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Effect of Automated Internal Control Systems on Financial Performance of Insurance Companies in Kenya

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Abstract

The purpose of this study was to examine the effect of automated internal control systems on financial performance of insurance companies in Kenya. A descriptive correlational research design was adopted for this study. The target population for the study was all 186 department heads from 62 insurance companies operating in Kenya. A sample of 157 respondents was selected from heads of Internal Audit, ICT, and Accounts departments. Data were collected using structured questionnaires and secondary financial data from audited statements. Both inferential and descriptive statistical analyses were conducted, including regression and correlation analyses. The study found that automated internal control systems significantly influenced financial performance ($R^2 = 0.518$, $F = 166.535$, $\beta = 0.598$, $t = 12.905$, $p < 0.001$). A total of 95% of respondents reported that automated internal control systems provided sufficient transparency in electronically processed cash receipt data, while 90% confirmed enhanced scalability through automation. The study found that 82% considered automated information and communication systems very important for operational efficiency, with insurance management confirming that automated controls including fraud detection, real-time monitoring, and regulatory compliance had specific roles in promoting financial sustainability. The study concluded that automated internal control systems substantially influence financial performance in Kenya's insurance sector. Companies actively implementing comprehensive automated controls demonstrate stronger fraud prevention capabilities and superior financial outcomes. The study recommends that insurance companies should strengthen automated internal control implementation through investing in pattern recognition systems, establishing real-time monitoring capabilities, and developing comprehensive digital audit trails. The study recommends enhancing automated controls by implementing advanced fraud detection algorithms, establishing centralized control dashboards, and creating automated compliance monitoring systems. Insurance regulatory authorities should create policies mandating minimum standards for automated internal control systems in financial reporting.

Keywords: *Automated Internal Controls, Financial Performance, Insurance Companies, Risk Management, Fraud Detection, Regulatory Compliance*

1.0 Introduction

Automated internal control systems represent a fundamental component of modern financial management in insurance companies, particularly in contexts where technological integration determines operational efficiency and financial performance outcomes (Chaturvedi & Sharma, 2023). According to the Insurance Regulatory Authority (IRA), effective internal controls involve systematic processes that ensure reliable financial reporting, operational effectiveness, and regulatory compliance through technology-enabled oversight mechanisms (Kanyanga, 2022). In Kenya's insurance sector, where diverse stakeholders including regulatory bodies, management teams, auditors, and shareholders interact with financial systems, effective automated controls become crucial for balancing operational needs with performance objectives and regulatory requirements (Kamau et al., 2021). The evolution of computerized accounting systems in insurance companies has gained significant recognition in financial management research, with studies revealing that automated internal controls have become increasingly influential in organizational performance outcomes (Al-Hashimy et al., 2024). However, the specific mechanisms through which these systems enhance financial performance in emerging market contexts remain understudied, particularly in African insurance markets (Msomi, 2023). According to technology acceptance frameworks, automated internal control implementation aims to involve systematic processes in risk assessment and financial oversight to improve operational efficiency and service delivery while promoting organizational integrity among stakeholders who share common business objectives (Chen et al., 2021). This technological approach becomes particularly relevant in Kenya's insurance industry where traditional manual processes intersect with modern regulatory compliance requirements (Kibuku et al., 2020).

Financial performance enhancement requires balanced automated control implementation to achieve sustainable operational outcomes (Gamlath, 2022). Research indicates that insurance companies often face challenges in implementing effective automated systems, with resource constraints and technical limitations affecting their ability to deploy comprehensive internal control mechanisms that protect organizational assets and ensure accurate financial reporting (Morara & Sibindi, 2021). The relationship between automated internal controls and financial performance has been documented in numerous international studies, demonstrating that higher levels of system sophistication correlate with improved fraud detection, enhanced operational efficiency, and superior financial outcomes across various market contexts (Prokopjeva et al., 2021; Lange, 2018). These technological investments, combined with Fourth Industrial Revolution technologies including artificial intelligence and big data analytics, demonstrate significant positive relationships with key financial performance indicators across African markets (Farid, 2024).

This study investigates how automated internal control systems influence financial performance in Kenya's insurance companies, examining the implementation challenges, operational benefits, and performance outcomes of various automated control mechanisms (Wanjohi, 2024). The research addresses the critical knowledge gap regarding technology-driven internal control effectiveness in emerging market insurance sectors, where approximately 30-40% of firms have faced liquidation due to inadequate operational controls and manual processing inefficiencies that compromise financial stability and stakeholder confidence (Morara et al., 2018). Research examining insurance companies in Nairobi City County reveals that information systems' technological, environmental, and organizational components significantly influence performance, with these variables explaining 84.8% of variance in insurance firm performance, emphasizing the critical role of robust automated control infrastructure (Wanjohi, 2024).

