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Preventive Internal Controls and Earnings Quality: Evidence from Firms Listed at the Nairobi Securities Exchange

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Abstract

Financial statements aid a wide range of users in economic decision-making, and the usefulness of the income statement depends on the quality of the earnings it reports. Reported earnings among firms listed at the Nairobi Securities Exchange (NSE) have fluctuated considerably over time, raising the question of whether the strength of preventive internal controls explains this variability. This study evaluated the effect of preventive internal controls on the earnings quality of NSE-listed firms. Anchored on agency theory and the rational expectations (inspired confidence) theory, the study adopted a descriptive causal design based on cross-sectional regression analysis. A census of the 63 NSE-listed companies was targeted; after pilot testing with 6 firms, 46 of the remaining 57 (80.7%) provided usable responses. Primary data on preventive controls were collected via a five-point Likert-scale questionnaire covering segregation of duties, staff rotation, compulsory leave, and physical/access controls, and converted into a Preventive Controls Indicator Ratio (PCIR). Secondary data on earnings persistence (EPER), the proxy for earnings quality, were drawn from audited annual financial statements. Diagnostic tests confirmed normality, linearity, homoscedasticity, and the absence of serious multicollinearity. Both bivariate and multivariate regressions showed that preventive internal controls were positively and significantly associated with earnings quality (bivariate: $\beta = 0.7324$, $t = 21.308$, $p < 0.001$; multivariate: $\beta = 0.6836$, $t = 2.469$, $p = 0.018$), leading to rejection of the null hypothesis. The study concludes that preventive internal controls are strongly associated with the reliability of earnings, consistent with a role in shaping it reported by NSE-listed firms and recommends that boards and audit committees institutionalize and continuously strengthen segregation of duties, staff rotation, and access controls as a deliberate earnings-quality safeguard.

Keywords: preventive internal controls; earnings quality; earnings persistence; agency theory; Nairobi Securities Exchange.

1. Introduction

The primary rationale for financial reporting is to provide reliable information that supports the wide range of economic decisions made by shareholders, creditors, regulators and other stakeholders. Among the pieces of information disclosed in financial statements, none is more scrutinised than performance as reported in the statement of comprehensive income. For the

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income statement to be useful for decision-making, the earnings it reports must be of high quality that is, they must accurately and reasonably reflect the underlying economic performance of the entity (Christensen et al., 2022).

The quality of reported earnings is shaped, among other factors, by the strength of the system used to measure, record and present income and expense items, which in turn is a function of the internal control environment of the reporting entity. Internal controls are the procedures and guidelines instituted by those charged with governance to promote efficiency, ensure adherence to policy and provide reasonable assurance that an entity's objectives will be met (Chen et al., 2020). Knechel and Salterio (2016) classify internal controls into four broad categories: preventive controls, detective controls, corrective controls and directive controls. Of these, preventive controls are of particular interest because they operate *ex ante* they are designed to stop errors and fraud from occurring in the first place, through mechanisms such as segregation of duties, staff rotation, compulsory leave and physical and access controls (Whittington & Pany, 2015).

Preventive controls are theorised to affect earnings quality through a specific channel: by constraining opportunities for unauthorised or unilateral action over the accounting records — segregation of duties, staff rotation, compulsory leave and access restrictions each reduce the scope for a single individual to initiate, conceal and record a transaction without independent oversight (Knechel & Salterio, 2016). Where this channel is weak, the accounting numbers reported in a given period are more exposed to manipulation or error, which manifests empirically as earnings that are less persistent — that is, less predictive of future earnings — because manipulated or erroneous components reverse or are corrected in subsequent periods (Christensen et al., 2022). This is why earnings persistence, rather than the level of earnings itself, is used here as the proxy for earnings quality: it captures the *reliability over time* of reported earnings rather than their magnitude, and is the proxy most directly implicated by the proposed mechanism.

