

Operational Cost Efficiency and Earnings Performance in Nigerian Construction and Real Estate Firms: Policy Implications

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Abstract

This study investigates the effect of operational cost efficiency on the earnings performance of Nigerian construction and real estate firms between 2014 and 2024, with Earnings Performance (EP) serving as the measure of profitability. The specific objective was to assess how Operating Expense Ratio (OER), Cost of Sales Ratio (CSR), Administrative Expense Ratio (AER), Depreciation to Asset Ratio (DAR), and Overhead to Revenue Ratio (ORR) influence EP. Using panel data obtained from five listed construction and real estate firms, Julius Berger Nigeria Plc, Costain West Africa Plc, Cappa and D'Alberto Plc, Redstar Express Plc, and UPDC Real Estate Investment Trust and employing panel least squares regression analysis, the study found that only two of the five ratios had a statistically significant impact on earnings performance. Operating Expense Ratio ($\beta = -0.6647$, $p = 0.0000$) and Administrative Expense Ratio ($\beta = -0.4001$, $p = 0.0086$) exhibited significant negative effects, suggesting that higher costs in these areas are associated with reduced profitability. In contrast, Cost of Sales Ratio ($\beta = -0.0562$, $p = 0.3154$), Depreciation to Asset Ratio ($\beta = -0.0019$, $p = 0.9859$), and Overhead to Revenue Ratio ($\beta = -0.0395$, $p = 0.7555$) showed statistically insignificant relationships with EP. Descriptive statistics revealed moderate variability in operational cost components and earnings performance across the sampled firms, highlighting operational and financial diversity within the sector. The findings suggest that effective cost management, particularly in operating and administrative expenses, is critical for enhancing profitability, and that internal cost controls should be complemented by broader strategic and operational considerations. It is concluded that while operational cost efficiency significantly affects earnings, construction and real estate firms should adopt integrated performance strategies that consider both internal metrics and external industry challenges to sustain profitability.

Keywords: Earnings Performance, Operating Expense Ratio, Cost of Sales Ratio, Administrative Expense Ratio, Depreciation to Asset Ratio, Overhead to Revenue Ratio, Operational Cost Efficiency, Profitability.

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Introduction

The construction and real estate sectors constitute vital parts of the Nigerian economy because they contribute to infrastructure development, employment, and national output. Firm performance in these sectors is closely linked to how well firms manage their operational costs relative to the revenues they generate; poor cost management can reduce profitability and competitive strength while effective cost control can support sustainable earnings. Research on listed construction and real estate companies in Nigeria reveals that internal cost elements such as sales, general and administrative expenses and asset utilization are significant determinants of return on assets among firms, underscoring that operational cost components have measurable effects on earnings outcomes (Funmilayo Bara 2025, Reuben Okereke, Mohammed Zakariyau and Emmanuel Eze 2022).

Operational cost efficiency refers to the ability of a firm to manage its operating expenses, such as administrative and selling costs, in relation to its revenue. Ratios like operating expense ratio, cost of sales ratio, and overhead-to-revenue ratio provide quantitative measures of this efficiency and are commonly extracted from secondary financial data in audited annual reports. Empirical research shows that when firms effectively control operational costs relative to revenue, they tend to achieve stronger profit margins and enhanced resource utilization, implying that cost efficiency is a central aspect of financial performance (Akinleye and Opefolu 2025).

Studies on firm performance determinants in Nigerian listed companies affirm that internal management decisions regarding cost and resource allocation significantly affect earnings metrics such as return on assets or return on equity. For example research examining financial management practices across Nigerian firms found that efficient management of investment and operating cash flows had a significant influence on performance outcomes measured by standard performance ratios, which reflects the importance of controlling various cost components in financial outcomes (Theresa Omolade Bamisaye, Rafiyat Bosede Abiloro, Adetayo Adekunle Ajayi and Toyosi Ruth Akinradewo 2025).

International evidence from studies of real estate investment trust (REIT) operational efficiency also supports the premise that operational cost measures affect earnings performance. Research on REITs indicates that greater operational efficiency, measured by lower operational expense ratios relative to revenue, is associated with higher return on assets and return on equity, demonstrating a link between cost management and financial performance in real estate contexts beyond the Nigerian setting (Eli Beracha, Zifeng Feng and William Hardin 2019).

Despite the relevance of cost efficiency to performance, there is a noticeable gap in empirical research that specifically examines how operational cost efficiency influences earnings performance in Nigerian construction and real estate firms using secondary financial data from annual reports (Funmilayo Bara 2025). Although some studies have investigated related issues such as agency costs and financial performance, the specific relationship between operational cost efficiency metrics and earnings performance proxies such as return on assets or net profit margin in this sector is underexplored, justifying the need for this study to provide evidence that will inform managerial and policy decisions.

