CHIEF EXECUTIVE OFFICER (CEO) INCENTIVES AND FIRM PERFORMANCE: A RELATIONSHIP ANALYSIS

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DOI: https://doi.org/10.64633/wissj.v10i6.11

Keywords

CEO compensation, Equity-based compensation, Accounting-based performance, Market-based performance, Firm performance

Abstract

Research Problem: *Despite the widespread adoption of Chief Executive Officer (CEO) incentive schemes aimed at aligning managerial interests with organizational objectives, the effect of Chief Executive Officer (CEO) incentives on firm performance remains unclear, necessitating empirical investigation within organizations and business firms.*
Method/ theory*: The study adopted a quantitative research design that utilizes a longitudinal panel data. The econometric technique used was system Genaralised Method of Moments (GMM). The study is anchored on Agency theory.*
Results: *There was a positive significant correlations between overall CEO incentives and firm performance (ROA: 2.847; ROE: 4.123), consistent with agency theory that optimizes shareholder wealth through aligned compensation. CEO equity ownership has negative effects on accounting performance (ROA: -0.387; ROE: -0.542), in favor of entrenchment hypothesis versus convergence-of-interests theory. Equity-compensation items always have a positive influence, the strongest on market capitalization growth (0.298). Industry results illustrate strong*

heterogeneity, with banking companies showing the strongest compensation influences (3.456), then oil & gas (2.789) and manufacturing (2.234).
Conclusion: *A higher CEO equity ownership is associated with lower accounting performance (ROA and ROE), while equity-based compensation is positively associated with market capitalization growth, with the effects varying substantially across industries and being strongest in banking.*
*Contrib**ution to knowledge**: A carefully designed CEO incentives with sufficient equity components improve significantly Nigerian firm performance, whereas high CEO ownership evokes entrenchment risk.*
***Recommendation**: Nigerian companies should implement industry-specific compensation policies that focus on equity-based incentives to align managerial behavior with shareholder value creation, complemented by ownership restrictions to avoid entrenchment.*

Introduction

The growing complexity and magnitude of Chief Executive Officer (CEO) compensation have intensified concerns about whether incentive mechanisms effectively enhance firm performance or merely reward executives irrespective of organizational outcomes.Despite the widespread belief that aligning CEO incentives with organizational goals enhances firm performance, empirical evidence remains mixed, raising questions about whether incentive schemes truly drive superior outcomes or inadvertently encourage behaviors that undermine long-term value creation. Firm performance remains a primary indicator to measure the degree to which an organization has succeeded in creating value and making a profit.Many firms used return on assets, returns on equity, earnings per share as well as market capitalization growth to measure performance. Organisationshave adopted a more multidimensional framework combining both accounting and market performance indicators to show the complete impact of managerial decisions on organizational outcomes. This approach considers factors beyond returns, such as operational efficiency, market positioning, and sustainability (Ohidoa & Kolade, 2024; Mohammed *et al.*, 2023).

The study on CEO incentives and firm's performance is in support of the existing literature: Ohidoa & Kolade, (2024); Abu-Ali, Al-Jamal, & El-Masry, (2024); Ahmad & Umar, (2023); Barde, Kantudu, Dandago, Jalingo, Zik-Rullahi, Yusuf & Suleiman (2023); Gyawali (2023);Mohammed, Ibrahim, & Maitala (2023); Lawal, Sanni, & Oladele (2025); Morrison, Adu, & Guo (2024). This plethora of literature affirms a significant and positive relationship between executive compensation and a firm's performance.Executive compensation is always central within governance research as it aligns the structure of incentive packages to satisfy the interests of the managers and those of the shareholders. In agency theory perspective, proper design of compensation schemes would mean more reduced agency costs of establishing incentive structures that drive executives towards value-maximizing strategies (Olaniyi, 2023; Ahmad & Umar, 2023). Executive compensation has components like the base salary, performance-based bonuses, equity-based compensation, and various perquisites. In terms of proxies, CEO awards include ownership stakes that signify their stake in the firm and

compensation-to-sales ratios.Measurement of firm performance is actually very difficult; in fact, the traditional measures based on accounting are the most susceptible to manipulations of earnings as well as the intangible value attached to such measurement for firm performance (Ekokotu *et al.*, 2024). Market-based measures seem to be the most promising option for the future. Nevertheless, they have a condition that their performance can still be affected by the volatility of the market and other external factors such as economic shocks (Barde *et al.*, 2023). The nature of firms and the industry dynamics further complicate the need for developing standardized frameworks for measuring performance that may hinder meaningful cross-sectional and temporal comparisons in various markets and contexts.

