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Control activities and financial accountability of service state corporations in Kenya: The moderating role of the board of governance and the mediating effect of internal audit effectiveness

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Abstract--This study examined the influence of control activities on financial accountability of service state corporations in Kenya, with internal audit effectiveness as a mediating variable and Board of Governance as a moderating variable. The study was anchored on Agency Theory, Stewardship Theory, and Systems Theory. A descriptive-explanatory research design was adopted, targeting 82 service state corporations, from which 68 corporations were selected through stratified random sampling. Four respondents were selected from each corporation, comprising finance officers, internal auditors, accountants, and procurement officers, resulting in a target sample of 272 respondents. Data were collected using a structured questionnaire measured on a five-point Likert scale and analyzed using SPSS 29 and SmartPLS 4. Partial Least Squares Structural Equation Modelling was employed to assess the measurement and structural models, while bootstrapping was used to test direct and indirect effects and the interaction effect. The findings established that control activities significantly and positively influenced internal audit effectiveness ($\beta = 0.479$, $p < 0.001$) and financial accountability ($\beta = 0.228$, $p < 0.001$). Internal audit effectiveness also significantly influenced financial accountability ($\beta = 0.468$, $p < 0.001$). Internal audit effectiveness significantly mediated the relationship between

control activities and financial accountability (indirect effect $\beta = 0.224$, $p < 0.001$), representing complementary partial mediation. Although Board of Governance had a significant direct effect on financial accountability ($\beta = 0.112$, $p = 0.021$), its moderating effect was not statistically significant ($\beta = 0.013$, $p = 0.770$). The study concluded that effective control activities and internal audit effectiveness were important mechanisms associated with financial accountability in service state corporations in Kenya.

Keywords---Control Activities, Financial Accountability, Internal Audit Effectiveness, Board of Governance, Service State Corporations.

Introduction

Financial accountability in public sector institutions depends not only on the ethical tone an organization sets, but on the concrete policies, procedures, and enforcement mechanisms through which management directives are actually carried out. Control activities, defined by the Committee of Sponsoring Organizations of the Treadway Commission as the policies and procedures that help ensure management directives are executed, including authorization procedures, segregation of duties, reconciliations, supervisory reviews, and physical controls over assets, operationalize this translation from policy into practice (COSO, 2013). Globally, evidence indicates that organizations with well-documented authorization processes, adequately segregated duties, and regular reconciliation procedures produce more credible financial reports, whereas weak control activities are associated with a higher incidence of financial misstatement, asset misappropriation, and audit qualification (COSO, 2013).

In sub-Saharan Africa, the enforcement of control activities remains uneven despite public financial management reforms. Studies in Nigeria's public sector show that authorization procedures, checks, and supervisory reviews significantly promote accountability and reduce corruption within ministries and civil service departments (Olaoye, Ogbebor & Elelu, 2021), while weak authentication processes and inadequate supervisory systems have been directly linked to financial mismanagement in other African institutional settings (Njobvu, Kaira & Chowa, 2020). In Kenya, evidence from South Nyanza County governments confirms that stronger authorization, segregation of duties, and supervisory review procedures are positively and significantly associated with financial accountability indicators such as value for money, transparency, and financial reporting, with control activities alone explaining 34.7% of the variance in financial accountability (Michael, Burani, Enock & Eric, 2020). Similarly, in the National Government Constituencies Development Fund (NG-CDF), enhanced approval processes, separation of duties, and adherence to guidelines were found to significantly and positively influence financial accountability (Lidovolo, 2024). Yet Kenya's service state corporations continue to record persistent financial reporting deficiencies and unsupported expenditure despite operating under the same statutory internal control requirements imposed by the Public Finance Management Act (2012) and the Mwongozo Code of Governance (2015).

This persistent gap between the theorized effect of control activities and observed accountability outcomes in Kenya's service state corporations points to three unresolved gaps. First, a contextual gap: prior studies on control activities and financial accountability have been conducted in religious institutions (Kirby, 2020; Njobvu, Kaira & Chowa, 2020), Islamic endowment organizations (Zainuddin, 2021), village government structures (Savitri et al., 2023), centralized ministries (Olaoye, Ogbemor & Elelu, 2021), Ugandan local governments (Higenyi, 2024), devolved Kenyan county governments (Michael, Burani, Enock & Eric, 2020), and public constituency development funds (Lidovolo, 2024), none of which share the statutory board-governed structure of Kenya's service state corporations. Second, a mechanism gap: no known study has examined whether the effect of control activities on financial accountability operates through the effectiveness of the internal audit function, which is the mechanism responsible for testing whether authorization, segregation of duties, and reconciliation procedures are actually being followed. Third, a conditioning gap: although board governance is theorized to determine whether control activities are consistently enforced or allowed to lapse (Al-Dmour, Abbod & Al Qadi, 2023; Naciti, 2021), this conditioning role has not been tested for the control activities-financial accountability relationship specifically.

This study addresses these gaps by developing and testing an integrated moderated-mediation model examining the effect of control activities on financial accountability in Kenya's service state corporations, with internal audit effectiveness as the mediating mechanism and board of governance as the moderating condition. The study is anchored on Agency Theory, Stewardship Theory, and Systems Theory.