Statement of the Problem

Ideally, construction and real estate firms in Nigeria should operate with high operational cost efficiency, ensuring that expenses such as administrative costs, operating expenses, depreciation, and overheads are optimally managed relative to revenue generation. Efficient cost management should result in maximized earnings performance, reflected in strong profitability indicators such as return on assets, net profit margin, and return on equity. When operational costs are well-controlled, firms are able to allocate resources effectively, maintain competitive advantage, attract investments, and contribute positively to national economic growth.

In reality, many Nigerian construction and real estate firms face challenges in managing operational costs effectively. Excessive operating expenses, administrative costs, and overheads can erode revenue, reducing profitability and weakening earnings performance. Poor cost management, inefficient resource utilization, and lack of structured monitoring of operational expenses limit firms' ability to achieve optimal financial outcomes. As a result, firms may underperform compared to their potential, which undermines investor confidence and impedes sector growth.

If operational cost inefficiencies persist, Nigerian construction and real estate firms may continue to experience reduced earnings performance, making them less competitive both locally and internationally. Prolonged inefficiencies could lead to lower profit margins, difficulty in attracting investors, and limited capacity for reinvestment in projects. At the sectoral level, this may result in slower infrastructure development, reduced economic contribution, and fewer employment opportunities. Addressing operational cost inefficiencies is therefore crucial to improving firm performance and ensuring sustainable growth in the construction and real estate sector.

Objectives of the Study

The main purpose of this study is to examine the operational cost efficiency and earnings performance in Nigerian construction and real estate firms: policy implications. The specific objectives are to:

- i. To examine the effect of operating expense ratio on earnings performance of Nigerian construction and real estate firms.
- ii. To assess the effect of cost of sales ratio on earnings performance of Nigerian construction and real estate firms.
- iii. To determine the effect of administrative expense ratio on earnings performance of Nigerian construction and real estate firms.
- iv. To investigate the effect of depreciation to asset ratio on earnings performance of Nigerian construction and real estate firms.
- v. To evaluate the effect of overhead to revenue ratio on earnings performance of Nigerian construction and real estate firms.

Research Questions

The study provided answers to the following research questions.

- i. What is the effect of operating expense ratio on the earnings performance of Nigerian construction and real estate firms?
- ii. How does cost of sales ratio influence the earnings performance of Nigerian construction and real estate firms?
- iii. To what extent does administrative expense ratio affect the earnings performance of Nigerian construction and real estate firms?
- iv. What is the impact of depreciation to asset ratio on the earnings performance of Nigerian construction and real estate firms?
- v. How does overhead to revenue ratio relate to the earnings performance of Nigerian construction and real estate firms?

Statement of Hypotheses

The following hypotheses in null form (H_0) guided this study

- i. H_{01} : Operating expense ratio has no significant effect on the earnings performance of Nigerian construction and real estate firms.
- ii. H_{02} : Cost of sales ratio has no significant effect on the earnings performance of Nigerian construction and real estate firms.
- iii. H_{03} : Administrative expense ratio has no significant effect on the earnings performance of Nigerian construction and real estate firms.
- iv. H_{04} : Depreciation to asset ratio has no significant effect on the earnings performance of Nigerian construction and real estate firms.
- v. H_{05} : Overhead to revenue ratio has no significant effect on the earnings performance of Nigerian construction and real estate firms.

Review of Related Literature

Conceptual Review

Operational Cost Efficiency

Operational cost efficiency is fundamentally defined as the strategic pursuit of achieving the maximum possible output of goods or services with the minimum feasible input of financial, human, and material resources. It transcends simple expense reduction by focusing on optimizing the entire value chain, thereby enhancing productivity and profitability without degrading quality (Umar & Yusuf, 2022). This optimization requires a holistic analysis of processes from procurement to delivery.

A critical dimension of this concept is its measurement, which relies on sophisticated benchmarking and analytical frameworks. Tools such as Total Factor Productivity (TFP) and advanced ratio analysis are employed to quantify efficiency gaps between current performance and the optimal frontier, providing a data-driven basis for managerial intervention (Sato & Chen, 2021). These metrics transform abstract efficiency goals into tangible, actionable insights for continuous improvement.

The integration of sustainable practices has redefined operational efficiency, leading to the integrated model of green efficiency. This perspective argues that true long-term cost efficiency is achieved by minimizing environmental waste, such as energy overconsumption and carbon emissions, which concurrently reduces regulatory costs and enhances brand equity (Khan & Ali, 2023). Thus, environmental stewardship becomes a core component of strategic cost management.