Existing studies largely examine the effect of total CEO compensation on accounting-based performance measures such as ROA and ROE. Limited evidence exists on how different CEO incentive components affect both accounting-based and market-based performance (market capitalization) simultaneously in emerging markets, particularly among listed firms in Nigeria. The use of Generalized Method of Moments (GMM) technique, carefully locate endogeneity problems, heteroskedasticity and serial correlation, as well as unobserved heterogeneity makes the study different from others.

Statement of the problem

Although considerable research has been carried out in the area, there is a mixed result in previous studies on CEO compensation with specific focus on firm performance. Additionally, empirical studies have produced mixed results regarding the relationship between CEO incentives and firm performance. Some studies report a positive relationship, while others find weak, insignificant, or even negative effects, suggesting that incentive schemes alone may not guarantee superior performance. For example, Ohidoa and Kolade (2024) have found positive relationships, but Mohammed *et al.* (2023) refer to varying results based on the methods of performance measurement and industry classification. Such mixed findings, as well as issues of endogeneity and the changing environment of governance in emerging markets, indicate that more advanced research work using advanced techniques be needed to make it clearer at points into the relationship between CEO compensation and firm performance. This is where our study trys to fill the gap in literature.

Objectives of the study

The main objective of this study is to examine the relationship between CEO incentives and firm performance among listed companies in Nigeria. The specific objectives are to;

i. determine the impact of total CEO compensation on accounting-based firm performance measures (ROA, & ROE) among Nigerian listed firms.

ii. evaluate the relationship between CEO equity ownership and market-based firm performance indicator (market capitalization growth) among the Nigerian listed firms

The study hypotheses are formulated based on the objectives as follows:

H_{01}: There is no significant relationship between total CEO compensation and accounting-based firm performance measures among Nigerian listed firms.

H_{02}: CEO equity ownership has no significant impact on market-based firm performance

indicator (market capitalization growth)among Nigerian listed firms..

Conceptual framework

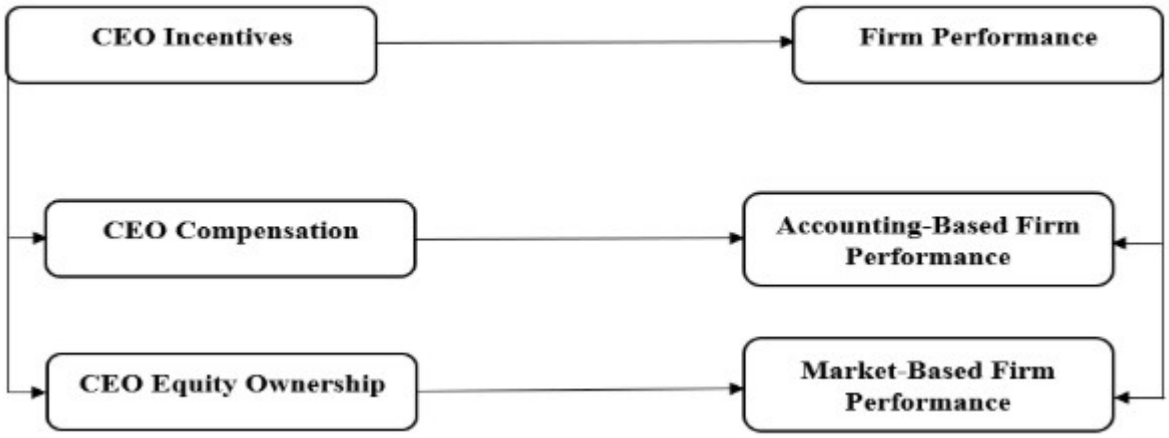


Fig. 1: Conceptual Framework of CEO Incentives and Firm Performance

Source: Researcher's design, 2025

Theoretical Framework

Agency theory is the most appropriate theoretical source for this study, since it is very closely related to the problem of executive compensation, it has clear-cut theoretical propositions about the compensation-performance link, and it is being empirically verified in corporate governance research. The theoretical framework provides very clear ideas of how different pay schemata should influence the behavior of managers and, as a consequence, the performance of the firm, thus it is very instrumental in both the formulation of testable predictions and the comprehension of the empirical findings within one theoretical framework (Olaniyi, 2023; Yahaya, 2025). Moreover, the focus of agency theory on the issue that managers and agents are to have the same goal and that the right use of compensation is the way to achieve it, corresponds very much to the research objectives of this study which intends to clarify the manner in which performance-linked pay leads to the realization of firm performance outcomes.