Research Problem

Despite statutory requirements under the Public Finance Management Act (2012) and the Mwongozo Code of Governance (2015) that service state corporations maintain documented authorization procedures, segregation of duties, and reconciliation controls, financial accountability failures in this sector remain chronic and severe. The Office of the Auditor-General (OAG, 2025) reports an accumulation of KSh 1.168 trillion in unaccounted public funds between 2020 and 2024, averaging KSh 233.7 billion annually and KSh 9.06 billion per service-related corporation, with 2023 alone registering KSh 852.8 billion unaccounted. Of 129 audit reports reviewed over the period, only 39 (30.2%) received unqualified opinions, and the 2022 PEFA assessment found that more than 60% of audit recommendations were only partially implemented or ignored (PFMR, 2022). Many of the recurring irregularities are attributable specifically to control activity failures rather than merely a poor ethical environment: irregular procurement and unsupported expenditure at KEMSA (KSh 762 million, 2021) reflect breakdowns in authorization and verification procedures under the Public Procurement and Asset Disposal Act, 2015; unremitted statutory deductions at MTRH (KSh 589 million, 2023) reflect failures in reconciliation and compliance checks; and unsupported Property, Plant and Equipment at the Kenya National Highways Authority (KSh 726.6 billion, 2023) reflects the absence of physical verification and asset control procedures required under IPSAS 17. These patterns suggest that the problem lies not only in whether control activities are

formally documented, but in whether they are effectively enforced, verified, and reinforced by governance oversight. Existing Kenyan and regional literature has primarily examined control activities in devolved, religious, or fund-management settings, leaving their effect, and the mechanisms and governance conditions that shape that effect, empirically untested among statutory board-governed service state corporations. This study addresses this gap.

Theoretical Framework and Hypothesis Development

This study is anchored on Agency Theory, Stewardship Theory, and Systems Theory. Agency Theory (Jensen & Meckling, 1976, as extended by Khan, Mihret & Muttakin, 2021) frames control activities, such as authorization limits, segregation of duties, and reconciliation procedures, as mechanisms that reduce information asymmetry and constrain opportunistic managerial behaviour on behalf of the state as principal. Stewardship Theory (Davis, Schoorman & Donaldson, as revisited in Hernandez, 2021) suggests that well-designed control activities, reinforced by a board that acts as a collaborative partner rather than a purely punitive overseer, cultivate a culture of disciplined, trust-based compliance that produces accountability beyond minimum enforcement. Systems Theory (von Bertalanffy, 1950; Arnold & Wade, 2022) situates control activities, the internal audit function, and board governance as interdependent subsystems whose coordinated operation, rather than the presence of any one component alone, determines overall financial accountability outcomes.

Control Activities, Internal Audit Effectiveness, and Financial Accountability

Control activities are the procedural backbone that internal audit tests and verifies; a well-designed control environment is of limited value unless authorization, segregation of duties, and reconciliation procedures are actually followed and enforced, and internal audit is the function tasked with confirming this compliance and reporting deviations to the board (Bananuka et al., 2021; Weickgenannt, Hermanson & Sharma, 2021). This suggests that stronger, more clearly documented control activities provide clearer benchmarks against which internal audit can test compliance, strengthening the effectiveness of the audit function itself.

A substantial body of evidence also links control activities directly to financial accountability. COSO's (2013) global analysis found that documented authorization processes, segregation of duties, and reconciliation procedures were associated with more credible financial reporting, while weak control activities correlated with financial misstatement and audit qualification. Zainuddin (2021), studying an Islamic waqf institution in Malaysia, found that authorization procedures and supervisory checks significantly and positively influenced accountability practices. Kirby (2020) similarly found that segregation of duties, authorization controls, and periodic financial reviews deterred fraud and strengthened accountability among North Georgia churches, while Savitri et al. (2023) found that verification procedures and financial authorization mechanisms positively influenced accountability in Indonesian village fund management. In Africa, Olaoye, Ogbekor and Elelu (2021) confirmed that authorization

procedures, checks, and supervisory reviews significantly promoted accountability in Nigeria's public sector, while Njobvu, Kaira and Chowa (2020) found that weak authentication and supervisory systems produced financial mismanagement in a Zambian Catholic parish. Higenyi (2024) reported that consistently enforced segregation of duties and supervisory controls significantly improved financial reporting reliability in Ugandan local governments. In Kenya, Michael, Burani, Enock and Eric (2020) found a significant positive relationship between control activities and financial accountability indicators among South Nyanza County governments, explaining 34.7% of the variance in accountability outcomes, while Lidovolo (2024) confirmed that enhanced approval processes and separation of duties significantly and positively influenced financial accountability in the NG-CDF. However, none of these studies were conducted within statutory board-governed state corporations, whose governance structure, independent boards, and public accountability obligations differ from religious, village, ministerial, devolved, or fund-committee settings. Based on the foregoing, this study proposes:

H1: Control activities have a positive effect on internal audit effectiveness in Kenya's service state corporations.

H2: Control activities have a positive effect on financial accountability of Kenya's service state corporations.

Internal Audit Effectiveness and Financial Accountability

Internal audit effectiveness, defined as the extent to which the internal audit function provides reliable assurance, detects control deficiencies, and supports organizational improvement (Cantù, 2025), is theorized to directly strengthen financial accountability. Msindwana and Ngwakwe (2022), examining South Africa's nine provincial treasuries, found that internal audit significantly enhanced financial accountability across all expenditure programmes, recommending that internal audit be treated as a monitoring tool for accountability rather than a punitive mechanism. Moodley, Ackers and Odendaal (2021) similarly document the evolution of the public sector internal audit function from a narrow compliance watchdog into a value-adding partner in organizational performance, while Cantù (2025) confirms internal audit's expanding assurance role over the adequacy of governance, risk management, and controls. Since control activities are the specific procedures internal audit is most directly tasked with testing, such as verifying authorization, confirming segregation of duties, and reviewing reconciliations, the effectiveness of the audit function is expected to be a particularly strong direct determinant of whether control-activity compliance translates into genuine accountability. Thus:

H3: Internal audit effectiveness has a positive effect on financial accountability of Kenya's service state corporations.