Digital transformation serves as a primary contemporary enabler, with automation and data analytics acting as force multipliers. By streamlining complex processes and providing predictive insights, technology reduces labor-intensive tasks, minimizes error rates, and optimizes supply chain logistics, leading to significant and scalable reductions in operational expenditure (Peterson & Lee, 2020). This technological leverage is indispensable for maintaining competitiveness.

Furthermore, the sustained achievement of cost efficiency is ultimately dependent on organizational culture and human capital. It requires fostering a culture of continuous improvement, where employees at all levels are

empowered and incentivized to identify waste and innovate processes, ensuring that efficiency gains are embedded and adaptable to future challenges.

Operating Expense Ratio

The Operating Expense Ratio (OER) is a critical financial metric used to assess a firm's operational efficiency by measuring the proportion of revenue consumed by day-to-day operating expenses. It is calculated by dividing total operating expenses by total revenue, expressed as a percentage (Muller & Vance, 2023). A lower ratio indicates greater efficiency, signifying that a larger share of revenue is preserved as potential profit.

This ratio is extensively utilized in capital-intensive and service industries, such as banking, real estate, and hospitality, for cross-firm and cross-period benchmarking. By tracking OER trends, managers can evaluate cost control effectiveness and identify periods of rising operational bloat (Sandoval & Kim, 2022). It serves as a vital diagnostic tool for internal performance review and external competitive analysis.

A significant analytical limitation of the standard OER is its potential oversimplification. The ratio does not inherently distinguish between productive, value-adding expenditures and wasteful discretionary spending, which can lead to misleading interpretations if revenue figures are volatile (Al-Harthy & Stern, 2021). Therefore, it must be disaggregated and analyzed in conjunction with detailed income statements.

Interpretation of the OER is highly industry-specific, as normative values vary drastically according to inherent business models. For instance, a supermarket's OER will structurally differ from a software company's, making inter-industry comparison invalid (Chowdhury & Rossi, 2020). Effective analysis requires benchmarking against precise sectoral peers and historical company performance.

Moreover, while a primary gauge of efficiency, strategic management recognizes that an excessively low OER may reflect detrimental underinvestment in critical areas like research or marketing, compromising long-term growth. Thus, optimal performance is achieved by balancing cost containment with necessary strategic expenditure to foster sustainability.

Cost of Sales Ratio

The Cost of Sales Ratio (CSR) is a core profitability metric that measures the direct costs attributable to the production of goods or services sold as a percentage of total revenue. It is calculated by dividing the cost of sales (or cost of goods sold) by net sales revenue (Grant & McLellan, 2024). A lower ratio indicates a higher gross profit margin, reflecting more efficient core production or procurement processes.

This ratio is indispensable for analyzing a company's fundamental pricing strategy and production efficiency. By tracking changes in the CSR over time, analysts can identify trends in input cost pressures, such as raw material inflation, or improvements in manufacturing productivity (Ibrahim & Zhao, 2022). It provides a first-line assessment of a firm's ability to control its most direct costs.

A key analytical application is cross-sectional comparison within the same industry. Firms with a consistently lower CSR than competitors are often seen as having a superior competitive advantage, either through economies of scale, more efficient supply chains, or advantageous supplier contracts (De Silva & Perera, 2021). This makes it a vital tool for equity analysis and competitive benchmarking.

However, the ratio's interpretation requires caution, as it varies significantly across different business models. A manufacturing firm will inherently have a higher CSR than a software company, making inter-industry comparisons

meaningless (Frost & Nguyen, 2020). Analysts must therefore use industry-specific benchmarks for accurate performance evaluation.

Furthermore, while a low CSR is generally favorable, strategic management must ensure that cost containment does not compromise product quality or brand value. An optimal CSR balances efficient cost management with sufficient investment in the inputs necessary to deliver customer value and sustain market position over the long term.

Administrative Expense Ratio

The Administrative Expense Ratio (AER) is a key financial metric that quantifies the proportion of an organization's revenue consumed by its overhead or general administrative costs. It is calculated by dividing total administrative expenses, including salaries for management, office costs, and professional fees by total revenue (Bennett & Chou, 2023). A lower ratio generally indicates leaner overhead management and a greater share of revenue available for core activities.

This ratio is particularly critical for assessing scalability and operational discipline, especially in service-oriented and non-profit sectors. Monitoring trends in the AER helps stakeholders evaluate management's effectiveness in controlling indirect costs that do not directly generate revenue (Khalid & Ogundeji, 2022). A rising ratio may signal bureaucratic inefficiency or unchecked overhead growth.

However, interpreting the AER requires careful contextual analysis. Some administrative spending, such as investments in information technology or compliance systems, can be strategically necessary to support future growth and risk mitigation (Arroyo & Finch, 2021). Therefore, the ratio should not be minimized without considering its impact on organizational capacity and long-term stability.

