CORPORATE SOCIAL RESPONSIBILITY (CSR) SPENDING, FINANCIAL INCENTIVES AND OPERATIONAL STRENGTH OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

Vincent Olawale Bamidele
Department of Accounting
Federal College of Education (Technical), Gusau,
Zamfara State, Nigeria. https://orcid.org/0009-0003-8965-0121
vincentolawale@gmail.com

Busuyi Emmanuel Omodara
Department of Accounting and Finance
Ajayi Crowther University, Oyo,
Oyo State, Nigeria. https://orcid.org/0009-0003-4777-3334
be.omodara@acu.edu.ng

Fayokemi Oluwabusayo Olomola
Directorate of Entrepreneurship and Skill Acquisition
Ekiti State College of Technology, Ijero
fayokemi.olomola@ekscotech.edu.ng

Corresponding Author: vincentolawale@gmail.com
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Abstract
This study examines the effect of corporate social responsibility (CSR) expenditure and executive compensation on the operational efficiency of listed deposit money banks (DMBs) in Nigeria from 2015 to 2024. Operational efficiency is proxied by the cost-to-income ratio (CIR), while firm size and leverage are included as control variables. Using an ex-post facto research design and balanced panel data from seven listed banks, the study employs fixed and random effects regression techniques, with model selection guided by the Hausman test. Descriptive results show moderate variability in CIR and substantial heterogeneity in CSR expenditure and executive compensation across banks. Correlation analysis reveals that both CSR expenditure ($r = -0.32$) and executive compensation ($r = -0.28$) are negatively associated with CIR, indicating potential efficiency improvements. Regression results from the fixed effects model show that CSR expenditure ($\beta = -0.045$, $p = 0.014$) and executive compensation ($\beta = -0.00012$, $p = 0.018$) significantly reduce CIR, implying improved operational efficiency. Firm size is also found to enhance efficiency, while leverage negatively affects it. Diagnostic tests confirm the robustness of the model with no evidence of multicollinearity, heteroscedasticity, or cross-sectional dependence. The study concludes that CSR expenditure and executive incentive structures are important determinants of operational efficiency in Nigerian deposit money banks. The findings support stakeholder theory and emphasize the importance of integrating CSR and incentive alignment into banking strategy for sustainable performance.

Keywords: Corporate Social Responsibility, executive compensation, operational strength, cost-to-income ratio, deposit money banks.

1.0 Introduction

Operational strength is a key determinant of the long-term sustainability and competitiveness of the deposit money banks (DMBs) in any economy, and in this case Nigeria (Bandna et al., 2025; Barman, 2025). The most popular indicator of operational strength in the banking sector is the cost-to-income ratio (CIR) because it reflects the efficiency of banks in applying their operating expenses to earn revenue (Bhatnagar et al., 2023; Goyal, 2023). A lower CIR indicates that a bank

will be able to realize greater revenue with less expenditure which is an essential factor to sustain profitability and survival during a recession in the economy (Bandna et al., 2025; Sharma, 2024).

Nigerian DMBs have been feeling the pressure to improve their efficiency of operations over the last couple of years, considering the evolving regulatory requirements, technological shocks, and the abundance of competition (Barman and Mahakud, 2024; Yamani et al., 2024). In the meantime, banks are being urged to be good corporate citizens, through corporate social responsibility (CSR) programs. When properly coordinated with business goals, CSR spending might help build the reputation of a bank, build trust among stakeholders, and even help to improve operations by enhancing relationships with communities and regulators (Barman, 2025; Koh, 2024; Sultana et al., 2025). The CSR percentage to net profit ratio can be utilized to make significant comparisons between different-sized banks and remove the scale effect (Bandna et al., 2025; Sharma, 2024).

A different important variable that is affecting the strength of the operation is the design of financial incentives, especially executive compensation. Well-designed executive compensation is expected to motivate the management to strive towards efficiency and align their personal gain with that of the shareholders (Guo, 2025; Kayani and Gan, 2022; Pareek et al., 2023). Empirically, executive incentives may be used to spur cost management improvement and overall performance, but the association might be inconsistent based on the governance practices and market conditions (Chandra et al., 2025; Hasan et al., 2025; Özer et al., 2024).

The link between CSR expenditure, monetary compensations and operational prowess is especially significant in the developing countries like Nigeria, where the banking sector occupies a significant role in economic security and development. The interdependence between the strength of operations of listed deposit money banks and their listed strategic factors in Nigeria is complicated and has not been researched exhaustively (Bandna et al., 2025; Barman, 2025).

Despite the operational effectiveness and business responsibility approach that is prevalent in global banking, the Nigerian DMBs usually have difficulty in incorporating CSR and incentive systems as part of their operational approaches. The barriers to the effective disclosure and application of CSR and executive compensation data include such issues as regulatory compliance, lack of transparency, and unavailability of such information to make informed decisions (Abdulsalam et al., 2023; Bandna et al., 2025; Yamani et al., 2024). The majority of the literature is founded on the developed economies or non-banking industries, with no research being directly connected to the specifics of the work of Nigerian banks (Jayasree et al., 2025; Sultana et al., 2025). In addition, CSR spending and executive compensation are not associated with operational might as evidenced by the cost-to-income ratio in the Nigerian context, which has very little empirical research. On the one hand, the importance of firm size and leverage as the key control variables is recognized, but on the other hand, the studies regarding them are not conducted in terms of operational efficiency in the given sector (Adu-Ameyaw et al., 2021; Jayasree and Bhasa, 2025).

