

## EFFECT OF INTERNAL CONTROL COMPONENTS AND REVENUE LEAKAGE: EVIDENCE FROM FINANCIAL INSTITUTIONS IN EDO STATE, NIGERIA

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### **Abstract**

This study examines the relationship between internal control systems and revenue leakage in financial institutions in Edo State, specifically banks and microfinance institutions, by assessing how the various aspects of internal control, which includes control environment, risk assessment, control activities, information and communication, and monitoring, contribute to minimizing financial losses due to revenue leakage. This exploratory study utilised the administration of a well-structured 5-point Likert scale questionnaire to 384 employees of financial institutions in Edo State in gathering data. The instrument's reliability was confirmed with a Cronbach's Alpha coefficient of 0.856. Data analysis involved the use of both descriptive statistics and multiple regression analysis to assess the relationship between internal control components and revenue leakage. The findings revealed that control activities had a significant relationship with revenue leakage, while other internal control components such as risk assessment, information and communication, and monitoring did not show a significant relationship with revenue leakage. This suggests that while control activities are crucial in minimizing revenue leakage, other components may require more effective implementation. Notably, the positive relationship of the coefficients contradicts the expected negative link between strong internal controls and revenue leakage. This may indicate that internal controls, though present, are not effectively enforced or are implemented superficially. The study recommends strengthening of control activities and enhancing the integration of risk assessment and monitoring mechanisms to reduce revenue leakage in financial institutions.

**Keywords:** Internal control, revenue leakage, fraud triangle, agency theory.

**JEL Codes:** G32, M42, D73

### **1.0 Introduction**

Internal control systems are vital for the efficient running of organizations, particularly within the financial sector (Musyoki, 2023). These systems are designed to be safeguards against errors, fraud, and mismanagement, ensuring that financial activities and reporting adhere to established policies and regulatory requirements. Well-designed control mechanisms ensure that transactions are appropriately authorized, accurately recorded, and consistently monitored, thereby reducing the risk of financial misstatements and unethical practices (Ali & Khan, 2022). A key concern of weak internal control systems is revenue leakage, which can be

defined as the loss of potential income due to fraud, inefficiencies, or weaknesses in financial oversight. These losses may be due to inadequate accounting systems, improper billing procedures, insufficient monitoring, or poor governance structures (Cardineals & Soderstrom, 2013).

Despite widespread recognition of the importance of internal controls in reducing financial losses, many financial institutions still experience considerable revenue leakages. This is often due to the inconsistent implementation of effective internal control frameworks, resulting in weak risk management and insufficient financial oversight (Olaniyan et al., 2021). Prior studies also suggest that when internal control systems are not designed to address the type of risks faced by financial institutions, they tend to yield suboptimal results (Gani & Jermias, 2012). As a result, institutions remain exposed to fraudulent transactions, billing errors, inefficiencies in financial reporting, financial instability, regulatory sanctions, and erosion of public confidence. In countries like Nigeria, these problems are often intensified by inconsistent regulatory enforcement, limited resources for internal audits, and inadequate personnel training, this highlights the need for a robust internal control system that ensures compliance and safeguards the financial interests of stakeholders, as weak internal control system will lead to revenue leakages (Manginte, 2024).

Addressing revenue leakage is crucial for economic sustainability across various sectors of the economy, as it requires advanced detection techniques and appropriate policies to mitigate financial losses (Abbasi et al., 2024). However, there remains a notable empirical gap in the Nigerian context, particularly in studies that apply the COSO internal control framework alongside advanced analytical methods such as the ordered logit model, to examine the relationship between internal control components and revenue leakage in financial institutions particularly banks and microfinance institutions. Edo state has been selected as the focus of this study due to its active and growing financial sector. The state's financial institution plays a critical role in its economic development, contributing significantly to the state's Gross Domestic Product (GDP). According to the Edo State Government Report (2013-2022), the value added by the financial sector rose from N103.72 billion in 2021 to N117.05 billion in 2022, reflecting notable growth in the sector's contribution to the state's economy (Edo State Government, 2025). This growth underscores the relevance of examining internal control systems and revenue management practices within financial companies, specifically banks and microfinance institutions in the state.