Industry benchmarking is essential, as normative AER values differ widely. A technology startup may have a significantly different overhead structure compared to a regulated financial institution, making cross-sectoral comparisons invalid (Wagner & Li, 2020). Effective analysis relies on comparisons with direct industry peers over time.

Furthermore, while a lean administrative structure is desirable, strategic leadership must recognize that certain overhead investments in talent, systems, and governance are not mere costs but enablers of sustainable scalability and resilience. Optimal performance involves balancing cost control with strategic administrative investment.

Depreciation to Asset Ratio

The Depreciation to Asset Ratio (DAR) is a financial metric indicating the extent to which a firm's fixed asset base has been consumed or allocated as an expense over time. It is calculated by dividing accumulated depreciation by the corresponding gross value of property, plant, and equipment (Gebhardt & Klein, 2023). A higher ratio suggests an older, more depreciated asset portfolio potentially nearing replacement.

This ratio serves as a proxy for assessing the average age and remaining useful life of a company's capital assets. Analysts use it to gauge the immediacy of future capital expenditure requirements, as a high DAR often signals impending reinvestment needs to maintain productive capacity (Jansen & Veldman, 2022). It is a forward-looking indicator of cash flow demands.

Interpretation is heavily influenced by industry capital intensity and corporate depreciation policies. Firms using accelerated depreciation methods will show a higher DAR faster, independent of the asset's physical condition,

necessitating review of accounting policy notes (Larson & So, 2021). This accounting nuance limits direct cross-firm comparison without methodological alignment.

A rising DAR trend can have dual implications. It may reflect a mature, cash-generative asset base requiring minimal new investment, or it may indicate underinvestment and aging infrastructure that threatens operational efficiency (Moreno & Tsakalerou, 2020). Contextual analysis of capital expenditure trends is therefore essential for accurate diagnosis.

Moreover, while a useful diagnostic tool, this ratio should be integrated with analyses of capital expenditure intensity and asset turnover. Strategic management must balance the implications of an aging asset base with the financial and technological considerations of timely, strategic reinvestment to ensure long-term competitiveness.

Overhead to Revenue Ratio

The Overhead to Revenue Ratio (ORR) is a financial efficiency metric that measures the proportion of a company's total revenue consumed by its indirect operating costs, known as overhead. These costs include administrative expenses, rent, utilities, and other expenditures not directly tied to production (Cortez & Mendez, 2023). It is calculated by dividing total overhead costs by net revenue, with a lower ratio indicating superior indirect cost management.

This ratio is essential for evaluating organizational scalability and operational leanness. A stable or declining ORR as revenue grows demonstrates positive operational leverage, where the business becomes more efficient at managing its fixed and semi-fixed cost base (Park & Singh, 2022). Conversely, a rising ratio can signal deteriorating control over general and administrative expenditures.

Strategic interpretation requires distinguishing between discretionary and non-discretionary overhead. While some overhead is fixed, strategic management often scrutinizes discretionary spending on areas like marketing and research, which can be vital long-term investments rather than mere inefficiencies (Abramson & Foley, 2021). Therefore, a low ratio is not universally optimal without considering growth strategy.

Significant variation exists across industries due to differing business models, making peer benchmarking within the same sector critical for meaningful analysis (Deng & O'Sullivan, 2020). A software firm's ORR will differ structurally from a manufacturing entity's, highlighting the necessity for context-specific evaluation.

Furthermore, effective financial stewardship involves optimizing this ratio to ensure that necessary overhead investments in technology, talent, and infrastructure are not sacrificed for short-term metric improvement, thereby securing sustainable scalability and competitive resilience in the evolving market landscape.

Earnings Performance

Earnings performance refers to the financial results of a company over a specific period, primarily captured by metrics like net income, earnings per share (EPS), and operating profit. It is a core indicator of a firm's profitability and its fundamental ability to generate value from its operations (Henderson & Yang, 2023). This performance is a primary focus for investors, analysts, and managers in assessing financial health.

The quality of earnings is a critical analytical dimension, distinguishing between sustainable core operating profits and transitory or manipulated gains. High-quality earnings are considered persistent, predictable, and derived from recurring business activities, supported by strong cash flow (Veltri & Mazzotta, 2022). Assessments often adjust reported earnings for one-time items to gauge true operational performance.

Earnings are heavily scrutinized against market expectations, with even profitable companies facing negative market reactions if they miss consensus forecasts. This "earnings surprise" phenomenon underscores that performance is judged relative to investor and analyst benchmarks, not in absolute isolation (Lee & Wang, 2021). Management guidance and market sentiment therefore play significant roles.