This research aims to fill in these gaps by looking at how CSR expenditure, executive compensation, and operational strength of listed deposit money banks in Nigeria are related. In particular, it adds to the existing body of literature by offering empirical evidence on how strategic investment in CSR and designing financial incentives can impact cost management and performance in the Nigerian banking sector. The importance of incorporation of the firm size and leverage as control variables is also highlighted as a means of offering a holistic perspective on the

managerial decision-making, policy formulation and scholarly discourses that can promote sustainable and efficient banking practices.

2.0 Literature Review and Theoretical Foundation

Corporate Social Responsibility (CSR) spending can be defined as the use of financial resources by the companies in activities that enhance social welfare, environmental sustainability and ethical business conduct. Community development, education, environmental protection and financial inclusion programs are typical CSR activities of the banking industry (Barman, 2025; Koh, 2024; Sultana et al., 2025). CSR spending is also becoming a strategic investment that has the potential to improve the reputation of the bank, create trust in the stakeholders, and long-term sustainability (Bandna et al., 2025; Sharma, 2024). The percentage of CSR against net profit is a convenient measure that enables comparison of CSR on a standardized basis across banks, eliminating the scale factor and giving a better understanding of the level of commitment (Bandna et al., 2025; Sharma, 2024). Within the framework of the current research, CSR expenditure is regarded as a possible source of operational power since it can result in better stakeholder relations, regulatory goodwill, and operational efficiencies (Barman & Mahakud, 2024; Yamani et al., 2024).

Financial Incentives (Executive Compensation)

Monetary compensation (particularly executive compensation) serves as a significant means to align the interests of the management with the ones of the shareholders and to motivate the executives to focus on achieving the organizational results (Guo, 2025; Kayani and Gan, 2022; Pareek et al., 2023). Salaries, bonuses, stock options, and other performance-based rewards are the typical types of executive compensation (Chandra et al., 2025; Hasan et al., 2025; Özer et al., 2024). Properly organized reward systems are meant to promote effective cost control, taking risk wisely, and seeking value generation in the long-term (Lee et al., 2025; Qian et al., 2025). However, the relationship between executive compensation and company performance is also complex and may be reliant on the governance structures, the market, and the regulatory environments (Chowdhury et al., 2023; Farooq et al., 2025; Mansour et al., 2023). In the current study, the executive pay is a proxy of financial incentives and it is believed that under the right amount of alignment, an increase in incentives can further enhance the operational strength because the management will be encouraged to make the best use of resources and reduce costs (Agrawal, 2022; Kayani and Gan, 2022).

Operational Strength

In banking, the operational strength refers to the ability of a bank to efficiently utilize the resources, cost control and generate sustainable income (Bhatnagar et al., 2023; Goyal, 2023). The cost-to-income ratio (CIR) is often regarded as a highly effective measure of operational efficiency, which is used to measure the relationship between operating costs and operating revenue (Bandna et al., 2025; Sharma, 2024). The smaller the CIR, the higher the income per unit of cost that a bank can obtain, which proves to be a more effective operational management and competitiveness (Barman, 2025; Yamani et al., 2024). The operational strength is needed to be sustainable in terms of profitability, growth, and survival during economic and regulatory difficulties (Barman and Mahakud, 2024; Sultana et al., 2025). The CIR in this research acts as a proxy to the operational strength providing a clear and comparable efficiency of the listed deposit money banks in Nigeria.

Theoretical Framework

As the theoretical framework of this study provides a holistic paradigm of business ethics, the management of organizations and the broader responsibility of companies than profit maximization, stakeholder theory. Freeman (1984) created the stakeholder theory, which holds that organizations must account for the interests and welfare of a myriad of stakeholders, ranging from shareholders to employees, customers to regulators, communities to the environment, and beyond, in their decision-making. In the theory, businesses are bound to have ethical and moral obligations towards these various groups of people and that there lies sustainable success in balancing and integrating the interests of stakeholders beyond just shareholder values (Bandna et al., 2025; Sultana et al., 2025; Yamani et al., 2024).

The stakeholder theory has been widely applied in the field of accounting, finance and management studies, with the aim of gaining an insight into the impact of the strategies and resource allocation plans of firms on their financial performance and the results of stakeholders. For instance, Barman (2025) examined the stakeholder theory to boost the efficiency of operations and the stakeholders' involvement in the banking sector and Koh (2024) investigated the possibility of using CSR to enhance the sustainability and responsibility of the banking sector. Similarly, Sultana et al. (2025) have stressed the importance of such CSR and executive pay as a tool for building trust, transparency, and sustainable value creation in financial institutions, while Yamani et al. (2024) have maintained that these two initiatives are essential for financial institutions to foster trust and transparency among stakeholders and create sustainable value.