At the Nairobi Securities Exchange (NSE), reported earnings of listed companies have fluctuated markedly over time, with some firms reporting substantial profits, others heavy losses, and yet others barely breaking even. It is not clear whether this volatility is systematically related to the strength of the preventive controls that these firms have instituted. While a considerable body of literature links internal controls broadly to financial performance (e.g., Kamau, 2013; Lagat, Okelo & Terer, 2016; Njui, 2012), comparatively little of it isolates the specific contribution of preventive controls to earnings quality, and even less of it does so in the context of firms listed at the NSE. This gap motivates the present study.

1.1 Statement of the Problem

Between 2019 and 2022, Nairobi Securities Exchange (NSE) listed firms restated previously reported earnings / received qualified audit opinions relating to revenue or expense recognition (NSE, 2023). Unreliable earnings of this kind carry direct costs for users of NSE financial statements: investors may misprice securities, creditors may misjudge repayment capacity, and regulators may be slower to detect distress, each of which weakens confidence in the exchange as a whole (Christensen et al., 2022).

Existing Kenyan and East African studies have examined internal controls in relation to these problems, but almost entirely at the level of financial performance or the control environment as a whole, rather than isolating preventive controls' effect on earnings reliability specifically (Njui,

2012; Lagat, Okelo & Terer, 2016). Because preventive controls are the only category of control that acts *before* a misstatement occurs — detective, corrective and directive controls all operate after the fact — a firm's earnings reliability should be particularly sensitive to their strength. Whether this is empirically the case at the NSE is not known, and it is this specific, previously untested link that the present study investigates.

1.2 Objective and Hypothesis

The objective of the study was to evaluate the effect of preventive internal controls on the earnings quality of companies listed at the Nairobi Securities Exchange. Correspondingly, the study tested the following null hypothesis:

H₀: Preventive internal controls have no significant effect on the earnings quality of companies listed at the Nairobi Securities Exchange.

2.0 Literature Review

2.1 Theoretical Review

The study draws primarily on agency theory and the rational expectations (inspired confidence) theory. Agency theory, developed by Jensen and Meckling (1976), views the firm as a nexus of contracts between principals (owners) and agents (managers) whose interests may diverge, giving rise to agency costs. Preventive internal controls — particularly segregation of duties and access controls — are understood as governance mechanisms that constrain managers' opportunities to act in self-interested ways at the expense of shareholders, thereby aligning reported earnings more closely with true economic performance.

The rational expectations, or “theory of inspired confidence”, advanced by Limperg (1932), holds that the function of the audit and of internal control more broadly is to inspire a level of confidence among users of financial statements that is commensurate with what those controls can reasonably deliver. Applied to preventive controls, the theory suggests that a firm which credibly demonstrates strong preventive measures should, in turn, produce financial information that stakeholders can rely upon, resulting in more persistent and predictable earnings.

2.2 Conceptual Review: Preventive Internal Controls

Preventive controls are accounting controls established as a check against the possible occurrence of errors and fraud, and they form a critical, regularly-applied component of a firm's overall internal control system (Whittington & Pany, 2015). Four sub-constructs are commonly identified in the literature. First, review and approvals entail the regular review of processes and the approval of transactions by designated individuals such as supervisors, heads of department and general managers, to confirm authenticity and adherence to organisational guidelines (Knechel & Salterio, 2016). Second, segregation of duties requires that the stages of a transaction authorisation, custody, record-keeping and reconciliation be handled by different individuals, so that no single person controls a transaction end-to-end, thereby reducing the risk of material misstatement (Knechel & Salterio, 2016). Third, staff rotation involves periodically moving employees between roles, which both builds versatility and reduces the likelihood that any one individual can conceal irregularities indefinitely (Whittington & Pany, 2015). Fourth, access and physical controls such as CCTV surveillance, password-protected systems and restricted physical access deter unauthorised access to sensitive assets, materials or information (Whittington & Pany, 2015).

Although these four sub-constructs are conceptually distinct — governing, respectively, transaction approval, task allocation, enforced absence, and physical/system entry — they are combined in this study into a single Preventive Controls Indicator Ratio (PCIR), on the grounds that they jointly represent a firm's overall preventive posture rather than four independent controls to be assessed in isolation (see Section 3.4). One consequence of this composite treatment is that the analysis cannot identify which sub-construct is driving the observed effect; this is noted as a limitation in Section 5.3.

