

Control Environment and Internal Control System Effectiveness of Listed Deposit Money Banks in Nigeria

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Abstract

This study examines the effect of control environment on internal control system effectiveness of listed deposit money banks in Nigeria. Primary data were collected using the 5-point Likert scale structured questionnaire adopted from the Committee of Sponsoring Organizations of the Treadway Commission (COSO, 1992) on internal control system effectiveness. A total of five hundred and forty (540) sets of questionnaire were sent out and four hundred and thirty-five (435) received representing about eighty-one (81%) percent response rate: also resulting in four hundred and thirty-five observations. The data were diagnosed for normality, heteroskedasticity and reliability (internal consistency) tests. Data were analyzed using descriptive statistics (mean, standard deviation, minimum and maximum) and inferential statistics (correlation and simple regression analysis). Results show that control environment has a positive and significant effect on internal control system effectiveness of listed deposit money banks in Nigeria. The study, therefore concludes that control environment (measured by integrity of senior management) has a significant and positive effect on ICSE of listed deposit money banks in Nigeria. Based on this conclusion, the study recommends that managers of listed deposit money banks should continue to strengthen integrity in the workplace, and maintain a positive disposition towards the control environment of their banks.

1. Introduction

Lot of interests have been generated in the area of effectiveness of internal control system in organizations. This is probably because effective internal control system plays an important role in ensuring achievement of organization's goals. At the level of corporate regulation, the Nigerian Securities and Exchange Commission (NSEC) requires listed firms to disclose more information on their internal control systems. Also, the study of internal control system effectiveness has increased leading more scholars to examine related aspects of internal control systems in both small and large firms.

The Committee of Sponsoring Organizations of the Treadway Commission (COSO, 1992) clearly outlines five (5) components of effective ICS as follows: (a) Control environment, (b) Risk assessment, (c) Control activities, (d) Information and communications, and (e) Monitoring. However, for the purpose of this study, the effect of control environment on internal control system effectiveness is examined. Sri Lanka Auditing Standards (2013), defined control environment as the attitude towards internal control and control consciousness established and maintained by the management and the employees of an organization. The control environment of a firm is expected to address issues relating to integrity, ethics, behaviour of key executives, management control consciousness and operating style, management commitment to competence, directors and audit committee participation in governance and oversight, organizational structure and assignment of authority. The control environment is also expected to address human resource policies and practices in the organization.

Deposit money banks occupy a central position in the nation's financial system and are essential agents in the development process of the economy. By intermediating between the surplus and deficit spending units, banks increase the quantum of savings and investments and hence output. By granting credits, banks create money thus influencing the level of money supply which is an essential item in the growth of national income as it determines the level of economic activities in the country. Banks are central to the payments system by facilitating economic transactions between various national and international economic units and by so doing encourage and promote trade, commerce and industry. For banks to be able to function effectively and contribute meaningfully to the development of a country, the industry must be stable, safe and sound. However, for these conditions to be met there must be a sound accounting system, which is occasioned by an internal control system (Hamid, 2004).

Effective internal controls are the foundation of safe and sound banking. A properly designed and consistently enforced system of operational and financial internal control helps a bank's board of directors and management to safeguard the bank's resources, produce reliable financial report, and complies with laws and regulations (Kumuthinidevi, 2016). Effective internal controls also reduce the possibility of significant errors and irregularities and assist in their timely detection of frauds and errors.

The financial system strategy (FSS) in Nigeria is robust and it plays a significant role in the development of the economy. However, there have been high incidences of frauds perpetrated by employees and customers,

which have the capacity to negatively affect the sector. This calls for a study on how to ensure effective ICS in order to stem the tidal wave of fraudulent practices. A considerable number of studies on ICS effectiveness were conducted in Nigeria; for example, Kabir (2004), Faudziah, Hasnah and Muhammad (2005), Olatunji (2009), Akinyomi (2010), Etuk (2011), Uket and Joseph (2012), Ajala, Amuda and Arolugun (2013), Muazu and Siti (2013), Enwelum (2013) and Akani and Akaninyene (2015).

A cursory examination of the above empirical studies shows that they are significantly different from this study. One of the major differences is that this study adopts COSO (1992) model for measuring ICS effectiveness. In view of the foregoing, the following research questions were investigated by the study:

1. Does integrity of senior management affect ICSE of listed deposit money banks in Nigeria?
2. How does ethical values and behaviour affect ICSE of listed deposit money banks in Nigeria?
3. To what extent that management control consciousness and operating cycle affect ICSE of listed deposit money banks in Nigeria?
4. How does management commitment to competence affect ICSE of listed deposit money banks in Nigeria?
5. Does board of directors and audit committee participation in governance and oversight affect ICSE of listed deposit money banks in Nigeria?
6. How does organizational structure and assignment of authority affect ICSE of listed deposit money banks in Nigeria?

