



Asset Efficiency and Financial Performance of Selected Bottling Firms in Nigeria: Evidence from Panel Data Analysis

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ABSTRACT

Original Research Article

This study investigates the extent to which asset efficiency explains variations in financial performance among selected soft drink bottling firms in Nigeria over the period 2010–2019. Specifically, the study evaluates the influence of asset turnover ratio (ATR), debt-to-total asset ratio (DTAR), and current ratio (CR) on return on assets (ROA). An ex-post facto design is employed, using a balanced panel dataset. Estimation techniques include pooled ordinary least squares (OLS), fixed effects (FE), and random effects (RE) models. Model selection is guided by the Hausman specification test, while robustness is ensured through diagnostic tests for multicollinearity and heteroskedasticity.

Empirical results indicate that although asset efficiency proxies exhibit positive coefficients, none attain statistical significance at conventional levels. This suggests that firm performance in the Nigerian bottling sector is likely driven by broader structural and macroeconomic factors beyond internal efficiency metrics. The study contributes to the literature by providing sector-specific evidence from an emerging economy context and recommends a multidimensional approach to performance optimization.

Keywords: Asset Efficiency, Financial Performance, Panel Data, ROA, Nigeria, Bottling Industry.

Introduction

Asset utilization efficiency remains a central concern in corporate finance, particularly within capital-intensive industries such as beverage manufacturing. In emerging economies like Nigeria, firms operate under persistent macroeconomic instability, including inflation volatility, foreign exchange constraints, and infrastructural deficits, which may weaken the transmission mechanism between internal efficiency and financial outcomes.

Return on assets (ROA) is widely regarded as a comprehensive indicator of firm performance, reflecting management's ability to deploy assets profitably. While extant studies have examined determinants of firm performance in Nigeria, there is limited empirical evidence

focusing specifically on bottling firms using panel econometric techniques.

This study addresses this gap by examining whether asset efficiency indicators significantly influence financial performance in the Nigerian bottling industry.

Research Questions

1. Does asset turnover ratio significantly affect return on assets?
2. What is the effect of leverage (DTAR) on financial performance?
3. Does liquidity (CR) significantly influence profitability?

Hypotheses

H01: Asset turnover ratio has no significant effect on ROA

H02: Debt-to-total asset ratio has no significant effect on ROA

H03: Current ratio has no significant effect on ROA

Literature Review

Conceptual Framework

Asset efficiency is operationalized using ATR, DTAR, and CR, while financial performance is proxied by ROA.

Theoretical Framework

Efficiency Structure Theory posits that firms with superior efficiency achieve cost advantages and improved profitability.

Trade-Off Theory explains the optimal capital structure decision as a balance between tax benefits of debt and financial distress costs.

Liquidity Preference Theory suggests that firms maintaining adequate liquidity are better positioned to sustain operations and mitigate risk.

Empirical Review

Empirical findings remain inconclusive. While some studies report significant positive relationships between asset efficiency and performance, others find weak or insignificant effects, particularly in volatile economic environments.

Methodology

Research Design

The study adopts an ex-post facto design appropriate for analyzing historical financial data.

Population and Sample

The study focuses on major players within Nigeria's soft drink bottling segment. The selected firms include Nigerian Bottling Company Plc, Seven-Up Bottling Company Plc, and Rite Foods Limited, chosen based on industry dominance and data availability.

Data Source

Secondary data were sourced from audited annual financial statements covering 2010–2019.

Model Specification

$$ROA_{it} = \beta_0 + \beta_1 ATR_{it} + \beta_2 DTAR_{it} + \beta_3 CR_{it} + \varepsilon_{it}$$

Estimation Techniques

The study employs pooled OLS, fixed effects, and random effects estimators. The Hausman test is used to determine the preferred model.

Diagnostic Tests

Model reliability is validated using Variance Inflation Factor (VIF) and heteroskedasticity tests.

Results and Discussion

The empirical findings indicate that asset efficiency indicators (ATR, DTAR, and CR) are positively related to ROA but fail to achieve statistical significance. This suggests that internal efficiency measures alone may not sufficiently explain profitability dynamics in the Nigerian bottling industry.

From a theoretical standpoint, the findings partially contradict Efficiency Structure Theory, implying that external constraints—such as macroeconomic instability, regulatory pressures, and input cost fluctuations—may overshadow firm-level efficiency gains. This aligns with broader evidence from emerging markets where structural inefficiencies weaken firm performance transmission mechanisms.

Policy Implications and Recommendations

The findings of this study carry important implications for managers, investors, and policymakers:

Managerial Implication: Firms should complement asset efficiency strategies with innovation, cost control, and market expansion initiatives.

Policy Implication: Government agencies should focus on stabilizing macroeconomic conditions to enhance firm performance.

Investment Implication: Investors should consider broader performance indicators beyond financial ratios when evaluating firms.

Conclusion

This study concludes that asset efficiency indicators do not significantly drive financial performance in Nigeria's bottling sector. The results highlight the need for a more comprehensive approach that integrates firm-level strategies with macroeconomic realities.

References

1. Akinleye, G. T., & Adesina, O. D. (2019). Asset utilization and performance of manufacturing firms in Nigeria. *International Journal of Business and Management*, 14(4), 86–97.
2. Demsetz, H. (2017). *Efficiency, competition, and policy*. MIT Press.
3. Enekwe, C. I., Okwo, I. M., & Ordu, M. M. (2013). Financial ratio analysis as a determinant of profitability. *International Journal of Business and Management*, 8(8), 107–117.

4. Wambugu, J. W., & Mungai, J. N. (2019). Asset quality and financial performance. *International Journal of Business & Management*, 7(4), 48–54.
5. Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill.
6. Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data* (2nd ed.). MIT Press.