2.3 Empirical Review

A number of studies have examined the relationship between internal controls, of which preventive controls form a part, and financial reporting quality or earnings quality across different contexts. In Iran, Dashtbayaz, Salehi and Safdel (2019) studied the effect of internal controls on the financial reporting quality of family-owned businesses using panel data from 139 firms over the 2013–2017 period, and found that weaknesses in internal control systems corresponded with poorer quality financial reporting and earnings, and vice versa. In China, Lin and Yu (2015) examined the relationship between internal control quality and earnings persistence for firms listed on the Shanghai Stock Exchange over 2008–2011 and found that stronger internal controls were associated with greater earnings persistence.

In Nigeria, Omonyemen, Josiah and Godwin (2017) examined preventive, detective and corrective internal control measures among listed banks and found that the size, quality and independence of the internal control function positively influenced fraud detection, with implications for the reliability of reported financial figures. Also in Nigeria, Ajao and Oluwadamilola (2020) found that internal control systems had a positive influence on the quality of financial reporting among insurance firms. In France, Wali and Masmoudi (2020) found that stronger internal controls constrained real earnings management, while Arian (2024), studying CAC 40 firms, similarly linked stronger management control systems to higher earnings quality. Closer to the present context, Kiragu, Simiyu and Sitienei (2024) found relatively strong internal controls among manufacturing firms listed at the NSE, corroborating the view that NSE-listed firms as a category tend to maintain reasonably robust control environments.

Taken together, these studies establish a broad expectation that stronger internal controls, including preventive controls specifically, are associated with higher-quality, more persistent earnings. However, most of this evidence originates outside Kenya, and studies conducted locally have tended to examine internal controls in aggregate or in relation to financial performance rather than isolating the effect of preventive controls on earnings quality. The present study addresses this gap.

3. Methodology

3.1 Research Philosophy and Design

The study adopted a positivist research philosophy, consistent with its reliance on quantitative data and hypothesis testing (Bryman & Harley, 2022). A descriptive causal research design based on cross-sectional multiple linear regression was used, supplemented by multiple correlation analysis, to establish both the descriptive characteristics of the study variables and the causal effect of

preventive controls on earnings quality.

3.2 Population, Sampling and Data

The target population comprised all 63 companies listed at the NSE. Because of the relatively small size of this population, a census approach was adopted rather than sampling. Six firms were used for pilot testing, leaving 57 firms for the main study, of which 46 firms (an 80.7% response rate) provided usable data, with 11 firms (19.3%) not responding.

Primary data on preventive controls were collected using a structured questionnaire administered to internal auditors, employing a five-point Likert scale to capture the perceived strength of segregation of duties, staff rotation, compulsory leave and physical/access controls. Secondary data on earnings persistence, the study's proxy for earnings quality, were extracted from the audited annual financial statements of the sampled firms, using earnings per share (EPS) as the underlying basis.

3.3 Reliability

The internal consistency of the preventive controls construct, comprising five items, was assessed using Cronbach's alpha during pilot testing. A coefficient of 0.868 (0.869 on standardised items) was obtained, exceeding the conventional cut-off of 0.700 (Bryman & Harley, 2022) and confirming that the items reliably measured the preventive controls construct.

3.4 Variable Measurement and Model Specification

Preventive controls (the independent variable of interest) were operationalised as the Preventive Controls Indicator Ratio (PCIR), computed as the mean Likert response for the preventive controls items divided by 5, yielding a continuous index ranging from 0 to 1. Earnings quality (the dependent variable) was operationalised as earnings persistence (EPER), derived from EPS data. The bivariate relationship between the two was specified as:

$$EPER = \beta_0 + \beta_1 PCIR + e \quad (\text{Equation 1})$$

where β_0 is the intercept, β_1 is the coefficient of PCIR, and e is the error term. To assess the robustness of the bivariate result, PCIR was also entered alongside detective, corrective and directive control indicators in a multivariate specification, as reported in Section 4.5.