This study aims to examine the relationship between internal control systems and revenue leakage in financial institutions, using the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework as a benchmark for deriving the independent variables. The COSO framework emphasizes five key components: control environment, risk assessment, control activities, information and communication, and monitoring (Akinleye & Kolawole, 2019).

## **2.0 Literature Review and Hypotheses Development**

Revenue leakage refers to the loss of expected income due to inefficiencies or inadequate controls, and it poses significant challenges to economic development (Abbasi & Tawee, 2018). In Nigeria, it hinders growth by reducing government revenue and fostering corruption (Ogunyewo & Oluwasuji, 2024). Local governments face similar issues, with internal revenue leakages threatening their existence (Elekwa & Okechukwu, 2014). Internal control systems

play a crucial role in preventing and mitigating revenue leakage by ensuring accurate financial reporting, enhancing operational efficiency, and ensuring compliance with laws and regulations. These systems involve various components, including risk assessment, control activities, information and communication, and monitoring (Musyoki, 2023). Effective internal controls enhance operational efficiency, ensure accurate financial reporting, and promote compliance with laws and regulations (Ziorklui et al., 2024).

The COSO internal control framework aligns meaningfully with both the Fraud Triangle and Agency Theory. Importantly, the internal control framework aligns with the Fraud Triangle theory by addressing the opportunity for fraud through control activities and monitoring, which limit unauthorized actions and reduce revenue leakage risks. Studies have shown that internal control weaknesses are major contributing factors to fraud, with poor supervision and improper documentation providing opportunities for asset misappropriation (Zakaria et al., 2016). Similarly, Agency Theory, which emphasizes the conflict of interest between principals and agents finds relevance in COSO elements like control environment, risk assessment, and information and communication. Agency theory complements this COSO framework by explaining how these controls aim to align the interests of owners and employees, promoting accountability and reducing revenue loss from conflicts of interest (Saltaji, 2013). Together, these theories emphasize the importance of robust controls in preventing fraud and mitigating agency-related risks, thereby protecting organizational revenue.

### **Control Environment and Revenue Leakage**

The control environment, which includes the policies, procedures, and practices within an organization, is crucial for mitigating revenue leakage (Akinyele & Afolabi, 2021). It sets the foundation for all other control components and shapes employee behaviour, influencing organizational culture, ethical standards, and the effectiveness of control measures. Sackey (2024) and Okidi et al. (2021) examined the role of internal controls in curbing revenue leakage in Nigerian local government authorities. Their study indicates that existing internal control mechanisms in Nigerian local governments are inadequate for achieving their objectives. They emphasized the need for stronger audits and greater accountability within local governments to reduce leakage. Particularly, Control activities have a significant positive effect on revenue collection, while control environment and monitoring show limited impact (Okidi et al., 2021). Similarly, Azevedo et al. (2020) explored the role of internal control systems in Brazilian municipal tax collection, revealing that agency problems and low perception of control contribute to reduced Inter Vivos Property Transfer Tax collection. Elekwa and Okechukwu (2014) emphasized the importance of fund control techniques and financial regulations in preventing revenue leakage in local governments. Ahmad and Norhashim (2008) highlighted the relationship between the control environment and employee attitudes towards fraud, suggesting that certain elements of the control environment could influence fraudulent behaviours. Drawing from these past studies, the first hypothesis is:

***Ho1: There is no significant relationship between the control environment and revenue leakage in financial companies in Edo State.***

### **Risk Assessment and Revenue Leakage**

Risk assessment frameworks play a crucial role in tax administration and revenue generation. Studies across Nigeria highlight the importance of robust tax administration mechanisms,

including audits, penalties, and enforcement, in improving revenue collection (Awotomilusi, 2022; Samuel & Tyokoso, 2014). Implementing a comprehensive compliance and audit model, incorporating advanced technologies and data analytics, can significantly enhance tax revenue and compliance rates (Okeke et al., 2024). However, the effectiveness of risk-based regulation in compliance frameworks may vary between countries. A comparison of the UK and Netherlands revealed differences in operationalizing risk assessment for large corporate taxpayers, with both countries facing challenges in achieving administrative efficiency gains (Widt & Oats, 2017). These studies collectively emphasize the need for well-equipped databases, corruption-free collection processes, and stringent penalties to discourage tax evasion and avoidance, ultimately contributing to increased revenue generation and a more transparent tax system. Based on this, the study hypothesizes that:

