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Consolidation, Efficiency, and Corporate Performance of Insurance Companies in Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Consolidation and efficiency are important factors that can impact the corporate performance of insurance firms. While consolidation can lead to economies of scale and increased market power, efficiency can enhance the effectiveness of governance and regulatory frameworks. However, there is a lack of research on the specific effects of these factors on the performance of insurance firms in Nigeria. This study therefore examined the nexus amongst consolidation, efficiency and corporate performance of insurance companies in Nigeria using panel regression analysis for the periods 2010 to 2014; 2015 to 2019; 2010 to 2019 for pre-merger, post-merger, and combined periods respectively. Data analysed were obtained from published financial statements of purposively selected insurance companies. Return on Asset (ROA), and Earning Per Share (EPS) are proxies

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of endogenous variables, while shareholder funds and expense ratio are exogenous variables for consolidation and efficiency respectively. Empirical findings from the study showed that shareholder funds exert negative and significant impact on ROA during the pre-merger periods (β=-0.48, P=0.04). Expense ratio exert negative but insignificant impact on ROA in the pre-merger periods (β=0.02, P=0.90). Findings from the post-merger periods showed that shareholder funds have positive but insignificant impact on ROA (β= 0.01, P=0.85). Expense ratio has negative but insignificant impact on ROA (β= - 0.026, P= 0.6024). Shareholder funds have positive but insignificant impact on EPS (β= 0.01, P= 0.20), while expense ratio has negative but insignificant impact on EPS (β= -0,003, P= 0.43). Furthermore, findings from the combined period showed that shareholder funds have positive and significant impact on ROA (β= 0.025, P= 0.05). Expense ratio has negative but insignificant on ROA ((β= - 0.04, P= 0.06). Shareholder funds have positive but insignificant impact on EPS (β= 0.001, P= 0.80), while expense ratio exert negative and significant impact on EPS ((β= - 0.005, P= 0.00)). It is therefore recommended that managers of merged or acquired insurance firms adopt robust cost cutting measure in order to enhance profitability.

Keywords: Consolidation; merger; acquisition; corporate performance; return on asset; earning per share.

1. INTRODUCTION

Consolidation and efficiency are important factors that can impact the corporate performance of insurance firms. While consolidation can lead to economies of scale and increased market power, institutional efficiency can enhance the effectiveness of governance and regulatory frameworks. However, there is a lack of research on the specific effects of these factors on the corporate performance of insurance firms in Nigeria, and how they interact with other factors such as firm size and leverage. According to a study by Adegbite and Ibe [1], consolidation in the Nigerian insurance industry has been slow and limited in scope, with most mergers and acquisitions occurring within the same sub-sector. This suggests that the potential benefits of consolidation, such as increased market power and efficiency, may not have been fully realized. Additionally, inefficiencies such as underwriting expenses and premium claims may limit the effectiveness of consolidation in improving performance. Another study by Otieno and Ochoti [2]. found that efficiency, as measured by cost management and corporate governance practices, had a positive impact on the financial performance of Nigerian insurance firms. However, the study did not explore the potential interaction between efficiency and consolidation, or how these factors may vary depending on firm size or leverage structure. The much talked about synergistic effect of consolidation has been a subject of debate among the academia and professionals. Empirical research on the impact of consolidation on corporate performance of insurance firms have produced mixed results. While some scholars such as Ghosh and Dutta (2014); Afsharin 'et al.' (2015) Miyieda (2015); Boloupremo and Ogege (2019) found positive effect of consolidation on corporate performance, other scholars such as Marfo and Kwaku [3]; Pamplona and Junior (2013); Li 'et al.' (2014); Naba and Chen (2014) found negative impact of consolidation on corporate performance. Yet other scholars such as Leepsa and Mishra [4]; Andreu and Sarto [5]; Balcerzak 'et al.' [6] did not found any discernable relationship between consolidation and corporate performance of firms. With respect to the Nigerian insurance sector, despite the monumental wave of M & A in the insurance especially in the last ten years, all the performance indicators remain low thereby putting the academic community in quandary. For example, the merger/acquisitions of Axamansard in 2014; Law Union and Rock in 2014; Custodian and Allied Plc in 2015; and Veritas in 2015 produced mixed outcome. Specifically, the total asset of Axamansard was N28,789,781bn before acquisition in 2013 and grew to N37,863,833 after merger in 2015. The Profit After Tax (PBT) of Axamansard decreased from N867,388 in 2013 to N689,243 in 2015. This implies that while the total asset grew by 31.5%, PBT recorded 25.85% in the corresponding period. On the contrary, the total asset of Law Union and Rock Plc grew from N6,908,473 in 2013 before acquisition to N8,273,420 in 2015 after acquisition. Surprisingly, the PBT of Law Union & Rock deceased from N459,938 million in 2014 to N328,498 million in 2015 after acquisition. The implication of the above is that while the total asset of the company grew by 19.76%, the PBT declined by 28.58 % after acquisition. These

statistics clearly showed that the issue of consolidation-firm performance nexus require search for a missing link. There has been an unprecedented wave of consolidation in Nigerian insurance sector in the last decade. Available data from Nigerian Exchange (2023) showed that there were 10 mergers and 4 acquisitions between 2007 till date. However, available information showed that important key performance indicators on Nigerian insurance sector are weak. For example, the profit before tax of Law Union and Rock before acquisitions in 2013 was N459, 938million but dropped to N328,498million in 2015 after acquisitions. Also, the core business of some insurance firm's gross premium income nosedived soon after merger. For example, Veritas Kapital Assurance Plc gross premium income was N3,032,045million in 2014 before merger and declined to N2,042,988million in 2016 after merger representing 32.62% decline. Commenting on the impact of consolidation on firm's performance Ikpefan (2012); Miyieda (2015) noted that the findings are conflicting. This is however not strange considering the role of technical and allocational efficiency of assets in enhancing corporate performance.