Earnings quality is a multidimensional construct, and earnings persistence is one of several proxies used in the literature alongside accruals quality, earnings predictability, and earnings smoothness (Christensen et al., 2022). Persistence was selected here because it is the proxy most directly tied to the theoretical mechanism under study (Section 1) and because it can be derived reliably from EPS data across all sampled firms without requiring firm-level accrual decomposition, which was not feasible given the study's cross-sectional design and data access.

3.5 Diagnostic Tests

Prior to regression analysis, the data were tested for normality, linearity, homoscedasticity and multicollinearity. All tests confirmed that the assumptions underlying ordinary least squares regression were satisfied, permitting the use of linear regression for hypothesis testing (full diagnostic results are summarised in Section 4.2).

4.0 Findings

4.1 Response Rate and Descriptive Statistics

Of the 57 firms targeted after pilot exclusion, 46 firms returned usable questionnaires, a response rate of 80.7%. Table 1 presents the descriptive statistics for the Preventive Controls Indicator Ratio (PCIR).

Table 1. Descriptive Statistics for PCIR

Statistic	PCIR value
Mean	0.7965
Median	0.6826
Standard Deviation	0.3620
Sample Variance	0.1310
Coefficient of Variation	0.4545
Skewness	0.4139
Kurtosis	2.8958
Range	0.9000
N	46

The mean PCIR of 0.7965 indicates that, on a scale of 0 to 1, preventive internal controls among NSE-listed firms are relatively strong, a finding consistent with Kiragu, Simiyu and Sitienei (2024), who also reported strong internal controls among manufacturing firms listed at the NSE. The median of 0.6826 lies reasonably close to the mean, suggesting a broadly symmetric distribution with a slight leftward skew. The coefficient of variation of 0.4545 indicates moderate variability in the strength of preventive controls across firms, while a skewness of 0.4139 and kurtosis of 2.8958 fall within the generally accepted ranges for approximate normality (skewness between -2 and $+2$; kurtosis between 2 and 4), supporting a mesokurtic distribution suitable for parametric analysis (Black, 2023).

4.2 Diagnostic Tests

Multicollinearity diagnostics showed a Variance Inflation Factor (VIF) for PCIR of 1.166 and a corresponding tolerance of 0.857, both comfortably within the acceptable thresholds ($VIF < 5$) recommended by Gujarati and Porter (2009), confirming that PCIR was not problematically correlated with the other internal control indicators. Tests of normality, linearity and homoscedasticity likewise confirmed that the assumptions of ordinary least squares regression were satisfied, supporting the use of linear regression for hypothesis testing.

4.3 Correlation Analysis

Multiple correlation analysis revealed a statistically significant, moderate positive correlation between PCIR and earnings persistence (EPER) of $r = 0.4964$ ($p < 0.05$). This implies that improvements in preventive internal controls are associated with corresponding improvements in earnings quality. The finding is consistent with Arian (2024), who reported a similar pattern among CAC 40 firms in France, and with Lin and Yu (2015), who found that stronger internal controls corresponded with greater earnings persistence among Chinese listed firms.

4.4 Bivariate Regression Analysis

Table 2. Bivariate Regression of EPER on PCIR

Regression statistic	Value
Multiple R	0.4964
R Square	0.2464
Adjusted R Square	0.2874
Standard Error	0.0357
F statistic	4.5401
Significance F	0.0406
Intercept (β_0)	0.1250 (t = 2.110, p = 0.0001)
PCIR coefficient (β_1)	0.7324 (t = 21.308, p < 0.0001)
N	46

The bivariate regression output in Table 2 shows an R Square of 0.2464, indicating that preventive controls alone explain approximately 24.6% of the variation in earnings persistence among NSE-listed firms (28.7% after adjustment). The overall model was statistically significant (F = 4.4501, p = 0.0406), and the PCIR coefficient of 0.7324 was positive and highly significant (t = 21.308, p < 0.0001), exceeding the critical t-value of 2.0141 at the 95% confidence interval. On this basis, the null hypothesis that preventive internal controls have no significant effect on earnings quality is rejected.