1.1 Statement of the Problem

Automated internal control systems represent critical technological advancements for insurance companies seeking to eliminate manual control challenges and operational inefficiencies that compromise financial performance (Minoo, 2023). Organizations lacking automated internal controls face increased exposure to costly errors, fraudulent activities, and compliance failures that create cascading problems throughout their financial operations (Gardi, 2021). Manual internal control processes are particularly susceptible to human errors, inconsistent application, and inadequate monitoring that compromise risk assessment quality and financial reporting integrity. The absence of automated internal control systems leads to inadequate fraud detection and financial data misrepresentation, creating significant challenges for management attempting to make informed strategic decisions and maintain stakeholder confidence (Amissah et al., 2020).

The Kenyan insurance industry faced substantial operational challenges that highlighted the critical need for automated internal control system adoption. Research examining insurance companies in Kenya revealed significant performance gaps attributed to inadequate internal control infrastructure and manual oversight systems that failed to provide comprehensive risk management capabilities (Wanjohi, 2024). According to industry reports, approximately 30% to 40% of insurance firms have undergone liquidation in the past decade due to their failure to implement adequate internal control mechanisms, including automated authorization systems, real-time monitoring capabilities, and systematic risk assessment processes (Pillay & Njenga, 2021). Despite the recognized importance of internal control automation in financial services, limited research had examined the comprehensive effects of automated internal control systems on insurance company performance in Kenya's unique regulatory and economic environment (Kanyanga, 2022). Therefore, this study sought to examine the effects of automated internal control systems on the financial performance of insurance companies in Kenya, addressing this crucial knowledge gap and providing empirical evidence to guide strategic internal control automation decisions.

1.2 Objectives of the Study

To determine the effect of automated internal control systems on the financial performance of insurance companies in Kenya.

1.3 Research Hypothesis

H_{01}: There is no significant relationship between automated internal control systems and financial performance of insurance companies in Kenya.

2.0 Literature Review

The section examines the theoretical foundation underlying the relationship between automated internal control systems and financial performance in insurance companies. The literature review explores the relevant theory that explains technology adoption and organizational performance outcomes, examines empirical evidence from previous studies, and develops a conceptual framework illustrating the relationship between study variables.

2.1 Theoretical Framework

Technology Acceptance Model (TAM), developed by Davis (1989), serves as the theoretical foundation for understanding automated internal control systems adoption dynamics in insurance contexts. The theory posits that user acceptance of technology depends fundamentally on two key perceptions: perceived usefulness and perceived ease of use, which determine behavioral intentions and actual system utilization in organizational settings. In

automated internal control systems implementation, this translates to recognizing that employee perceptions of system benefits, operational simplicity, and user-friendliness determine adoption success and subsequent financial performance outcomes (Abecassis et al., 2020). The theory emphasizes that successful technology adoption requires addressing both functional capabilities and user acceptance factors. In Kenya's insurance sector context, automated internal control systems must demonstrate clear operational benefits while maintaining user-friendly interfaces that encourage sustained utilization (Chen et al., 2021). TAM provides essential theoretical grounding for understanding why some insurance companies successfully implement automated internal controls to achieve superior financial performance while others experience implementation challenges that limit performance benefits. The model's emphasis on user perceptions and behavioural intentions explains the critical role of organizational change management and training in maximizing automated internal control system effectiveness and financial performance outcomes.

2.3 Empirical Review

Automated internal control systems are now a main area of interest for researchers in different industries. AICS has an effect on insurance companies' performance everywhere. Lange (2018) examined how automated internal control systems affect Solvency II compliance among European insurers. The study examined how the use of AICS affects European insurance companies' compliance with Solvency II. The research found that AICS helps companies comply with regulations which leads to better financial results. Prokopjeva et al. (2021) also examined technological progress and financial results in the European insurance industry. The research looked at the current state of technology to see if there was any link between European insurers' financial results and their use of AICS. The findings showed that technology is strongly linked to better financial results.