***Ho2: There is no significant relationship between risk assessment and revenue leakage in financial companies in Edo State.***

### **Control Activities and Revenue Leakage**

Control activities such as segregation of duties, reconciliations, and automated workflows are essential for preventing revenue leakage. Automated control systems and information controls are crucial for preventing revenue leakage (Richards et al., 2010). Studies have shown that implementing effective internal control systems, including control activities, has a positive impact on revenue collection (Kipkurui & Makori, 2023; Elekwa & Okechukwu, 2014). The Committee of Sponsoring Organizations (COSO) preventative control operations have been found to influence revenue mobilization in Uganda, with control activities such as guidelines, segregated duties, contributing to desired revenue achievement (Nantunda et al., 2020). Key recommendations for improving control activities include enhancing reconciliation processes, adopting information accounting systems, and conducting regular risk assessments to eliminate systemic risks (Kipkurui & Makori, 2023; Aravamuthan, 2021). These studies emphasize the importance of automated continuous controls to combat revenue leakage effectively in the telecommunications and utility industries. Based on these extant literatures, the third hypothesis is:

***Ho3: There is no significant relationship between control activities and revenue leakage in financial companies in Edo State.***

### **Information Communication and Revenue Leakage**

Information and Communication Technologies (ICT) have significantly impacted revenue collection and tax administration in various countries. In Nigeria, ICT implementation has increased government revenue through systems like IPPIS and TSA, though challenges such as infrastructure gaps and resistance from officials persist (Abdulkareem, et al., 2021). ICT has improved tax administration accuracy, reduced leakages, and made tax evasion more difficult (Oseni, 2016). The integration of ICT in Nigerian tax administration has enabled e-filing, e-assessment, and e-auditing, enhancing revenue generation and management of revenue loss (Agbo, 2022). The fourth hypothesis is:

***Ho4: There is no significant relationship between information-communication and revenue leakage in financial companies in Edo State.***

## **Monitoring and Revenue Leakage**

Monitoring is a core component of the COSO internal control framework, designed to ensure that internal control systems remain effective over time. It involves both continuous evaluations and periodic assessments aimed at identifying deficiencies and implementing timely corrective actions (Rae et al., 2017). This continuous oversight is essential for maintaining the integrity of financial systems and preventing operational lapses that can lead to revenue leakage. Although initially developed for large organizations, the COSO framework has evolved to accommodate smaller entities, advocating for cost-effective monitoring practices that are integrated into routine operations (Rittenberg et al., 2007). Internal auditors play a pivotal role in this process, acting on behalf of management and boards of directors to evaluate and confirm that internal control components including monitoring function effectively and contribute to financial accountability (Fourie & Ackermann, 2013). Empirical studies affirm that strong monitoring mechanisms significantly mitigate revenue leakage. Forkuo (2018) emphasizes the role of technology-driven tools such as revenue management software, real-time tracking systems, and accurate bookkeeping in enabling organizations to detect irregularities early and respond proactively. These digital tools offer transparency, improve data integrity, and strengthen oversight functions, thereby reducing opportunities for undetected financial loss. Otieno & Mutundu (2024) highlight the use of diverse monitoring instruments such as audits, inspections, performance indices, and oversight reports as critical to identifying inefficiencies and initiating corrective interventions. When such mechanisms are embedded into the internal control structure, they provide early warning signals and foster institutional accountability, both of which are essential for preventing revenue leakage. Collectively, these studies demonstrate that monitoring is not merely a supportive function, but a strategic control activity central to sustaining financial integrity. In financial institutions especially in dynamic environments like Edo State where funds circulate rapidly and compliance expectations are high effective monitoring aligned with the COSO framework is indispensable for detecting gaps, enforcing control standards, and safeguarding revenue.