4.5 Multivariate Regression Analysis

To assess the robustness of the bivariate result, PCIR was entered jointly with detective (DCIR), corrective (CCIR) and directive (DRIR) control indicators in a multivariate model. The joint model produced a Multiple R of 0.6730 and an R Square of 0.4529 (adjusted R Square = 0.4112), indicating that the four internal control indicators together explain 45.3% of the variation in earnings persistence — a marked improvement on any single bivariate coefficient. The model was statistically significant overall (F = 20.786). Table 3 presents the coefficient estimates.

Table 3. Multivariate Regression Coefficients for EPER

Variable	Coefficient	t-statistic	p-value
Intercept	0.3981	1.163	0.2513
PCIR	0.6836	2.469	0.0177
DCIR	0.3818	4.286	0.0001
CCIR	0.3305	2.091	0.0427
DRIR	0.6477	2.189	0.0342

Even after controlling for detective, corrective and directive controls, the PCIR coefficient remained positive and statistically significant ($\beta = 0.6836$, t = 2.469, p = 0.0177), exceeding the critical t of 2.018 at 42 degrees of freedom and the 95% confidence interval. This confirms that the effect of preventive controls on earnings quality documented at the bivariate level is not an artefact of omitted variables and holds when the other categories of internal control are held constant.

4.6 Discussion

These findings are consistent with prior evidence linking stronger internal controls to higher-quality financial reporting. Dashtbayaz, Salehi and Safdel (2019) similarly found that weaknesses in internal control systems corresponded with poorer-quality financial reporting and earnings among Iranian family firms, while Ajao and Oluwadamilola (2020) reported a positive association between internal control systems and financial reporting quality among Nigerian insurance firms. The results also corroborate Kiragu, Simiyu and Sitienei (2024), who found relatively strong internal controls among NSE-listed manufacturing firms, lending contextual credibility to the present mean PCIR of 0.7965.

From a theoretical perspective, the positive and significant effect of preventive controls on earnings persistence is consistent with the rational expectations (inspired confidence) theory of Limperg (1932), under which strong preventive measures are expected to inspire the confidence of investors and other stakeholders in reported financial information. It is equally consistent with agency theory (Jensen & Meckling, 1976): preventive mechanisms such as segregation of duties and physical/access controls constrain the scope for managers to act opportunistically at the expense of shareholders, thereby narrowing the agency conflict and producing earnings that more faithfully track underlying economic performance.

5. Conclusion

This study evaluated the effect of preventive internal controls on the earnings quality of firms listed at the Nairobi Securities Exchange. The evidence, from both correlation and regression analysis at the bivariate and multivariate level, consistently shows that preventive internal controls have a positive and statistically significant effect on earnings quality as measured by earnings persistence. The null hypothesis that preventive internal controls have no significant effect on earnings quality is therefore rejected. It is concluded that preventive internal controls segregation of duties, staff rotation, compulsory leave and physical/access controls are instrumental in shaping the reliability of earnings reported by NSE-listed firms, such that firms with stronger preventive controls tend, on this cross-sectional evidence, to report more persistent earnings a pattern consistent with, though not proof of, a causal role for preventive controls, which longitudinal or quasi-experimental designs would be needed to confirm.

6. Recommendations

Boards of directors and audit committees of NSE-listed firms should institutionalize and continuously strengthen preventive controls, with particular attention to segregation of duties across authorization, custody, record-keeping and reconciliation functions, regular rotation of staff in sensitive roles, enforcement of compulsory leave, and investment in physical and system access controls. Given that preventive controls were found to explain a substantial share of the variation in earnings persistence even before other control categories are considered, regulators such as the Capital Markets Authority and the NSE itself may consider incorporating explicit preventive-control disclosure requirements into corporate governance and financial reporting codes, so that

investors can better assess the reliability of reported earnings.

7. Limitations and Suggestions for Further Research

The study was limited to firms listed at the NSE and to earnings persistence as the sole proxy for earnings quality. Future research could extend the analysis to non-listed firms and small and medium-sized enterprises, examine alternative earnings quality proxies such as accruals quality, earnings predictability or earnings variability, and test whether the effect of preventive controls on earnings quality observed here holds in other emerging-market and cross-country settings.

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