated models. Three patterns are relevant to the hypotheses. First, CEO financial expertise exhibits the strongest bivariate association with sustainability disclosure of any predictor examined ($r = 0.597$, $p < 0.05$). This provides preliminary support for H_{01} in advance of the multivariate tests, and is consistent with the theoretical argument that executives possessing accounting and finance competence are better equipped to recognise the strategic value of sustainability reporting and to embed it within existing performance-measurement systems. The mean-centred interaction term ($\text{CEOFE} \times \text{SP}$) is itself

negatively correlated with disclosure at the bivariate level ($r = -0.221$, $p < 0.05$), giving a first, model-free indication of the attenuating pattern that the multivariate moderation test formalises.

Second, the control variables behave as the literature predicts. Firm size ($r = 0.394$, $p < 0.05$) and profitability ($r = 0.478$, $p < 0.05$) are positively associated with disclosure consistent, respectively, with the visibility hypothesis, under which larger firms face heightened scrutiny and possess greater institutional capacity to operate structured reporting frameworks, and with a joint capacity-signalling account, under which profitable firms can both afford reporting infrastructure and have reputational reasons to use it. Firm age is negatively associated with disclosure ($r = -0.425$, $p < 0.05$), suggesting that institutional inertia and legacy reporting routines inhibit responsiveness to emerging governance norms. Stakeholder pressure is positively correlated with disclosure ($r = 0.396$, $p < 0.05$), consistent with its significant direct effect in the regression models.

Table 4. Pearson Pairwise Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) Sustainability disclosure	1.000					
(2) CEO financial expertise	0.597**	1.000				
(3) Stakeholder pressure	0.396**	0.254**	1.000			
(4) Firm size	0.394**	0.226**	0.938**	1.000		
(5) Firm age	-0.425**	-0.354**	-0.270**	-0.209*	1.000	
(6) Profitability	0.478**	0.286**	0.194**	0.216*	-0.174**	1.000

Third, and importantly for interpretation, stakeholder pressure and firm size are very highly correlated ($r = 0.938$, $p < 0.05$). Larger NSE-listed firms are also those with the most concentrated blockholder ownership, so the two constructs are close to empirically indistinguishable at the

bivariate level. This has a direct bearing on the reading of the results in Section 4.4: firm size is significant in the control-only specification but attenuates once stakeholder pressure is entered, and the two should be understood as capturing overlapping exposure to external

monitoring rather than as fully independent influences. The variance inflation factors reported in Table 3 nevertheless remain within tolerance (all below 10; mean = 3.316), so coefficient estimates are not destabilised. Critically for this study, the correlation between the two focal variables CEO financial expertise and stakeholder pressure is modest ($r = 0.254$), so the interaction term tested in H2 is not compromised by

collinearity between its constituent parts. No other inter-predictor correlation approaches a threatening magnitude.

4.4 Hierarchical Regression Results

Table 5 reports the four-stage hierarchical fixed-effects regression, estimated with firm-clustered standard errors on mean-centred focal variables (Section 3.4); all R^2 values are within R^2 .

Table 5. Hierarchical Fixed-Effects Regression Results

Variable	Model 1	Model 2	Model 3	Model 4
Firm size	0.215***	0.135***	0.105**	0.106**
Firm age	-1.321***	-0.670***	-0.663***	-0.635***
Profitability	0.314***	0.222***	0.219***	0.214***
CEO financial expertise		0.201***	0.203***	0.197***
Stakeholder pressure			0.032**	0.082***
CEOFE × SP				-0.090***
Constant	0.081**	-0.051*	-0.045	-0.023
R^2 (within)	0.5679	0.7798	0.7809	0.7917
ΔR^2		0.2119	0.0011	0.0108
F-statistic	124.85***	142.16***	124.76***	117.84***
Observations	320	320	320	320
Firms	32	32	32	32

Notes: Fixed-effects (within) estimates; firm fixed effects absorbed; standard errors clustered by firm; CEOFE and SP mean-centred prior to construction of the interaction term. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Model 2 reports the direct effect of CEO financial expertise (H1); Model 4 reports the interaction (H02).