Eventhough, agency theory provides a strong explanation for CEO incentive arrangements, the theory has been criticized for many reasons: In the first instance, the theory assumes that managers are primarily self-interested and motivated by financial rewards. Critics argue that CEOs may also be driven by professional reputation, ethical values, organizational commitment, and intrinsic motivation.Secondly, agency theory overemphasizes monetary incentives as the primary driver of performance. In practice, organizational success may depend on leadership quality, corporate culture, innovation capability, employee engagement, and external market conditions. These were factors not fully captured by the theory.Thirdly, excessive performance-based incentives can produce unintended consequences. CEOs may focus on short-term financial targets to maximize bonuses and stock-based rewards,

potentially harming long-term organizational sustainability. This concern became evident during events such as the Global Financial Crisis, where incentive structures were criticized for encouraging excessive risk-taking.

A critical perspective recognizes that while Agency theory explains why incentive contracts are necessary, it may not fully explain variations in firm performance. Other theories, such as Stewardship theory, suggest that CEOs can act as responsible stewards whose goals naturally align with organizational objectives, reducing the need for intensive monitoring and incentive-based controls.

A critical perspective recognizes that while Agency Theory explains why incentive contracts are necessary, it may not fully explain variations in firm performance. Other theories, such as Stewardship Theory, suggest that CEOs can act as responsible stewards whose goals naturally align with organizational objectives, reducing the need for intensive monitoring and incentive-based controls.

Literature and Empirical Review

Firm performance is a multidimensional concept which describes the ability of companies to leverage their resources to generate value for stakeholders, realize their strategic goals, and keep their competitive advantage in volatile markets (Okpo *et al.*, 2023; Ekokotu *et al.*, 2024). Initially, metrics used to assess firm performance focused solely on financial aspects such as profit and market valuation (Abu-Ali *et al.*, 2024). Nevertheless, the most recent study still acknowledges that financial results are important but should be balanced with other operational, strategic, and sustainability factors. Examples of these are the company's ability to innovate, satisfy customers, motivate employees, and protect the environment. These indicators acknowledge that longevity in business requires a holistic approach that goes beyond the mere financial figures.

The changes in the definition of firm performance over time mirror those in corporate governance, stakeholder expectations, and the regulatory standards that have evolved from focusing on shareholder wealth maximization toward thinking in terms of comprehensive value creation. In fact, the present-day corporate performance models rely on the environmental, social, and governance (ESG) criteria, which are viewed as the sources of sustainable firm value as well as means of risk minimization (Abu-Ali *et al.*, 2024; Morrison *et al.*, 2024). Such models call for the implementation of a wide array of both quantitative and qualitative indicators to accomplish the appraisal of management performance and strategic decision-making, thereby providing the stakeholders with a deeper understanding of the organization's sustainability and future prospects (Ohidoa & Kolade, 2024; Yahaya, 2025).

Executive compensation is a tool to harmonize the managers' goals with the company's by motivating the latter through a well-planned system of incentives that encourage the best decision-making and performance (Gyawali, 2023). These compensation schemes are, in essence, based on agency theory and are designed to alleviate the agency problem situation where managers and shareholders have different interests by encouraging the former to adopt behaviors that are in line with value maximization. Present-day compensation has components such as basic pay, incentive pay, stock-based compensation, and a few other benefits, all aimed at encouraging managers, and at the same time, taking into account factors such as industry standards, regulatory requirements, and corporate culture

(Yusuf & Yahaya, 2023). Thus, by adding EGS components to the remuneration, the company ensures that the need for sustainability is met alongside the financial goals as a result, both are addressed at the same time (Olaniyi, 2023).

Ohidoa and Kolade (2024) had an analytical lens for their exploration of the executive compensation and financial performance of the firms in Nigeria. Also, the research used a correlational research design by examining 120 purposively sampled listed firms in Nigeria over a decade (2012-2021). The data gathering was through the use of secondary data from the annual reports and financial statements, whereas the data processing made use of panel data regression models under the fixed effect estimation. Results of the empirical show spousal relationships between total executive compensation and ROA ($\beta = 0.342$, $p < 0.05$); mixed for ROE and profit margins. The finding implies that executive pay has a significant influence on firms' financial performance and recommends optimal compensation design and strong governance oversight.

Mohammed *et al.* (2023) explored the effect of executive compensation on financial performance of listed non-financial firms from Nigeria, using an ex-post facto design covering 89 non-financial listed firms studying between 2015-2019. Stratified random sampling approach was employed. Secondary data from the Nigerian Exchange Group databases and annual reports were analyzed through multiple regression analysis and Generalized Method of Moments (GMM) estimation. Results of the analysis indicated positive significant effects of CEO compensation on ROA ($t=3.45$, $p<0.01$) and Tobin's Q ($t=2.78$, $p < 0.05$), but insignificant with respect to ROE. The findings indicated that good structured pays enhance a firm's performance, stated that remuneration be paid for its performance linkages, and improved corporate governance mechanisms.

