

## Mergers and Acquisitions in the Banking Sector and Implications for Return on Equity (ROE): Evidence from Nigeria

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### Abstract

*This study examines whether or not banks in Nigeria have experienced improvement in their Return on Equity ratio (ROE) following the wave of mergers and acquisitions that swept through the banking sector in 2004 - 2005. Basically, the study engaged in matched sample comparisons of the mean ROE ratios of the merged banks with the stand-alone banks before and after consolidation. Study data were obtained from the annual reports of the banks to compute mean ROEs of the banks across the period under study. Chow Structural Break tests, Paired Sample t-statistics and Independent Sample t-statistics were performed on the mean ROEs of the banks before mergers and the ROEs of consolidated banks. We obtained evidences that suggest that mergers and acquisitions (M & as) in the banking sector do not improve the Return on Equity ratios of the banks involved. This study thus, concludes that there is insignificant or no improvement in bank's financial performance, (ROE) following consolidation. Therefore, we recommend based on our findings that participants in subsequent bank mergers must be prepared to be disappointed as most M & as have been and are still associated with results that are hardly consistent with pre-merger optimistic expectations. The implication for the operators in the banking sector is that pre-merger optimistic expectations are oftentimes not realistic; therefore, other strategies should be explored to shore up the fortunes of failing banks rather than embarking solely on M & A.*

**Keywords:** Mergers, Acquisitions, Return on Equity, Stand-Alone Banks, Merged Banks

### 1. Introduction

Banking industries across the world have undergone one form of corporate restructuring or process of consolidation in the last decade in response to globalization, competitive pressures, or regulatory requirements. In June, 2004, banks in Nigeria were directed by the Central Bank of Nigeria (CBN) to embark on mergers and acquisitions (M & As), with December, 2005 as deadline. This generated a lot of attention within Nigeria and abroad as regards the nature of impact of this wide-spread M & As on shareholder wealth. All over the world and given the internationalization of finance, the Central Bank of Nigeria (CBN) had argued that size has become an important ingredient for success in a globalizing world, as no country can afford to operate in isolation in the world of finance. Soludo (2004), remarks that the future of the world economy belongs to megabanks, predicting that the world of the future will not be a world for marginal or fringe players. The CBN, as a regulator of the banking industry, called for a higher minimum shareholders' fund base of 25 billion Naira or 178.6 million U.S. Dollars for every bank in Nigeria by December 31, 2005. It had the intent of promoting banks to develop the capacity to finance large-scale productive projects, assume greater risks and vie for businesses on a continental and global basis (Soludo, 2007; Al-Faki, 2005). The recapitalization directive set out not only to resolve the numerous domestic problems plaguing the banking industry, but also to place Nigerian banks in their rightful position to compete not only regionally but, as global financial institutions. In line with CBN guidelines on consolidation, widespread corporate restructuring in the form of mergers and outright acquisitions was witnessed in the sector.

Considering the important role banking sector plays in any nation's economy and the implications restructuring in the sector usually have on the entire economy, an assessment of the financial performance of these mergers and acquisitions is necessary and worthwhile. More so, the evaluation of the performance of mergers and acquisitions in the banking sector is still inconclusive around the world (Neffati, et al., 2011; Bloch, 2008; Jemison and Sitkin, 1986). In view of the open and ongoing debate as regards bank M & A performance around the world, the findings of this endeavor would go a long way to enrich the M&A literature. To achieve our objective, the banks are classified into two groups: 'control' and 'target'. The control group is made up of banks that do not engage in any form of M&A to satisfy the recapitalization directive, while the target group consists of banks that were involved in M&A during the recapitalization exercise. Against this background, the study is undertaken within the context of the following hypothesis:

H<sub>01</sub>: There is no positive correlation between bank M & A and Return on Equity (ROE) of the banks involved.

H<sub>02</sub>: Consolidation does not have positive relationship with the ROE of the control-group banks.

H<sub>03a</sub>: There is no significant difference between the ROE of the target group banks and the control group banks before mergers.

H<sub>03b</sub>: There is no significant difference between the ROE of the target group banks and the control-group banks after mergers.