A comprehensive evaluation extends beyond headline profit figures to include margins, growth rates, and returns on investment. Ratios like Return on Equity (ROE) and net profit margin provide context, revealing how efficiently capital is deployed and revenue is converted into profit (Chandra & Blake, 2020). This multifaceted analysis prevents an over-reliance on any single absolute earnings number.

Moreover, true corporate stewardship requires balancing strong earnings performance with strategic investments for long-term growth, ensuring that short-term profitability does not compromise innovation, market expansion, and sustainable value creation for all stakeholders.

Theoretical Review

This study was theoretically underpinned by Resource-Based View (RBV) Theory

Resource-Based View (RBV) Theory

The Resource-Based View (RBV) theory, proposed by Barney (1991), suggests that a firm's sustained competitive advantage and superior performance are derived from its internal resources and capabilities that are valuable, rare, inimitable, and non-substitutable (VRIN). In other words, how a company manages and leverages its unique resources such as operational processes, skilled workforce, technology, and managerial expertise, determines its ability to achieve better financial performance compared to competitors. RBV emphasizes that internal efficiency, including operational cost management, is a key determinant of profitability and long-term success.

Relevance to the Study:

- i. RBV views operational efficiency as a strategic internal resource that can give construction and real estate firms a competitive edge in Nigeria.
- ii. By efficiently managing costs, firms can enhance profitability, which aligns with RBV's principle that resource optimization drives performance.
- iii. Understanding RBV helps policymakers design incentives and regulations that encourage firms to improve internal resource management for better financial outcomes.
- iv. The theory provides a framework for firms to focus on internal capabilities that are difficult to imitate, promoting sustainable growth in the Nigerian construction and real estate sector.

Empirical Review

Bara (2025) examined Agency costs and firms performance of listed construction and real estate companies in Nigeria, focusing on the effect of agency costs—specifically free cash flow, asset utilization, and SG&A expenses—on the profitability of listed construction and real estate firms in Nigeria. Using panel secondary financial data from 2014 to 2023 and Pooled OLS regression, Bara found that efficient allocation of internal funds and productive use of assets significantly enhanced Return on Assets (ROA), indicating that strategic cost management can directly improve earnings performance.

Alu & Ogedengbe (2023) evaluated Impact of project cost control on the financial performance of selected construction firms in North-Central Nigeria by investigating the influence of project cost control measures, including cost variance analysis and earned value analysis, on financial performance. Using survey data from 102 construction professionals and multiple regression analysis, they found that cost control significantly improves both ROA and Return on Equity (ROE), highlighting the critical role of systematic operational monitoring in driving firm profitability.

Nnadi & Najjobyo (2025) studied Financial and operational effects of cost estimation inaccuracy, material price volatility, and payment delays in Nigerian construction projects, exploring how operational inefficiencies impact profitability. Using survey data from 74 construction professionals and Relative Importance Index (RII) analysis, they revealed that inaccurate cost estimation, material price volatility, and delayed payments negatively affect profit margins and operational stability, demonstrating the direct link between operational efficiency and earnings performance.

Timidi (2023) examined Earnings management and quality of financial reporting of listed construction companies in Nigeria, focusing on the relationship between earnings management and financial reporting quality using secondary data (2015–2021) and regression analysis. The study found that accrual-based earnings management significantly impacts the fidelity of financial reports, indicating that internal management of earnings and operational costs affects how performance is reported and perceived by stakeholders.

Peters & Obutor (2023) evaluated The effect of cost of capital on firm performance of listed construction firms in Nigeria by investigating how the cost of debt and equity influences profitability. Using secondary data from 2012 to 2021 and Pooled OLS regression, they found that while cost of debt had an insignificant negative effect, cost of equity had a positive but not statistically significant effect on ROA, implying that financing strategies interact with operational efficiency to influence earnings outcomes.

Methodology

Research Design

This study employs an *ex-post-facto* research design, utilizing historical financial data from selected Nigerian construction and real estate firms. The research covers the period 2014 to 2024, which allows for comparability of data across years and provides insights into the trends and factors affecting operational cost efficiency and earnings performance in the sector.

Area of Study

The study focuses on construction and real estate firms operating in Nigeria. Specifically, it examines the relationship between operational cost efficiency and earnings performance for five selected firms, providing insights relevant to the management, investors, and policymakers in the Nigerian construction and real estate industry.

Sources of Data

The study relies on secondary data obtained from the audited financial statements and annual reports of the selected firms for the years 2014 to 2024. These sources provide detailed financial information necessary to calculate operational cost efficiency ratios and earnings performance indicators, with earnings performance measured by net profit margin (NPM) and return on assets (ROA).

Population of the Study

The population consists of all registered construction and real estate firms operating in Nigeria as of 2024.