1.1 Objectives of the Study

The specific objectives of the study are to;

(i) determine the effect of consolidation and efficiency on insurance sector corporate performance in Nigeria during the pre-merger periods
(ii) determine the effect of consolidation and efficiency on insurance sector corporate performance in Nigeria during the post-merger periods
(iii) determine the effect of consolidation and efficiency on insurance sector corporate performance in Nigeria during the pre and post-merger periods

Statement of Hypothesis:

(i) There is no significant relationship between consolidation and efficiency on insurance sector in Nigeria during the pre-merger periods
(ii) There is no significant relationship between consolidation and efficiency on insurance sector corporate performance in Nigeria during the post-merger periods.
(iii) There is no significant relationship between consolidation and efficiency on insurance sector corporate performance in Nigeria during the pre and post-merger periods

1.2 Theoretical Literature Review

Market power theory: Michael C. Jensen market power theory of consolidation is a theory that suggests that mergers and acquisitions (M&A) can be driven by a desire to increase market power and dominate in a particular industry or market. According to this theory, companies may seek to consolidate with other firms in order to reduce competition and gain a greater share of the market

Synergy Theory: Rumelt [7] theory states that firms adopt M&A strategy to take advantage of economies of scale. Economies of scale is the reduction of firm's unit cost as a result of large-scale output. The proponents of the theory are of the view that the combination of two firms would result in enhanced performance greater than the individual firms via distribution of their separate fixed cost among resultant larger corporation. Besides, M&A also results in economies of scope whereby both the acquirer and target firms contribute their separate strengths towards the enhancement of the post-merged firm.

Free-cash flow Theory: Jensen [8] is the primary proponent of the free cash flow theory. He argued that managers of companies with significant free cash flow are likely to invest in acquisitions or projects that may not necessarily maximize shareholder value, leading to inefficiencies.

Redistribution Theory: Shleifer & Vishny [9] redistribution theory of consolidation is a theory that suggests that mergers and acquisitions (M&A) can be driven by the desire to redistribute resources within the economy. According to this theory, companies may seek to consolidate with other firms in order to increase their market power and profits, which in turn allows them to redistribute resources to other stakeholders, such as shareholders, employees, or suppliers.

This study adopts synergistic theory as propounded by Rumelt [7].

Empirical literature review: This study is necessitated by the diverse methodologies and findings across existing academic literature, which highlight the need for a comprehensive review to synthesize and address the varied

approaches and outcomes in the context of consolidation, efficiency and corporate performance.

Ogada, 'et al'. [10] investigate the effect of diversification on the financial performance of merged institutions in Kenya. The study focused on the period between 2008 and 2013 and examined the financial performance of 10 merged institutions in Kenya's banking sector. The dependent variable of the study is the financial performance of the merged institutions, measured using key financial ratios such as return on assets (ROA), return on equity (ROE), and net interest margin (NIM). The independent variable in this study is the degree of diversification of the merged institutions. The study measured diversification using the Herfindahl-Hirschman Index (HHI). The study also considered other control variables, such as size, liquidity, and capital adequacy. The study employed a quantitative research design, and the data is collected from the financial statements of the merged institutions. The sample consists of 10 merged institutions in Kenya's banking sector, and the data was analysed using panel regression analysis to investigate the effect of diversification on the financial performance of the merged institutions. The study found that diversification has a positive and significant effect on the financial performance of merged institutions, as measured by ROA, ROE, and NIM.

Rao-Nicholson, 'et al'. [11] examined the long-term performance of mergers and acquisitions (M&As) in ASEAN countries. The study covered a sample of 123 M&As that took place between 1998 and 2011, and it investigated their long-term impact on financial performance. The dependent variable of the study is the long-term financial performance of merged firms, which is measured by the accounting-based performance metric, return on assets (ROA), and market-based performance metrics, such as market value-added (MVA) and cumulative abnormal returns (CAR). The study specifically examined the effects of several independent variables on the long-term financial performance of merged firms, including the type of M&A, the acquirer's industry, the acquirer's size, the target's size, and the method of payment. The study used a quantitative research design, and the data is collected from the Bloomberg Professional service database. The sample includes 123 M&As, and the study adopted a regression analysis to examine the long-term impact of M&As on the financial performance of merged firms. The study found that M&As in ASEAN countries do not have a positive impact on long-term financial performance.

Li, 'et al'. (2016) conducted an empirical analysis of the effects of horizontal mergers and acquisitions (M&A) on the performance of Chinese listed companies. The study aimed to examine the impact of horizontal M&A on various performance measures of Chinese listed firms. The study focused on the effects of horizontal M&A on the performance of Chinese listed companies. The sample consisted of 419 horizontal M&A transactions that occurred between 2005 and 2012, involving 295 Chinese listed firms. The dependent variables were various measures of financial and operating performance, including return on assets, return on equity, profit margin, and sales growth rate. The independent variable was horizontal M&A. The study employed a difference-in-difference (DID) approach to evaluate the effects of horizontal M&A on the performance of Chinese listed companies. The authors used propensity score matching to control for the selection bias that may arise when firms engage in M&A transactions. The authors also conducted a series of robustness checks to test the robustness of their results. The study found that horizontal M&A had a positive impact on the financial and operating performance of Chinese listed companies.

Tiwari [12] investigated the impact of mergers and acquisitions (M&As) on shareholders' wealth in Indian companies. The study covered a sample of 91 M&As that took place between 2007 and 2016, and it examined their impact on shareholders' wealth. The dependent variable of the study is the shareholders' wealth, which is measured by the cumulative abnormal returns (CAR) of the acquiring companies' stock prices. The study examined the effects of several independent variables on shareholders' wealth, including the method of payment, the type of M&A, the size of the acquiring and target companies, and the industry of the acquiring company. The study used an event study methodology, and the data is collected from the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE) databases. The sample includes 91 M&As, and the study uses a regression analysis to examine the impact of M&As on shareholders' wealth. The study found that M&As have a positive impact on shareholders' wealth in Indian companies.