Mediating Role of Internal Audit Effectiveness

Control activities represent designed procedures; whether those procedures are actually complied with, and whether deviations are detected and corrected, depends on the internal audit function that tests them. A state corporation may have comprehensive authorization thresholds, segregation-of-duties policies, and reconciliation schedules on paper, yet without an effective internal audit function

to verify compliance, these procedures may be routinely bypassed without detection, as reflected in the persistent irregular-procurement and reconciliation failures documented by the Auditor-General. This mediating logic is consistent with related evidence that information quality mediates the relationship between internal control and financial resilience in public sector organizations (Lustrilanang et al., 2023), and that organizational culture mediates the relationship between accounting information systems and internal audit quality (Alawaqleh, 2021). Internal audit effectiveness is therefore expected to serve as the explanatory pathway through which control activities are converted into verified, accountable outcomes, a mechanism not yet tested among Kenya's service state corporations. Accordingly:

H4: Internal audit effectiveness mediates the relationship between control activities and financial accountability of Kenya's service state corporations.

Moderating Role of Board of Governance

The consistency with which control activities are enforced is theorized to depend on the quality of board oversight. An independent, competent, and engaged board reinforces the enforcement of authorization limits, segregation of duties, and reconciliation procedures by demanding evidence of compliance, following up on audit findings, and holding management accountable for lapses (Omondi & Muturi, 2019). Where boards are weak or subject to political interference, control activities may exist formally but be inconsistently applied or overridden by management, permitting the waste, fraud, and abuse documented in Kenya's audit reports (Njoroge, 2020). Empirical evidence supports this conditioning effect: effective boards substantially reduce agency-related opportunism and strengthen accountability outcomes, while weak boards allow inefficiencies to persist (Al-Dmour, Abbod & Al Qadi, 2023; Musyoka & Oima, 2020), and boards that engage collaboratively with management around compliance strengthen the overall internal control and accountability culture (Naciti, 2021). This suggests that identical control activity procedures may produce markedly different accountability outcomes depending on the strength of board oversight, a proposition not yet tested among Kenya's service state corporations. Consequently:

H5: Board of governance moderates the relationship between control activities and financial accountability of Kenya's service state corporations.

Collectively, H1 through H5 constitute a moderated-mediation model in which control activities influence financial accountability both directly and indirectly through internal audit effectiveness, while board of governance conditions the strength of the direct control activities-financial accountability relationship.

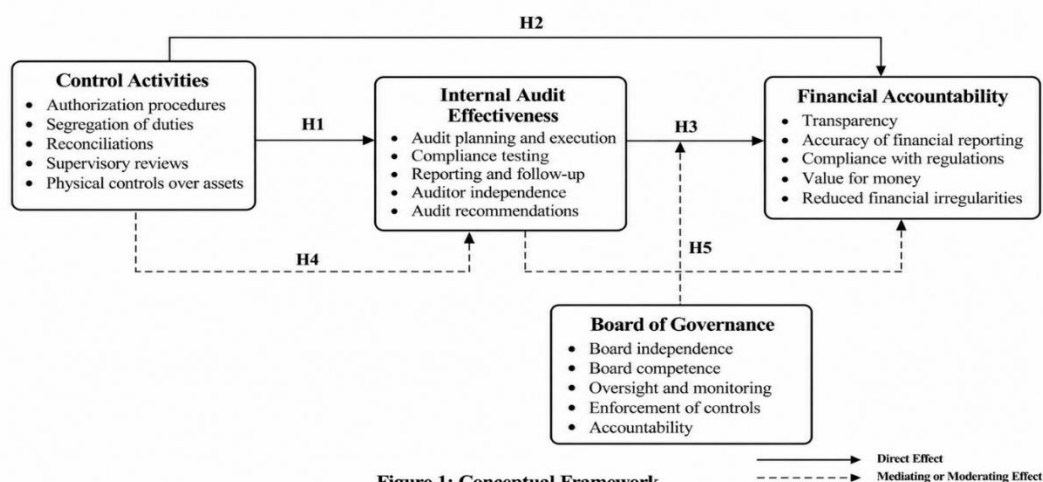


Figure 1: Conceptual Framework

Figure 1: Research model. A description of the relationship between variables in the present study

Methodology

This study will employ a positivist research philosophy and a descriptive-explanatory research design to test the proposed moderated-mediation model using quantitative primary data. The population comprises the 82 service state corporations under the Inspectorate of State Corporations (ISC, 2025), distributed across 16 parent ministries, with each corporation treated as the unit of analysis. Following Yamane's (1967) formula for finite populations at a 5% margin of error, a sample of 68 service state corporations will be drawn through stratified random sampling proportionate to ministry size. Within each sampled corporation, four key officers directly involved in financial management, internal control, and governance processes, namely the Finance Officer, Internal Auditor, Accountant, and Procurement Officer, will be purposively selected as units of observation, since these officers are best placed to provide accurate information on control activity practices, internal audit operations, board governance, and financial accountability outcomes (Kothari & Garg, 2019).

Data will be collected using a structured, self-administered questionnaire measured on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Control activities will be measured using indicators adapted from the COSO (2013) framework and Michael, Burani, Enock and Eric (2020), covering authorization procedures, segregation of duties, reconciliation practices, supervisory reviews, and physical controls over assets. Internal audit effectiveness, the mediating variable, will be measured using items adapted from Msindwana and Ngwakwe (2022), covering auditor independence, competence, management support, and adequacy of audit scope. Board of governance, the moderating variable, will be measured using indicators adapted from the Mwongozo Code of Governance (2015), covering board independence, competence, oversight activity, and frequency of engagement with audit findings. Financial accountability, the dependent variable, will be measured using indicators of

transparency, timeliness and quality of financial reporting, regulatory compliance, and audit opinion status. The instrument will be pilot-tested prior to the main survey, with internal consistency evaluated using Cronbach's alpha and construct validity assessed through factor analysis.