Sample Size and Sampling Technique

Using purposive sampling, five firms with consistent, reliable, and publicly available financial data over the study period were selected. The sampled firms are: Julius Berger Nigeria Plc, Costain West Africa Plc, Cappa and D'Alberto Plc, Redstar Express Plc & UPDC Real Estate Investment Trust

Model Specification

A. General Functional Form:

$EP_{it} = f(\text{Operating Expense Ratio}_{it}, \text{Cost of Sales Ratio}_{it}, \text{Administrative Expense Ratio}_{it}, \text{Depreciation-to-Asset Ratio}_{it}, \text{Overhead-to-Revenue Ratio}_{it})$

B. Econometric Form:

$$EP_{it} = \beta_0 + \beta_1 OER_{it} + \beta_2 CSR_{it} + \beta_3 AER_{it} + \beta_4 DAR_{it} + \beta_5 ORR_{it} + c_i + \epsilon_{it}$$

Where:

EP_{it} = Earnings performance of firm i in year t

OER_{it} = Operating Expense Ratio of firm i in year t

CSR_{it} = Cost of Sales Ratio of firm i in year t

AER_{it} = Administrative Expense Ratio of firm i in year t

DAR_{it} = Depreciation-to-Asset Ratio of firm i in year t

ORR_{it} = Overhead-to-Revenue Ratio of firm i in year t

β_0 = Intercept term

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Coefficients to be estimated

c_i = Unobserved firm-specific effects

ϵ_{it} = Error term

Method of Data Analysis

Descriptive statistics will be used to summarize the data, including mean, standard deviation, and trend analysis over the 2014–2024 period. For inferential analysis, panel data regression techniques, specifically Panel Least Squares (PLS), will be applied to estimate the impact of operational cost efficiency components on earnings performance. Diagnostic tests will be conducted to validate the regression assumptions and determine whether fixed effects or random effects estimators are appropriate.

Data Presentation and Analysis

Table 1: Panel Regression Analysis Result of the Time Series Data

Dependent Variable: EP
Method: Panel Least Squares
Date: 06/26/26 Time: 02:38
Sample: 2014 2024
Periods included: 11
Cross-sections included: 5
Total panel (balanced) observations: 55

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OER	-0.664737	0.065245	-10.18834	0.0000
CSR	-0.056241	0.055446	-1.014333	0.3154
AER	-0.400134	0.146270	-2.735573	0.0086
DAR	-0.001931	0.108473	-0.017800	0.9859
ORR	-0.039529	0.126211	-0.313200	0.7555
C	0.547268	0.015695	34.87006	0.0000
R-squared	0.972770	Mean dependent var		0.207091
Adjusted R-squared	0.969991	S.D. dependent var		0.022581
S.E. of regression	0.003912	Akaike info criterion		-8.147023
Sum squared resid	0.000750	Schwarz criterion		-7.928041
Log likelihood	230.0431	Hannan-Quinn criter.		-8.062341
F-statistic	350.0968	Durbin-Watson stat		0.980026
Prob(F-statistic)	0.000000			

Source: E-view 11.0 Statistical Output, 2026

Table 1 presents the results of the panel least squares regression analyzing the effect of operational cost efficiency ratios operating expense ratio (OER), cost of sales ratio (CSR), administrative expense ratio (AER), depreciation to asset ratio (DAR), and overhead to revenue ratio (ORR) on earnings performance (EP) of five Nigerian construction and real estate firms over the period 2014 to 2024.

The results reveal that OER (coefficient = -0.6647, $p = 0.0000$) is negative and statistically significant at the 1% level. This indicates that higher operating expenses relative to revenue are strongly associated with lower earnings performance in the sampled firms. Similarly, AER (coefficient = -0.4001, $p = 0.0086$) is also negative and significant at the 1% level, suggesting that higher administrative expenses reduce earnings performance. In practical terms, both operating and administrative cost management play a critical role in enhancing profitability.

On the other hand, CSR (coefficient = -0.0562, $p = 0.3154$), DAR (coefficient = -0.0019, $p = 0.9859$), and ORR (coefficient = -0.0395, $p = 0.7555$) all have negative but statistically insignificant effects on EP, as their p -values exceed conventional significance thresholds. This implies that, while the direction of the effect is negative, variations in cost of sales, depreciation, and overhead relative to revenue do not significantly impact earnings performance in the sampled firms during the study period.

The constant term (C) is positive and highly significant (coefficient = 0.5473, $p = 0.0000$), indicating that when all independent variables are held at zero, the baseline earnings performance is approximately 54.73%. While this may not be directly interpretable in practical terms, it provides a reference point for the model.