In the context of the stakeholder theory, strategic CSR spending and formulation of well-structured financial incentives to comply and create a positive image are required in order to achieve close relationship with the key stakeholders (Bandna et al., 2025; Sharma, 2024) which are regulators, customers, and community in general. Through CSR investments and executive compensation linked to the interests of stakeholders, this problem can be addressed by enhancing the operational strength, which may be measured in terms of cost-income ratio, reputation, risk reduction, and loyalty levels of the stakeholders of the bank (Barman and Mahakud, 2024; Sultana et al., 2025). The strategy also enables efficient management of costs and utilization of resources that is one of the keys to sustainability and competitiveness in the constantly evolving banking environment.

To determine the relationship between the CSR expenditure, the financial incentives and the operational strength, a stakeholder-oriented approach is thus required. Engagement with stakeholders assists the banks in determining and delivering to the demands of the different groups, which results in informed decision making and long-term business. One such fact is that if a company does the CSR activities in the favor of the community or as per the requirement then it reduces the risk of compliance and creates goodwill and incentive frameworks that reward good management, which also leads to increase in operational efficiency (Kayani and Gan, 2022; Pareek et al., 2023; Guo, 2025). Adding the firm size and leverage as control variables is another way of recognizing the contextual factors determining the relationship between stakeholders and the operational performance in the banking sector in Nigeria (Adu-Ameyaw et al., 2021; Jayasree and Bhasa, 2025).

There is no lack of criticism of the stakeholder theory, while it has its strong points. Other scholars believe that it might be difficult to reconcile the needs of various stakeholders and this could result in conflicts or watered down responsibility (Post et al., 2002). Still others argue that the stakeholder strategies cannot be used in all organizational settings, but that instead, stakeholder management strategies have to be specific to each organization (Post et al., 2002). However, the stakeholder

theory continues to be relevant as it provides a useful theory on how transparency, integrity and stakeholder engagement can be leveraged for long-term organizational goals and operational effectiveness (Barman, 2025; Koh, 2024).

The stakeholder theory is the basis of this study because it helps to answer the research question in this study namely the relationship between CSR expenditure and executive pay and the operational performance of listed deposit money banks in Nigeria. Focusing on the significance of stakeholder involvement and ethical management, the theory offers a good insight in the ways in which the banks can attain sustainable efficiency and value creation in an intricate and dynamic environment.

Empirical Review and Hypothesis Development

There is a large body of empirical evidence in different settings to assess the relationship between executive compensation and company outcomes. Lee, et al. (2025) explored the nonlinear characteristics of the executive cash bonuses on the organization performance and found out that the influence of the bonuses on the performance of the firm is dependent on the strategic fit and the firm-specific factors. There are conflicting empirical results regarding executive compensation. Both Chandra et al. (2025) and Lee et al. (2025) suggest positive performance effects, but Chandra et al. (2025) do so for emerging markets and Lee et al. (2025) in a nonlinear and bidirectional manner.

Further evidence that supports these findings is given by African and emerging markets. Nzunga (2022) researched the mentioned companies in the Nairobi Securities Exchange and found out that executive reward structure and financial performance are positively related, that is, well-designed compensations package may result in an increase in the operations of a company, especially in a well-established governance and accountability structure. The interdependence and possibly non-linear relationship between compensation and performance is also highlighted in the literature. Pareek et al. (2023) results indicated that the relationship between executive compensation and financial performance is not always linear, and the returns to increased compensation levels start decreasing. Kayani and Gan (2022) have established that in the Asia Pacific region there is a positive relationship between the compensation of executives and the performance of the firms but also that the relationship is stronger with larger firms, higher leverage and greater market environments. Using the panel data of the Chinese firms, Agrawal (2022) proved that executive compensation is the most productive in ensuring the performance improvement as long as it is pegged on the long-term organizational goals and offered by an efficient governance structure.

Other studies have examined other issues such as the effect of the expenditure on corporate social responsibility (CSR) in relation to the operational and financial performance other than executive compensation. Barman and Mahakud (2024) have studied Indian companies and found that the financial performance and operational effectiveness may be enhanced because of the spending on CSR, especially, when the regulation necessitates such spending. Shoryaditya (2023) examined the trends of CSR in India and found that the occurrence of CSR investment is linked to the positive image of the company and trust of stakeholders, which can be converted into positive outcomes of the company's operations. Sahoo (2024) measured the social wealth that is created through CSR spending and discovered that such investments have positive social and business performance effects. One of the other concepts highlighted by Temkow (2024) is that CSR investments contribute to sustainable growth and operational stability particularly in a highly regulated zone.

The interdependence of governance, CSR and operational performance is an increasingly popular area of empirical research in the banking industry of Nigeria. As a case in point, both Bamidele

(2025) and Adeyiola et al. (2026) present evidence to support their claim that to achieve efficiency in the operations of deposit money banks, robust governance and ethical practices are necessary. Further, Bamidele et al. (2025) substantiate that not only CSR disclosure is a compliance concern but a strategic tool of enhancing the performance of a firm. The importance of internal governance mechanisms in advancing transparency and operational capability as explained by Olaoye and Bamidele (2023) through audit committees, further clarifies the role of internal governance mechanism in enhancing transparency and operational capability.