Data will be analyzed using the Statistical Package for Social Sciences (SPSS, version 29) through descriptive and inferential statistics. Diagnostic tests for normality, multicollinearity, heteroscedasticity, and autocorrelation will be conducted prior to hypothesis testing. Direct effects (H1, H2, H3) will be tested using multiple linear regression. The mediating effect of internal audit effectiveness (H4) will be tested using bootstrapped mediation analysis following Baron and Kenny's (1986) causal steps approach, supplemented by the Hayes PROCESS macro to obtain bias-corrected confidence intervals for the indirect effect. The moderating effect of board of governance (H5) will be tested using hierarchical moderated regression, in which an interaction term between the standardized control activities and board of governance variables is entered after the main effects, with a statistically significant interaction coefficient confirming moderation.

Data Analysis and Results

The conceptual model proposed in this study comprised direct, mediating, and moderating relationships, making it a relatively complex structural model. Specifically, the model examined the direct effect of control activities on internal audit effectiveness and financial accountability, the effect of internal audit effectiveness on financial accountability, the mediating role of internal audit effectiveness, and the moderating role of board of governance in the relationship between control activities and financial accountability. Given the predictive nature of the study and the presence of mediation and moderation relationships, Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed as the principal analytical technique (Hair et al., 2022). PLS-SEM was appropriate for simultaneously estimating relationships among latent constructs while assessing both the measurement and structural models.

Data analysis was conducted using IBM SPSS Statistics Version 29 and SmartPLS 4. SPSS was used for preliminary data analysis, including data cleaning, assessment of missing values, descriptive statistics, assessment of normality, and correlation analysis. Descriptive statistics comprised frequencies, percentages, means, and standard deviations to summarize respondents' characteristics and the study variables. Pearson correlation coefficients were also computed to establish the preliminary relationships among the study constructs. The measurement model was subsequently evaluated using SmartPLS 4. The assessment examined indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Indicator reliability was assessed using outer loadings, while internal consistency reliability was evaluated using Cronbach's alpha and Composite Reliability (CR). Convergent validity was assessed using Average Variance Extracted (AVE). Discriminant validity was evaluated using the Heterotrait-Monotrait (HTMT) ratio and the Fornell-Larcker criterion. The structural model was then assessed using path coefficients (β), coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and

Variance Inflation Factor (VIF) to assess multicollinearity. The significance of the structural relationships was determined using bootstrapping with 5,000 resamples.

The direct effects corresponding to H1, H2, and H3 were assessed using structural path analysis. Specifically, the analysis examined the effects of control activities on internal audit effectiveness, control activities on financial accountability, and internal audit effectiveness on financial accountability. The mediating effect of internal audit effectiveness (H4) was assessed using bootstrapping to estimate the indirect effect of control activities on financial accountability through internal audit effectiveness. The mediation analysis considered the significance of the indirect effect and the corresponding direct effect to establish the nature of the mediation relationship. The moderating effect of board of governance (H5) was examined using the interaction-term approach in SmartPLS by assessing the interaction between control activities and board of governance in predicting financial accountability. A statistically significant interaction effect provided evidence of moderation. The significance level for all statistical tests was set at 5% ($p < 0.05$). The results were presented using tables and figures covering descriptive statistics, common method bias assessment, measurement model assessment, discriminant validity, structural model evaluation, direct effects, mediation analysis, and moderation analysis. This analytical sequence followed the PLS-SEM approach adopted in the reference paper, where the measurement model was assessed before the structural, mediation, and moderation analyses.

Table 1: Descriptive Statistics

Indicator	Mean	SD	CV	SE (Mean)
CA1: Our corporation consistently requires proper authorization before financial transactions and expenditures are undertaken.	2.754	1.263	0.459	0.077
CA2: Our corporation adequately separates financial duties among different officers to prevent unauthorized transactions and errors.	2.879	1.321	0.459	0.080
CA3: Our corporation regularly performs and reviews reconciliations of financial records and accounts.	2.846	1.285	0.452	0.078
CA4: Management regularly reviews financial transactions and control procedures to ensure compliance with established requirements.	2.930	1.274	0.435	0.077
CA5: Our corporation maintains effective physical controls to safeguard assets against loss, misuse, or unauthorized access.	2.952	1.272	0.431	0.077
Control Activities	2.872	1.047	0.364	0.063
IAE1: Our internal audit function conducts audit assignments based on systematic planning and executes them effectively.	2.919	1.295	0.444	0.078
IAE2: Our internal audit function effectively tests	2.993	1.227	0.410	0.074

whether financial transactions and procedures comply with established policies and regulations.				
IAE3: Our internal audit function provides timely audit reports and follows up on identified audit findings and recommendations.	2.860	1.304	0.456	0.079
IAE4: Our internal auditors perform their duties independently without inappropriate interference from management or other officers.	2.915	1.310	0.449	0.079
IAE5: Our internal audit staff possess the knowledge, skills, and professional competence required to perform their responsibilities effectively.	2.816	1.321	0.469	0.080
Internal Audit Effectiveness	2.901	1.050	0.362	0.064
BOG1: Our Board of Governance exercises independent oversight of management without undue interference or influence.	2.879	1.316	0.457	0.080
BOG2: Members of our Board of Governance possess the knowledge and expertise required to effectively oversee financial management and accountability.	2.779	1.312	0.472	0.080
BOG3: Our Board of Governance regularly monitors management's compliance with financial controls and governance requirements.	3.018	1.278	0.424	0.078
BOG4: Our Board of Governance takes appropriate action when weaknesses or violations of financial controls are identified.	2.838	1.346	0.474	0.082
BOG5: Our Board of Governance holds management accountable for financial management practices and unresolved audit findings.	2.816	1.332	0.473	0.081
Board of Governance	2.866	1.085	0.379	0.066
FA1: Our corporation provides transparent and accessible financial information to relevant stakeholders.	2.857	1.338	0.469	0.081
FA2: Our corporation prepares financial reports that accurately reflect its financial transactions and position.	2.956	1.311	0.443	0.079
FA3: Our corporation consistently complies with applicable financial management laws, regulations, and reporting requirements.	2.732	1.288	0.471	0.078
FA4: Our corporation ensures that public financial resources are utilized economically, efficiently, and for their intended purposes.	2.761	1.316	0.477	0.080
FA5: Our corporation maintains financial practices that minimize irregularities, unsupported expenditure, and misuse of public resources.	2.820	1.306	0.463	0.079
Financial Accountability	2.825	1.090	0.386	0.066