Model 1 enters the controls alone and explains 56.8% of within-firm variance in disclosure ($F(3, 285) = 124.85$, $p < 0.001$). Firm size is positive and significant ($\beta = 0.215$, $p < 0.001$), firm age strongly negative ($\beta = -1.321$, $p < 0.001$), and profitability positive ($\beta = 0.314$, $p < 0.001$). The firm-age result is arresting: older NSE firms disclose substantially less, consistent with institutional inertia in legacy reporting systems.

Model 2 introduces CEO financial expertise and provides the direct test of H01. The coefficient is positive and highly significant ($\beta = 0.201$, $SE = 0.034$, $t = 5.83$, $p < 0.001$; 95% CI [0.133, 0.268]), and within-firm R^2 rises to 0.7798 an increment of 21 percentage points over

the control-only baseline. The null hypothesis that CEO financial expertise has no statistically significant effect on sustainability disclosure is therefore rejected, and H01 is supported. Because the estimator is fixed-effects, this is a within-firm result: as the financial expertise of the executive suite rises within a given firm, that firm's disclosure quality rises with it, holding constant every stable characteristic of the firm itself. Model 3 adds stakeholder pressure as a main effect ($\beta = 0.032$, $p < 0.05$), with CEO financial expertise remaining stable ($\beta = 0.203$, $p < 0.001$) the expertise effect is not an artefact of omitted pressure.

Model 4 introduces the interaction term and provides the test of H02. Three findings

emerge. First, CEO financial expertise retains its positive, significant effect ($\beta = 0.197$, $t = 5.85$, $p < 0.001$). Second, stakeholder pressure becomes more strongly significant in the presence of the interaction ($\beta = 0.082$, $p = 0.005$). Third, and decisively, the interaction term is negative and significant ($\beta = -0.090$, $SE = 0.024$, $t = -3.80$, $p < 0.001$; 95% CI $[-0.137, -0.043]$), with within-firm R^2 rising from 0.7809 to 0.7917 ($\Delta R^2 = 0.011$). All three of the moderation conditions specified in Section 3.4 are satisfied: the interaction differs significantly from zero, it adds significant incremental variance, and both the constrained and unconstrained models are significant. H_{02} which predicted attenuation is therefore supported. The negative sign confirms the substitution logic and runs directly counter to the complementarity assumption that pervades the stakeholder-pressure literature.

Simple-slopes analysis clarifies the form of the interaction. Figure 1 plots the relationship between CEO financial expertise and sustainability disclosure at one standard deviation above and below the mean of stakeholder pressure, with

the simple slopes computed directly from the Model 4 coefficients. Under low stakeholder pressure the slope is steep ($b = 0.287$), whereas under high stakeholder pressure it flattens markedly ($b = 0.107$) a reduction of roughly two-thirds in the marginal return to executive financial expertise. The relationship remains positive under both conditions, and the two lines converge rather than cross. This is therefore a buffering, not an antagonistic, moderation: stakeholder pressure does not reverse the benefit of executive financial expertise, it erodes it. The convergence pattern is itself informative. At low levels of financial expertise, firms under high stakeholder pressure disclose substantially more than their low-pressure counterparts external scrutiny is doing the work that internal capability cannot. At high levels of financial expertise, the gap all but disappears: the two conditions produce nearly identical disclosure. Pressure and expertise are, in other words, alternative routes to the same reporting outcome, and each is worth most where the other is absent. That is the visual signature of substitution.