Though, the objective of the study is to examine the effect of control environment on ICSE of listed deposit money banks in Nigeria; the specific objectives are to;

1. Examine the effect of integrity of Senior Management on ICSE of listed deposit money banks in Nigeria.
2. Examine the effect of ethical values and behaviour on ICSE of listed deposit money banks in Nigeria.
3. Examine the effect of management control consciousness and operating cycle on ICSE of listed deposit money banks in Nigeria.
4. Examine the effect of management commitment to competence on ICSE of listed deposit money banks in Nigeria.
5. Examine the effect of board of directors and audit committee participation in governance and oversight on ICSE of listed deposit money banks in Nigeria.
6. Examine the effect of organizational structure and assignment of authority and human resource policy and practices on ICSE of listed deposit money banks in Nigeria.

In line with the above research questions and specific objectives, the following hypotheses are tested;

- H₀₁: Integrity of senior management have no significant effect on ICSE of listed deposit money banks in Nigeria.
- H₀₂: Ethical values and behavior of key executives have no significant effect on ICSE of listed deposit money banks in Nigeria.
- H₀₃: Management control consciousness and operating cycle have no significant effect on ICSE of listed deposit money banks in Nigeria.
- H₀₄: Management commitment to competence have no significant effect on ICSE of listed deposit money banks in Nigeria.
- H₀₅: Board of directors and audit committee participation in governance and oversight have no significant effect on ICSE of listed deposit money banks in Nigeria.
- H₀₆: Organizational structure and assignment of authority and human resource policy and practices have no significant effect on ICSE of listed deposit money banks in Nigeria.

This study is significant because of the immense contribution it makes to knowledge by examining the effect of control environment on internal controls system effectiveness of listed deposit money banks in Nigeria. This study is of enormous benefit to banks, managements, employees, shareholders, depositors, auditors (both external and internal) and the regulatory authorities in Nigeria in a number of ways. It also assists stakeholders in their stewardship role in achieving firms' objectives and provides guidance for the existence of basic and consistent controls and to define responsibilities for managing them. The study is, however, restricted to the fifteen (15) listed deposit money banks in Nigeria. The remaining part of the study consists of literature review, data and methodology, results and discussion and conclusion and recommendations.

2.Literature Review

Committee of Sponsoring Organization of the Treadway Commission (COSO), in 1992, defined internal controls as a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories: Effectiveness and efficiency of operations, reliability of financial reporting, compliance with applicable laws and regulations (COSO, Internal Control-Integrated Framework, 1992). Again the Basel committee on banking supervision defines internal controls as a process effected by board of directors, senior management and all levels of personnel. It is not solely a procedure or policy that is performed at a certain point in time, but rather it is

continually operating at all levels within the bank (Basel, 1998).

The effectiveness of internal control system is dependent on how fluid the system interact with itself and how embedded it is into the organizations business processes (Gamage, Lock and Fernando, 2014). For an internal control system to be effective and provide that needed assurance to the board, there should be some agents of effectiveness. These are a vibrant board, which does not wait to be informed but a board that understands the business and questions the status quo, and an effective, independent internal audit unit (Ayagre, Appiah-Gyamerah and Nartey, 2014). According to COSO (1992), an internal control system can be judged to be effective on the high level if the board of directors and management have reasonable assurance that: They understand the extent to which the entity's operations objectives are being achieved, published financial statements are being prepared reliably, and applicable laws and regulations are being complied with. An internal control framework that places too much emphasis on detailed explanation of the different components of the system and methods for their design but ignore details on how each of the components can be measured to access their effectiveness is deficient control system in itself (Amudo & Inanga, 2009). The effectiveness of an internal control system is a function of the workings of the five components of the system.

The control environment is the foundation of an effective system of internal control. According to the Institute of Internal Auditors (IIA, 2011), most of the well-publicized failures (including not only Enron and WorldCom, but also the governance failures that led to the 2008 global financial crisis) were, at least in part, the result of weak control environments. In the absence of a demonstrably effective control environment, no level of design and operating effectiveness of controls within business and information and technology processes can provide meaningful assurance to stakeholders of the integrity of an organization's internal control system.

Also, the International Standards for the Professional Practice of Internal Auditing (Standards) Glossary (2011) defines the control environment as the attitude and actions of the board and management regarding the significance of control within the organization. The control environment provides discipline and structure for the achievement of the primary objectives of the system of internal control. The control environment includes the following elements: Integrity and ethical values; management philosophy and operating style; organizational structure; assignment of authority and responsibility; human resource policies and practices; and competence of personnel (COSO, 1992).

Cohen, Krishnamoorthy and Wright (2002) reiterate the importance of the control environment from a survey of auditors and its implication for the behaviour of employees as the most important ingredient for effective internal control system effectiveness. Similarly, Rittenberg and Schwieger (2005) argue that the control environment starts with the board of directors and management, who set the tone of an organization through policies, behaviours and effective governance.