The findings indicate that respondents generally expressed moderate perceptions regarding the implementation of control activities, internal audit effectiveness, board of governance, and financial accountability in service state corporations. The construct means scores ranged from 2.825 to 2.901. Internal Audit Effectiveness recorded the highest overall mean ($M = 2.901$, $SD = 1.050$), followed by Control Activities ($M = 2.872$, $SD = 1.047$), Board of Governance ($M = 2.866$, $SD = 1.085$), and Financial Accountability ($M = 2.825$, $SD = 1.090$). At the indicator level, BOG3, which assessed the extent to which the Board of Governance monitored management's compliance with financial controls and governance requirements, recorded the highest mean ($M = 3.018$, $SD = 1.278$). In contrast, FA3, measuring compliance with applicable financial management laws, regulations, and reporting requirements, recorded the lowest mean ($M = 2.732$, $SD = 1.288$). The standard deviations, which ranged from 1.227 to 1.346, indicated a moderate degree of variation in respondents' perceptions. The coefficients of variation ranged from 0.410 to 0.477, indicating that the variability in responses remained relatively consistent across the individual indicators.

Common Method Bias Assessment

Since the data for all study constructs were collected using a single structured questionnaire, Harman's single-factor test was conducted to assess the potential presence of common method bias (Podsakoff et al., 2003; Podsakoff & Organ, 1986). All 20 measurement items representing Control Activities, Internal Audit Effectiveness, Board of Governance, and Financial Accountability were subjected to an unrotated exploratory factor analysis using principal component extraction. The analysis extracted four factors with eigenvalues greater than one. The first factor accounted for 33.927% of the total variance, which was below the recommended threshold of 50%. Therefore, common method bias was not considered a serious threat to the validity of the study findings.

Measurement Model Assessment

The measurement model was evaluated before testing the structural relationships to ensure that the latent constructs were measured reliably and validly. In Partial Least Squares Structural Equation Modeling (PLS-SEM), measurement model assessment constituted the first stage of the analysis, followed by evaluation of the structural model (Hair et al., 2022). The measurement model was assessed by examining indicator reliability, internal consistency reliability, and convergent validity using factor loadings, Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE).

Table 2: Results of Reliability and Validity

Constructs	Items	Factor Loadings	Cronbach's Alpha (CA)	Composite Reliability (CR)	AVE
Control Activities (CA)	CA1	.827	.874	.909	.666
	CA2	.836			
	CA3	.799			
	CA4	.815			
	CA5	.802			

Internal Audit Effectiveness (IAE)	IAE1	.815	.872	.907	.661
	IAE2	.812			
	IAE3	.832			
	IAE4	.773			
	IAE5	.833			
Board of Governance (BOG)	BOG1	.798	.882	.911	.672
	BOG2	.891			
	BOG3	.768			
	BOG4	.806			
	BOG5	.831			
Financial Accountability (FA)	FA1	.861	.888	.917	.690
	FA2	.835			
	FA3	.820			
	FA4	.820			
	FA5	.816			

As shown in Table 2, all indicator loadings ranged from 0.768 to 0.891, exceeding the recommended threshold of 0.70 and confirming satisfactory indicator reliability. The Cronbach's alpha values ranged from 0.872 to 0.888, while Composite Reliability values ranged from 0.907 to 0.917. These values exceeded the recommended minimum threshold of 0.70, demonstrating satisfactory internal consistency reliability across all the study constructs. Similarly, the Average Variance Extracted (AVE) values ranged from 0.661 to 0.690, exceeding the recommended threshold of 0.50 and indicating adequate convergent validity. Financial Accountability recorded the highest AVE (0.690), followed by Board of Governance (0.672), Control Activities (0.666), and Internal Audit Effectiveness (0.661). These results indicated that each construct explained more than half of the variance in its respective measurement indicators. Overall, the findings indicated that the measurement items reliably and consistently measured their respective latent constructs. Control Activities, Internal Audit Effectiveness, Board of Governance, and Financial Accountability all satisfied the recommended reliability and convergent validity criteria, confirming the adequacy of the measurement model for subsequent structural model analysis and hypothesis testing (Hair et al., 2022).

Table 3: Results of HTMT

Constructs	BOG	CA	FA	IAE
Board of Governance (BOG)				
Control Activities (CA)	.107			
Financial Accountability (FA)	.151	.498		
Internal Audit Effectiveness (IAE)	.126	.549	.665	

Note: BOG = Board of Governance; CA = Control Activities; FA = Financial Accountability; IAE = Internal Audit Effectiveness.

The Heterotrait-Monotrait (HTMT) ratio was used to assess discriminant validity among the study constructs. HTMT values provide an assessment of whether conceptually distinct latent constructs were empirically distinguishable from one another. As shown in Table 3, the HTMT values ranged from 0.107 to 0.665, with the highest value observed between Internal Audit Effectiveness and Financial Accountability (HTMT = 0.665), followed by Control Activities and Internal Audit Effectiveness (HTMT = 0.549), and Control Activities and Financial Accountability (HTMT = 0.498). All the HTMT values were below the recommended threshold of 0.85 (Henseler et al., 2015). This indicated satisfactory discriminant validity among the constructs. Therefore, Control Activities, Internal Audit Effectiveness, Board of Governance, and Financial Accountability were empirically distinct constructs, supporting their continued use in the structural model analysis.