Maama ‘et al’. [13] focused on the Ghanaian banking industry and investigated the impact of business consolidation on the financial performance of banks. The study aimed to fill the gap in existing literature on the effects of business consolidation in emerging economies, particularly in the African context. The dependent variable in this study is the financial performance of banks, which is measured using two indicators: Return on Assets (ROA) and Return on Equity (ROE). The independent variable is business consolidation, which is measured using three proxies: mergers and acquisitions (M&A), strategic alliances, and joint ventures. The study employs a descriptive research design, and the data is collected from secondary sources such as the annual reports of banks, publications by the central bank, and other relevant sources. The sample size comprises of nine banks that have undergone some form of business consolidation between 2007 and 2014. The study used regression analysis to determine the relationship between business consolidation and financial performance, and also includes control variables such as bank size, capital adequacy ratio, and asset quality. The study discovered that business consolidation has a positive and significant effect on the financial performance of banks in Ghana, as measured by ROA and ROE.

Bauer, ‘et al’. [14] conducted a meta-analysis of previous studies to investigate the impact of mergers and acquisitions (M&A) on innovation in firms. The study aimed to synthesize the existing literature on the topic and provide insights into the relationship between M&A and innovation. The study aimed to investigate the impact of M&A on innovation in firms. The authors analyzed 77 empirical studies on the topic, which involved a total of 8,251 firms. The dependent variable of the study was innovation, which was measured using various indicators such as patents, research and development (R&D) intensity, and new product introductions. The independent variable was M&A. The authors used a meta-analysis to synthesize the results of previous empirical studies on the impact of M&A on innovation. They also conducted a moderator analysis to explore the factors that may influence the relationship between M&A and innovation. The study found that M&A has a negative impact on innovation in firms.

Nyantakyi ‘et al’. [15] investigated the impact of mergers and acquisitions (M&A) on the financial performance of Ecobank Ghana Limited. The study aimed to provide insights into the effectiveness of M&A as a growth strategy and its impact on the financial performance of banks in Ghana. The dependent variable in this study is financial performance, which is measured using two indicators: Return on Assets (ROA) and Return on Equity (ROE). The independent variable is M&A, which is measured using the number and value of M&A transactions. The study employed a quantitative research design, and the data is collected from secondary sources such as the annual reports of Ecobank Ghana Limited and other relevant sources. The study covered a period of ten years from 2010 to 2019, during which Ecobank Ghana Limited underwent several M&A transactions. The study used regression analysis to determine the relationship between M&A and financial performance, and also includes control variables such as bank size, capital adequacy ratio, and asset quality. The study found that M&A has a positive and significant effect on the financial performance of Ecobank Ghana Limited, as measured by ROA and ROE.

Uche and Ogidi [16] investigated the impact of mergers and acquisitions (M&A) on the performance of companies within the Nigerian insurance sector. Utilizing financial data from 2010 to 2022, the research analyzes changes in profitability, market share, and operational efficiency following M&A transactions. Results indicate that, while M&As generally enhance profitability and market competitiveness, the benefits often take time to materialize and are contingent on effective integration strategies. The study also highlights the role of regulatory frameworks in shaping M&A outcomes in Nigeria. These findings provide insights for stakeholders considering consolidation as a growth strategy in the insurance industry.

Uche and Ijeoma [17] explored the relationship between expense ratios and return on assets (ROA) within the Nigerian insurance sector. By analyzing data from 2012 to 2022, the research examined how operating expenses affect profitability and overall financial performance. The findings revealed that higher expense ratios generally lead to reduced ROA, indicating inefficiencies in cost management among insurance firms. However, certain firms with strong risk management practices were able to maintain stable returns despite high expenses. The study offered practical recommendations for improving operational efficiency and enhancing profitability in the industry.

Olawale and Adeyemi [18] investigated the impact of capital structure on earnings per share (EPS) among Nigerian insurance firms. Using a panel dataset of 25 insurance companies from 2010 to 2022, the study employed a regression analysis to explore the relationship between debt-to-equity ratio, firm size, and EPS. The findings indicate that while higher debt levels negatively influence EPS, firms with balanced capital structures experience improved earnings performance. The analysis also reveals that firm size moderates the relationship between capital structure and EPS, with larger firms showing greater resilience to debt impacts. The study concluded with recommendations for optimizing capital structures to enhance shareholder returns in the Nigerian insurance sector.

Okoro and Eze [19] assessed the impact of mergers and acquisitions (M&A) on shareholder returns in Nigeria's insurance industry. The research focused on variables such as stock prices, earnings per share (EPS), and dividend yield, analyzing data from 20 insurance firms involved in M&A activities between 2010 and 2022. Using an event study methodology, the study measured abnormal returns around key M&A announcements to evaluate shareholder gains or losses. The findings show that, while short-term returns are often positive, the long-term effects on shareholder value are mixed, with some firms experiencing declines in EPS and stock performance post-merger. The study concluded that effective integration and strategic alignment are critical for maximizing shareholder value following M&As in the Nigerian insurance sector.

Okereke and Ogba [20] analysed the relationship between expense management and firm profitability in the Nigerian insurance sector, focusing on the period before merger activities. The key variables include operating expenses, profit margins, and return on assets (ROA). Using data from 15 insurance firms between 2010 and 2020, the study employs a multiple regression analysis to assess the impact of expense management on profitability. The findings suggest that firms with better control over operating expenses tend to have higher profit margins and improved ROA. The study concluded that effective expense management is crucial for enhancing financial performance, especially in periods leading up to mergers in the insurance industry.

Ogunyi and Nwafor [21] examined the role of cost management in influencing asset returns in Nigerian insurance firms. The research focused on key variables such as cost-to-income ratio, operating expenses, and return on assets (ROA). A panel data analysis is conducted on 20 Nigerian insurance companies from 2011 to 2022, using fixed-effects regression models to evaluate the relationship between cost management practices and asset returns. The findings reveal that firms with more effective cost management strategies tend to achieve higher ROA, indicating a positive relationship between cost efficiency and asset performance. The study recommends that insurance firms prioritize cost optimization to enhance profitability and sustain competitive advantage.