An effective internal control system is an integrated system with interrelated components, supporting principles and attributes. Harvey and Brown (1998) identified control environment, accounting system and control procedures as the major components of internal controls (Harvey and Brown 1998). According to Grieves, an internal control system available to a firm consist of: management oversight and the control culture; risk recognition and assessment; control of activities and segregation of duties; information and communication and monitoring activities and correcting deficiencies (Grieves, 2000). The paper adopts COSO's 1992 integrated internal control framework. The Committee of Sponsoring Organizations' (COSO), was commissioned in the 1980's by National Commission on Fraudulent Financial Reporting (the Treadway Commission) to identify factors that caused fraudulent corporate financial reports and make recommendations, and has since developed to become a thought leader in enterprise risk management (ERM), internal control, and fraud deterrence (Amudo & Inanga 2009). For an organization to achieve its organizational objectives, then the five control components of control environment, risk assessment, control activities, information and communication and monitoring must be integrated into management processes over the entire organization (Subsidiaries, divisions, units) (Onumah, Kuipo & Obeng, 2012).

Ayagre, Appiah-Gyamerah and Nartey (2014) evaluate the control environment and monitoring activities components of internal control systems of Ghanaian banks using COSO principles and attributes of assessing the effectiveness of internal control systems. A five point Likert scale was used to measure respondent's knowledge and perception of internal controls and the banks internal control system effectiveness. Responses ranged from strongly disagree to strongly agree, where 1 represented strongly disagree (SD) and 5 represented strongly agree (SA). Statistical Package for Social Sciences (SPSS) was used to analyze data and presented in the form of means and standard deviations for each question and each section of the questionnaire. The study found out that, strong controls exist in the control environment and monitoring activities components of the internal control systems of banks in Ghana. The two components were highly rated by respondents with average means of 4.72 and 4.66 respectively. The study recommends that boards of banks in Ghana should not be complacent about the findings but should work hard to ensure continuous ongoing and separate internal control monitoring to ascertain that controls really exist and are functioning properly.

Ziad, Osama and Madher (2014) evaluate the extent of employee's compliance to the internal control

system on the reliability of financial statements. A questionnaire was distributed randomly to the working employees and to different management levels. Data was analyzed using the statistical program SPSS in addition to other statistical methods. The paper concluded that effectiveness of internal control system in the Jordanian commercial banks is not attributed to demographic variables (sex, age, profession, etc.) but mostly, attributed to tight internal control systems adopted and demonstrated by management. The paper recommends that management should keep tight recruiting policies in order to implement its internal control systems effectively, and internal control systems adopted should be applicable and easy to understand.

Lemi (2015) examines the effectiveness of internal control system in the public universities in Ethiopia. The study used cross sectional survey through questionnaire administered on the employees of the universities. Data were analyzed using descriptive statistics and inferential statistics. The result indicates that control environment has no significant effect on internal control effectiveness.

Muraleetharan (2016) examines the relationship between control environment and internal control system effectiveness of public and private organizations in Jaffna District of Sri Lanka. Data were collected through questionnaire and 181 samples were selected from employees who were employed in the offices. Chi square and regression statistical analysis were used to measure the variables. The study finds no statistically significant relationship between control environment and internal control effectiveness.

Bett and Memba (2017) examines the effects of control environment on internal control effectiveness in processing firms in Kenya. The study adopts a survey research design and a census of 189 respondents was used in the study. The data collected were analyzed by use of descriptive statistics and inferential statistics. The results confirmed that control environment has a significant influence on the internal control system effectiveness.

3.Data and Methodology

Data on internal control system effectiveness (ICSE₁, ICSE₂ and ICSE₃) and control environment (CE₁, CE₂, CE₃, CE₄, CE₅ and CE₆) for listed deposit money banks in Nigeria were collected through a 5-point Likert-scale structured questionnaire adopted from COSO (1992) Model for ICSE. Respondents were asked to indicate their degree of agreement or disagreement with each of the statements on a five-point Likert response scale (likert,1932) that ranged from “not very effective” (scored as 1) to “very effective” (scored as 5). A large amount of researchers uses this methodology, because it is relatively easy for respondents to use, and responses from such a scale are likely to be reliable (Myers and Gramling, 1997; Balzan and Baldacchino, 2007; Lam and Kolic, 2008). A total of five hundred and forty sets of questionnaire were administered on fifteen deposit money banks and four hundred and thirty-five were received; representing about 81% (Eighty-one) response rate. The questionnaire were administered on bank managers (Administration and Operations), internal and external auditors and head of customer services. The essence of sending one set of questionnaire to the external auditor was to mitigate the expected bias from bank employees. The study targeted managers, internal and external auditors because the questions required a good understanding of the internal control system of banks. Two types of variables were used in the study, which are ICSE₁, ICSE₂ and ICSE₃ as dependent variables and independent variables: CE₁, CE₂, CE₃, CE₄, CE₅ and CE₆ both measured using COSO (1992) Model. Diagnostic tests were also performed among which include reliability and internal consistency tests using Cronbach’s alpha which shows a result above 0.80 for all variables. A Cronbach Alpha of 0.70 is generally accepted, however, other researchers consider a 0.6 and above reliability adequate enough (Field, 2000). The rationale for the choice of control environment component of internal control system is partly to keep the scope of the study manageable; and again we believe that gaining an understanding of the control environment component of the internal control system will give an indication of the general effectiveness of the whole system.