Chen et al. (2020) analyzed how automated internal controls help improve how insurance companies operate in Asia. It analyzed the impact of AICS on how well insurance companies perform financially and operate in Asia. Results revealed that AICS is related to process simplification in a positive way. Also, studies were done in the insurance industry of South east Asia to find out if automated internal controls affect risk management (Tan et al., 2023). The study investigated how AICS was used and what impact it had on risk management in South east Asian insurance companies. It was found that better risk management and stronger AICS integration help improve financial results.

A study was done to examine how automated internal controls influence the financial results of the insurance sector in Kenya ((Kamau et al., 2021)). The study looked at the relationship between AICS and the financial results of the insurance industry in Kenya. Using AICS seems to help companies save money and prevent fraud. Automated Internal Control Systems appear to be linked to better financial results in the insurance industry, according to the literature. AICS helps insurance companies meet regulations, make profits, operate efficiently, manage risks and stay financially strong, but the details can change based on the location.

2.3 The Conceptual Framework

It is a network of concepts that are interconnected and that collectively provide a thorough knowledge of a phenomenon or set of phenomena (Jarabeen, 2009).

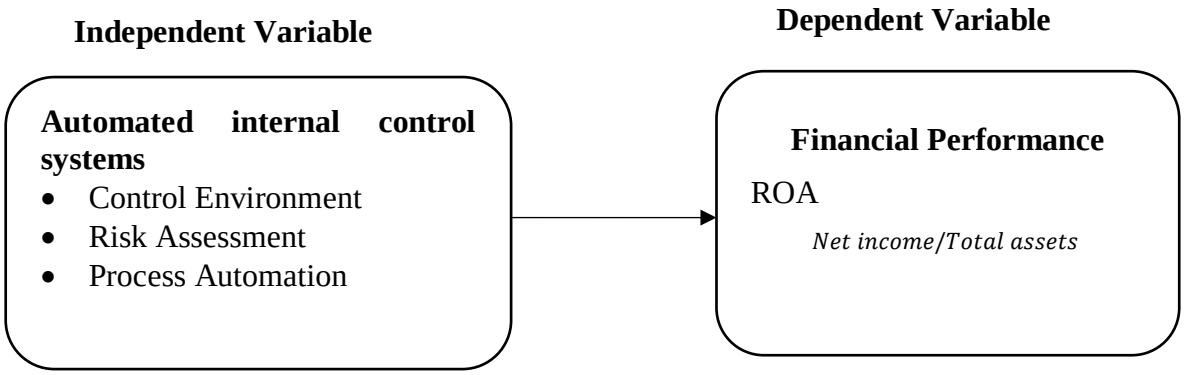

Figure 1: Conceptual Framework

3.0 Research Methodology

The study employed a descriptive correlational research design. The target population consisted of 186 department heads from 62 insurance companies, specifically targeting heads of Internal Audit, ICT and Accounts departments. A census approach was adopted due to the manageable population size. Data collection involved structured questionnaires featuring 5-point Likert scale items measuring automated internal control system effectiveness. Secondary financial performance data was obtained from audited annual financial statements and Insurance Regulatory Authority reports covering 2014-2023, with Return on Assets (ROA) calculated as the primary performance measure. Data collection occurred over a structured timeframe to maximize response rates while ensuring data quality and completeness. Analysis employed SPSS 25 software for quantitative data processing, conducting descriptive statistics, correlation analysis and simple linear regression to examine relationships between automated internal control systems and financial performance outcomes. The operationalization framework defined automated internal control systems through control environment effectiveness, risk assessment capabilities, and process automation indicators, while financial performance was measured objectively through ROA calculations from verified secondary sources.

4.0 Results and Discussion

This section presents results for descriptive, correlation and regression analyses.

4.1 Descriptive Statistics for Automated Internal Control Systems

Table 1 shows the results for automated internal control systems, including the percentage of responses for each Likert scale category, the average scores and the standard deviations.

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Table 1: Descriptive Statistics for Automated Internal Control Systems