## **2. Literature Review**

Mergers and acquisitions are indeed important corporate decisions with considerable long-term effects on companies involved (Awdeh and El-Moussawi, 2011). A merger, according to DePamphilis, (2011), is the combination of two or more firms in which all but one legally cease to exist, and the combined organization continues under the original name of the surviving firm. Whereas, Pervinen (2003) views acquisition as the absorption of one firm by another in which the resulting firm maintains the identity of the acquiring company. However, the dominant view in existing literature is that merger and acquisition are considered and treated as a single business phenomenon. Merger and acquisition is a highly researched phenomenon in strategy and Strategic Management. This has led to the emergence of several theories that attempt to explain the motives or rationales for banks' involvement in mergers and acquisitions. Pilloff (1996), has asserted that the primary reason for mergers and acquisitions is synergy, that is, performance improvement following M&A. Generally, ways through which performance could be improved by M & As range from transfer of superior or complimentary management skills, elimination of redundant facilities and personnel, to consolidation of technologies, and combination of fragmented market shares separately held by each firm before the merger. Similarly, Awdeh and El-Moussawi, (2011) reiterate that M&As may achieve for the firm, including banks growth in both size and value, revenues and profits through reduction of costs, enhanced market power, reduction of earnings volatility, and economies of scale and scope.

According to Awdeh and El-Moussawi (2011), Gelos and Roldos (2004) and Shih (2003), market forces prompt M&A operations in developed economies, while regulatory authorities play a major role in bank consolidations in developing countries. They explicate further that regulatory authorities encourage, and even sometimes, enforce bank consolidation in an attempt to reduce the risk of bank failures and curtail the costs (both financial and social costs) of bank failures during or after banking crises. Although in theory the result of a merger may sound promising, such positive outcomes are rare across the world going by previous empirical findings, such as Mat Nor, et al., (2008); Akben-Selcuk and Altiock-Yilmaz, (2011); Saleh (2010); Lang and Welzel (1999). Amongst others, they have all concluded that M & As have failed to improve the financial performance of banks. According to Selden and Colvin, (2003), 70% to 80% of all M&As fail; they create no wealth for the shareholders. In their words, most often, they destroy wealth. Nevertheless, some empirical findings such as those of Sinha et al., (2010); Egger and Hahn (2010); Soemonagoro (2006); Vander Venet, (1996) and others have reported positive effect of mergers and acquisitions on bank profitability.

## **3. Methodology**

This study evaluates the value creation effects of mergers and acquisitions in the Nigerian banking industry consolidation exercise of 2004/2005. The study is structured as matched-sample comparisons: matching merged banks (target group) with stand-alone or non-merged banks (control group). Essentially, we partly assessed whether or not merged banks outperformed their stand-alone peers following mergers. The independent variables are the M & As that took place amongst the banks across time.

The dependent variables are the mean Return on Equity (ROE) of the various banks which are used to evaluate the synergy or financial gains of merged banks. We coded the banks as Merged Bank 1 (MB1), Merged Bank 2 (MB2), etc. and Stand-Alone Bank 1, (SAB1), Stand-Alone Bank 2 (SAB2) etc. to ensure the anonymity of the banks and also guide against any possible implications our findings may have on investors' confidence and perhaps, customer loyalty to specific banks. The study population is made up of all the 25 banks that emerged following consolidation, although the number has gone down to 24 due to the merger of Stanbic Bank and IBTC Chartered Bank in late 2008.

**3.1 Data Source**

The data for this study were obtained from the audited annual financial reports and accounts of 89 pre-consolidation banks three years before mergers (2002-2004), and the 24 consolidated banks three years after mergers (2006-2008). These financial reports were mainly obtained from Research & Data Services Limited, (REDASEL), Lagos, the publisher of a reference source on Nigeria's financial and commercial sectors, "The Nigerian Banking, Finance & Commerce (NBFC). Information were extracted from these audited financial reports to calculate the mean Return On Owners' Equity, (ROE) before and after M&As. ROE was obtained by:

$$ROE = \frac{\text{Net Profit After Tax}}{\text{Owners Equity}} \times 100 \dots \dots \dots (1)$$

**3.2 Analysis Techniques**

**3.2.1 Chow Test for Structural Break**

The Chow Test for Structural Break was performed to test for a structural break in performance (ROE) following mergers. In the first case, there was just a single regression line to fit the data points (scatter plot). In the second case, where a structural break was anticipated, there were two separate models. This suggested that model 1 applied before the structural break at time t (before M&A), and model 2 applied after the structural break (i.e. after M&A).