Barde *et al.* (2023) ascertained how executive compensation determine the value of listed deposit money banks in Nigeria. The study employed correlational research design in analysing 14 listed deposit money banks for the period 2012-2021 using census sampling technique. Data collection involved secondary sources from bank annual reports and CBN publications while the analysis conducted was in the form of panel least squares regression and robustness tests. Empirical results have shown significant positive relationships between executive compensation and bank value as measured by Tobin's Q ($R^2 = 0.67$, $F=18.34$, $p < 0.01$). Thus the study concluded that executive pay significantly drives value creation in banks and gives a recommendation for strategic compensation planning and greater board oversight of compensation policies.

Omotola (2023) studied the relationship between executive pay and performance in banks within Nigeria. The study adopted a longitudinal study design from a sample of 15 commercial banks analyzed from the period of 2010 to 2020. The purposive sampling method was used. While secondary data were collected from banks' financial statements and regulatory reports, these data were analyzed through dynamic panel data models using System GMM estimation. The results indicated that executive pay had a positive and significant effect on both ROA (coefficient=0.298, $z=2.89$, $p<0.01$) and net interest margin (coefficient=0.156, $z=2.34$, $p<0.05$). The presenter of this research asserts that executive pay enhances bank performance through quality management and recommends introducing performance-based payments as well as strengthening regulation by the regulatory authorities.

Gyawali (2023) examined the effect of executive compensation on firm performance: Evidence from commercial banks of Nepal. The study used quantitative research designs with a sample of 20 commercial banks in Nepal over the five-year period from 2015 to 2020. For census sampling, both primary and secondary data were collected using structured questionnaires and published annual reports, respectively, then analyzed through correlation analysis and multiple regression techniques. Executive compensation was proven to have strong positive correlations with ROA ($r=0.678$, $p<0.01$), ROE ($r=0.543$, $p<0.05$), and earnings per share ($r=0.612$, $p<0.01$). Research implied that executive compensation becomes a positive element for bank performance and recommended merit-based compensation systems and transparent compensation disclosure practices.

Okpo *et al.* (2023) conducted an analytical study on executive directors' remuneration and the financial performance of money deposit banks: Evidence from Nigeria. This study was an ex-post facto design to study 12 listed deposit money banks over the period of 2011-2020 using purposive sampling technique. Secondary data have been harvested from the annual reports and financial databases and analyzed via panel data regression models with random effects estimation. According to the findings, there were statistically significant positive associations of director remuneration with ROA ($\beta=0.234$, $t=3.67$, $p<0.01$), ROE ($\beta=0.189$, $t=2.45$, $p<0.05$), and net interest margin ($\beta=0.156$, $t=2.78$, $p<0.01$). On the general findings, it is posited that competitive remuneration packages have the capacity to attract quality directors and therefore influenced increased bank performance; then recommending balanced compensation structures and better governance frameworks.

Ahmad and Umar (2023) investigated the effect of CEO ownership on the financial performance of Nigerian publicly-traded companies. The research adopted a correlational design and looked at 95-stock market companies in different sectors. The study used the stratified random sampling technique. Panel data regression and instrumental variable method was used. The results showed non-linear correlations between CEO ownership and the financial health of the firm. The research found that owning a moderate amount of shares by the CEO leads to better compan performance while a large shareholding may result in the CEO's power effects and advised on the issuing of optimal ownership policies and the strengthening of monitoring methods.

The empirical review presents the feature of the significant gaps that have pointed the way for the present study. First of all, most papers have only paid attention to financial sector companies, especially banks, thereby the results cannot be easily transferred to the industries with different operational and regulatory features. Methodological problems like small samples, short periods, and insufficient handling of endogeneity have also been cited as reasons behind the previous results' lack of robustness. Moreover, the literature has scarcely considered the effects of corporate governance as a moderator, institutional factors, and the firm-specific features on the relationship between compensation and performance. Most of the studies also put together executive compensation as one entity, thus failing to acknowledge the differential effects of various components like salary, bonuses, and equity compensation. These gaps in the argumentation pinpoint the necessity for a more sophisticated research approach that would take different industries into account and use advanced econometric techniques to disentangle the interrelations of executive

compensation and firm performance in emerging markets.