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
There is sufficient control of the transparency of electronically processed cash receipt data	0.0%	0.0%	5.1%	43.9%	51.0%	4.46	0.59
The automation of internal control has promoted the scalability of the company	0.0%	3.8%	6.4%	62.4%	27.4%	4.13	0.69
The automation of internal control has enabled the segregation of duties among various parties in the company	0.0%	8.3%	24.2%	38.9%	28.7%	3.88	0.92
The automation of internal control has enabled adequate authorization of activities	3.8%	10.8%	24.8%	52.2%	8.3%	3.50	0.93
The automated internal control system has promoted the privacy of data in the company	8.9%	6.4%	12.7%	61.1%	10.8%	3.59	1.06
The automated internal control system has enhanced effective Risk Assessment	14.0%	13.4%	10.8%	42.0%	19.7%	3.40	1.32
The automated internal control system has enhanced effective information and communication	4.5%	5.7%	7.6%	39.5%	42.7%	4.10	1.06
The automated internal control system has promoted cost savings with regard to financial decision-making in the company	1.9%	2.5%	12.1%	58.6%	24.8%	4.02	0.80
The automated internal control system has enhanced the investor confidence of the reported data	4.5%	0.6%	11.5%	56.1%	27.4%	4.01	0.91
The automated internal control system has enabled accurate disclosure of financial reports to the management	1.3%	3.2%	11.5%	59.2%	24.8%	4.03	0.78
Average						**3.91**	**0.91**

The descriptive statistics for automated internal control systems reveal varying levels of respondent agreement across ten measurement dimensions, with mean scores ranging from 3.40 to 4.46 and standard deviations from 0.59 to 1.32. The highest agreement was observed for transparency of electronically processed cash receipt data, where 94.9% of respondents agreed (43.9% agree, 51.0% strongly agree) with a mean of 4.46 (SD = 0.59). Company scalability promotion received 89.8% agreement (62.4% agree, 27.4% strongly agree) with a mean of 4.13 (SD = 0.69), while information and communication enhancement achieved 82.2% agreement (39.5% agree, 42.7% strongly agree) with a mean of 4.10 (SD = 1.06). Cost savings in financial decision-making garnered 83.4% agreement (58.6% agree, 24.8% strongly agree) with a mean of 4.02 (SD = 0.80) and accurate disclosure of financial reports achieved 84.0% agreement (59.2% agree, 24.8% strongly agree) with a mean of 4.03 (SD = 0.78). Investor confidence enhancement received 83.5% agreement (56.1% agree, 27.4% strongly agree) with a mean of 4.01 (SD = 0.91), while data privacy promotion achieved 71.9% agreement (61.1% agree, 10.8% strongly agree) with a mean of 3.59 (SD = 1.06). Segregation of duties showed 67.6% agreement (38.9% agree, 28.7% strongly agree) with 24.2% remaining neutral, yielding a mean of 3.88 (SD = 0.92), while adequate authorization of activities received 60.5% agreement (52.2% agree, 8.3% strongly agree) with a mean of 3.50 (SD = 0.93). The lowest agreement was recorded for risk assessment enhancement at 61.7% (42.0% agree, 19.7%

strongly agree), with 27.4% expressing disagreement or neutrality, resulting in a mean of 3.40 (SD = 1.32). The overall average mean across all dimensions was 3.91 with a standard deviation of 0.91.

4.2 Correlation analysis

Correlation analysis looks at the direction and the strength of the linear relationship between two variables at a time and gives clear understanding of the relationship between individual variables without the complexity of multiple variables interaction.

Table 1: Correlation Analysis

	Financial Performance	Automated Internal Control Systems
Financial Performance	1.000	
Automated Internal Control Systems	.720**	1.000
Sig. (2-tailed)		0.000

The correlation shows that there is a close positive relationship between automated internal control systems and financial performance (r = 0.720, p = 0.000). This means that the more the automated internal control systems are effective, the more the financial performance of insurance companies is high.

4.3 Regression Analysis

To determine the individual relationship between the predictor variables and financial performance, simple regression analysis was performed on each of the predictor variables.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.720	0.518	0.515	0.18657

In the model summary, the automated internal control systems and financial performance have a strong positive relationship (R = 0.720). The R^2 value of 0.518 shows that automated internal control systems accounted 51.8 percent of the variance in the financial performance of insurance companies. The adjusted R^2 of 0.515 proves the strength of the model, and the standard error of the estimate (0.18657) shows that the prediction errors are rather low.

Table 3: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.802	1	5.802	166.535	0.000
	Residual	5.390	155	0.035		
	Total	11.192	156			

ANOVA table shows that the regression model is significant (F = 166.535, p = 0.000). The regression sum of squares (5.802) is far greater than the residual sum of squares (5.390), which means that automated internal control systems explain more variance than the unexplained one. F-statistic of 166.535 and a significance level of 0.000 indicates that the model is highly

significant and that automated internal control systems are significant predictors of financial performance.