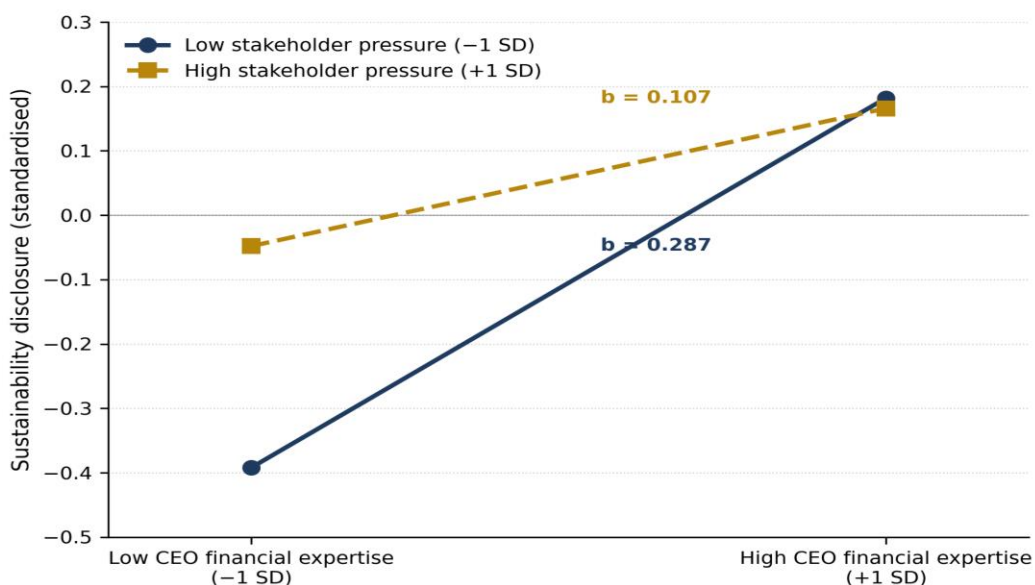


Figure 1. Moderating effect of stakeholder pressure on the relationship between CEO financial expertise and sustainability disclosure

5. Discussion

The first finding is broadly confirmatory but consequential. CEO financial expertise is a robust, positive determinant of sustainability disclosure among NSE-listed firms, and its explanatory contribution is substantial: the addition of this single attribute lifts within-firm explained variance from 57% to 78%. The result aligns with the growing body of evidence that financial expertise enhances executives' capacity to interpret sustainability metrics, allocate resources to sustainability initiatives, and ensure compliance with reporting standards (Shahab et al., 2020). It also validates the core upper echelons proposition in a setting where that proposition should hold most strongly: where regulation is permissive and enforcement weak, disclosure is a discretionary act, and discretionary acts bear the imprint of the person exercising them. It is worth being precise about what the quality-weighted index implies here. Because disclosure is scored on depth—a quantitative, data-backed disclosure earning three times the score of a generic narrative one—the expertise effect is not merely an effect on reporting volume. Financially expert CEOs are associated with disclosure that is more quantitative, more specific, and more auditable. This is the mechanism the theory predicts, and it is the mechanism the measurement is designed to detect.

The second, stakeholder pressure exerts a positive direct effect on disclosure: firms under greater scrutiny disclose more, consistent with legitimacy and stakeholder theory—and yet it significantly attenuates the effect of CEO financial expertise. The two are substitutes, not complements. Under intense external pressure, the strategic problem facing management changes character. It ceases to be 'what should we disclose, and how should we measure it?'—a question of judgement, on which a financially expert

CEO has a comparative advantage—and becomes 'what must we disclose to satisfy those watching us?'—a question of compliance, on which she has none. The reporting template is supplied exogenously; the discretion that expertise exists to exercise is foreclosed. Firms under high pressure converge on isomorphic, compliance-driven reporting, and in that convergence the distinctive value of executive financial sophistication is diluted. This is consistent with evidence that external pressure can crowd out internal strategic capabilities and push firms toward superficial or symbolic sustainability practices (Haque, 2022; Islam et al., 2023), and it echoes the unexpected negative moderation Chaminda and Lama (2018) reported in the sustainability risk-management context.

The regulatory shock documented in the introduction gives this mechanism a concrete institutional face. When the NSE issued its ESG Disclosures Guidance Manual in 2021, it did what template-issuing regulators do: it converted an open-ended judgement problem into a checklist. The isomorphic pressure on listed firms intensified sharply: the manual supplied the legitimated format, the CMA Code supplied the sanctioning backdrop, and blockholders supplied the transmission mechanism. In precisely the terms of DiMaggio and Powell (1983), coercive pressure standardised the response: firms could satisfy their monitors by conforming to the template, and the space in which a financially expert CEO could creatively exercise reporting discretion—choosing what is material, how to measure it, and how far to go beyond the minimum contracted accordingly. The substitution effect estimated over the full panel is thus not an abstraction; it is observable institutional history, and it is exactly the pattern one would expect a 2021

template shock to amplify in the closing years of the window.