The study estimated and tested the following simple regression models:

$$ICSE_{1i} = \alpha_i + \beta_1 CE_{1i} + \beta_2 CE_{2i} + \beta_3 CE_{3i} + \beta_4 CE_{4i} + \beta_5 CE_{5i} + \beta_6 CE_{6i} + \epsilon_i \dots \dots \dots (1)$$

$$ICSE_{2i} = \alpha_i + \beta_1 CE_{1i} + \beta_2 CE_{2i} + \beta_3 CE_{3i} + \beta_4 CE_{4i} + \beta_5 CE_{5i} + \beta_6 CE_{6i} + \epsilon_i \dots \dots \dots (2)$$

$$ICSE_{3i} = \alpha_i + \beta_1 CE_{1i} + \beta_2 CE_{2i} + \beta_3 CE_{3i} + \beta_4 CE_{4i} + \beta_5 CE_{5i} + \beta_6 CE_{6i} + \epsilon_i \dots \dots \dots (3)$$

Whereas:

α = constant, which is the value of dependent variable assuming that all the explanatory variables are 0.

$\beta_1 - \beta_6$ = Beta coefficients of the explanatory variables.

ICSE₁ = Internal control system effectiveness; measured by efficient and effective operations (COSO, 1992 and Ayagre, et al, 2014).

ICSE₂ = Internal control system effectiveness; measured by reliability of financial reporting (COSO, 1992 and Ayagre, et al, 2014).

ICSE₃ = Internal control system effectiveness; measured by applicable laws and regulations (COSO, 1992 and Ayagre, et al 2014).

CE₁ = Control environment; measured by integrity of senior management (COSO, 1992 and Ayagre, et al 2014).

CE₂ = Control environment; measured by ethical values and behaviour of key executives (COSO, 1992 and Ayagre, et al 2014).

CE₃ = Control environment; measured by management control consciousness and operating cycle (COSO, 1992 and Ayagre, et al 2014).

CE₄ = Control environment; measured by management commitment to competence (COSO, 1992 and Ayagre, et al 2014).

CE₅ = Control environment; measured by board of directors and audit committee participation in governance and oversight (COSO, 1992 and Ayagre, et al 2014).

CE₆ = Control environment; measured by organizational structure and assignment of authority and human resource policy and practices (COSO, 1992 and Ayagre, et al 2014).

ε = Stochastic error term

i = Firm subscript (in this case, i = 15 banks).

4. Results and Discussion

Table 1 provides descriptive statistics of the dataset employed in this study.

Table 1:

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ICSE1	435	4.275862	.8810558	1	5
ICSE2	435	4.137931	.9620975	1	5
ICSE3	435	4.350575	.9928168	1	5
CE1	435	4.241379	1.062185	1	5
CE2	435	4.183908	.917429	1	5
CE3	435	4.183908	.9299018	1	5
CE4	435	4.298851	.8048663	2	5
CE5	435	4	1.040649	1	5
CE6	435	4.126437	.90829	1	5

Source: STATA 13 outputs based on study data (See Appendix A)

As shown in table 1, for all the 435 observations, the average ICSE1 is 4.275862 with a minimum value of 1, maximum value of 5 and a standard deviation of .8810558. This shows that though on the average, the banks had a positive ICSE1, the majority of banks ICSE1 are to the right of the distribution. Similarly, the mean of ICSE2 is 4.137931 with a standard deviation of .9620975 and a minimum and maximum of 1 and 5 respectively. Also, the average ICSE3 is 4.350575 with a minimum value of 1, maximum value of 5 and a standard deviation of .9928168. This shows that though on the average, the banks had a positive ICSE3, the majority of banks ICSE3 are to the right of the distribution.

Furthermore, CE1 average statistic is 4.241379 with a minimum value of 1, maximum value of 5 and a standard deviation of 1.062185. This shows that though on the average, the banks had a positive CE1, the majority of banks CE1 are to the right of the distribution. Also, CE2 average statistic is 4.183908 with a minimum value of 1, maximum value of 5 and a standard deviation of .917429. This shows that though on the average, the banks had a positive CE2, the majority of banks CE2 are to the right of the distribution. The CE3 average statistic is 4.183908 with a minimum value of 1, maximum value of 5 and a standard deviation of .9299018.