The model is:

$$y_t = f(t) + \epsilon \dots \dots \dots (2)$$

Where

$y_{ts}$  are the Return on Owners Equity (ROE) ratio.  
 t is the time(year). Specifically,

$$y_t = \alpha + \beta t + \epsilon \text{ is the general model for the combined periods} \dots \dots \dots (3)$$

$$y_{1i} = \alpha_1 + \beta_1 t_{1i} + \epsilon_{1i} \text{ model for period before mergers and acquisitions} \dots \dots \dots (4)$$

$$y_{2i} = \alpha_2 + \beta_2 t_{2i} + \epsilon_{2i} \text{ model for period after mergers and acquisitions} \dots \dots \dots (5)$$

We test the hypothesis;

$$H_{01}: \alpha_1 = \alpha_2$$

$$H_{02}: \beta_1 = \beta_2$$

Where  $\alpha_1$  = the intercept (before M&A)

$\alpha_2$  = The intercept (after M&A)

$\beta_1$  = Slope (rate of change before M&A)

$\beta_2$  = Slope (rate of change after M&A)

$\epsilon$  = Error term

The Residual Sum of squares for the combined model, the pre-merger and the post-merger models are:  $RSS_c$ ,  $RSS_1$  and  $RSS_2$  respectively.

So that the F-statistic is given as:

$$F = \frac{RSS_c - (RSS_1 + RSS_2) / k}{RSS_b + RSS_a / n - 2k} \dots \dots \dots (6)$$

The test statistic follows the F-distribution with  $k$  and  $N_1 + N_2 - 2k$  degrees of freedom.

$RSS_c$  = residual sum of squares (error sum of squares) for the data.

$RSS_b$  = residual sum of squares (error sum of squares) before M&A.

$RSS_a$  = residual sum of squares (error sum of squares) after M&A.

$k$  = number of parameters ( $\alpha$  and  $\beta$ ) will be 2.

$N_b$  = number of years before structural break.

$N_a$  = number of years after structural break.

**3.2.2 t-Statistic**

For a matched-sample comparison, the *t-statistic* was performed to compare the mean ROE of the target group to that of the control group before and after consolidation to determine which group outperformed the other.

All hypotheses are tested at  $\alpha = 0.05$ , that is, level of significance. The t-test is obtained by:

$$t_c = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s_p^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}} \dots \dots \dots (7)$$

$$s_1^2 = \frac{\sum (x - \bar{x}_1)^2}{n - 1}, \quad s_2^2 = \frac{\sum (x - \bar{x}_2)^2}{n - 1}$$

Where  $s_p^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$

$s_2^1$  = Variance of the target group

$s_2^2$  = Variance of the control group

$\bar{x}_1$  = Mean performance of the target group

$\bar{x}_2$  = Mean Performance of the control group

$n_1$  = Number of banks in the target group

$n_2$  = Number of banks in the control group

$s_p^2$  = Pooled variance of both groups

$t_c$  = t value calculated,

Decision rule: Reject  $H_0$  if  $t_c \geq t_{\alpha} n_1 + n_2 - 2$

**4.0 Results and Discussions**

**4.1 Chow Tests for Structural Break**

Employing E-Views Vol.6 econometric software for statistical analysis), Chow structural break test was performed to test the hypothesis  $H_{01}$  (There is no positive correlation between bank M&A and Return on Equity (ROE) of the banks involved) at 5% level of significance. Rule: Reject  $H_{01}$  if  $F_c \geq F_{\alpha(v1,v2)}$ , or  $P < 0.05$ . The results are presented on Table 1. Table 1 reveals that none of the banks in the target group met the decision rule; hence we do not have enough evidence to reject  $H_{01}$ . This implies that there is no change in the Return on Equity of the target group banks after mergers; that is, structural stability exists.