Three alternative explanations for the negative interaction deserve consideration. The first is a ceiling effect: if high-pressure firms were already disclosing near the maximum of the index, there would simply be less headroom for expertise to matter, and the interaction would be negative for purely mechanical reasons. The data speak against this. The highest observed disclosure score is 9.593 on a 0–10 scale, but the sample mean is 2.683, and even firms in the top pressure tercile average well below half of the attainable maximum the ceiling is nowhere binding for the overwhelming majority of observations. What the convergence pattern in Figure 1 shows is not saturation at the top of the scale but convergence at an interior level of disclosure, which is the signature of substitution rather than of a bounded outcome. The second alternative is non-linearity in the expertise effect itself: if returns to expertise are concave, and high-pressure firms happen to sit at higher expertise levels, a spurious negative interaction could emerge. A robustness specification adding a quadratic expertise term found it insignificant, and the modest correlation between expertise and pressure ($r = 0.254$) gives the confound little purchase. The third a time-varying omitted variable correlated with both pressure and the expertise–disclosure relationship cannot be excluded by design in any observational study; the fixed-effects structure absorbs all stable confounders, the diagnostic battery detects no misspecification, and a robustness check including year dummies leaves the interaction intact, but residual time-varying confounding.

The proxy for stakeholder pressure sharpens the substitution interpretation. Ownership concentration transmits pressure through direct control

rather than market discipline, and the demands of blockholders are characteristically compliance-oriented meet the guidance, satisfy the regulator, avoid sanction rather than quality-oriented. It is entirely intelligible that this species of pressure should displace, rather than mobilise, the CEO's professional judgement. A different proxy institutional investor activism, say, or NGO campaign intensity might well yield a different interaction sign, and that is an empirical question worth pursuing.

Hence, the internal capability that produces high-quality disclosure and the external pressure that produces high-volume disclosure are not additive. Regulators who assume they can substitute the latter for the former may be trading substance for form.

6. Conclusion

This study set out to determine whether CEO financial expertise drives sustainability disclosure among firms listed on the Nairobi Securities Exchange, and whether stakeholder pressure conditions that relationship. Using a balanced panel of 320 firm-year observations from 32 firms over 2014–2023, and a quality-weighted 38-item disclosure index estimated under Hausman-selected fixed effects, it reaches two conclusions. First, CEO financial expertise is a significant and substantively important determinant of sustainability disclosure ($\beta = 0.201$, $p < 0.001$). Executives with grounding in accounting, auditing or finance preside over disclosure that is not merely more extensive but more quantitative and more verifiable. In a voluntary, weakly enforced reporting regime, who sits in the chair matters and what they were trained to do matters most of all. Upper echelons theory is affirmed, and affirmed in a context where its predictions have rarely been tested.

Second, and against the prevailing assumption in the literature, stakeholder pressure attenuates rather than amplifies this effect ($\beta = -0.090$, $p < 0.001$). External pressure raises disclosure directly while simultaneously eroding the marginal contribution of internal expertise—a substitution effect consistent with a shift from discretionary, judgement-based reporting toward symbolic, compliance-driven reporting as scrutiny intensifies. This is a boundary condition on upper echelons theory that the literature has not adequately theorised: executive human capital is efficacious, but its efficacy is institutionally contingent, and the institutional environment is capable of suppressing the very capability it appears to demand. These conclusions land at a pivotal moment in Kenya's own regulatory trajectory. The country has moved, in less than a decade, from the CMA's Code of Corporate Governance Practices for Issuers (gazetted in 2015 and progressively enforced thereafter), through the NSE's ESG Disclosures Guidance Manual (2021), toward the anticipated phased adoption of the ISSB's IFRS S1 and S2 standards—a trajectory that steadily raises the pressure on listed firms to disclose. This study's evidence suggests that each escalation of pressure, if unaccompanied by investment in reporting capability and by quality-sensitive enforcement, risks reproducing at greater scale the pattern already visible in the data: more reports, thinner content. The broader lesson for emerging-market disclosure policy is that pressure and capability are not interchangeable instruments. A regime that maximises pressure while neglecting capability may produce a great many reports that say very little.