Structural Model Evaluation

The structural model was evaluated using the coefficient of determination (R^2) and predictive relevance (Q^2_{predict}), following the guidelines of Hair et al. (2022). The coefficient of determination (R^2) was used to assess the explanatory power of the model, while predictive relevance was assessed using the Q^2_{predict} values obtained from the SmartPLS 4 predictive assessment.

Table 4: Coefficient of Determination (R^2) and Predictive Relevance (Q^2_{predict})

Endogenous Construct	R^2	Interpretation	Q^2_{predict}
Internal Audit Effectiveness (IAE)	0.230	Weak	0.225
Financial Accountability (FA)	0.393	Moderate	0.204

The results indicate that Internal Audit Effectiveness (IAE) recorded an R^2 value of 0.230, implying that 23.0% of its variance was explained by the predictor specified in the structural model, namely Control Activities. This represented weak explanatory power. Similarly, Financial Accountability (FA) achieved an R^2 value of 0.393, indicating that 39.3% of its variance was explained by the predictors included in the structural model, namely Control Activities, Internal Audit Effectiveness, Board of Governance, and the specified interaction relationship. This represented moderate explanatory power. Predictive relevance was assessed using the Q^2_{predict} values generated through the SmartPLS 4 predictive assessment. The Q^2_{predict} value was 0.225 for Internal Audit Effectiveness and 0.204 for Financial Accountability. Both values were greater than zero, indicating that the model demonstrated predictive relevance for the two endogenous constructs. These findings indicated that the proposed structural model possessed adequate explanatory and predictive capability and was therefore suitable for subsequent hypothesis testing.

Hypotheses Testing

Figure 2 illustrates the final structural model, including the standardized path coefficients, factor loadings, and coefficients of determination (R^2) for the endogenous constructs, while Table 5 presents the detailed results of the direct hypothesis testing.

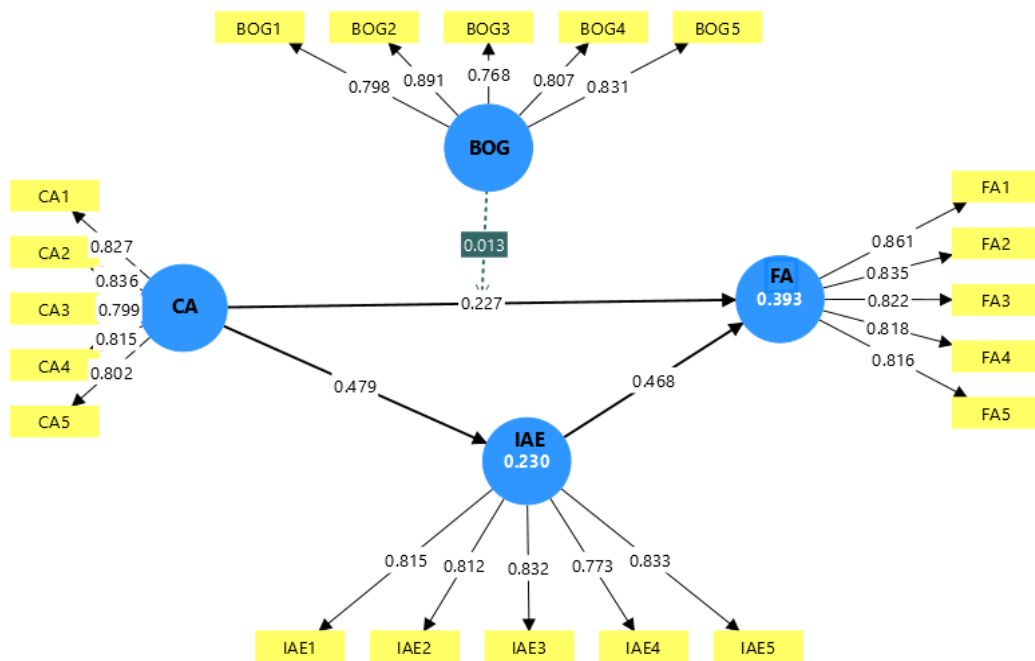


Figure 2: Structural Model Evaluation

Testing of the Direct Effects

The direct effects were examined using the bootstrapping procedure in Partial Least Squares Structural Equation Modelling (PLS-SEM). The assessment focused on the significance of the structural path coefficients based on the standardized beta coefficients (β), t-statistics, and p-values. A hypothesis was considered supported where the path coefficient was statistically significant at $p < 0.05$. The results of the direct effects are presented in Table 5.

Table 5: Testing of the Direct Effects

Hypothesis	Structural Path	Path Coefficient (β)	t-value	p-value
H1	Control Activities → Internal Audit Effectiveness	0.479	9.653	<0.001
H2	Control Activities → Financial Accountability	0.228	4.290	<0.001
H3	Internal Audit Effectiveness → Financial Accountability	0.468	8.845	<0.001

The results indicate that Control Activities had a positive and statistically significant effect on Internal Audit Effectiveness ($\beta = 0.479$, $t = 9.653$, $p < 0.001$), supporting H1. Similarly, Control Activities had a positive and statistically significant effect on Financial Accountability ($\beta = 0.228$, $t = 4.290$, $p < 0.001$), supporting H2. Furthermore, Internal Audit Effectiveness had a positive and statistically significant effect on Financial Accountability ($\beta = 0.468$, $t = 8.845$, $p < 0.001$), supporting H3.

0.001), supporting H3. Thus, H1, H2, and H3 were supported based on the bootstrapping results.