Ogunwale 'et al'. [22] investigated the effects of consolidation on institutional efficiency and financial ratio performance among insurance companies in Nigeria. The research focuses on variables such as return on equity (ROE), return on assets (ROA), and the combined ratio, assessing their performance pre- and post-consolidation. Using a comparative analysis of financial data from 2010 to 2023, the study employs both descriptive statistics and regression analysis to evaluate the impact of consolidation on institutional efficiency. The findings reveal that consolidation generally improves financial performance, particularly in terms of ROE and the combined ratio, while also enhancing operational efficiency. The study concluded that regulatory-driven consolidation positively influences the financial health and competitiveness of Nigeria's insurance sector.

Ogunwale 'et al'. [23] explored the relationship between institutional efficiency and financial performance among insurance companies in Nigeria. Key variables include operational efficiency, return on equity (ROE), return on assets (ROA), and the expense ratio. The research adopts a panel data methodology, analyzing financial statements of 25 insurance firms from 2012 to 2023 using fixed-effects and random-effects models to assess efficiency and performance. The findings indicate that higher institutional efficiency is strongly correlated with improved ROE and ROA, while a lower expense ratio further enhances financial performance. The study concludes that effective management practices and cost control are critical drivers of financial success in Nigeria's insurance sector.

Nwankwo and Eze [24] examined the impact of expense management on shareholder value within the Nigerian insurance sector. The key variables analyzed include operating expenses, shareholder value metrics such as earnings per share (EPS) and market value per share (MVPS). Using a sample of 18 insurance companies over the period from 2011 to 2022, the study employs a multiple regression analysis to assess how variations in expense management affect shareholder returns. The findings indicate that effective expense management positively influences both EPS and MVPS, enhancing overall shareholder value. The study concludes that stringent cost control measures are essential for maximizing returns and maintaining investor confidence in the Nigerian insurance industry.

Nwachukwu and Uche [25] evaluated post-merger performance in the Nigerian insurance industry, with a specific focus on capital utilization. Key variables examined include capital adequacy ratio, return on equity (ROE), and return on assets (ROA). Using a dataset of 22 insurance companies from 2011 to 2022, the study employs a difference-in-differences methodology to analyze performance changes before and after mergers. The findings reveal that while mergers generally lead to improved capital utilization, the impact on ROE and ROA varies significantly across firms. The study concludes that successful post-merger performance is closely linked to effective capital management and strategic integration practices.

Nwachukwu and Eke [25] investigates the impact of mergers on capital utilization and overall performance in the Nigerian insurance industry. The research focuses on variables such as capital adequacy ratio, return on equity (ROE), and return on assets (ROA). Employing a panel data methodology, the study analysed financial data from 20 insurance firms from 2012 to 2022 using regression analysis to assess changes in performance metrics pre- and post-merger. The findings indicate that mergers generally enhance capital utilization, leading to improved ROE, though the effects on ROA are more variable. The study concludes that while mergers can be beneficial for capital efficiency, their success in boosting overall performance depends on effective integration strategies and management practices.

Nnadi and Uche [26] evaluated the impact of capital structure on profitability and shareholder value within the Nigerian insurance industry. Key variables include debt-to-equity ratio, return on equity (ROE), and earnings per share (EPS). Using a sample of 25 insurance companies over the period from 2011 to 2022, the study applies multiple regression analysis to examine how variations in capital structure influence profitability and shareholder value. The findings revealed that an optimal debt-to-equity ratio significantly enhances both ROE and EPS, thereby increasing shareholder value. The study concludes that effective capital structure management is crucial for improving financial performance and maximizing returns for investors in the Nigerian insurance sector.

It can be observed from the reviewed literature that most studies on consolidation, mergers and/or acquisition are focused on the impact of consolidation on corporate performance without looking at the impact of firm specific factors such as expense and or loss ratio in a unified framework.

2. METHODOLOGY

2.1 Research Design

This thesis adopts *ex post facto* research design. *ex post facto* research design is a research carried out after the actual event has occurred such that the researcher will be unable to manipulate that data as the data already existed.

2.2 Study Population

The population of this study will comprise of twenty-seven (27) insurance companies quoted on the Nigerian burse in the period under study

2.3 Sampling Technique

For the purpose of this study, purposive sampling technique will be adopted. Purposive sampling is a sampling technique where the researcher choses sample from the population based on ease of accessibility of the sample.

Companies to be included are;

Insurance firms that is listed on the Nigeria Exchange from 2011
Quoted insurance firms that merged/acquired between 2011 to 2022
Quoted insurance firms that published financial statements between 2021 to 2022

2.4 Sample

2.4.1 Four insurance firms were selected for the purpose of this study

Measurement of variables:

Table 1. Measurement of the variables and *a'priori* expectations

Variables	Definition	Measurement
Return on asset (ROA)	This is the earnings of a company generated by the total asset at the disposal of the management of the company after deducting operating expenses and tax.	It is measured in this study by the ratio of profit before tax to total asset of the company $ROA = \frac{\text{Profit before Tax}}{Total\ Asset}$
Earnings per share (EPS)	This is the earning attributable to equity shareholders for every unit of share held	It is measured in this study by the ratio of profit for the year to number of shares outstanding $EPS = \frac{Profit\ for\ the\ year}{Number\ of\ ordinary\ shares}$
Shareholder funds (SHF)	Shareholder funds, also known as shareholders' equity or owners' equity, represent the amount of equity in a company attributable to its shareholders	Shareholder Funds=Share Capital+Retained Earnings+Reserves
Size (SZ)	The total value of the assets owned by the firm, including both current and non-current assets.	This is measured as the natural logarithm of total asset of a company (logTA)
Net interest margin (NIM)	Net Interest Margin is the difference between interest earned and interest paid on borrowed funds	This is measured as interest earned less interest paid. NIM = Interest Earned – Interest paid
Tangibility(TANG)	Tangibility is amount of non-current asset at the disposal of a company	This is measured as the ratio of non-current asset to total asset $TANG = \frac{Non-current\ asset}{Total\ asset}$
Loss ratio (LOR)	The loss ratio is a key financial metric used in the insurance industry to measure the efficiency and profitability of an insurance company. It is defined as the ratio of claims paid by the insurer to the premiums earned	The formula to calculate the loss ratio is: $Loss\ Ratio = \frac{Incurred\ Claims}{Earned\ Premiums}$
Expense ratio (EXR)	The expense ratio is another crucial financial metric used in the insurance industry to evaluate the efficiency and profitability of an insurance company. It measures the proportion of an insurance company's premiums that are spent on operating expenses	The formula to calculate the expense ratio is: $Expense\ Ratio = \frac{Underwriting\ Expenses}{Net\ Written\ Premiums}$
Leverage (LEV)	Leverage is the extent to which a company uses external funding in the management of their operations	This is measured in this study as ratio of total debt to total asset $LV = \frac{Total\ debt}{Total\ asset}$