7. Recommendations and Implications

7.1 Implications for Theory

The study makes three contributions. Theoretically, it identifies a boundary condition on upper echelons theory: executive human capital is not unconditionally efficacious, and the institutional environment can suppress the very capability it ostensibly summons. The prevailing formulation treats executive attributes as exerting a relatively unconditional influence on strategic outcomes; the present evidence shows that influence is institutionally contingent. This substitution finding sits uneasily with the complementarity assumption implicit in much of the stakeholder-pressure literature and invites a more careful specification of when external demand crowds out, rather than crowds in, internal competence. It simultaneously adds nuance to institutional and stakeholder theory by demonstrating that coercive pressure does not always amplify internal capability—it may override or distort it, channelling firms toward symbolic conformity. Empirically, the study supplies rare longitudinal evidence from an African emerging market, where the low-enforcement, high-discretion setting makes executive characteristics unusually consequential and therefore unusually visible. Future theorising should specify the conditions under which pressure and capability operate as complements versus substitutes, rather than assuming the former.

7.2 Recommendations for Boards and Management

The four measures below are deliberately ordered by a joint criterion of urgency and feasibility: the first two are low-cost governance changes

implementable within a single appointment or appraisal cycle and should be prioritised; the third and fourth require sustained investment and organisational build-out, and are correspondingly medium-term undertakings.

First, and most immediately, treat financial expertise as a sustainability competence, not merely a financial one. Boards should weight accounting, auditing and finance credentials explicitly in CEO selection, succession planning and executive development, on the evidence that such credentials materially improve the credibility and depth of sustainability reporting. The logic extends beyond the CEO: although this study isolates the chief executive, the same mechanisms measurement competence, assurance orientation, materiality judgement plausibly operate through the CFO, the audit committee and board-level financial literacy generally, and testing those loci is flagged below as a research priority; boards need not wait for that evidence to apply the credential lens across the senior reporting chain.

Second, embed sustainability performance into CEO appraisal and reward. Where disclosure quality is not measured and not rewarded, it depends entirely on individual disposition. Linking sustainability disclosure outcomes to executive performance evaluation and incentive schemes institutionalises what currently rests on discretion.

Third, invest in continuous professional development that exposes incumbent executives to contemporary ESG frameworks, stakeholder-engagement strategy and integrated disclosure standards. This may be particularly valuable for longer-serving CEOs: tenure effects were not analysed in this study, so the point is offered as a plausible extension rather than a finding, but prior Kenyan evidence that entrenched leadership structures weaken

responsiveness to disclosure requirements suggests that development programmes targeted at long-serving executives are a sensible precaution.

Fourth, build internal reporting capability rather than relying on external pressure to drive disclosure. The substitution finding is a direct warning against the assumption that scrutiny alone will generate quality. Dedicated sustainability units, cross-functional reporting teams and internal controls over non-financial information reduce dependence on external prompting and support substantive rather than symbolic integration. The same finding carries a governance corollary: because pressure is the moderator, boards should rethink how stakeholders are engaged, not only whether internal capability is built. Structured engagement that converts blockholder and lender demands from template-compliance requests into substantive dialogue about materiality gives the expert CEO room to exercise judgement rather than foreclosing it.

7.3 Recommendations for Regulators and Policymakers

The practical message of the study for regulators is uncomfortable but actionable: policies that raise the pressure to disclose without simultaneously raising the standard of what counts as disclosure may succeed in producing more reports and less information. Four measures follow, ordered by urgency.

First, regulate for quality, not volume. The finding that pressure attenuates the expertise effect implies that pressure-based regimes risk generating compliance-driven reporting. The Capital Markets Authority and the NSE should incentivise the depth, specificity and verifiability of disclosures rather than their mere presence for example by scoring disclosures on quality bands rather than binary compliance. Concretely, the

quality-anchored scale used in this study (0 = no disclosure; 1 = generic narrative; 2 = explained and partially quantified; 3 = quantified with supporting data) illustrates how such bands could be constructed. Feasibility requires clear institutional assignment: the CMA, as the statutory regulator, is best placed to mandate band-based scoring within its Code; the NSE to operate an annual scored disclosure review of listed firms, as it already does for governance; and an independent assessment panel accredited professional bodies such as ICPAK, or a university-based scoring unit to perform the scoring at arm's length from both issuers and the exchange, with results published to give the bands market consequence.