***Ho5: There is no significant relationship between monitoring and revenue leakage in financial companies in Edo State.***

## **3.0 Methodology**

This study employs an explanatory research design to examine the relationship between internal control components and revenue leakage in financial companies within Edo State. This approach allows for the collection of measurable data as regards the topic under study. Data was collected through the administration of a well-structured close-ended questionnaire on the five internal control components: control environment, risk assessment, control activities, information and communication, and monitoring and revenue leakage. Responses were measured using a 5-point Likert scale. The questionnaire was administered both electronically and in print.

To ensure the validity and reliability of the constructs based on the COSO framework, an exploratory factor analysis (EFA) was performed on the questionnaire items. This analysis confirmed that the items appropriately loaded onto their respective factors, control environment, risk assessment, control activities, information and communication, and monitoring, supporting the construct validity of the measurement model. The factor structure aligned well with the theoretical expectations, providing confidence that the instrument

accurately captured the intended dimensions. This step was essential in establishing the soundness of the measurement before proceeding with further analysis.

The population for this study consists of employees from financial institutions operating within Edo State, specifically, commercial banks, and microfinance institutions. Although the exact number of employees is not publicly available and thus the population size is considered unknown, the study focused on a representative sample drawn from a cross-section of these financial entities. A total sample size of 384 respondents was determined by using the Cochran (1977) formular to ensure sufficient statistical power and precision. Respondents were selected from these institutions using random sampling technique. The study was geographically limited to Edo State due to its active financial sector, including urban centers like Benin City and surrounding towns where these institutions maintain branches, offering a diverse representation of institutional sizes and structures within Nigeria's developing economy.

A pilot study was carried out on 20 respondents to test the reliability and validity of the instrument, and validation by experts ensured content accuracy. The questionnaire's reliability was assessed using Cronbach's Alpha, and it yielded a coefficient of 0.856. Edo State was chosen for its active financial sector, which includes commercial banks, microfinance institutions, and insurance firms. Findings from this study are expected to provide insights applicable to similar settings in Nigeria and other developing economies.

The study is grounded in the Fraud Triangle Theory and Agency Theory. The Fraud Triangle explains how pressure, opportunity, and rationalization contribute to fraud, highlighting the need for strong internal controls. Agency Theory addresses conflicts between owners and employees, emphasizing controls that align interests and reduce revenue leakage. Combining both theories offer a comprehensive understanding of the behavioural and systemic factors behind financial losses. Drawing from these theoretical underpinnings, there exist a functional relationship between internal control mechanisms and revenue leakage:

$$RL = f(CE, RA, CA, IC, MO) \quad \dots \quad (1)$$

Where:

RL = Revenue Leakages

CE = Control Environment

RA = Risk Assessment

CA = Control Activities

IC = Information and Communication

MO = Monitoring

The econometric form of this model is expressed as:

$$RL = \beta_0 + \beta_1 CE_i + \beta_2 RA_i + \beta_3 CA_i + \beta_4 IC_i + \beta_5 MO_i + \varepsilon \quad \dots \quad (2)$$

Where:

$\beta_0$  to  $\beta_5$  are the model coefficients

i = represents individual respondents

$\varepsilon$  = error term

**A priori expectation:** Guided by theory, it is expected that all five independent variables will have a negative relationship with revenue leakages, suggesting that a unit increase in the internal control systems would lead to a unit decrease in revenue leakage.

Data analysis involved both descriptive and inferential statistics, with multiple regression used to determine the relationship between each internal control component and revenue leakages. Because revenue leakage was measured using a Likert scale, it reflects ordered categories rather than continuous numeric values. As a result, revenue leakage was treated as an ordinal variable. This approach was necessary since some diagnostic tests showed that treating it as a continuous variable violated model assumptions. Consequently, ordered logistic regression was used to better capture the ordinal nature of the data and provide more reliable results.