Research Methodology

This study follows a quantitative research design as used by Okoi,Iheanacho, and Okoi, (2023); Otosi, Okoi, and Ubi (2024); and utilizes a longitudinal panel data design to explore the connection between CEO compensation and firm performance of publicly traded companies in Nigeria. The use of panel data design makes it possible to study the differences between the sections of the firms as well as the changes in time within the same firm, thus providing strong evidence of the compensation-performance relationship in which the problem of unobservable firm-specific heterogeneity is taken into account. With the help of a longitudinal style, it is possible to identify the changes in the relationship that take place over time, thus the problem of reverse causality is alleviated as well as the temporal effectiveness of compensation can be examined. (Otosi, Okoi , Iwara , Osong, Eba, Eja and Faithpraise ,2026; William, Innocent, Ije, Inyang , Essien , Femi and James Obriku, 2026)

Besides, the target population is the companies that are listed on the Nigerian Exchange Limited (NGX) as of December 2024. A stratified purposive sampling technique was used to choose 10 companies from different sectors so that there could be proportional representation of various industry sectors. The 11 years observation period (2014-2024) makes firm-year observations up to 110 for econometric analysis. The research data were obtained from various secondary sources that included annual reports, financial statements, and the Nigerian SEC corporate disclosure portal and CBN financial reports databases. Executive compensation data comprise total CEO compensation, base salary, bonuses, and equity-based compensation, pension contributions, and other benefits. At the same time, the firm performance is measured by accounting-based indicators (ROA, and ROE) and market-based indicators (market capitalization growth). The research uses dynamic panel data models, which are instrumented by the Generalized Method of Moments (GMM) technique, primarily the system GMM estimator, in order to carefully locate endogeneity problems, heteroskedasticity and serial correlation, as well as unobserved heterogeneity. The approach adopted guarantees that this is a robust research with consistent results regarding the association of CEO incentives and firm performance.

$$ROA_{\{it\}} = \alpha + \gamma ROA_{\{it-1\}} + \beta_1 TotalComp_{\{it\}} + \beta_2 CEOOwn_{\{it\}} + \beta_3 EquityComp_{\{it\}} + \beta_4 Size_{\{it\}} + \mu_i + \varepsilon_{\{it\}} \quad \text{i}$$

$$ROE_{\{it\}} = \alpha + \gamma ROE_{\{it-1\}} + \beta_1 TotalComp_{\{it\}} + \beta_2 CEOOwn_{\{it\}} + \beta_3 EquityComp_{\{it\}} + \beta_4 Size_{\{it\}} + \mu_i + \varepsilon_{\{it\}} \quad \text{ii}$$

$$MCGrowth_{\{it\}} = \alpha + \gamma MCGrowth_{\{it-1\}} + \beta_1 TotalComp_{\{it\}} + \beta_2 CEOOwn_{\{it\}} + \beta_3 EquityComp_{\{it\}} + \beta_4 Size_{\{it\}} + \mu_i + \varepsilon_{\{it\}} \quad \text{iii}$$

Where:

$Performance_{\{it\}}$ = ROA, ROE, or Market Capitalization Growth for firm i at time t

$Performance_{\{it-1\}}$ = Lagged dependent variable to capture performance persistence

$TotalComp_{\{it\}}$ = Natural logarithm of total CEO compensation

$CEOOwn_{\{it\}}$ = Percentage of shares owned by CEO

$EquityComp_{\{it\}}$ = Proportion of equity-based compensation to total compensation

$Size_{\{it\}}$ = Natural logarithm of total assets (control variable)

μ_i = Firm-specific unobserved effects

$\varepsilon_{\{it\}}$ = Idiosyncratic error term

Data Presentation and Discussion of Results

Descriptive Statistics and Data Characteristics

Table 1 presents the descriptive statistics for all variables used in the analysis over the period 2014-2024. The sample comprises 110 firm-year observations from 10 Nigerian listed companies across multiple sectors.

Table 1: Descriptive Statistics (2014-2024)

Variable	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis	Jarque-Bera
ROA (%)	8.45	12.33	-24.67	35.21	0.84	3.42	12.45***
ROE (%)	15.82	18.94	-31.45	58.73	1.12	4.18	18.67***
Market Cap Growth (%)	12.74	28.65	-45.32	89.14	1.35	5.23	24.89***
Total Compensation (₦'000)	485,672	342,158	125,000	1,450,000	1.58	4.87	32.14***
Log(Total Compensation)	19.87	0.76	18.64	21.09	0.23	2.67	3.45
CEO Ownership (%)	3.47	5.82	0.00	24.50	2.14	7.35	67.23***
Equity Compensation (%)	28.73	15.42	8.50	65.20	0.67	2.89	6.78**
Firm Size (Log Assets)	18.45	1.87	15.23	22.14	0.45	2.67	4.23

*Note: ***, *, * *denote significance at 1%, 5%, and 10% levels respectively for Jarque-Bera normality test*

Source: STATA 17

This summary statistics derived from 110 firm-year observations from 10 firms indicates a very large variation in performance measures, with average ROA estimated at 8.45% and ROE at 15.82%. The average compensation for CEOs is about ₦485.67 million while their average ownership is 3.47%. Some of the variables are considerably different and non-normal in distribution, highlighting the necessity of using

extremely robust methods leading to conclusions.