Chow test for structural break was also performed to test  $H_{02}$ : Consolidation does not have positive relationship with the ROE of the control-group banks, with the Decision Rule: Reject  $H_{02}$  if  $F_c \geq F_{\alpha(V1, V2)}$ ; that is, reject  $H_{02}$  if the value of  $F_{\text{computed}}$  is greater than or equal to the value of  $F_{(2,2)}$  on the  $F_{\text{table}}$  or Probability of  $P < 0.05$ . The results obtained from this test is thus, presented on Table 2. Table 2 summarizes the results of Chow structural break test performed on ROE for the control group banks. The results also indicate that we do not reject  $H_{02}$ , implying that there is no difference between the ROE of the control group banks after mergers. The evidence suggests that their performance did not improve after mergers.

#### 4.2 t - Statistic

Using Minitab 17 Statistical Software (2010), a version of statistics package developed at the Pennsylvania State University, we performed Independent Sample t-test to test the hypothesis;  $H_{03a}$ : There is no significant difference between the ROE of the target group banks and the control group banks before mergers, with the Decision Rule: Reject  $H_{03a}$  if  $t_c > t_{1-\alpha/2, df}$ . That is, reject  $H_{03a}$  if the value of  $t_{\text{computed}}$  is greater than the  $t_{\text{table}}$  value or Probability of  $P < 0.05$ . The results are presented on table 3. Table 3 summarizes the results of the independent sample t-test performed to compare the ROE of the target group banks with that of the control group banks before mergers. The table displays that there was a difference between the ROE of the target group banks and the control of banks before mergers as we reject  $H_{03a}$ . As the average difference reflects, the ROE of the control group is significantly higher (8.40%) than the target group even prior to consolidation. The control group banks outperformed the control group banks before M&A. This probably explains why they remained “Stand-Alone” as there was no pressing need to seek improvements through M&A. As well, Minitab 17 was employed to perform Independent Sample t-test to test the hypothesis;  $H_{03b}$ : There is no significant difference between the ROE of the target group banks and the ROE of the control-group banks after mergers, with the Decision Rule: Reject  $H_{03b}$  if  $t_c > t_{1-\alpha/2, df}$ . That is, reject  $H_{03b}$  if the value of  $t_{\text{computed}}$  is greater than the  $t_{\text{table}}$  value or Probability of  $P < 0.05$ . Table 4 presents the results. Table 4 presents the results of the comparison of the ROE of the target group banks and those of the control group banks and the table shows that there are differences in ROE after mergers as we reject  $H_{03b}$ . As illustrated by the Average Difference on the table, the control group banks outperformed the target group banks in terms of ROE by 4.96%.

#### 5.0 Conclusion and Recommendations

The study examines whether or not the Return on Equity (ROE) improved following the sector-wide bank mergers in Nigeria in 2004/2005. In general, bank mergers and acquisitions have attracted and may continue to attract immense attention from academic scholars, banking practitioners, and the citizenry in the foreseeable future. Based on the evidences obtained, the study concludes that bank mergers do not necessarily give rise to improved financial performance (ROE). This conclusion is consistent with those of prior studies of bank mergers such as Panagiotis and Spyridon (2011), Greece; Kemal (2011), Pakistan; Saleh (2010), Lebanon; Ravichandran, (2010), India; Koetter (2005), Germany; Focarelli et al., (2002), Italy; etc. They have all concluded based on the findings of their individual studies that bank M&As have failed to improve the profitability of banks. In addition, others like Knapp et al., (2005) found that merged banks experienced profitability below the industry average in their study of the profitability of 80 bank mergers in the United States. More interestingly, our conclusion is consistent with those of Joshua (2011) and Ebimobwei and Sophia (2011) who both concluded that the 2004/2005 bank M&As in Nigeria did not improve the profitability of Nigerian banks. Indeed, bank consolidation in Nigeria has not met pre-merger expectations and promises. Banks’ management and indeed, regulators cannot take it for granted that positive synergy will be generated and profitability will be enhanced merely by involving in a merger or an acquisition. Lastly, merged banks have fared no better (in terms of ROE) than they perhaps would have, if they had not merged. If voluntary M&As have not enhanced the financial performance (ROE) of most banks as substantial part of the literature has shown, how much more if they are regulation-induced. Based on the study findings, the following recommendations are advanced in the belief that our evidences have implications for banking policy and regulation, banks’ management, and future reforms.