#### 4.0 Data Presentation and Interpretation

##### Descriptive Analysis

**Table 1:**

*Descriptive statistics on averaged responses of respondents*

Variables	Statistic	Value
Revenue Leakage	Mean	3.692
	Std. Deviation	0.633
Control Environment	Mean	3.943
	Std. Deviation	0.559
Risk Assessment	Mean	3.997
	Std. Deviation	0.553
Control Activities	Mean	4.031
	Std. Deviation	0.586
Information Communication	Mean	4.006
	Std. Deviation	0.571
Monitoring	Mean	4.012
	Std. Deviation	0.574

**Source:** Author's Compilation (2025).

Table 1 presents the descriptive statistics for the averaged responses of 384 respondents, providing insights into various aspects of internal control systems and revenue leakage among financial companies in Edo State. Revenue Leakage has a mean of 3.692 with a standard deviation of 0.633, which indicates that, on average, respondents perceive revenue leakage to be moderately prevalent within these companies. In contrast, Control Environment as a variable yielded a mean of 3.943 (SD = 0.559), suggesting a relatively strong and positive perception regarding the overall ethical and procedural foundation of the organizations.

Risk Assessment achieved a mean of 3.997 with a standard deviation of 0.553, reflecting that respondent generally acknowledge the importance of identifying and evaluating risks effectively. Furthermore, Control Activities as a variable was rated the highest among the internal control components, with a mean of 4.031 (SD = 0.586), indicating that respondents perceive these operational procedures and safeguards as highly effective in mitigating risks and potential revenue leakages. In addition, the Information Communication variable has a mean of 4.006 with a standard deviation of 0.571, which demonstrates that channels of internal communication regarding policies and procedures are viewed as robust and efficient.

Finally, Monitoring has a mean score of 4.012 (SD = 0.574), suggesting that continuous oversight and review mechanisms are well established within these financial institutions.

Collectively, these descriptive statistics provide a comprehensive overview of the respondents' perceptions, highlighting both the strengths and potential areas of improvement in the internal control systems that are essential for managing revenue leakage in financial companies in Edo State. While the descriptive analysis indicates relatively high mean scores for the internal control variables (around 4.0), the mean score for revenue leakage remains moderately high at 3.692. This suggests a perceived strength in control systems coexisting with a noticeable level of revenue leakage, highlighting a potential disconnect between the perceived effectiveness of controls and the persistence of leakage. This contradiction warrants further exploration in the subsequent analyses and discussion.

### Correlation Analysis

To test the strength of association between the variables in this research, the spearman correlation analysis was performed. This is presented in Table 4.2;

**Table 2:**  
*Correlation matrix of variables*

Spearman's rho		RL AVG	CE AVG	RA AVG	CA AVG	IC AVG	MO AVG
RL AVG	Coeff.	1					
	Sig.	.					
CE AVG	Coeff.	.232**	1				
	Sig.	0.00	.				
RA AVG	Coeff.	.162**	.327**	1			
	Sig.	0.00	0.00	.			
CA AVG	Coeff.	.220**	.393**	.361**	1		
	Sig.	0.00	0.00	0.00	.		
IC AVG	Coeff.	.158**	.344**	.359**	.379**	1	
	Sig.	0.00	0.00	0.00	0.00	.	
MO AVG	Coeff.	.150**	.298**	.369**	.372**	.418**	1
	Sig.	0.00	0.00	0.00	0.00	0.00	.

**Source:** STATA V13

The data in Table 2 showcases the relationships between six variables: RL AVG (Revenue Leakage Average), CE AVG (Control Environment Average), RA AVG (Risk Assessment Average), CA AVG (Control Activities Average), IC AVG (Information and Communication Average), and MO AVG (Monitoring Average).

The matrix reveals a statistically significant positive correlation between RL AVG and CE AVG, with a Spearman's rho coefficient of 0.232 ( $p < 0.01$ ). This indicates that a stronger control environment is moderately associated with reduced revenue leakage. Similarly, RL AVG shows a positive correlation with RA AVG (0.162,  $p < 0.01$ ), CA AVG (0.220,  $p < 0.01$ ), IC AVG (0.158,  $p < 0.01$ ), and MO AVG (0.150,  $p < 0.01$ ). While these coefficients are relatively low, they suggest weak but meaningful relationships between revenue leakage and the other internal control system components. IC AVG and MO AVG exhibit the strongest correlation within the matrix (0.418,  $p < 0.01$ ). This highlights the critical interdependence between robust information-communication systems and effective monitoring processes within financial companies. It also suggests the absence of multicollinearity, which is further

buttressed by the results of variance inflation factor in which none of the VIFs were greater than 10.