Testing of the Mediation Effects

The mediation effect was examined using the bootstrapping procedure in SmartPLS 4. The assessment focused on the direct and indirect effects of Control Activities (CA) on Financial Accountability (FA) through Internal Audit Effectiveness (IAE). The mediation type was interpreted using the mediation typology proposed by Zhao, Lynch, and Chen (2010).

Table 6: Testing of the Mediation Effects

Relationship	Direct Effect	Indirect Effect	Mediation Type (Zhao et al., 2010)
CA → IAE → FA	$\beta = 0.228, p < 0.001$ (Significant)	$\beta = 0.224, p < 0.001$ (Significant)	Complementary partial mediation

The bootstrapping results showed that the indirect effect of Control Activities on Financial Accountability through Internal Audit Effectiveness was positive and statistically significant ($\beta = 0.224, t = 6.594, p < 0.001$). The bias-corrected 95% bootstrap confidence interval ranged from 0.164 to 0.299, which did not include zero, providing further evidence that the indirect effect was statistically significant. The direct effect of Control Activities on Financial Accountability was also positive and statistically significant ($\beta = 0.228, t = 4.290, p < 0.001$). Since both the direct and indirect effects were significant and operated in the same positive direction, the relationship was classified as complementary partial mediation according to the Zhao et al. (2010) typology. Thus, Internal Audit Effectiveness partially mediated the relationship between Control Activities and Financial Accountability, providing support for H4.

Testing of the Moderating Effect

The moderating effect of Board of Governance (BOG) on the relationship between Control Activities (CA) and Financial Accountability (FA) was examined using the bootstrapping procedure in SmartPLS 4. The assessment focused on the interaction effect between Control Activities and Board of Governance (CA × BOG) on Financial Accountability. A statistically significant interaction coefficient at $p < 0.05$ was considered evidence of a moderating effect. The results are presented in Table 7.

Table 7: Testing of the Moderating Effect

Predictor	β	SE	t	p	95% Bootstrapping LLCI	ULCI
Board of Governance (BOG)	0.112	0.048	2.314	0.021	0.036	0.206
Control Activities (CA)	0.228	0.053	4.290	<0.001	0.124	0.335
CA × BOG	0.013	0.045	0.292	0.770	-0.077	0.099

The results indicate that Board of Governance had a positive and statistically significant direct effect on Financial Accountability ($\beta = 0.112$, $t = 2.314$, $p = 0.021$). Control Activities also had a positive and statistically significant effect on Financial Accountability ($\beta = 0.228$, $t = 4.290$, $p < 0.001$). However, the interaction between Control Activities and Board of Governance was not statistically significant ($\beta = 0.013$, $t = 0.292$, $p = 0.770$). The 95% bootstrapping confidence interval for the interaction effect ranged from -0.077 to 0.099 , which included zero. These findings indicated that Board of Governance did not significantly moderate the relationship between Control Activities and Financial Accountability. Consequently, H5 was not supported. Although Board of Governance had a significant direct association with Financial Accountability, the absence of a statistically significant $CA \times BOG$ interaction indicated that the strength of the relationship between Control Activities and Financial Accountability did not vary significantly across levels of Board of Governance. The SmartPLS conditional direct effects further showed that the $CA \rightarrow FA$ relationship remained statistically significant at low, mean, and high levels of Board of Governance; however, this did not constitute evidence of moderation because the interaction effect itself was not significant.

Discussion of the Findings

The objective of this study was to examine the influence of control activities on financial accountability of service state corporations in Kenya, with particular attention to the mediating role of internal audit effectiveness and the moderating role of Board of Governance. Drawing on Agency Theory, Stewardship Theory, and Systems Theory, the study developed and empirically tested a structural model using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings presented in Table 8 provide evidence on the direct relationships among control activities, internal audit effectiveness, and financial accountability, as well as the mediating role of internal audit effectiveness and the moderating role of Board of Governance.

Table 8: Overview Findings of the Study

Predictor/ Relationship	PLS-SEM Results	Hypothesis	Mediation/ Moderation Results	Interpretation
Control Activities (CA) $\rightarrow$ Internal Audit Effectiveness (IAE)	Significant, $\beta = 0.479$, $p < 0.001$	H1: Supported		Control activities significantly and positively influenced internal audit effectiveness.
Control Activities (CA) $\rightarrow$ Financial Accountability (FA)	Significant, $\beta = 0.228$, $p < 0.001$	H2: Supported		Control activities significantly and positively influenced financial accountability.
Internal Audit Effectiveness (IAE)	Significant, $\beta = 0.468$,	H3: Supported		Internal audit effectiveness

Predictor/ Relationship	PLS-SEM Results	Hypothesis	Mediation/ Moderation Results	Interpretation
→ Financial Accountability (FA)	$p < 0.001$			significantly and positively influenced financial accountability.
Internal Audit Effectiveness as Mediator	Direct effect: $\beta = 0.228$, $p < 0.001$; Indirect effect: $\beta = 0.224$, $p < 0.001$	H4: Supported	Complementary partial mediation	Internal audit effectiveness partially mediated the relationship between control activities and financial accountability.
Board of Governance (BOG) → Financial Accountability	Significant, $\beta = 0.112$, $p = 0.021$			Board of Governance had a significant direct relationship with financial accountability.
CA × BOG → FA	Not significant, $\beta = 0.013$, $p = 0.770$	H5: Not Supported	No significant moderation	Board of Governance did not significantly alter the relationship between control activities and financial accountability.

The study examined the influence of control activities on financial accountability of service state corporations in Kenya, focusing on the mediating role of internal audit effectiveness and the moderating role of Board of Governance. The findings established significant positive relationships between control activities and internal audit effectiveness, control activities and financial accountability, and internal audit effectiveness and financial accountability. Internal audit effectiveness also significantly mediated the relationship between control activities and financial accountability, while Board of Governance did not significantly moderate the control activities–financial accountability relationship.