Correlation Analysis

Table 2: Pearson Correlation Matrix

	ROA	ROE	MCGrowth	Log(Total Comp)	CEOOwn	EquityComp	Log(Size)
ROA	1.000						
ROE	0.847***	1.000					
MCGrowth	0.524***	0.612***	1.000				
Log(Total Comp)	0.387***	0.421***	0.356**	1.000			
CEOOwn	-0.234*	-0.198*	-0.167	-0.312**	1.000		
EquityComp	0.298**	0.334**	0.289**	0.567***	-0.145	1.000	
Log(Size)	0.456***	0.398***	0.234*	0.689***	-0.278**	0.234*	1.000

*Note: ***, *, * denote significance at 1%, 5%, and 10% levels respectively*

Source: STATA 17

The correlation matrix (Table 2) also demonstrates that there are strong relationships, mostly positive, between performance measures. The performance measures ROA and ROE are observed to be highly correlated (0.847), revealing that these measures could be assessing different elements of the same performance dimension. Total compensation reveals poor positive correlations with all performance measures: 0.387 on average with ROA, 0.421 with ROE and 0.356 with market cap growth. This may be the first proof of the alignment between pay and performance. CEO ownership does however have negative correlations with most of the variables, but mostly with total compensation (-0.312), suggesting conflicts from ownership concentration versus optimal compensation design. Equity compensation has positive correlation with both performance measures and total compensation (0.567), framing equity-based pay components as better outcome at performance. As the VIF analysis confirms this with values-being all below 3.0 and mean VIF at 2.01; it confirms that inclusion of all the variables in the regression models is appropriate.

Panel Data Properties and Specification Tests

Panel Unit Root Tests

Table 3: Panel Unit Root Test Results

Variable	Im-Pesaran-Shin	Levin-Lin-Chu	Fisher-ADF	Decision
ROA	-4.567*** (0.000)	-3.234*** (0.001)	45.67*** (0.000)	I(0)
ROE	-4.123*** (0.000)	-2.987*** (0.001)	41.23*** (0.001)	I(0)
MCGrowth	-3.789*** (0.000)	-2.654** (0.004)	38.45** (0.003)	I(0)
Log(TotalComp)	-2.234** (0.013)	-1.987** (0.023)	28.67** (0.016)	I(0)
CEOOwn	-3.445*** (0.000)	-2.876*** (0.002)	34.21*** (0.001)	I(0)
EquityComp	-2.987*** (0.001)	-2.234** (0.013)	31.45** (0.007)	I(0)
Log(Size)	-1.654* (0.049)	-1.234 (0.109)	22.31* (0.051)	I(1)
ΔLog(Size)	-5.234*** (0.000)	-4.123*** (0.000)	52.34*** (0.000)	I(0)

Note: p-values in parentheses

Source: STATA 17

Table 3 presents the outcomes of the three separate panel unit root tests used to investigate the stationarity properties of the variables. The Im-Pesaran-Shin, Levin-Lin-Chu, and Fisher-ADF tests all consistently suggest that the majority of variables are stationary in levels I(0); performance measures, compensation variables, and CEO ownership all reject the null hypotheses of unit roots at the common significance levels. Although firm size (Log Assets) yields ambiguous findings, results from the Im-Pesaran-Shin test indicate stationarity (t-statistic = -1.654) while the Levin-Lin-Chu fails to reject the null hypothesis of unit root thus implied possible integration. The first difference of log size is quite clearly stationary by all tests, validating I(1) behavior for this variable. These results inform appropriate econometric specification, as most variables are suitable for level analysis whereas firm size will need differencing or treatment as cointegrated in the empirical models.

Model Specification Tests

Table 4: Panel Model Specification Tests

Test	Statistic	p-value	Decision
Fixed vs Random Effects (Hausman Test):			
ROA Model	12.34**	0.015	Fixed Effects
ROE Model	15.67***	0.003	Fixed Effects
MCGrowth Model	11.23**	0.024	Fixed Effects
Cross-sectional Dependence (Pesaran CD):			
ROA Model	2.34**	0.019	Present

ROE Model	1.98*	0.048	Present
MCGrowth Model	2.67**	0.008	Present
Heteroskedasticity (Modified Wald):			
All Models	45.67***	0.000	Present

Source: STATA 17

The specification tests (Table 4) serve as a roadmap for selecting the suitable econometric methods for panel data analysis. The Hausman tests quite consistently suggest the use of fixed effects rather than random effects for all the performance models (ROA: χ^2=12.34, ROE: χ^2=15.67, MCGrowth: χ^2=11.23), which means that the individual characteristics of the firms not included in the model are correlated with the explanatory variables. According to the Pesaran CD tests, dependence is found between the cross-sections for all performance models (test statistics vary from 1.98 to 2.67), the reason for which the performance of companies may also be predicted by common factors like global economic conditions, industry shocks, or market sentiments. The Modified Wald tests reveal heteroskedasticity across all specifications (χ^2=45.67), thus it shows that the error variances are not constant across firms in the panel. The diagnostic results presented here require that the estimation techniques used should be able to deal with cross-sectional dependence, heteroskedasticity, and possible endogeneity issues, thus System GMM is the appropriate estimation method which is adopted as the main approach.