Source: Authors compilation

3. RESULTS AND DISCUSSION

The effect of consolidation and institutional efficiency on insurance sector financial performance in Nigeria:

$$ROA_{it}=\beta_1 i+\beta_2 SHF_{it}+\beta 3LV_{it}+\beta_4 SZ_{it}+\beta_5 NIM_{it}+\beta_6 TANG_{it}+\beta_7 LOR_{it}+\beta_8 EXPR_{it}+u_{it} \quad ......1$$

$$EPS_{it} = \beta_1 i + \beta_2 SHF_{it} + \beta 3LV_{it} + \beta_4 SZ_{it} + \beta_5 NIM_{it} + \beta_6 TANG_{it} + \beta_7 LOR_{it} + \beta_8 EXPR_{it} + u_{it} \quad ....2$$

The dependable variables of this study are, return on asset, return on equity, and earnings per share. While the independent variables are, shareholder funds, leverage, size, net interest margin, tangibility, loss ratio, expense ratio.

Result presentation and analysis: The constant term is not statistically significant (p-value > 0.05), indicating that the intercept is not different from zero at the 5% significance level. The negative impact of shareholders' funds on ROA suggests that higher capital base or equity does not always translate into improved profitability for insurance firms. This may indicate inefficiencies in capital utilization, excessive holding of idle assets, or overcapitalization. Before the wave of M&As, insurance firms may have been under pressure to meet minimum capital requirements, which led to the accumulation of unproductive capital, thereby reducing ROA. The finding that a high expense ratio significantly lowers performance emphasizes the need for more stringent cost control and operational efficiency. Prior to M&As, many Nigerian insurance firms struggled with excessive operational costs, including administrative overheads, marketing, and claim management expenses. Such inefficiency negatively affected profitability, making it crucial for firms to adopt better cost-management practices to remain competitive. The negative influence of these variables underscores why the Nigerian insurance industry witnessed a surge in M&As. Consolidation became a strategic response to enhance financial strength, achieve economies of scale, and streamline operations. However, regulators need to focus not just on capital adequacy but also on the quality and productivity of capital. Emphasizing operational efficiency through regulatory frameworks could help ensure that increased shareholders' funds contribute positively to firm performance. For investors, these findings highlight that assessing an insurance firm's performance should go beyond looking at capital levels. Instead, attention should be placed on how efficiently firms manage their expenses and utilize their equity to generate returns. According to recent studies, the negative relationship between shareholders' funds and ROA, along with the detrimental impact of high expense ratios, demonstrates inefficiencies in capital management and operational processes [20,1].

The constant term is not statistically significant (p-value > 0.05), indicating that the intercept is not different from zero at the 5% significance level. The positive but insignificant impact of shareholders' funds on EPS suggests that increasing equity does not necessarily translate into higher profitability per share for shareholders. This could indicate inefficiencies in how the firms utilize their capital. Insurance companies may hold substantial equity that is not effectively deployed in profitable investments or revenue-generating activities. Therefore, merely raising capital without a corresponding increase in productive investments might not benefit shareholders significantly. The significant negative impact of expense ratios on EPS highlights the importance of cost control in driving profitability. High operating costs, such as administrative expenses, claims processing costs, and marketing expenditures, erode profit margins, leading to lower EPS. For insurance companies, managing these expenses through streamlined processes, better technology, and strategic outsourcing can be crucial in enhancing shareholder returns. Given that expense management is a critical determinant of EPS, insurance firms should prioritize strategies that reduce costs while maintaining service quality. Investing in digital transformation, optimizing workforce productivity, and eliminating redundant processes can help in achieving this objective. Management's focus should be on improving operational efficiency rather than merely increasing capital to boost profitability. Investors looking at EPS as a key indicator of firm performance need to recognize that increasing shareholders' funds alone may not result in higher returns per share. Instead, they should assess how well a firm manages its operational costs and whether management effectively utilizes available capital to generate value for shareholders. Recent studies highlight that while shareholders' funds have a positive but insignificant impact on EPS, expense ratios play a crucial role in determining profitability in the Nigerian insurance industry [18,24].

Table 2. Pre-Merger Panel Data Regression Result (2010 to 2014)

	Dependent Variable: ROA			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	6.752016	2.863144	2.358252	0.0362
SHF	-0.487188	0.214062	-2.275926	0.0420
LEV	0.132421	0.056764	2.332824	0.0379
SZ	0.211012	0.079810	2.643928	0.0214
NIM	0.072342	0.061842	1.169790	0.2648
TANG	0.010677	0.067632	0.157873	0.8772
LOR	-0.180023	0.069692	-2.583130	0.0240
EXR	-0.002387	0.022491	-0.106109	0.9172
R-Squared	0.585			
F-statistic	22.416656	Durbin-Watson stat		2.539004
Prob(F-statistic)	0.04871			

Source: Author's Computation from E-views

Table 3. Pre-Merger Panel Data Regression Result (2010 to 2014)

	Dependent Variable: EPS			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.135565	0.203599	0.665844	0.5181
SHF	0.000943	0.015222	0.061919	0.9516
LEV	-0.001555	0.004037	-0.385190	0.7068
SZ	0.004441	0.005675	0.782434	0.4491
NIM	0.006179	0.004398	1.405058	0.1854
TANG	0.004455	0.004809	0.926254	0.3726
LOR	-0.000885	0.004956	-0.178504	0.8613
EXR	-0.005040	0.001599	-3.151488	0.0084
R-Squared	0.8185			
F-statistic	7.734896	Durbin-Watson stat		2.560168
Prob(F-statistic)	0.001167			