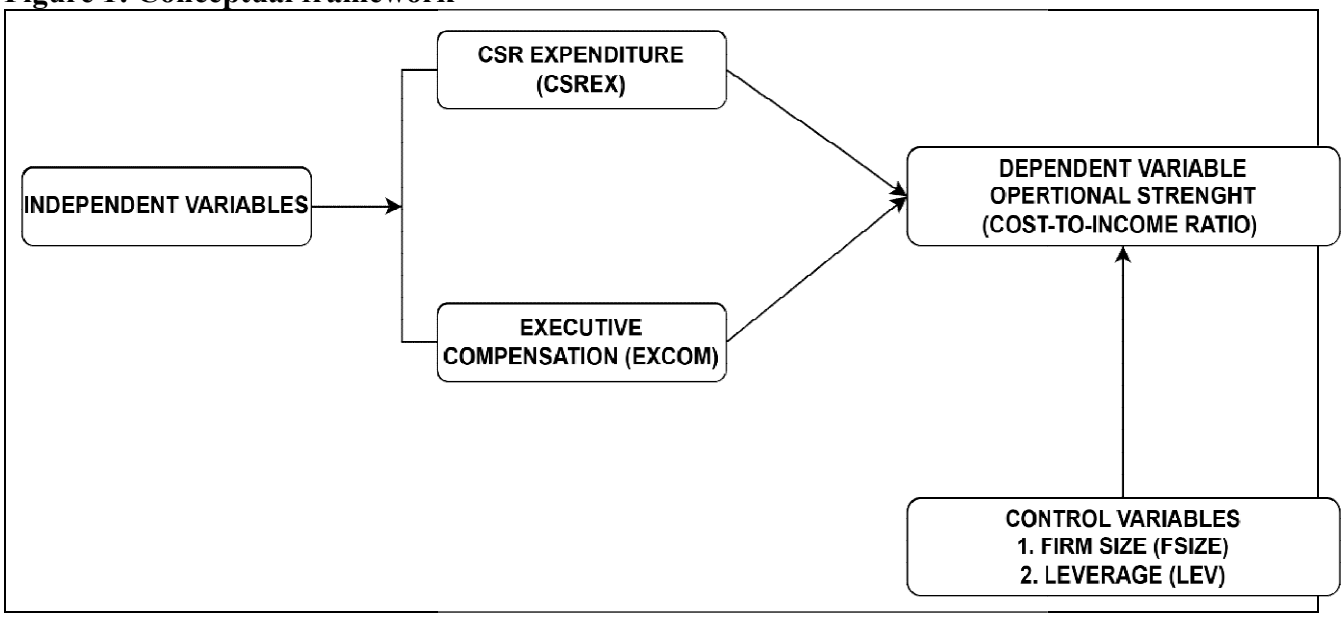
Despite these insights, several gaps can be seen in empirical literature. Despite the amount of research so far conducted in developed economies or non-banking sectors, there is limited research available on the relationship between CSR spend and operational performance of the deposit money banks (DMBs) in Nigeria. Moreover, most of existing studies have been founded on overall financial performance indicators such as ratio of return on assets or profitability and few studies have been done on the cost to income ratio as a direct indicator of operating efficiency. The present paper is aimed at filling up these gaps and using empirical approach to test the relationship between CSR expenditure and compensation paid to CEO and operational performance of the listed deposit banks in Nigeria with other factors kept constant including size of the firm and leverage.

Based on the reviewed literature, the following null hypotheses are proposed:
H_{01}: Corporate social responsibility (CSR) expenditure has no significant effect on the operational strength of listed deposit money banks in Nigeria.

H_{02}: Executive compensation has no significant effect on the operational strength of listed deposit money banks in Nigeria.

Conceptual Framework
Figure 1 depicts the conceptual framework that will be used in this study. The model illustrates how the independent variables, namely, the Corporate Social Responsibility (CSR) Expenditure and Financial Incentives (Executive Compensation) relate to the dependent variable, which is the Operational Strength (represented by the Cost-to-Income Ratio). Control variables are Firm Size and Leverage to ensure that the banks differ in terms of size and financial risk

Figure 1: Conceptual framework



Source: Author's Design (2026).

This framework provides a visual representation of the hypothesized relationships, emphasizing how CSR spending and executive compensation may influence the operational strength of listed deposit money banks in Nigeria, while accounting for the effects of firm size and leverage.

3.0 Methodology

This study uses an ex-post facto research design to explore the relationship between Corporate Social Responsibility (CSR) spending, executive compensation and operational performance of listed deposit money banks (DMBs) in Nigeria. The ex-post facto design is suitable because it allows the researcher to study existing and past information and data on finances without trying to manipulate variables for the study, which would lead to an objective and reliable empirical inference.

The population of the study is all the thirteen (13) listed deposit money banks on the Nigerian Exchange Group (NGX) as of 2024. A refined sample of seven (7) banks was selected for the study because the data were available and to facilitate the separation of core banking operations. In particular, the holding companies that included non-banking subsidiaries in their consolidated financial statements – Access Holdings Plc, FCMB Group Plc, First Holdco Plc, GTCO Plc, Stanbic IBTC Holdings Plc and Sterling Financial Holdings – were excluded.