Similarly, CE4 average statistic is 4.298851 with a minimum value of 2, maximum value of 5 and a standard deviation of .8048663. This shows that though on the average, the banks had a positive CE4, the majority of banks CE4 are to the right of the distribution. Also, CE5 average statistic is 4.0 with a minimum value of 1, maximum value of 5 and a standard deviation of 1.040649. This shows that though on the average, the banks had a positive CE5, the majority of banks CE5 are to the right of the distribution. The CE6 average statistic is 4.126437 with a minimum value of 1, maximum value of 5 and a standard deviation of .90829.

Table 1 also shows that among the measures of internal control system effectiveness, ICSE3 has the highest mean, while CE4 has the highest mean among the proxies for control environment. Similarly, ICSE3 has higher volatility among the dependent variables while CE1 shows a higher volatility among the independent variables. Overall, the results indicated that the majority of the respondents agreed that the control environment component of listed deposit money banks in Nigeria is effective. The effectiveness of the control environment components was evident in the top managements support for integrity and ethical values; the establishment of codified standards of conduct to guide behavior, activities and decisions; holding individuals accountable for their internal control responsibilities in the pursuit of objectives. The attitude of the board and senior management determines the level of internal control effectiveness in an organization. If top management believes that control is important, others in the organization will sense that and respond by observing the established controls (Ayagre, et al 2014). Similarly, establishing support for ethical values are essential elements of the control environment as

they affect the design and administration of other internal control components (Arens & Loebbecke, 1997). The results demonstrated that management of listed deposit money banks in Nigeria have shown strong commitment in promoting internal control environments that is strong enough to receive the support of top managements, establish standards and responsibilities, as well as hold people accountable for their successes and failures. The cornerstone of a strong and effective internal control structure is the control environment. Hence, the existing effectiveness of the control environment suggests that the internal control system is very effective in establishing strong control structures necessary for preventing material frauds in the banks (Apostolou & Jeffords, 1990). This result is consistent with a study on effectiveness of internal control system in the Ghanaian Banking Industry conducted in 2014 where banking effectiveness for control environment component was rated high with mean of 4.66 and S.D of 0.62 on a five point Likert Scale (Ayagre, et al 2014).

Diagnostic tests were performed on the data in order to ensure conformity with the requirements of multiple regression analysis used and to ensure that the results are robust and valid. Table 2 shows the correlation coefficients.

Table 2
 Correlation Matrix

	ICSE1	ICSE2	ICSE3	CE1	CE2	CE3	CE4	CE5	CE6
ICSE1	1.0000								
ICSE2	0.6074	1.0000							
ICSE3	0.6004	0.6066	1.0000						
CE1	0.6673	0.6438	0.7225	1.0000					
CE2	0.4217	0.4019	0.4097	0.6519	1.0000				
CE3	0.3176	0.4223	0.2857	0.4915	0.6355	1.0000			
CE4	0.3384	0.3632	0.2795	0.4814	0.5183	0.5421	1.0000		
CE5	0.2639	0.3567	0.4460	0.6045	0.6516	0.6191	0.7015	1.0000	
CE6	0.5322	0.3360	0.4682	0.5892	0.5112	0.4362	0.5628	0.6216	1.0000

Source: STATA 13 outputs based on study data (See Appendix A)

As shown in table 2, the correlation coefficient was calculated to ascertain the pairwise association between the dependent variable and explanatory variable and identify both the direction and quantum of the relationship. If correlation coefficient is ≤ 0.20 then it is a weak correlation and if it is $0.20 \geq \text{corr} \leq 0.40$, it is a fair correlation. $0.40 \geq \text{corr} \leq 0.60$ is a moderate correlation and if it is $0.60 \geq \text{corr} \leq 0.80$ then it is a good correlation. Correlation ≥ 0.80 is a strong correlation and might indicate multicollinearity problem. In table 2, result shows a correlation coefficient of 0.6673 between CE1 and ICSE1; 0.6438 between CE1 and ICSE2 and 0.7225 between CE1 and ICSE3. In the three cases, the results suggest good relationship. Also, CE2 and ICSE1 shows 0.4217, CE2 and ICSE2 shows 0.4019 and CE2 and ICSE3 shows 0.4097. In the three cases, the results suggest moderate correlation. Similarly, CE3 and ICSE1 shows 0.3176, CE3 and ICSE2 shows 0.4223 and CE3 and ICSE3 shows 0.2857. In the three cases, the results suggest fair correlation. Also, CE4 and ICSE1 shows 0.3384, CE4 and ICSE2 shows 0.3632 and CE4 and ICSE3 shows 0.2795. In the three cases, the results suggest fair correlation. CE5 and ICSE1 shows 0.2639, CE5 and ICSE2 shows 0.3547 and CE5 and ICSE3 shows 0.4460. Furthermore, CE6 and ICSE1 shows 0.5322, CE6 and ICSE2 shows 0.3360 and CE6 and ICSE3 shows 0.4682. In the three cases, the results suggest moderate correlation.