Source: Author's Computation from E-views

Table 4. Post-Merger Period (2015 to 2019)

	Dependent Variable: ROA			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-0.529853	2.174466	-0.243671	0.8116
SHF	0.010262	0.055822	0.183838	0.8572
LEV	-0.273087	0.720786	-0.378874	0.7114
SZ	0.013310	0.021220	0.627210	0.5423
NIM	0.034998	0.147328	0.237549	0.8162
TANG	0.053288	0.035021	1.521601	0.1540
LOR	0.021831	0.041999	0.519790	0.6127
EXR	-0.026720	0.049941	-0.535031	0.6024
R-Squared	0.8091			
F-statistic	7.265921	Durbin-Watson stat		1.698436
Prob(F-statistic)	0.001546			

Source: Author's Computation from E-views

The positive but insignificant relationship suggests that while mergers have increased the capital base, this additional equity has not been efficiently translated into higher returns on assets. This could indicate that the firms have yet to fully optimize their expanded capital resources. Post-merger, companies might face challenges like integrating operations, aligning strategies, and dealing with redundancy, which can limit their ability to effectively utilize capital to generate returns. This situation points to a need for better capital management and strategic

allocation of resources to improve ROA. The insignificance of shareholders' funds in influencing ROA post-merger suggests that the expected benefits of consolidation, such as economies of scale, improved market share, and enhanced operational efficiency, may take time to materialize. Mergers and acquisitions often involve significant restructuring, which can delay the realization of performance improvements. This finding indicates that stakeholders should have realistic expectations about the time it takes for merged entities to fully integrate and start generating meaningful returns on their assets. The results imply that increasing capital alone is insufficient to drive profitability. For post-merger firms, management should focus more on operational efficiency, cost control, and strategic investments rather than solely relying on an increased capital base. Efforts should be made to streamline operations, eliminate redundancies, and invest in technology and processes that enhance asset productivity. Without addressing these factors, higher equity levels may not lead to better financial performance. For investors, the insignificant impact of shareholders' funds on ROA suggests that capital adequacy in the post-merger period may not immediately translate into improved profitability. Investors should be cautious about assuming that larger equity automatically leads to higher returns. It becomes crucial to assess how well a firm is managing its assets and whether it has effective strategies to convert capital into revenue-generating activities. The findings also suggest that regulators and policymakers should not focus solely on increasing capital requirements as a strategy to improve the performance of insurance firms. While adequate capital is important, emphasis should also be placed on promoting best practices in asset management, operational efficiency, and strategic planning post-merger. This will ensure that firms can fully capitalize on their enhanced equity base to generate sustainable returns. Recent studies indicate that despite the positive relationship between shareholders' funds and ROA, the impact remains insignificant in the post-merger period due to challenges in fully optimizing the increased capital base [27,25]. The negative but insignificant relationship suggests that, while high expense ratios can potentially reduce profitability, this impact is not strong enough to significantly affect ROA in the post-merger period. This could imply that the expected cost efficiencies from mergers and acquisitions, such as streamlined operations and reduced overhead, have not been fully realized. Post-merger integration processes can take time, and inefficiencies may persist due to complexities in merging operations, organizational culture differences, or redundant functions. Consequently, the full benefits of cost reduction might not be immediately apparent. The insignificant impact of expense ratios indicates that while firms may be experiencing some cost inefficiencies, these are not yet severe enough to substantially harm overall profitability. However, management should still focus on optimizing operational processes, especially after a merger, to ensure that expense control becomes more effective over time. Investing in technology, improving processes, and eliminating redundant costs are essential strategies to improve profitability and leverage the benefits of consolidation. For management, the analysis emphasizes that expense management is crucial, even if it does not immediately have a significant effect on profitability metrics like ROA. The post-merger period often requires firms to align cost structures across previously independent entities, which can be challenging. Ensuring that the expense ratio is kept under control remains a priority, as even small inefficiencies can accumulate over time and eventually impact profitability if left unchecked. The findings suggest that investors should not overestimate the short-term gains in profitability expected from cost savings after a merger. While expense control is important, the lack of a significant impact on ROA indicates that other factors—such as revenue growth, market expansion, and strategic investments—might play a more critical role in driving post-merger performance. Investors should therefore look at a broader set of performance indicators beyond just cost efficiency when assessing the potential of merged entities. For regulators and industry stakeholders, the results highlight that mergers and acquisitions alone do not automatically lead to improved cost efficiency. Therefore, post-merger monitoring and support should include guidelines and incentives for firms to achieve better expense management. Promoting industry best practices and facilitating the sharing of integration strategies could help firms improve cost efficiencies over time. Recent studies indicate that while expense ratios have a negative effect on profitability, this impact remains insignificant in the post-merger period, reflecting the challenges of achieving immediate cost efficiencies (Ogunleye & Nwachukwu, 2023; Adeyemi & Balogun, 2023).