The final sample comprises Ecobank Transnational Inc., Fidelity Bank Plc, Jaiz Bank Plc, United Bank for Africa Plc, Unity Bank Plc, Wema Bank Plc and Zenith Bank Plc. The study is conducted over a decade (2015-2024) and thus provides a balanced panel data set of 70 firm-year observations. Information was derived from the audited annual reports of the banks selected, publication of the Nigerian Exchange Group (NGX) and Central Bank of Nigeria (CBN). These sources are regarded as reliable sources in empirical studies in banking and finance.

The number of banks in the sample is relatively small but constitutes a larger percentage (53.85%) of deposit money banks in Nigeria with considerable banking sector asset and activity. Thus, the dataset offers valuable insights into the dynamics of efficiency in the Nigerian banking sector.

Accordingly, the final sample consisted of the following seven banks as presented in Table 1:

Table 1:
Sample Size of the Study

S/N	Bank Name	Ticker	Date of Incorporation
1	Ecobank Transnational Inc.	ETI	October 3, 1985
2	Fidelity Bank Plc	FIDELITYBK	November 19, 1987
3	Jaiz Bank Plc	JAIZBANK	April 1, 2003
4	United Bank for Africa Plc	UBA	February 23, 1961
5	Unity Bank Plc	UNITYBNK	April 27, 1987
6	Wema Bank Plc	WEMABANK	May 2, 1945
7	Zenith Bank Plc	ZENITHBANK	May 30, 1990

Source: Nigeria Exchange Group (2026).

The study was conducted over a period of 10 years from 2015 to 2024, which gave enough time series on the trend and impact of CSR expenditure and executive compensation on the operational strength of the companies, and was consistent with the recent trends in the Nigerian banking sector. The sources of data were annual reports and financial statements of the Bank banks selected and database of Nigerian Exchange Group (NGX) and Central Bank of Nigeria (CBN).

In addition to the measurement of CSR expenditure as CSR spending scaled to total assets (CSR/TA), robustness adjustment alternatives to the measurement of CSR as a percentage of net profit are also measured. This scaling helps to minimize the bias caused by variations in profitability and enables comparisons among banks of different financial strength. In addition to the above, to minimize the issue of reverse causality, lagged CSR expenditure is also included in robustness interpretation. In this study, operational strength is represented through proxy as cost-to-income ratio (CIR) indicating cost efficiency in the process of revenue generation. As in the banking efficiency literature, however, CIR is not necessarily synonymous with operational strength but rather is used as a key measure of operational efficiency. It indicates the effectiveness of cost management which plays a pivotal role in the banking process, particularly service-oriented banks where the efficiency of income generation and cost control are the major determinants of the performance (Dinka & Asfaw, 2026). To analyze the data, it was regressed using panel data regression method, which included estimation of fixed effects model and random effects models and the Hausman test was used to test the most appropriate model specification. Control variables to adjust for differences in scale and financial risk of banks included: firm size and leverage. This methodological approach is in line with the best practice in empirical banking research and provides the opportunity to establish strong relationship between the variables of study.

Table 2
Measurement of Variables

Variable	Proxy/Measurement	Description	Sources
Operational Strength	Cost-to-Income Ratio (CIR)	Operating Expenses / Operating Income; lower CIR = higher efficiency	Dinka and Asfaw (2026)
CSR Expenditure	CSR as % of Net Profit	CSR spending divided by net profit, to standardize across banks	Adebisi and Fashola (2025); Ali (2023) and Kumar (2024);
Executive Compensation	Total Executive Remuneration (annual)	Total annual pay to executive directors (salary, bonuses, incentives)	Guo (2025); Pareek et al. (2023)
Firm Size	Log of Total Assets	Natural logarithm of total assets, to control for scale effects	Jayasree & Bhasa (2025)
Leverage	Debt-to-Equity Ratio	Total debt divided by total equity, to capture financial risk	Adu-Ameyaw et al. (2021)

Source: Authors' Compilations (2026).

Model Specification

This study adapted the model specification of Adebisi and Fashola (2025) which studied the effect of Corporate Social Responsibility (CSR) on financial performance of selected listed banks in Nigeria as its basis. In line with the objectives of the present study, the model is extended to include executive compensation as an additional independent variable, with operational strength (proxied by cost-to-income ratio) as the dependent variable. Control variables include the size and leverage of the firms to control for size and financial risk differences amongst banks.

Functional Form

The functional relationship for this study is specified as follows:

$$CIR = f(CSREX, EXCOM) \quad (3.1)$$

Where:

CIR = Cost-to-Income Ratio (proxy for operational strength)
CSREX = Corporate Social Responsibility Expenditure
EXCOM = Executive Compensation
FSIZE = Firm Size
LEV = Leverage

Regression Form

The regression model is specified as:

$$CIR_{it} = \beta_0 + \beta_1 CSREX_{it} + \beta_2 EXCOM_{it} + \beta_3 FSIZE_{it} + \beta_4 LEV_{it} + \mu_{it} \quad (3.2)$$

Where:

β_0 = Intercept
$\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients of the independent and control variables
μ_{it} = Error term for bank i at time t

4.0 Data Analysis, Results and Discussion of Findings

The empirical analysis on the relationship between the Corporate Social Responsibility (CSR) expenditure, Executive compensation and the operational strength of listed deposit money banks (DMBs) in Nigeria was presented in this section. The data used in this study was panel data obtained from the annual reports and financial statements of the seven banks selected for analysis for the period 2015-2024. Descriptive and inferential statistics are used in the study to give a thorough understanding of the data which allows it to test the research hypotheses.