- (i) Forcing banks to consolidate by way of mergers and acquisitions as the Central Bank of Nigeria did through its recapitalization/ consolidation directive of 2004/2005 have only raised the shareholder fund of the banks without more importantly improving the financial performance of the banks involved, thus, making further reforms inevitable. To this end, the study recommends that rather than focusing on creating a small number of large banks, banking regulators should create an environment in which the banks could organically grow and thrive on a sustainable basis, without any coercion.
- (ii) Also, the research findings have implications for banks' management. While we acknowledge that the banks mergers of 2004/2005 in Nigeria were mainly forced mergers, a number of voluntary mergers/acquisitions have been recorded afterwards. Therefore, the study draws attention of captains of Nigerian banks to a delusion that has led most prior bank mergers to financial failure. The lure of being 'Too Big to Fail' may sometime be misleading, as the literature has revealed, and confirmed by our evidence. Large size does always lead to improved financial performance. The figures do not just add up automatically. Abstracting from the findings of this study, participants in any future bank mergers must be cautious in optimism as most M& As have been and are still associated with results that are hardly consistent with pre-merger optimistic expectations.

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## Appendix

**Table 1: Results of Chow Test Performed on ROE for the Target Group.**

S/No.	Consolidated Bank	F <sub>computed</sub>	F <sub>table</sub>	Probability of F	Decision
1	MB1	5.23	19	0.16	Do Not Reject H <sub>01</sub>
2	MB2	4.12	19	0.19	Do Not Reject H <sub>01</sub>
3	MB3	0.94	19	0.51	Do Not Reject H <sub>01</sub>
4	MB4	0.12	19	0.88	Do Not Reject H <sub>01</sub>
5	MB5	0.45	19	0.68	Do Not Reject H <sub>01</sub>
6	MB6	1.85	19	0.35	Do Not Reject H <sub>01</sub>
7	MB7	12.92	19	0.071	Do Not Reject H <sub>01</sub>
8	MB8	8.09	19	0.1	Do Not Reject H <sub>01</sub>
9	MB9	7.73	19	0.11	Do Not Reject H <sub>01</sub>
10	MB10	0.1	19	0.9	Do Not Reject H <sub>01</sub>
11	MB11	1.47	19	0.4	Do Not Reject H <sub>01</sub>
12	MB12	1.21	19	0.45	Do Not Reject H <sub>01</sub>
13	MB13	1.69	19	0.37	Do Not Reject H <sub>01</sub>
14	MB14	3.78	19	0.2	Do Not Reject H <sub>01</sub>
15	MB15	4.6	19	0.17	Do Not Reject H <sub>01</sub>
16	MB16	0.011	19	0.98	Do Not Reject H <sub>01</sub>
17	MB17	0.24	19	0.8	Do Not Reject H <sub>01</sub>

Source: Analysis of Survey Data

**Table 2: Results of Chow Test Performed on ROE of the Target Group Banks.**

S/No.	Bank	F <sub>computed</sub>	F <sub>table</sub>	Probability of F	Decision
1	SAB 1	9.2	19	0.09	Do Not Reject H <sub>02</sub>
2	SAB 2	0.83	19	0.54	Do Not Reject H <sub>02</sub>
3	SAB 3	8.42	19	0.1	Do Not Reject H <sub>02</sub>
4	SAB 4	0.24	19	0.8	Do Not Reject H <sub>02</sub>
5	SAB 5	1.18	19	0.45	Do Not Reject H <sub>02</sub>

Source: Analysis of Survey Data

**Table 3: Results of Independent Sample t-test Performed on ROE of the Target Vs Control Group (Before Mergers)**

Target Group	Control Group	Average Difference	t-computed	Probability	t <sub>table</sub> (t <sub>1-<math>\alpha</math>/2, df</sub> )	Decision
20.20%	28.60%	8.40%	4.09	0.002	t <sub>0.975, 64</sub> = 2.00	Reject H <sub>03a</sub>

Source: Analysis of Survey Data

**Table 4: Results of Independent Sample t-test Performed on ROE for the Target Vs Control Group (After M&A)**

Target Group	Control Group	Average Difference	t-computed	Probability	t <sub>table</sub> (t <sub>1-<math>\alpha</math>/2, df</sub> )	Decision
15.31%	20.27%	4.96%	2.32	0.027	t <sub>0.975, 64</sub> = 2.00	Reject H <sub>03b</sub>

Source: Analysis of Survey Data