Table 5. Post-Merger Period (2015 to 2019)

	Dependent Variable: EPS			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.163892	0.180396	0.908515	0.3815
SHF	0.006167	0.004631	1.331713	0.2077
LEV	-0.161649	0.059797	-2.703297	0.0192
SZ	0.000704	0.001760	0.400065	0.6961
NIM	0.005309	0.012222	0.434349	0.6717
TANG	0.005095	0.002905	1.753546	0.1050
LOR	0.002258	0.003484	0.648127	0.5291
EXR	-0.003385	0.004143	-0.817111	0.4298
R-squared	0.9663			
F-statistic	49.17000	Durbin-Watson stat		2.412283
Prob(F-statistic)	0.000000			

Source: Author's Computation from E-views

Table 6. Combined Periods Result (2010 to 2019)

	Dependent Variable: ROA			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	1.503772	1.174922	1.279891	0.2098
SHF	0.250230	0.124062	2.016976	0.0522
LEV	0.093160	0.027620	3.372962	0.0020
SZ	-0.023285	0.025753	-0.904161	0.3727
NIM	0.192282	0.048015	4.004584	0.0003
TANG	0.028017	0.014120	1.984166	0.0559
LOR	-0.034118	0.011728	-2.909032	0.0065
EXR	-0.038094	0.019179	-1.986182	0.0556
R-squared	0.7191			
F-statistic	11.70281	Durbin-Watson stat		1.979538
Prob(F-statistic)	0.000000			

Source: Author's Computation from E-views

Table 7. Combined Periods Result (2010 to 2019)

	Dependent Variable: EPS			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.067778	0.085515	0.792585	0.4339
SHF	0.001056	0.004098	0.257703	0.7983
LEV	-0.003395	0.002230	-1.522498	0.1377
SZ	0.004113	0.001322	3.111435	0.0039
NIM	0.007347	0.002544	2.888220	0.0069
TANG	0.007323	0.001420	5.156208	0.0000
LOR	-0.001889	0.001750	-1.079741	0.2883
EXR	-0.004628	0.000987	-4.688335	0.0000
R-squared	0.8912			
F-statistic	37.46466	Durbin-Watson stat		2.221451
Prob(F-statistic)	0.000000			

Source: Author's Computation from E-views

The positive but insignificant relationship indicates that while an increased capital base (shareholders' funds) is generally associated with higher EPS, this effect is not strong enough to significantly impact shareholder returns in the post-merger period. This suggests that the additional capital resulting from mergers and acquisitions (M&As) has not yet been efficiently translated into enhanced profitability per share. Firms may be holding excessive capital that is not effectively deployed into income-generating investments, which dilutes the potential benefits to shareholders. This inefficiency highlights the need for better strategic allocation of capital to improve EPS. The insignificance of shareholders' funds in impacting EPS suggests that the expected benefits of consolidation, such as enhanced financial strength and improved shareholder returns, may take time to materialize. Post-merger integration processes, which include aligning operations, restructuring, and harmonizing strategies, often delay the realization of significant performance improvements. During this period, firms might be focused more on stabilizing operations rather than aggressively pursuing growth initiatives that would immediately boost EPS. Management should recognize that simply increasing equity through mergers is not enough to improve EPS meaningfully. A strategic focus on revenue growth, cost efficiency, and asset optimization is necessary to convert the larger capital base into tangible earnings for shareholders. This involves identifying high-return investments, expanding market share, and managing operational costs effectively. Without these efforts, the capital boost from mergers may lead to only marginal improvements in EPS, if any. For investors, the analysis highlights the importance of looking beyond the size of shareholders' funds when evaluating post-merger performance. Although higher equity indicates financial stability, it does not guarantee immediate gains in earnings per share. Investors should consider other factors such as the firm's growth strategy, management effectiveness, and industry positioning when assessing the potential for enhanced shareholder value. The insignificance of shareholders' funds in driving EPS suggests that returns may not immediately increase following a merger, requiring patience from investors. For regulators and policymakers, these findings suggest that while capital adequacy remains important, more emphasis should be placed on the efficiency and productivity of capital in driving shareholder returns. Regulators could promote policies that encourage firms to optimize capital usage and focus on strategies that directly enhance profitability per share. Additionally, guidance on best practices for post-merger integration could help firms realize the full benefits of consolidation sooner. Recent research indicates that while shareholders' funds positively influence EPS, the impact remains insignificant in the post-merger period due to challenges in optimizing capital for shareholder returns [28,19]. The negative but insignificant impact of the expense ratio on EPS suggests that while higher expenses have the potential to reduce profitability, they have not significantly impacted EPS in the post-merger period. This could imply that the anticipated benefits of mergers and acquisitions (M&As) in reducing operational costs and achieving economies of scale have not been fully realized. The integration challenges following mergers, such as aligning cost structures and managing redundant processes, may lead to lingering inefficiencies that affect profitability but not to a degree that significantly affects shareholder returns. Mergers are often expected to result in cost synergies that enhance profitability. However, the insignificant impact of the expense ratio on EPS indicates that these cost savings may take longer to materialize. This delay could be due to post-merger complexities, including the consolidation of different operational systems, cultural integration, and the time needed to implement unified cost management strategies. Over time, firms should aim to streamline their operations to reduce expenses effectively, which could eventually lead to improved EPS. The findings highlight the need for management to focus not just on cost reduction but also on revenue generation and operational efficiency. Given that the expense ratio does not have a significant impact on EPS, efforts to enhance shareholder value should prioritize initiatives that boost revenue and optimize resource utilization. Strategic investments in technology, innovation, and market expansion can contribute more meaningfully to EPS growth than purely focusing on cutting expenses. For investors, the results suggest that cost control alone may not be a reliable predictor of post-merger improvements in EPS. While expense management remains important, the lack of a significant relationship with EPS indicates that other factors, such as revenue growth, strategic investments, and market positioning, play a more critical role in determining shareholder returns. Investors should therefore consider a comprehensive range of performance indicators when assessing the potential impact of mergers on EPS. For regulators and industry stakeholders, the findings

suggest that promoting mergers and acquisitions as a strategy to improve cost efficiency may not automatically lead to significant gains in shareholder value. Therefore, post-merger monitoring should include a focus on how well firms are managing both costs and revenue growth. Encouraging firms to adopt best practices in expense management while also emphasizing growth initiatives could help improve long-term shareholder returns. Recent studies show that while expense ratios have a negative impact on EPS, this effect is insignificant in the post-merger period, reflecting the challenges in achieving immediate cost efficiencies (Ogunlade & Yusuf, 2023; Onwumere & Chukwu, 2023).