Table 4: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.245	0.187		6.658	0.000
	Automated Internal Control	0.598	0.046	0.720	12.905	0.000

Table 4 shows that the constant term is 1.245 (t = 6.658, p = 0.000) and this is the expected financial performance when the automated internal control systems are zero. The unstandardized coefficient of automated internal control systems is 0.598 (t = 12.905, p = 0.000) which means that an increase in automated internal control effectiveness by one unit will result in a financial performance increase by 0.598 units. The positive relationship is strong as indicated by the standardized coefficient (Beta = 0.720). The regression equation is: Financial Performance = 1.245 + 0.598(Automated Internal Control). These results are consistent with those of Al Omari et al. (2023), who discovered that Jordanian insurance firms that have effective automated internal controls are much more profitable. Kamau et al. (2021) showed that the automated internal control systems assist Kenyan insurance companies in saving money and avoiding fraud, which directly leads to better financial performance.

4.4 Discussion of the Findings

Correlation results revealed that Automated Internal Control Systems (r = 0.720, p = 0.000) are positively and significantly related to financial performance. Simple regression coefficient results further confirm this relationship (β = 0.598, p = 0.000), indicating that improvements in Automated Internal Control Systems lead to significant gains in financial performance of insurance companies. The model explains 51.8% of the variance in financial performance (R^2 = 0.518), making it the strongest predictor among all study variables. The results match those found in previous studies carried out in different places and industries. Al Omari et al. (2023) studied the Jordanian insurance sector and found that cybersecurity, internal controls and financial performance were connected in a positive way. They found that companies with efficient automated controls tend to be more profitable than those without them. Shin et al. (2020) reported that the use of automated internal control systems greatly improves the financial results and efficiency of Korean insurance companies. According to Chen et al. (2021), the use of automated internal control systems greatly improves both the efficiency and financial results in Asian insurance markets. The research pointed out that automation plays a role in making processes simpler and improving financial performance. Even in the European insurance sector, Lange (2018) revealed that using automated internal control systems makes it easier to comply with Solvency II which then leads to better financial results. The strong coefficient (β = 0.598) observed in this study confirms that for every one-unit increase in automated internal control effectiveness, financial performance increases by 0.598 units, demonstrating substantial practical significance.

5.0 Conclusion

The empirical study establishes that automated internal control systems are highly effective in improving the financial performance of insurance companies in Kenya. The research successfully achieved its objective with strong statistical evidence demonstrating that automated internal control systems have a positive and significant effect on financial performance improvement. The analysis revealed that automated internal control systems showed the highest individual effect on financial performance ($R^2 = 0.518$, $\beta = 0.598$), explaining 51.8% of variance in financial performance outcomes among Kenyan insurance companies.

The results align with existing international literature on automated internal control systems and their effect on financial performance across different geographical and sectoral contexts. Studies conducted in both developed markets (Europe, North America) and emerging economies (Asia, Africa) demonstrate that strong automated internal controls are paramount to organizational success. The theoretical foundation based on Technology Acceptance Model received strong empirical support, indicating that adoption of automated internal control systems results in improved operational efficiency, decreased error rates, increased decision-making capacity, and enhanced competitive market positioning. The study provides conclusive evidence that automated internal control systems represent valuable organizational resources that generate long-term competitive advantages and quantifiable financial gains in Kenya's insurance industry.

6.0 Recommendations

Based on the study findings, insurance companies in Kenya should prioritize automated internal control systems as fundamental components of their financial management strategies. Companies should invest in reliable automated control mechanisms that maintain transparency and accuracy in cash receipt processing while producing precise management reports. Regular administration and updating of internal control systems will assist in managing emerging risks and technological changes that could compromise operational integrity.

Insurance providers should ensure their automated internal control systems maintain comprehensive transaction monitoring capabilities, systematic authorization protocols, and robust fraud detection mechanisms. This requires implementing advanced pattern recognition technologies, establishing real-time monitoring dashboards, and developing comprehensive digital audit trails that enhance stakeholder confidence and regulatory compliance. Management should focus on systems that provide immediate alerts for unusual transaction patterns and enable prompt response to operational inefficiencies.

The Insurance Regulatory Authority should establish minimum standards for automated internal control systems implementation across the industry, ensuring consistent fraud prevention capabilities and regulatory compliance monitoring. Industry associations should facilitate knowledge sharing and best practice development to support smaller insurance companies in implementing effective automated internal control systems that enhance their financial performance and competitive positioning.

Future researchers should examine whether organizational characteristics such as company size, age, and ownership structure moderate the relationship between automated internal control systems and financial performance in insurance companies. This would provide insights into optimal implementation contexts and guide tailored approaches for different organizational profiles.

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