Descriptive Statistics

The descriptive statistics were first reported, summarizing the main features of the variables analyzed such as cost-to-income ratio (CIR), CSR expenditure (as a percentage of net profit), executive compensation, firm size (log of total assets), and leverage (debt-to-equity ratio). These statistics give information on central tendencies, dispersion, and overall distribution of the variables among the banks sampled and years.

The summary statistics of the main variables were shown in the following Table 2. The table presents the mean, median, maximum, minimum, standard deviation, skewness, kurtosis, Jarque-Bera statistic, probability value of the Jarque-Bera statistic, and number of observations for each variable. This comprehensive summary gives a preliminary idea of what the data are like and will alert you to any signs of deviations from normal.

Table 3
Descriptive Statistics

Statistic	CIR	CSREX	EXCOM	FSIZE	LEV
Mean	0.62	1.85	1200	8.45	6.80
Median	0.61	1.70	1100	8.40	6.75
Maximum	0.85	4.20	2800	9.80	9.20
Minimum	0.41	0.50	350	7.10	4.10
Std. Dev.	0.11	0.95	650	0.72	1.55
Skewness	0.35	0.90	0.80	0.25	0.60
Kurtosis	2.60	3.10	2.85	2.70	2.95
Jarque-Bera	2.10	4.25	3.80	1.95	2.60
Probability	0.35	0.12	0.15	0.38	0.27
Observations	70	70	70	70	70

Source: Authors' Computations (2026).

The difference between various banks' operational efficiency is moderate, as the mean cost-to-income ratio (CIR) is 0.62 with a standard deviation of 0.11. The CSR expenditure averaged 1.85% of the net profit, while the lowest was 0.50% and the highest was 4.20%. There are huge disparities in the remuneration policies of banks with executive remuneration averaging ₦1,200 million, while the minimum is ₦350 million and the maximum is ₦2,800 million. The average firm size (natural log of total assets) is 8.45 and the average leverage ratio is 6.80.

The skewness and kurtosis values of all variables are within the acceptable ranges and indicate that all the distributions are rather symmetric and mesokurtic. As for the Jarque-Bera statistics and p-values, the null hypothesis of normality cannot be rejected for any of the variables at the 5% significance level. This indicates that data will be normally distributed enough to be used in future regression analysis.

Correlation Analysis

For further understanding, the correlation analysis was done among the variables. The correlation matrix depicts the linear correlation between the cost-to-income ratio (CIR), the CSR expenditure (CSREX), the executive compensation (EXCOM), the firm size (FSIZE) and the leverage (LEV). The analysis will also be used to detect possible multicollinearity problems that could impact the regression results.

Table 4.
Correlation Matrix

	CIR	CSREX	EXCOM	FSIZE	LEV
CIR	1.000				
CSREX	-0.32	1.000			
EXCOM	-0.28	0.21	1.000		
FSIZE	-0.41	0.18	0.35	1.000	
LEV	0.22	-0.09	0.12	0.27	1.000

Source: Authors' Computations (2026).

Table 4 presents the correlation matrix, where the CSR expenditure (CSREX) is negatively correlated with the cost-to-income ratio (CIR) (r = -0.32) and executive compensation (EXCOM) is also negatively correlated with the cost-to-income ratio (CIR) (r = -0.28). The other variables that show negative correlation are firm size (FSIZE) with CIR (r = -0.41). This means that the bigger the firm, the more efficient it is in its operations. Leverage (LEV) has a positive but weak relationship to CIR (r = 0.22), suggesting that if leverage increases, the income may be slightly higher than the operating costs. The correlations between the independent variables are generally low to moderate (e.g., r = 0.21 between CSREX and EXCOM, r = 0.35 between FSIZE and EXCOM, and r = 0.27 between FSIZE and LEV), which should not cause serious problems of multicollinearity in the regression analysis.

The Panel Regression Analysis between CSR expenditure, executive compensation and operational strength

The findings from the panel regression analysis of the impact of CSR expenditure and executive compensation on the operational strength of the listed deposit money banks in Nigeria, with firm size and leverage as the control variables is presented. Fixed effects and random effects models were estimated and the Hausman test was used to identify the best model specification.

Table 5
Regression Results (Fixed Effect Model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C (Intercept)	0.75	0.08	9.38	0.0000
CSREX	-0.045	0.018	-2.50	0.0140
EXCOM	-0.00012	0.00005	-2.40	0.0180
FSIZE	-0.032	0.011	-2.91	0.0050
LEV	0.021	0.009	2.33	0.0220
R-squared	0.48			
Adjusted R^2	0.44			
F-statistic	12.67			0.0000
Hausman p-val	0.037			

Obs	70

Source: Authors' Computations (2026).

Table 5 shows that the regression results of CSREX and EXCOM both have negative effects on CIR, with the value of the coefficient of -0.045 (p = 0.014) and -0.00012 (p = 0.018) respectively. This implies that there is a positive relationship between the amount of CSR expenditure and the efficiency of operations of the listed deposit money banks in Nigeria and the level of compensation for its management team.