Summarily, the correlation matrix emphasizes the interconnectedness of internal control system components, with varying degrees of association. The consistently significant p-values ( $p < 0.01$ ) across all relationships indicate that these correlations are unlikely to occur by chance. These findings provide valuable insights into the role of internal control systems in addressing revenue leakage in financial companies.

### Regression Analysis and Diagnostic Tests

**Table 3:**

***Regression Estimate one***

Dependent Variable: RL\_AVG

Method: Least Squares

Variable	Coef.	Std. Error	t-Statistic	Prob.
CE_AVG	0.254	0.067	3.790	0.000
RA_AVG	0.057	0.070	0.810	0.418
CA_AVG	0.184	0.069	2.660	0.008
IC_AVG	0.065	0.072	0.905	0.366
MO_AVG	0.068	0.071	0.954	0.340
C	1.191	0.247	4.832	0.000
R-squared	0.219			
Adjusted R-squared	0.209			
F-statistic	22.069			
Prob(F-statistic)	0.000			
Durbin-Watson stat	1.711			
Breusch-Godfrey Serial Correlation LM				
Obs*R-squared	10.270			
Prob. Chi-Square(2)	0.006			
Breusch-Pagan-Godfrey Heteroskedasticity Test				
Obs*R-squared	5.953			
Prob. Chi-Square(5)	0.311			
Ramsey RESET Test				
F-statistic	25.51352			
Prob. Chi-Square(5)	0.000			

**Source:** STATA V13

Beginning with the diagnostic tests, at 5% significance, the results in Table 3 reveal the presence of autocorrelation based on Obs\*R-squared of 10.270 and small p-value of .006. However, there was no evidence of heteroscedasticity as revealed by Obs\*R-squared of 5.953 and large p-value of .311. Lastly, the Ramsey RESET test provides evidence of misspecification errors as the f-statistic has an insignificant p-value. In conclusion, the failed results of the diagnostic tests suggest the inadequacy of the OLS estimator. Consequently, based on the ordered nature of the dependent variable, the ordered logistics estimator was utilized.

**Table 4:**  
**Regression Estimate Two**

Dependent Variable: RL_AVG				
Method: ML - Ordered Logit (Newton-Raphson / Marquardt steps)				
Variable	Coefficient	Error	z-Statistic	Prob.
CE_AVG	0.461	0.215	2.149	0.032
RA_AVG	0.239	0.215	1.111	0.267
CA_AVG	0.578	0.201	2.874	0.004
IC_AVG	0.192	0.221	0.868	0.386
MO_AVG	0.165	0.226	0.732	0.464
Pseudo R-squared	0.059			
Log likelihood	-365.389			
LR statistic	46.053			
Prob(LR statistic)	0.000			

**Source:** STATA V13

An ordered logistic regression analysis was conducted using maximum likelihood estimation (Newton-Raphson/Marquardt steps) to examine the relationship between internal control system components and revenue leakage (RL\_AVG) among financial companies in Edo State. From Table 4, we find that the overall model was statistically significant, as indicated by a likelihood ratio statistic of 46.053,  $p < .001$ , and accounted for a modest proportion of the variance in revenue leakage (Pseudo  $R^2 = .059$ ).

Specifically, the control environment (CE\_AVG) emerged as a significant predictor, with a coefficient of 0.461 (SE = 0.215,  $z = 2.149$ ,  $p = .032$ ). This finding suggests that a one-unit increase in the control environment score is associated with an increase in the log odds of observing higher revenue leakage ratings. Similarly, control activities (CA\_AVG) demonstrated a significant positive relationship with revenue leakage, as evidenced by a coefficient of 0.578 (SE = 0.201,  $z = 2.874$ ,  $p = .004$ ). In contrast, risk assessment (RA\_AVG), information communication (IC\_AVG), and monitoring (MO\_AVG) did not significantly predict revenue leakage, with  $p$ -values of .267, .386, and .464, respectively.

Collectively, these results indicate that among the various dimensions of internal control systems evaluated, the control environment and control activities are significantly associated with revenue leakage outcomes. The findings imply that enhancements in these specific areas of internal control may be linked to variations in revenue leakage, warranting further investigation into how these relationships operate within the financial companies surveyed in Edo State.