The finding that control activities significantly influenced internal audit effectiveness ($\beta = 0.479$, $p < 0.001$) suggests that authorization procedures, segregation of duties, reconciliations, supervisory reviews, and physical controls provided a structured basis for internal audit activities. This finding is consistent with Bananuka et al. (2021) and Cantù (2025), who emphasized the relationship between effective internal controls and the assurance role of internal audit. The result supports Agency Theory by indicating that formal control mechanisms facilitate monitoring and verification of management activities.

The study also established that control activities significantly influenced financial accountability ($\beta = 0.228$, $p < 0.001$). This finding suggests that established procedures for authorization, separation of duties, reconciliation, supervision, and asset safeguarding were associated with stronger financial accountability. The result is consistent with Michael et al. (2020) and Lidovolo (2024), who reported significant relationships between control mechanisms and financial accountability in Kenyan public-sector settings. The finding extends this evidence to service state corporations, where accountability for public resources operates within statutory governance and financial-management requirements.

Further, internal audit effectiveness significantly influenced financial accountability ($\beta = 0.468$, $p < 0.001$). This result indicates that systematic audit planning, compliance testing, timely reporting, follow-up of audit findings, independence, and professional competence were important components of financial accountability. The finding is consistent with Msindwana and Ngwakwe (2022) and Moodley et al. (2021), who emphasized the contribution of effective internal audit functions to accountability in public-sector organizations. The result reinforces the monitoring perspective of Agency Theory, whereby internal audit provides assurance over management's use of organizational resources.

The mediation results showed that internal audit effectiveness significantly mediated the relationship between control activities and financial accountability (indirect effect $\beta = 0.224$, $p < 0.001$). Because both the direct effect ($\beta = 0.228$, $p < 0.001$) and indirect effect were significant and positive, the mediation was classified as complementary partial mediation. This finding suggests that control activities contributed to financial accountability both directly and through the internal audit function. The result supports Systems Theory by demonstrating that control activities and internal audit effectiveness functioned as interconnected components of the accountability system. It also complements Lustrilanang et al. (2023), who highlighted the importance of intervening mechanisms in translating internal control and audit quality into public-sector outcomes.

In contrast, Board of Governance did not significantly moderate the relationship between control activities and financial accountability ($\beta = 0.013$, $p = 0.770$). Although Board of Governance had a significant direct relationship with financial accountability ($\beta = 0.112$, $p = 0.021$), its interaction with control activities was insignificant. The finding therefore distinguishes the direct governance role of the Board from its hypothesized conditioning role. This result differs from studies emphasizing board oversight as a mechanism that strengthens internal control effects, including Omondi and Muturi (2019), Musyoka and Oima (2020), and Naciti (2021). Within the present study, however, the evidence did not demonstrate that variations in Board of Governance significantly altered the relationship between control activities and financial accountability.

The findings indicate that control activities and internal audit effectiveness were central mechanisms associated with financial accountability in service state corporations, with internal audit effectiveness providing a significant transmission pathway between controls and accountability. The non-significant moderation result suggests that Board of Governance was directly associated with

accountability but did not significantly condition the effect of control activities. These findings provide empirical support for the relevance of control, monitoring, and systems perspectives in explaining financial accountability within Kenya's service state corporations.

Theoretical Contribution

This study contributed to theory by extending the understanding of financial accountability through the integration of Agency Theory, Systems Theory, and Stewardship Theory. The findings demonstrated that control activities were significantly associated with both internal audit effectiveness and financial accountability, while internal audit effectiveness significantly influenced financial accountability. More importantly, internal audit effectiveness partially mediated the relationship between control activities and financial accountability, indicating that internal audit constituted an important mechanism through which control systems translated into accountability outcomes. The study therefore provided empirical support for the monitoring perspective of Agency Theory and the interconnectedness emphasized by Systems Theory. The finding that Board of Governance had a significant direct relationship with financial accountability but did not significantly moderate the control activities–financial accountability relationship further differentiated the direct and conditional roles of governance. Methodologically, the study also demonstrated the value of combining PLS-SEM, bootstrapping, mediation analysis, moderation analysis, and predictive assessment when examining complex relationships among organizational control and governance variables.

Practical Implications

The findings provided practical implications for managers, boards, internal auditors, and policymakers in Kenyan service state corporations. The significant relationship between control activities and financial accountability suggested the importance of maintaining effective authorization procedures, segregation of duties, reconciliations, supervisory reviews, and physical controls over organizational assets. The significant mediating role of internal audit effectiveness further indicated the need to strengthen internal audit independence, professional competence, systematic audit planning, timely reporting, and follow-up of audit recommendations. These measures could support stronger assurance over financial transactions, compliance, and use of public resources. Although Board of Governance did not significantly moderate the control activities–financial accountability relationship, its significant direct association with financial accountability demonstrated the continued relevance of board oversight. Boards therefore remained important in reviewing financial performance, monitoring audit findings, and holding management accountable for identified weaknesses.

Limitations and Areas for Further Research

The study was limited to service state corporations in Kenya, which may constrain the generalizability of the findings to other public institutions and private organizations. Its cross-sectional design also captured relationships at one point in time and did not establish how changes in control activities, internal

audit effectiveness, and governance influence financial accountability over time. Future studies could employ longitudinal designs and incorporate objective financial and audit records. Further research could also examine additional organizational factors such as risk management, organizational culture, management commitment, information systems, and regulatory oversight as mediating or moderating variables. Comparative studies across different categories of state corporations, public institutions, or countries could provide further evidence on whether the observed relationships remain consistent across different institutional environments.

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