Second, strengthen assurance requirements for non-financial reporting. External assurance is the most direct institutional check on symbolic disclosure, and financially expert executives are precisely the actors best placed to implement it. Because assurance is costly prohibitively so for smaller listed firms implementation should be phased and proportionate: mandatory limited assurance for the largest market-capitalisation segment first, extending to the remainder of the main board over a three-to-five-year transition, with smaller listed firms permitted a comply-or-explain regime or targeted exemptions until assurance markets deepen and costs fall.

Third, standardise reporting formats and link sustainability metrics to financial disclosures, so that the analytical competences financially expert CEOs already possess can be brought fully to bear on non-financial reporting a step the anticipated adoption of IFRS S1 and S2 would substantially advance.

Fourth, consider mandatory minimum sustainability disclosure standards to reduce the market's dependence on individual CEO discretion

while recognising, on this study's evidence, that mandating disclosure without capability-building may simply shift the equilibrium toward boilerplate.

7.4 Recommendations for Investors and Other Stakeholders

Because stakeholder pressure is the moderator in this study, its results speak to the pressure-givers as much as to the pressured. If investors cannot distinguish disclosure quality from disclosure volume, the pressure they exert will remain volume-oriented, and the substitution dynamic documented here will persist. Three implications follow. Institutional investors and blockholders should recalibrate their engagement from template-compliance monitoring toward materiality-focused dialogue asking not whether a report exists but whether its contents are specific, quantified and assured. Development finance institutions and lenders, whose ESG covenants are among the most binding pressure channels in this market, should write those covenants in quality terms (assured indicators, quantified targets) rather than as reporting-existence conditions. And the CMA and NSE should complement issuer-side regulation with investor-education programmes that equip domestic institutional and retail investors to read, score and price disclosure quality converting the demand side of the market into a force for substance rather than volume.

7.5 Limitations and Directions for Future Research

Five limitations bound these conclusions. First, the cross-section is modest. Although 32 firms represent the substantial majority of the NSE's market capitalisation and a ten-year balanced panel yields 320 observations, $N = 32$ constrains statistical power particularly for interaction tests, which are demanding

of data widens confidence intervals, and limits generalisability beyond the established, actively traded segment of the exchange; the survivorship screen documented in Section 3.2 reinforces that boundary. The interaction estimate reported here clears conventional significance thresholds comfortably, but replication on larger cross-sections, including cross-country African samples, is needed before the substitution effect can be treated as settled. Second, measurement scales deserve candour: the transformations applied to the study variables (the $\times 10$ rescaling of the disclosure index, the graded 0–3 expertise score, and the log transformations of pressure and size) mean that coefficient magnitudes are not directly comparable across studies using raw percentages or binary indicators, and the compressed observed range of the pressure variable ($SD = 0.049$ in logs) limits the moderator's leverage in the sample. Third, stakeholder pressure is proxied by ownership concentration alone. Alternative operationalisations regulatory intensity, media scrutiny, institutional-investor activism, NGO campaign pressure may capture different dimensions of pressure and could plausibly yield a different interaction sign; this is the single most valuable robustness extension available. Fourth, financial expertise is measured through observable credentials, which proxy for but do not directly observe the cognitive processes upper echelons theory posits, and notwithstanding the fixed-effects design and robustness checks residual endogeneity from time-varying selection cannot be fully excluded. Fifth, the single-country design that gives the study its contextual depth necessarily limits generalisability.

Future work might therefore: (i) disaggregate stakeholder pressure into coercive, normative and mimetic components and test each separately

against the expertise effect; (ii) complement demographic proxies with specific psychological and behavioural constructs prosocial motivation, regulatory focus and cognitive complexity are the most promising candidates, being both theoretically proximate to disclosure judgement and measurable with validated instruments rather than a diffuse “sustainability mindset”; (iii) extend the executive lens beyond the CEO to CFO expertise, audit-committee financial expertise and board-level financial literacy, whose relative contributions this design cannot separate; (iv) extend the dependent variable beyond conventional ESG indices to integrated reporting, climate-related financial disclosures and assurance practice; (v) employ qualitative or mixed methods to observe directly the decision processes through which financially expert CEOs shape reporting choices; and (vi) conduct cross-country comparisons between emerging and developed markets to establish whether the substitution effect documented here is a feature of weak-enforcement environments specifically.

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