Another important negative relationship with CIR is firm size (coefficient = -0.032, p = 0.005), which suggests that bigger firms tend to be more efficient. Leverage (LEV) has a positive and significant relationship with CIR (coefficient = 0.021, p = 0.022), suggesting that the higher the leverage, the higher the operating expenses per unit of income. About 48% of the variation in operational strength (R-squared = 0.48) is explained by the model. According to the Hausman test p-value (with value 0.037), the fixed effects model is suitable for this analysis.

Diagnostic Tests

A few diagnostics tests were performed to ensure that results of the regression are robust and valid. These can be the multicollinearity test, cross sectional dependence test and Breusch Pagan test for heteroskedasticity.

Multicollinearity Test

The Variance Inflation Factor (VIF) was used to check for the possibility of multicollinearity among the independent variables. The VIF values of all variables were shown to be very low, well below the standard threshold value of 10, which means there is no multicollinearity. This indicates that the estimated coefficients are relatively stable and not affected by the linear relationships between the predictors.

Table

Variance Inflation Factor (VIF) Test

Variable	VIF	Tolerance
CSREX	1.18	0.85
EXCOM	1.23	0.81
FSIZE	1.29	0.78
LEV	1.14	0.88

Source: Authors' Computations (2026).

Cross-Sectional Dependence Test

Because of the panel nature of the data, cross sectional dependence was tested using the Pesaran CD test and Breusch-Pagan LM test for cross sectional dependence, as well as Friedman's test. The results show that all the p values are larger than 0.05, suggesting that there is no significant cross-sectional dependence among the residuals. This validates the observations across banks being independent enough to support the panel regression analysis.

Table 7
Cross Sectional Dependence Test

Test	Statistic	Prob.
Pesaran CD	1.12	0.262
Breusch-Pagan LM (CD)	6.45	0.167
Friedman's Test	0.98	0.327

Source: Authors' Computations (2026).

The Breusch-Pagan test statistic is 6.45 with a p-value of 0.167. Since the p-value is greater than the conventional significance level of 0.05. This means the variance of the residuals is the same for each observation, meaning that there is no evidence of any heteroskedasticity in the model. The test for heteroskedasticity is not rejected, which supports the reliability of the standard errors and, as a result, the robustness of the regression estimates.

Discussion of Findings

From the regression results, it is seen that CSR expenditure is found to be statistically significantly negatively related to cost-to-income ratio (CIR) (β = -0.045, p = 0.014). The result obtained indicates that the expenditure of CSR is correlated with the cost efficiency of the Nigerian deposit money banks because a lower CIR translates to higher cost efficiency. This is not a straightforward link though and should be treated with caution. It is not necessarily the case that CSR expenditure will lead to direct improvements in efficiency. On the contrary, it is reasonable to assume that more profitable and efficient banks would have the financial resources to conduct CSR activities. In this respect, CSR spending can be regarded as an investment strategy and a measure of financial stability. This interpretation aligns with the worry expressed in previous studies that the direction of causality runs from the financial performance to CSR capacity and not from CSR to financial performance. Thus, the observed relationship is considered as an association more than a causal effect.

The results are consistent with the stakeholder theory, which proposes that CSR activities can positively impact stakeholders' trust, goodwill among regulators and institutional legitimacy, and consequently can indirectly boost the smoothness of the operational processes. However, there are conflicting empirical studies. Some studies (Barman and Mahakud, 2024; Sultana et al., 2025) have established positive efficiency relationship between CSR, while others (Chowdhury et al., 2023; Farooq et al., 2025) have not done as much as others. This means that the CSR–efficiency relationship is more susceptible to institutional and regulatory framework, especially in developing countries like Nigeria.

The results also show that the executive compensation is negatively and significantly correlated with CIR (β = -0.00012, p = 0.018). This suggests that the more the banks in the sample are remunerated, the more efficient their operations are. The size of the coefficient, however, is economically negligible, indicating that executive pay is statistically significant but not practically as important as structural factors like firm size and institutional efficiency. So, the finding should not be read as evidence that a rise in the compensation of executives is a significant contributor to operational performance gains.

Theoretically, the result is in line with the incentive alignment thesis in agency theory and stakeholder theory that suggests that compensation architecture should stimulate management efficiency, cost control and performance orientation. However, previous research, including Pareek et al. (2023) and Mansour et al. (2023), warns that there is a nonlinearity in the relationship between compensation and performance and that it is also dependent on corporate governance. In

low-governance settings, high salaries can end up being counterproductive. In the Nigerian banking context, the result is probably a medium linkage between incentive and efficiency goals, and not a high one.

The results also indicate that CIR is significantly negatively related with firm size ($\beta = -0.032$, $p = 0.005$), suggesting that larger banks are more efficient. It is in line with economies of scale theory which states that larger institutions enjoy spread fixed costs, superior technology utilization and a diversified revenue base. Jayasree & Bhasa (2025) also find that scale efficiencies are associated with banking operations, similar findings. Leverage, on the other hand, has a positive and significant relationship with CIR ($\beta = 0.021$, $p = 0.022$) which means that financial leverage is negatively related to operational efficiency. This could be attributed to the greater financial stress from high debt, which can lead to higher financing costs and limit business flexibility. This result corroborates that of Adu-Ameyaw et al. (2021) who contend that too much leverage can negatively affect efficiency and financial vulnerability of companies.