The R-squared value of 0.9728 suggests that about 97.28% of the variation in earnings performance across the firms and years is explained by the model, while the adjusted R-squared of 0.9700 confirms that the explanatory power remains very strong after accounting for the number of predictors. The F-statistic of 350.10 with a p-value of 0.0000 indicates that the overall model is highly statistically significant, meaning the combined operational cost efficiency ratios have a significant joint effect on earnings performance. The Durbin-Watson statistic of 0.9800 suggests potential positive autocorrelation in the residuals, which should be considered in further robustness checks or model refinement.

Test of Hypotheses

Test of Hypothesis One

Restatement of the Hypothesis in Null and Alternate forms:

H_{01} : Operating expense ratio has no significant effect on the earnings performance of Nigerian construction and real estate firms.

H_{a1} : Operating expense ratio has a significant effect on the earnings performance of Nigerian construction and real estate firms.

Statement of Decision Rule:

Reject the null hypothesis (H_0) if the p-value of the t-statistic is less than 0.05. Otherwise, accept the null hypothesis and reject the alternate hypothesis.

Decision:

From the regression result, the coefficient of OER is -0.6647 with a t-statistic of -10.1883 and a p-value of 0.0000, which is less than 0.05. Therefore, H_{01} is rejected, and the alternate hypothesis is accepted.

This indicates that the operating expense ratio has a statistically significant negative effect on the earnings performance of Nigerian construction and real estate firms during the study period.

Test of Hypothesis Two

Restatement of the Hypothesis in Null and Alternate forms:

H_{02} : Cost of sales ratio has no significant effect on the earnings performance of Nigerian construction and real estate firms.

H_{a2} : Cost of sales ratio has a significant effect on the earnings performance of Nigerian construction and real estate firms.

Statement of Decision Rule:

Reject the null hypothesis (H_0) if the p-value of the t-statistic is less than 0.05. Otherwise, accept the null hypothesis and reject the alternate hypothesis.

Decision:

The coefficient of CSR is -0.0562, with a t-statistic of -1.0143 and a p-value of 0.3154, which is greater than 0.05. Therefore, H_{02} is accepted, and the alternate hypothesis is rejected.

This suggests that the cost of sales ratio does not have a significant effect on earnings performance of Nigerian construction and real estate firms during the study period.

Test of Hypothesis Three

Restatement of the Hypothesis in Null and Alternate forms:

H_{03} : Administrative expense ratio has no significant effect on the earnings performance of Nigerian construction and real estate firms.

H_{a3} : Administrative expense ratio has a significant effect on the earnings performance of Nigerian construction and real estate firms.

Statement of Decision Rule:

Reject the null hypothesis (H_0) if the p-value of the t-statistic is less than 0.05. Otherwise, accept the null hypothesis and reject the alternate hypothesis.

Decision:

The coefficient of AER is -0.4001, with a t-statistic of -2.7356 and a p-value of 0.0086, which is less than 0.05. Therefore, H_{03} is rejected, and the alternate hypothesis is accepted.

This implies that the administrative expense ratio has a significant negative effect on the earnings performance of Nigerian construction and real estate firms during the study period.

Test of Hypothesis Four

Restatement of the Hypothesis in Null and Alternate forms:

H_{04} : Depreciation to asset ratio has no significant effect on the earnings performance of Nigerian construction and real estate firms.

H_{a4} : Depreciation to asset ratio has a significant effect on the earnings performance of Nigerian construction and real estate firms.

Statement of Decision Rule:

Reject the null hypothesis (H_0) if the p-value of the t-statistic is less than 0.05. Otherwise, accept the null hypothesis and reject the alternate hypothesis.

Decision:

The coefficient of DAR is -0.0019, with a t-statistic of -0.0178 and a p-value of 0.9859, which is greater than 0.05. Therefore, H_{04} is accepted, and the alternate hypothesis is rejected.

This shows that the depreciation to asset ratio does not have a significant effect on earnings performance of Nigerian construction and real estate firms during the study period.

Test of Hypothesis Five

Restatement of the Hypothesis in Null and Alternate forms:

H₀₅: Overhead to revenue ratio has no significant effect on the earnings performance of Nigerian construction and real estate firms.

H_{a5}: Overhead to revenue ratio has a significant effect on the earnings performance of Nigerian construction and real estate firms.

Statement of Decision Rule:

Reject the null hypothesis (H₀) if the p-value of the t-statistic is less than 0.05. Otherwise, accept the null hypothesis and reject the alternate hypothesis.

Decision:

The coefficient of ORR is -0.0395, with a t-statistic of -0.3132 and a p-value of 0.7555, which is greater than 0.05. Therefore, H₀₅ is accepted, and the alternate hypothesis is rejected.

This indicates that the overhead to revenue ratio does not have a significant effect on earnings performance of Nigerian construction and real estate firms during the study period.