Table 2 also shows that there is no presence of multicollinearity among the independent variables since none of the correlation coefficients is greater than 0.80. Table 3 shows the results of normality test using Shapiro-Wilk W test.

Table 3
Shapiro-Wilk W test for normal data

Variable	Obs	W	V	Z	Prob>z
ICSE1	435	0.89758	30.397	8.156	0.00000
ICSE2	435	0.94342	16.792	6.738	0.00000
ICSE3	435	0.88904	32.934	8.347	0.00000
CE1	435	0.93083	20.530	7.218	0.00000
CE2	435	0.93924	18.034	6.909	0.00000
CE3	435	0.93442	19.464	7.091	0.00000
CE4	435	0.95295	13.964	6.298	0.00000
CE5	435	0.95546	13.220	6.167	0.00000
CE6	435	0.95554	13.194	6.162	0.00000

Source: STATA 13 outputs based on study data (See Appendix A)

As shown in table 3, the Shapiro Wilk test results for all variables show p-values less than 0.05. This indicates that at 5% level of significance, the residuals are not normally distributed. This calls for use of robust standard errors in the regression analysis.

Table 4
Heteroskedasticity Test Statistics

Model	Chi ² (1)	Prob > Chi ²
ICSE1	59.29	0.0000
ICSE2	24.48	0.0000
ICSE3	128.28	0.0000

Source: STATA 13 outputs based on study data (See Appendix A)

Another important assumption in a regression is that the variance in the residuals has to be homoskedastic, which means constant. As shown in table 4, the p-values for the three models are significant meaning that they are less than 0.05, which suggests that there is heteroskedasticity problem in the data. The solution to the normality and heteroskedasticity problems is to use robust standard errors instead of the normal standard errors in the regression analysis.

Table 5
Reliability Test Results

Item	Obs	Sign	Item-test correlation	Item-rest correlation	Average interitem covariance	Alpha
ICSE1	435	+	0.7032	0.6221	.4681671	0.8939
ICSE2	435	+	0.7080	0.6193	.4594769	0.8943
ICSE3	435	+	0.7261	0.6384	.4525815	0.8930
CE1	435	+	0.8774	0.8289	.4095986	0.8771
CE2	435	+	0.7726	0.7036	.4501813	0.8880
CE3	435	+	0.7030	0.6166	.4635536	0.8943
CE4	435	+	0.6999	0.6262	.4763749	0.8939
CE5	435	+	0.7849	0.7083	.4342008	0.8875
CE6	435	+	0.7475	0.6734	.4563768	0.8902
Test scale					.4522791	0.9014

Source: STATA 13 outputs based on study data (See Appendix A)

Table 5 shows the results of Cronbach's Alpha test. Cronbach's alpha examines reliability by determining the internal consistency of a test or the average correlation of items (variables) within the test. Nunnally and Bernstein (1994) suggest a modest reliability of 0.70 or higher. As shown in table 5, the Cronbach's Alpha for ICSE1 (0.8939), ICSE2 (0.8943), ICSE3 (0.8930), CE1 (0.8771), CE2 (0.8880), CE3 (0.8943), CE4 (0.8939), CE5 (0.8875), CE6 (0.8902) and overall test scale (0.9014) are higher than 0.70 suggesting high standard of reliability among the variables.

Three multiple regressions were run in line with the models of the study having properly accounted for relevant diagnostic tests. The results are presented in table 6.

Table 6
 Linear Regression Results for the Models

	ICSE1			ICSE2			ICSE3		
	Coef.	T	P>t	Coef.	T	P>t	Coef.	T	P>t
CE1	.5362624	9.74	0.000	.6265733	11.14	0.000	.697719	12.38	0.000
CE2	.0426175	0.85	0.398	.1070232	-1.49	0.137	-.1114879	-1.68	0.094
CE3	.057174	1.51	0.132	.2249929	2.35	0.019	-.0752206	-1.29	0.196
CE4	.1387126	2.34	0.020	.1565412	2.20	0.028	-.1839555	-2.58	0.010
CE5	-.4157611	-6.11	0.000	.1575487	-2.51	0.012	.1376699	1.99	0.047
CE6	.3260705	8.32	0.000	.0869737	-1.68	0.094	.1157818	2.53	0.012
_cons	1.305082	7.13	0.000	1.30296	6.27	0.000	1.934806	6.61	0.000
F(6, 428) = 70.33				F(6, 428) = 60.37			F(6, 428) = 47.64		
Prob > F = 0.0000				Prob > F = 0.0000			Prob > F = 0.0000		
R² = 0.5615				R² = 0.4553			R² = 0.5493		
Adj R² = 0.55534225				Adj R² = 0.44769638			Adj R² = 0.5429748		

Source: STATA 13 outputs based on study data (See appendix A)

Table 6 shows the regression results for the three models. The Prob > F in the three cases is 0.0000, which suggests strong overall fitness of the three models. Also, R² which shows the amount of variance in the dependent variables explained by the explanatory variables in the three cases are ICSE1 (56.15%), ICSE2 (45.53%) and ICSE3 (54.93%). However, the adjusted R² which is a better predictor of variations in the dependent variables since it takes care of the errors in the model shows ICSE1 (55.53%), ICSE2 (44.77%) and ICSE3 (54.30%).