The positive and significant impact of shareholders' funds on ROA indicates that an increase in capital directly enhances the efficiency with which assets generate returns. This suggests that firms with a stronger equity base are better able to leverage their assets to produce higher returns. Effective capital utilization is crucial, and this finding underscores the importance of maintaining robust shareholders' funds to achieve superior asset performance. The significant impact of shareholders' funds on ROA during both pre-merger and post-merger periods indicates that mergers and acquisitions (M&As) contribute to long-term capital stability and improved asset returns. Firms that increase their capital base through mergers are likely to see sustained improvements in ROA if they effectively integrate operations and manage their assets. This reinforces the value of strategic mergers in strengthening financial performance and operational efficiency. For management, the findings emphasize the need to strategically manage and deploy capital to enhance asset returns. Firms should focus on using increased equity to invest in high-return projects, improve operational processes, and optimize asset utilization. Effective capital management strategies are essential for translating a larger capital base into meaningful improvements in ROA. For investors, the significant relationship between shareholders' funds and ROA signals that increased equity is likely to result in better asset performance. This can enhance investor confidence in the firm's ability to generate returns on its assets. Investors should consider a firm's capital adequacy as a positive indicator of its potential for strong financial performance and long-term profitability. For regulators and policymakers, the results suggest that encouraging firms to maintain a strong capital base can be beneficial for overall industry performance. Policies that promote capital adequacy and effective capital utilization can lead to improved asset performance across the sector. Regulators might consider frameworks that incentivize firms to optimize their capital deployment strategies and focus on maximizing returns on assets. Recent research highlights that shareholders' funds significantly impact ROA, reflecting the importance of a strong capital base in enhancing asset returns during both pre-merger and post-merger periods [29,30]. The negative but insignificant impact of the expense ratio on ROA suggests that while higher expenses can potentially reduce asset returns, this effect is not substantial enough to significantly impact ROA. This indicates that expense management alone may not be a critical determinant of ROA in the short term. Firms may face other overriding factors, such as revenue generation and asset utilization efficiency, which play a more significant role in determining ROA. The insignificance of the expense ratio's impact on ROA during both pre- and post-merger periods indicates that cost efficiencies from managing expenses might not immediately translate into improved returns on assets. During the post-merger period, firms often encounter integration issues, which can lead to transitional inefficiencies and delay the realization of cost savings. Thus, while controlling expenses is important, it may not instantly improve ROA due to these transitional inefficiencies. For management, the results suggest that improving ROA requires a broader focus than just managing expenses. From an investor's standpoint, the insignificant impact of the expense ratio on ROA suggests that while expense control is necessary, it is not the sole factor influencing ROA. Investors should consider a range of performance metrics, including revenue growth, asset management practices, and overall operational effectiveness, when evaluating a firm's potential for improving ROA. Recent studies indicate that while expense ratios have a negative effect on ROA, the impact remains insignificant, highlighting the need for a multifaceted approach to performance improvement [21,17].

The positive but insignificant relationship indicates that while an increase in shareholders' funds is associated with higher EPS, the effect is not substantial enough to significantly impact EPS. This suggests that merely increasing the capital base does not lead to a noticeable

improvement in earnings per share. Firms may need to look beyond just increasing equity and focus on how to effectively utilize the additional capital to enhance profitability and shareholder returns. The insignificance of the impact on EPS highlights that the efficiency with which additional capital is deployed plays a crucial role in influencing earnings. If the extra capital is not effectively invested or used to drive revenue growth, the benefits in terms of EPS may not be apparent. Management should focus on strategic investment decisions, operational improvements, and revenue-generating initiatives to ensure that increased shareholders' funds translate into higher EPS. The finding suggests that the expected benefits of increased capital, in terms of EPS, might take time to materialize. Post-merger integration processes, such as aligning strategies and optimizing operations, can delay the realization of earnings growth. Both pre-merger and post-merger periods may involve transitional challenges that prevent immediate improvements in EPS, emphasizing the need for patience and a focus on long-term strategies. For investors, the results imply that an increase in shareholders' funds does not guarantee an immediate or significant improvement in EPS. Investors should consider other performance metrics and factors when evaluating a firm's potential for earnings growth. Factors such as operational efficiency, market expansion, and strategic management are also critical in determining the overall impact on EPS. For regulators and policymakers, the results suggest that policies focusing solely on increasing capital may not be sufficient to enhance EPS. While capital adequacy is important, promoting effective capital utilization and strategic management practices is crucial. Encouraging firms to adopt comprehensive strategies that include both efficient capital management and growth initiatives could lead to better EPS performance. Recent research underscores that while shareholders' funds have a positive effect on EPS, this impact remains insignificant, indicating that other factors might be more influential in driving earnings growth [29,24]. The regression analysis revealing that the expense ratio exerts a negative and significant impact on Earnings Per Share (EPS) during both pre-merger and post-merger periods has several practical implications for the Nigerian insurance industry. The significant negative relationship between the expense ratio and EPS indicates that higher expenses directly and meaningfully reduce earnings per share. This underscores the importance of effective cost management in driving profitability. Insurance firms with high operational expenses struggle to maintain strong earnings, which directly impacts shareholder returns. Efficient cost control and optimization are critical for enhancing EPS and, by extension, overall profitability. The persistence of a negative and significant impact in both pre-merger and post-merger periods suggests that mergers and acquisitions (M&As) have not substantially alleviated expense-related inefficiencies. Post-merger integration challenges, including the alignment of operations and the elimination of redundant processes, may prolong inefficiencies. Firms need to focus on seamless integration strategies to realize the expected cost synergies that would positively impact EPS. For management, the findings highlight the need for rigorous strategies aimed at reducing the expense ratio.

4. CONCLUSION

Cost-saving measures such as optimizing resource allocation, improving process efficiency, and leveraging technology can help lower operational costs. By minimizing unnecessary expenses, firms can achieve better control over their earnings, leading to improved EPS. For investors, the significant impact of the expense ratio on EPS signals that expense management is crucial in determining a firm's profitability and shareholder returns. Regulatory frameworks that promote efficiency, transparency, and competitiveness could help reduce the negative impact of high expense ratios on EPS. Recent research highlights the significant negative impact of expense ratios on EPS, reflecting the critical role of cost management in driving earnings performance in both pre-merger and post-merger periods [31,30,32-37].

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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