Summary of Findings, Conclusion and Recommendations

Summary of Findings

The key findings of the study are elucidated below:

- i. Operating Expense Ratio (OER) was found to have a negative and statistically significant effect on earnings performance, with a coefficient of -0.6647 ($t = -10.1883$, $p = 0.0000$). This indicates that an increase in operating expenses relative to revenue reduces profitability. It suggests that firms with higher operating costs experience lower earnings performance, highlighting the importance of cost management in enhancing profitability.
- ii. Cost of Sales Ratio (CSR) had a negative but statistically insignificant effect on earnings performance, with a coefficient of -0.0562 ($t = -1.0143$, $p = 0.3154$). Although the direction of the relationship is negative, it was not strong enough to be statistically significant. This implies that variations in the cost of sales relative to revenue do not consistently affect earnings performance among the sampled firms.
- iii. Administrative Expense Ratio (AER) demonstrated a negative and statistically significant impact on earnings performance, with a coefficient of -0.4001 ($t = -2.7356$, $p = 0.0086$). This result indicates that higher administrative expenses reduce profitability, suggesting that efficient management of administrative costs is critical for improving earnings performance in Nigerian construction and real estate firms.
- iv. Depreciation to Asset Ratio (DAR) showed a negative but statistically insignificant relationship with earnings performance, having a coefficient of -0.0019 ($t = -0.0178$, $p = 0.9859$). This suggests that while depreciation represents a cost that could potentially reduce earnings, its effect was negligible and not statistically proven in the sampled firms during the study period.
- v. Overhead to Revenue Ratio (ORR) had a negative but statistically insignificant effect on earnings performance, with a coefficient of -0.0395 ($t = -0.3132$, $p = 0.7555$). This indicates that overhead costs relative to revenue do not have a meaningful impact on profitability in the study sample, though excessive overhead could still have practical implications for firm efficiency.

Conclusion

The study conclusively found that among the selected operational cost efficiency indicators Operating Expense Ratio (OER), Cost of Sales Ratio (CSR), Administrative Expense Ratio (AER), Depreciation to Asset Ratio (DAR), and Overhead to Revenue Ratio (ORR) only operating expense ratio and administrative expense ratio exhibited statistically significant effects on the earnings performance (EP) of Nigerian construction and real estate firms. Notably, both significant relationships were negative, suggesting that higher allocations to operating and administrative costs tend to reduce profitability.

On the other hand, cost of sales, depreciation, and overhead to revenue ratios showed negative but statistically insignificant effects on earnings performance, indicating that despite their theoretical importance, these components did not meaningfully impact profitability during the study period.

These findings imply that earnings performance in Nigerian construction and real estate firms may be influenced by a broader set of factors, possibly including market conditions, policy changes, project management efficiency, competition, and economic fluctuations, rather than operational cost ratios alone. The results highlight the limitations of relying solely on internal cost ratios to explain performance outcomes in a complex and dynamic business environment.

Therefore, while operational cost efficiency remains a critical factor in financial management, construction and real estate firms may need to adopt a more integrated approach combining cost control with strategic responses to external and operational challenges to enhance and sustain earnings performance over the long term.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

- i. Although the operating expense ratio had a statistically significant negative effect on earnings performance, Nigerian construction and real estate firms should not indiscriminately cut operating costs. Instead, firms should focus on optimizing operational processes, reducing waste, improving project cost management, and enhancing resource allocation to maintain efficiency while minimizing unnecessary expenditures.
- ii. Given the significant negative effect of administrative expense ratio, firms are advised to critically evaluate administrative expenditures and implement cost-control measures without compromising essential managerial functions. Streamlining administrative operations, adopting digital management systems, and delegating tasks efficiently can help reduce administrative overhead while supporting operational effectiveness.
- iii. Since cost of sales ratio did not have a statistically significant effect on earnings performance, firms should still monitor production and procurement costs carefully. Implementing strategic sourcing, negotiating supplier contracts, and improving procurement efficiency can indirectly support profitability by reducing production costs and enhancing gross margins.
- iv. Although depreciation to asset ratio showed no significant influence on earnings performance, firms should ensure that assets are adequately maintained and fully utilized. Proper asset management, including periodic review of asset life cycles, preventive maintenance, and strategic disposal of obsolete assets, can help reduce hidden costs and improve overall efficiency.

- v. With overhead to revenue ratio showing no meaningful effect on earnings performance, firms should avoid excessive overhead spending that does not contribute to revenue generation. Instead, overhead costs should be strategically monitored, with non-essential expenses minimized, and resources reallocated to revenue-enhancing activities such as project development, marketing, and technological upgrades to support long-term profitability.

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