Also, table 6 shows that CE1 has a positive and significant effect on ICSE1 ($\beta = 0.5362624$, t-value = 9.74, p-value = 0.000), ICSE2 ($\beta = 0.6265733$, t-value = 11.14, p-value = 0.000) and ICSE3 ($\beta = 0.697719$, t-value = 12.38, p-value = 0.000). The beta coefficient shows that for every one unit increase in CE1, ICSE1 improves by 0.5362624. Also, the beta coefficient shows that for every one unit increase in CE1, ICSE2 improves by 0.6265733. Finally, the beta coefficient shows that for every one- unit increase in CE1, ICSE3 improves by 0.697719.

Similarly, table 6 shows that CE2 has a positive and insignificant effect on ICSE1 ($\beta = 0.0426175$, t-value = 0.85, p-value = 0.398), but negative and insignificant effect on ICSE2 ($\beta = -0.1070232$, t-value = -1.49, p-value = 0.137) and ICSE3 ($\beta = -0.1114879$, t-value = -1.68, p-value = 0.094). The beta coefficient shows that for every one- unit increase in CE2, ICSE1 marginally improves by 0.0426175. Also, the beta coefficient shows that for every one- unit increase in CE2, ICSE2 decreases by 0.1070232. Finally, the beta coefficient shows that for every one- unit increase in CE2, ICSE3 decreases by 0.1114879.

Also, table 6 shows that CE3 has a positive and insignificant effect on ICSE1 ($\beta = 0.057174$, t-value = 1.51, p-value = 0.132), positive and significant effect on ICSE2 ($\beta = 0.2249929$, t-value = 2.35, p-value = 0.019) and negative and insignificant effect on ICSE3 ($\beta = -0.0752206$, t-value = -1.29, p-value = 0.196). The beta coefficient shows that for every one unit increase in CE3, ICSE1 marginally improves by 0.057174. Also, the beta coefficient shows that for every one unit increase in CE3, ICSE2 increases by 0.2249929. Finally, the beta coefficient shows that for every one - unit increase in CE3, ICSE3 decreases by 0.0752206.

In addition, table 6 shows that CE4 has a positive and significant effect on ICSE1 ($\beta = 0.1387126$, t-value = 2.34, p-value = 0.020), positive and significant effect on ICSE2 ($\beta = 0.1565412$, t-value = 2.20, p-value = 0.028) and negative and significant effect on ICSE3 ($\beta = -0.1839555$, t-value = -2.589, p-value = 0.010). The beta coefficient shows that for every one unit increase in CE4, ICSE1 improves by 0.1387126. Also, the beta coefficient shows that for every one unit increase in CE4, ICSE2 increases by 0.1565412. Finally, the beta coefficient shows that for every one- unit increase in CE4, ICSE3 decreases by 0.1839555.

Furthermore, table 6 shows that CE5 has a negative and significant effect on ICSE1 ($\beta = -0.4157611$, t-value = -6.11, p-value = 0.000), negative and significant effect on ICSE2 ($\beta = -0.1575487$, t-value = -2.51, p-value = 0.012) and positive and significant effect on ICSE3 ($\beta = 0.1376699$, t-value = 1.99, p-value = 0.0470). The beta coefficient shows that for every one unit increase in CE5, ICSE1 decreases by 0.4157611. Also, the beta coefficient shows that for every one unit increase in CE5, ICSE2 decreases by 0.1575487. Finally, the beta coefficient shows that for every one- unit increase in CE5, ICSE3 increases by 0.1376699.

Finally, table 6 shows that CE6 has a positive and significant effect on ICSE1 ($\beta = 0.3260705$, t-value = 8.32, p-value = 0.000), negative and insignificant effect on ICSE2 ($\beta = -0.0869737$, t-value = -1.68, p-value = 0.094) and positive and significant effect on ICSE3 ($\beta = 0.1157818$, t-value = 2.53, p-value = 0.012). The beta coefficient shows that for every one unit increase in CE6, ICSE1 increases by 0.3260705. Also, the beta coefficient shows that for every one unit increase in CE6, ICSE2 decreases by 0.0869737. Finally, the beta coefficient shows that for every one- unit increase in CE6, ICSE3 increases by 0.1157818.