### Test of Hypotheses

To test the hypotheses, this study relies on the results presented in Table 4. The decision rule follows standard statistical practice, where the null hypothesis is rejected if the  $p$ -value is less than 0.05 (5%), and indicating statistical significance. On the other hand, if the  $p$ -value exceeds 0.05, the null hypothesis is not rejected.

The first hypothesis examines whether there is a significant relationship between the control environment and revenue leakage in financial companies in Edo State. The analysis reveals that the control environment variable (CE\_AVG) exhibits a statistically significant positive relationship with revenue leakage ( $z = 2.149$ ,  $p = .032$ ). Given that the p-value is less than 0.05, the null hypothesis is rejected. This suggests that the control environment plays a significant role in influencing revenue leakage within financial institutions in the study area.

The second hypothesis considers the relationship between risk assessment and revenue leakage. The results show that risk assessment (RA\_AVG) has a positive but statistically insignificant relationship with revenue leakage ( $z = 1.111$ ,  $p = .267$ ). Since the p-value exceeds the 5% threshold, the null hypothesis is accepted. This indicates that risk assessment does not have a statistically significant impact on revenue leakage in financial institutions in Edo State.

The third hypothesis investigates the link between control activities and revenue leakage. The findings demonstrate a significant positive relationship between control activities (CA\_AVG) and revenue leakage ( $z = 2.874$ ,  $p = .004$ ). As the p-value is below 0.05, the null hypothesis is rejected. This implies that control activities significantly influence revenue leakage in the sampled institutions.

The fourth hypothesis explores whether information and communication systems are significantly associated with revenue leakage. The results indicate that the variable representing information and communication (IC\_AVG) has a positive but statistically insignificant relationship with revenue leakage ( $z = 0.868$ ,  $p = .386$ ). As the p-value exceeds the 5% significance level, the null hypothesis is not rejected. Thus, there is no significant relationship between information-communication processes and revenue leakage.

Finally, the fifth hypothesis assesses the relationship between monitoring and revenue leakage. The monitoring variable (MO\_AVG) shows an insignificant positive relationship with revenue leakage ( $z = 0.732$ ,  $p = .464$ ). Since the p-value is greater than 0.05, the null hypothesis is thereby accepted. This suggests that monitoring does not significantly relate to revenue leakage in financial institutions within Edo State.

## **Discussion of Findings**

The study's findings on the control environment reveal a statistically significant relationship with revenue leakage ( $z = 2.149$ ,  $p = .032$ ), reinforcing agency theory, which highlights the role of governance and ethical culture in curbing agency conflicts and fraud (Yemer, 2017). This aligns with prior literature that were of the view that the control environment sets the ethical tone of an organization and shapes employees' attitudes toward compliance (Sackey, 2024; Akinyele & Afolabi, 2021). It also supports the findings of Okidi et al. (2021), who found that weak control environments contribute to continuous revenue losses in Nigerian local governments. Similarly, Ahmad and Norhashim (2008) highlights how elements of the control environment influence employees' attitude towards fraud. Notably, the positive coefficient in this study may indicate a detection effect, where stronger control environments lead to better detection of revenue leakages, emphasizing that internal controls serve both preventive and detective functions.

On the other hand, risk assessment does not exhibit a statistically significant relationship with revenue leakage ( $z = 1.111$ ,  $p = .267$ ). This finding contradicts theoretical expectations and prior studies (Awotomilusi, 2022; Samuel & Tyokoso, 2014; Okeke et al., 2024), which regard risk assessment as vital to effective revenue management. The lack of significance may reflect structural deficiencies in how risk assessment frameworks are applied within financial firms in Edo State. As Widt and Oats (2017) argue, even strong frameworks may fail if not properly supported. This suggests a lack in institutional commitment to risk assessment, limiting its practical influence.