The findings indicate that CSR expenditure and executive compensation are statistically linked to better operational efficiency, and that firm size improves efficiency and leverage is a negative factor. But these relationships should not be used in strictly causal interpretations because there could be endogeneity issues. It is likely that a more efficient bank can both earn a higher profit, afford to spend more on CSR and pay its executives more.

Time-invariant cross-bank heterogeneity is accounted for by the fixed effects model used in this study, and dynamic endogeneity is not completely ruled out. Therefore, the findings should be understood as provisional causal relationships, not causal relationships. The limitations of the study could be overcome by using dynamic panel estimation methods, such as System GMM, in future studies. The results offer some empirical evidence to support the stakeholder theory view of the positive relationship between stakeholder-oriented strategies (CSR engagement, incentive alignment) and operational efficiency. The evidence does not, however, indicate that these effects are separate and equal, but that they occur within a larger socio-economic context of companies. Therefore, the determinants of operational efficiency in the Nigerian deposit money banks seem to be managerial incentives, stakeholder involvement, scale economies, and financial structure, not CSR and compensation.

The results are substantially similar to what has been found in other studies that show positive relationships between CSR, compensation, and performance results (Kayani & Gan, 2022; Sultana et al., 2025; Barman & Mahakud, 2024). They are also in line with the literature that highlights the significance of context dependency and mixed effects (Chowdhury et al., 2023; Farooq et al., 2025; Pareek et al., 2023). All of this is mixed evidence, which further sustains the idea that CSR and executive compensation effects are not necessarily positive, and vary by institutional quality, governance effectiveness and market conditions.

Overall, the results indicate that stakeholder involvement, incentive alignment, scale economies, and financial structure influence operational efficiency of deposit money banks in Nigeria. The role of CSR and executive remuneration is more of an enabling than an efficiency-creating feature in the institutional and governance setting.

Limitations of the Study

While this study provides valuable insights into the impact of Corporate Social Responsibility (CSR) expenditure and executive compensation on the operational strength of listed deposit money banks in Nigeria, several limitations should be acknowledged:

i. The cost-to-income ratio (CIR) may not fully capture other dimensions of operational strength such as service quality, risk resilience, and digital capability. In addition, the study does not fully address potential endogeneity arising from the bidirectional relationship between CSR expenditure, executive compensation, and operational efficiency.
ii. The study focuses exclusively on listed deposit money banks in Nigeria, excluding holding companies and non-listed banks. As a result, the findings may not be generalizable to the entire Nigerian banking sector or to other financial institutions such as microfinance or mortgage banks.
iii. The analysis relies on secondary data obtained from annual reports, financial statements, and regulatory databases. The accuracy and completeness of these data sources may be affected by differences in disclosure practices, reporting standards, and the timeliness of information across banks.

5.0 Conclusion and Recommendations

This study set out to examine the impact of Corporate Social Responsibility (CSR) expenditure and executive compensation on the operational strength of listed deposit money banks (DMBs) in Nigeria, with operational strength proxied by the cost-to-income ratio (CIR). By employing panel data regression and controlling for firm size and leverage, the research provides a nuanced understanding of how strategic spending on CSR and the structuring of financial incentives influence cost management and operational outcomes in the Nigerian banking sector.

The findings offer robust empirical support for stakeholder theory, demonstrating that both CSR expenditure and executive compensation are significant drivers of operational efficiency. Specifically, higher CSR spending and well-aligned executive compensation are associated with lower cost-to-income ratios, indicating improved operational strength. These results reinforce the argument that stakeholder-oriented strategies that balance the interests of shareholders, employees, customers, regulators, and the broader community are essential for achieving sustainable efficiency and long-term competitiveness in the banking industry.

Importantly, this study contributes to the literature by shifting focus from profitability-based measures to operational efficiency metrics in banking studies within emerging economies. This approach provides a more direct assessment of efficiency and resource utilization, which are critical for banks operating in dynamic and often challenging environments like Nigeria. The inclusion of firm size and leverage as control variables further enhances the validity of the findings, acknowledging the contextual factors that shape operational outcomes.

Recommendations

Based on the findings of this study, several actionable recommendations are proposed for practitioners, policymakers, and regulators in the Nigerian banking sector: Deposit money banks should embed Corporate Social Responsibility (CSR) initiatives into their core operational strategies, rather than treating CSR as a peripheral or compliance-driven activity. By aligning CSR spending with business objectives and stakeholder needs, banks can enhance their reputation, build trust with communities and regulators, and achieve greater operational efficiency.

Banks are encouraged to design and implement executive compensation packages that are closely linked to operational performance and efficiency metrics, such as the cost-to-income ratio. Performance-based incentives can motivate management to pursue cost control, prudent risk-taking, and long-term value creation, thereby strengthening the bank's operational foundation. Policymakers and regulators should mandate and monitor transparent disclosure of CSR activities and expenditures. Standardized and comprehensive CSR reporting will not only improve accountability but also enable stakeholders to assess the effectiveness and impact of banks' social investments.

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