Also, the t-value tests the hypothesis that the coefficient is different from 0. To reject this, there is need for

a t-value of ± 1.96 at 0.05 confidence interval. The t-value is obtained by dividing the coefficient by its standard error. The t-value also shows the importance of a variable in the model. In addition, the two-tail p-value tests the hypothesis that each coefficient is different from 0. To reject this, the p-value has to be ≤ 0.05 . In view of the above results and the discussions that follow, study hypothesis one, which states that integrity of senior management has no significant effect on internal control system effectiveness of listed deposit money banks in Nigeria (CE1) is hereby rejected in the three models. Similarly, hypothesis two, which states that ethical values and behavior of key executives have no significant effect on internal control system effectiveness of listed deposit money banks in Nigeria (CE2) is hereby accepted under the three models. Also, hypothesis three, which states that management control consciousness and operating cycle have no significant effect on internal control system effectiveness of listed deposit money banks in Nigeria (CE3) is hereby accepted under models 1 and 3 but rejected under model 2.

Furthermore, hypothesis four, which states that management commitment to competence have no significant effect on internal control system effectiveness of listed deposit money banks in Nigeria (CE4) is hereby rejected under the three models. Also, hypothesis five, which states that board of directors and audit committee's participation in governance and oversight have no significant effect on internal control system effectiveness of listed deposit money banks in Nigeria (CE5) is hereby rejected under the three models. Finally, hypothesis six, which states that organizational structure and assignment of authority and human resource policy and practices have no significant effect on internal control system effectiveness of listed deposit money banks in Nigeria (CE6) is hereby rejected under models 1 and 3 but accepted under model 2.

The models of the study can be restated as follows:

$$ICSE1 = 1.305082 + 0.5362624CE1 + 0.0426175CE2 + 0.057174CE3 + 0.1387126CE4 - 0.4157611CE5 + 0.3260705CE6$$

$$ICSE1 = 1.30296 + 0.6265733CE1 - 0.1070232CE2 + 0.2249929CE3 + 0.1565412CE4 - 0.1575487CE5 - 0.0869737CE6$$

$$ICSE1 = 1.934806 + 0.697719CE1 - 0.1114879CE2 - 0.0752206CE3 - 0.1839555CE4 + 0.1376699CE5 + 0.1157818CE6$$

The constant (alpha) in the models (1.305082, 1.30296 and 1.934806) means that if the independent variables (CE1, CE2, CE3, CE4, CE5 and CE6) assume 0, on the average, ICSE1 score would be 1.305082; ICSE2 score would be 1.30296 and ICSE3 score would be 1.934806. The constant is simply where the regression line crosses the dependent variable axis and the minimum score of internal control system effectiveness.

5. Conclusion and Recommendations

The study examines the effect of control environment on internal control system effectiveness of listed deposit money banks in Nigeria. It uses descriptive statistics (mean, standard deviation, minimum and maximum) and inferential statistics (correlation and simple regression analysis) to analyze the data. Also, diagnostic and post estimation tests such as normality, heteroskedasticity and reliability (internal consistency) were conducted. The study finds that CE1 (control environment, measured by integrity of senior management), CE4 (control environment, measured by management commitment to competence) and CE6 (control environment, measured by organizational structure and assignment of authority and human resource policy and practices) have a positive and significant effect on ICSE1. The study also finds that CE5 (control environment, measured by board of directors and audit committee participation in governance and oversight) has a negative and significant effect on ICSE1. In view of the results, the study concludes that control environment (measured as integrity of senior management) has a significant and positive effect on the internal control system effectiveness of listed deposit money banks in Nigeria. The study also concludes that control environment (measured as ethical values and behaviour of key executives) shows no significant effect on the internal control system effectiveness of listed deposit money banks in Nigeria. In addition, the study concludes that control environment (measured as management control consciousness and operating cycle) shows no significant effect on the internal control system effectiveness of listed deposit money banks in Nigeria.

Furthermore, the study concludes that control environment (measured as management commitment to competence) has a significant effect on the internal control system effectiveness of listed deposit money banks in Nigeria. Also, the study concludes that control environment (measured as board of directors and audit committee participation in governance and oversight) has a significant effect on the internal control system effectiveness of listed deposit money banks in Nigeria. Finally, the study concludes that control environment (measured as organizational structure, assignment of authority and human resource policy and practices) has a significant effect on the internal control system effectiveness of listed deposit money banks in Nigeria.

Based on these conclusions, the study recommends the following:

- (i) Management should continue to strengthen integrity in the workplace
- (ii) Management should continue to ensure staff are competent and committed to their work.

- (iii) Management should continue to encourage effective board of directors and audit committee members' participation in governance and oversight.
- (iv) Management should ensure that the organization's structure, assignment of authority, human resource policy and practices are strictly adhered to and sustained in the work.

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