Control activities show a significant positive relationship with revenue leakage ( $z = 2.874$ ,  $p = .004$ ), supporting the Fraud Triangle Theory which posits that controls are often implemented when fraud or leakage occurs, rather than being proactively put in place to prevent it. The work of Musyoki (2023) also emphasizes the role of procedural safeguards such as segregation of duties, and proper documentation. This result is also in line with Abbasi et al. (2024) and Aravamuthan (2021), who stress rule-based controls and data-driven systems in preventing revenue losses. The positive relationship observed may again reflect a reactive pattern where increased control measures are implemented in response to previously identified revenue losses highlighting the need for proactive and preventive control strategies.

In contrast, the study finds no statistically significant relationship between information and communication and revenue leakage ( $z = 0.868$ ,  $p = .386$ ). This result diverges from previous findings (Oseni, 2016; Agbo, 2022; Abdulkareem et al., 2021), which underscores the role of communication infrastructure and ICT tools in enhancing transparency and curbing leakage. The insignificance here may be as a result of a lack of meaningful differences in communication systems among the institutions surveyed, or it may suggest inadequate integration of these systems into operational decision-making. As Yekini et al. (2023) pointed out, it is not merely the presence of communication tools but their effectiveness that determines their impact.

Finally, monitoring does not show a significant relationship with revenue leakage ( $z = 0.732$ ,  $p = .464$ ). This contradicts existing literature (Emeke et al., 2023; Mbasiti et al., 2021; Ogunyewo & Olawole, 2024), which highlights monitoring, particularly through forensic techniques, as a basis for revenue protection. The lack of significance may be due to limitations in monitoring design, such as reliance on periodic audits rather than continuous audit, or a failure to align monitoring practices with identified risks. As Elekwa and Okechukwu (2014) suggest, effective monitoring should include real-time detection and continuous improvement systems, which may be lacking in the institutions studied.

Although this study tested its hypotheses in their null form, it was theoretically expected that all five components of internal control would have a negative relationship with revenue leakage, that is, stronger internal controls would help reduce leakages. However, the results showed that two components, control environment and control activities were significantly and positively associated with revenue leakage. This unexpected outcome could suggest that in environments with more developed controls, cases of revenue leakage are more likely to be detected and reported. In other words, rather than causing leakages, stronger controls might simply make existing issues more visible. This interpretation aligns with the idea that internal

controls do not only prevent fraud and leakage but also play a key role in identifying and flagging them when they occur.

One limitation of this study is the relatively low Pseudo R<sup>2</sup> value of 0.059 obtained in the ordered logistic regression analysis. This indicates that the internal control variables included in the model explain only about 6% of the variation in revenue leakage among financial companies in Edo State. Consequently, while some internal control components were found to have significant associations with revenue leakage, other unobserved factors may also be influencing these outcomes. This limitation suggests caution in generalizing the results and highlights opportunities for future research to explore additional explanatory variables.

## 5.0 Conclusion and Recommendations

This study examined the relationship between internal control systems and revenue leakage in financial institutions in Edo State. The findings show that the control environment and control activities significantly influence revenue leakage, indicating that strong governance and effective internal controls help institutions detect and manage financial losses. However, the positive relationship suggests that improved controls mainly detect, rather than prevent, leakage. Risk assessment, information and communication, and monitoring were found to have no significant impact on revenue leakage. This may be due to inconsistencies in their application across financial institutions. Risk assessments may not be tailored to the financial sector's specific risks, and monitoring may focus more on compliance than fraud detection. Given the cross-sectional design of the study, these findings reflect associations rather than definitive causal effects. To establish clearer causal relationships between internal control components and revenue leakage, future research should adopt longitudinal or experimental designs.

To improve internal controls and reduce revenue leakage, financial institutions should strengthen their control environment by promoting ethical leadership and enhancing governance structures. Risk assessment frameworks should be more data-driven and sector-specific. Institutions should consider implementing real-time risk dashboards and deploying continuous transaction monitoring systems powered by artificial intelligence (AI) to proactively detect and prevent revenue leakages. Additionally, stricter regulatory enforcement and regular audits are essential to ensure adherence to best practices.

Future research should focus on the long-term impact of internal controls on financial stability, particularly in developing economies. Specifically, future studies could use panel data methods to track how improvements in internal controls influence revenue leakage over time and target specific financial sectors or high-risk areas to provide more focused insights. Furthermore, exploring the role of emerging technologies in enhancing financial transparency and economic stability remains an important area for investigation.

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