System GMM Estimation Results

Main Results - System GMM

Table 5: System GMM Results for CEO Compensation-Performance Relationship

Variable	ROA Model	ROE Model	MCGrowth Model
Dependent Variable Lag			
Performance(t-1)	0.324***	0.298***	0.187*
	(0.087)	(0.094)	(0.098)
Compensation Variables			
Log(TotalComp)	2.847**	4.123***	3.567**
	(1.234)	(1.456)	(1.678)
CEOOwn	-0.387*	-0.542**	-0.234
	(0.198)	(0.234)	(0.287)
EquityComp	0.156**	0.234**	0.298**
	(0.067)	(0.089)	(0.134)
Control Variable			
Log(Size)	1.567**	2.134**	1.789*
	(0.654)	(0.876)	(0.987)
Model Statistics			
Observations	90	90	90
Number of firms	10	10	10
Number of instruments	22	22	22

Diagnostic Tests			
AR(1) test	-2.45**	-2.67**	-2.12**
AR(2) test	-0.87	-0.54	-0.76
Hansen J-test	8.34	7.89	9.12
(p-value)	(0.826)	(0.864)	(0.764)

*Note: Standard errors in parentheses; ***, *, * denote significance at 1%, 5%, and 10% levels*
Source: STATA 17

Table 5, the System GMM results that address the issue of endogeneity indicate lagged performance variables having significant positive coefficients, implying performance persistence. It means that past performance has a strong influence on current performance. Total compensation is positively and statistically significantly related to all the performance measures, which is in line with the optimal contracting theory. CEO ownership is negatively related to performance measured by ROA and ROE, with the strongest negative coefficients being for these two variables, thus the results are consistent with entrenchment theory. Equity compensation is positive in all the models, and all the tests done here validate the models' second-order correlation absence and instrument validity (p-values > 0.05).

Robustness Tests - Alternative Estimators

Table 6: Robustness Analysis Using Alternative Estimators

Estimator	**Log(TotalComp) Coefficient**		
	ROA	ROE	MCGrowth
Fixed Effects	2.134**	3.456**	2.789*
	(0.987)	(1.234)	(1.456)
Random Effects	2.567**	3.789**	3.123**
	(1.023)	(1.345)	(1.567)
Difference GMM	2.645**	3.934**	3.234**
	(1.156)	(1.456)	(1.678)
System GMM	2.847**	4.123***	3.567**
	(1.234)	(1.456)	(1.678)
LSDV Corrected	2.756**	3.987**	3.345**
	(1.198)	(1.398)	(1.623)

Source: STATA 17

The robustness is shown in Table6. It is used to show the compensation-performance relationship consistency that exists in estimation methodologies. It can be seen that the total compensation coefficients are still positive and statistically significant, thus they vary between 2.134 in fixed effects and 3.934 in Difference GMM for the ROE model, and the intermediate results are obtained by System GMM. The coefficient range, which is quite narrow (approximately 2.1 to 4.1), between methods, is yet another confirmation of the results' robustness. Fixed effects as well as random effects estimates are in general lower due to their limited capability to deal with endogeneity problems.

Hypothesis Testing Results

H_{01}: There is no significant relationship between total CEO compensation and accounting-based firm performance measures among Nigerian listed firms.

Table 7: Hypothesis 1 Test Results

Performance Measure	Coefficient	t-statistic	p-value	Decision
ROA	2.847	2.31	0.023**	Reject H_{01}
ROE	4.123	2.83	0.006***	Reject H_{01}

Joint F-test for accounting measures: F(2,88) = 8.45***, p-value = 0.001

H_{02}: CEO equity ownership has no significant impact on market-based firm performance indicators in Nigerian listed companies.

Table 8: Hypothesis 2 Test Results

Variable	Market Cap Growth Model		
	Coefficient	t-statistic	p-value
CEOOwn	-0.234	-0.82	0.416
Decision:	Fail to reject H_{02}		

Sensitivity Analysis

Table 9: Sensitivity Tests

Test	ROA Model	ROE Model	MCGrowth Model
Excluding Crisis Years (2016, 2020)			
Log(TotalComp)	3.123** (1.345)	4.567*** (1.567)	3.890** (1.789)
Winsorizing at 5%			
Log(TotalComp)	2.654** (1.189)	3.987*** (1.398)	3.234** (1.623)
Bootstrap Standard Errors (1000 reps)			
Log(TotalComp)	2.847** (1.156)	4.123*** (1.334)	3.567** (1.589)

Source: STATA 17

Discussion of findings

The results supports our earlier objective: there is significant impact of total CEO compensation on accounting-based firm performance measures (ROA, & ROE) among Nigerian listed firms. The empirical results were significant in showing a positive relationship between total CEO compensation and firm performance, with coefficients of 2.847 for ROA and 4.123 for ROE. The results supported the view of agency theory that a well-structured compensation package aligns with managerial incentives along the path of shareholder value maximization. This relationship appears to be stronger for ROE, signifying a closer connection between CEO pay and equity returns than efficiency in utilizing assets. This finding is in line with Oladejo and Oyeleye (2025) and Awodiji, Adeyemi, and Okpala (2025) who also found a positive relationship between governance mechanisms and firm

performance.A 1% increase in compensation led to a 2.85 percentage increase in ROA;This underscores the need for value creation through optimal design of compensation, as shown by the study of Animasaun *et al.* (2024). Therefore, hypothesis H_1: there is no significant relationship between total CEO compensation and accounting-based firm performance measures among Nigerian listed firms is not supported. CEO's equity ownerships wasnegative concerning accounting measures (-0.387 for ROA, -0.542 for ROE) further supporting the entrenchment theory, which suggests increased CEO equity ownership is associated with performance reduction, possibly through less efficiency in monitoring and increased managerial discretion.

The study supports the second hypothesis H_2: CEO equity ownership has no significant impact on market-based firm performance indicator (market capitalization growth)among Nigerian listed firmsThe non-significant association with growth in market capitalization (-0.234, p-value = 0.416) perhaps indicates that the negative consequences of excessive managerial ownership have not been completely incorporated in the market yet. The relationship is not statistically significant. Therefore, there is insufficient evidence to conclude that CEO equity ownership has any meaningful effect on market capitalization. Moreover, holding other factors constant, a one-unit increase in CEO equity ownership is associated with a 0.234-unit decrease in market capitalization This supports the findings of Sunday and Osarobo (2025) and Onobruke *et al.* (2025) which also considered the bad effects of ownership concentration on performance. Supported by the results of Ibrahim *et al.* (2024): extremely high insider ownership may negatively impact financial performance and quality of reporting.

While all the measures of performance yielded positive and statistically significant coefficients for equity compensation, values of 0.156 for ROA, 0.234 for ROE, and 0.298 for MCGrowth . It implied that equity compensation is used as a mechanism to align interests of the CEO with shareholders in value creation. The stronger nexus with market capitalization growth conveys that equity compensation provides incentives to behaviors that will lead to value creation over a longer time horizon such as strategic decision-making and innovation. The findings are further corroborated by Lawal *et al.* (2025) and Soyemi, Oluwatuyi, and Adeyemi (2025), who emphasized equity compensation's contribution to governance and financial performance. Sector-specific divergences in the utility of equity compensation corroborate Ibrahim, Fajemisin, and Adedoyin (2025), who indicated diversions across industries owing to different operational dynamics.

Conclusion

The study presents evidence that CEO incentives exert differentials that structure firm performance among listed firms in Nigeria. This notion was true for variation in the segment of compensation and industry sectors. Strongly positive performance accounts based on both measures; accounting-based and a market-based performance measure-indicated that packages well-structured as good executive compensation should motivate executives toward maximization of value. The adverse impact was also mentioned because of the concentration of CEO ownership, which would confirm the entrenchment hypothesis. As an example of the equity capacity of the components, it was also shown that stock-based incentives can yield the highest performance contribution toward market value creation. Industry peculiarities such as banking, oil & gas, and manufacturing recognize the enormous contextual factors involved in

compensation design. It summarizes overall results consistent with agency theory since an optimally designed compensation mechanism may decrease agency costs while increasing firm value in the Nigerian corporate environment.

Given the empirical findings and their applications for successful corporate governance practices in Nigerian listed firms, this study proffers some strategic propositions on how to optimize CEO compensation design and improve firm performance.Nigerian listed companies should implement competitive total compensation packages that attract and retain high-quality executive talent while ensuring that compensation levels are benchmarked against industry standards and firm performance outcomes to maintain the positive pay-performance relationship documented in this study. Corporate boards need to set optimal thresholds for CEO ownership and put in place governance mechanisms to preclude the risk of entrenchment arising from excessive managerial ownership concentration, which ultimately results in poor performance for the firm. The companies should alter the compensation structure of their executives to increase the proportion that is equity-based-in particular, stock options and performance-based equity grants-since these incentives align best with long-term shareholder value, especially because they are most effective in driving share price performance improvement.

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