Impact of Forced Bank Consolidation on Return on Assets (Roa) In Nigeria: An Empirical Investigation

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Abstract

The Central Bank of Nigeria (CBN) had repeatedly persuaded banks in Nigeria to consolidate by way of voluntary mergers and acquisitions (M&As) in order for the banks to become strong and reliable, and to ensure among others, higher returns to shareholders while being competitive players in the regional and global financial systems. However, after years of unsuccessful persuasion, the CBN in an unprecedented move in July 2004 directed banks to consolidate by recapitalizing. This policy led to the 2004/2005 industry-wide forced M&As in Nigeria. Within this context, this study evaluates the effect of the forced mergers on shareholder value by studying post-merger change in ROA. The study hypothesized that Positive correlation does not exist between forced bank M&As and Return on Assets (ROA). We performed Chow Structural Break tests, Paired Sample t-statistics and Independent Sample t-statistics on the mean ROA of the banks' pre and post-mergers. Consistent with some prior empirical findings, we obtained evidence which suggest that forced bank mergers and acquisitions, at best, do not enhance shareholder value; and in some cases, is diminished. Thus, the study concludes that forced bank consolidation does not enhance Return on Assets. The study therefore recommends that regulatory authorities should ideally not compel banks to consolidate as such efforts may be doomed from the outset because the desired synergic merger effects have indeed in many cases, translated into negative returns.

Keywords: Forced Merger, Acquisition, Return on Assets, Shareholder Value

1.0 Introduction

The Central Bank of Nigeria (CBN) had repeatedly persuaded banks in Nigeria to consolidate by way of voluntary mergers and acquisitions (M&As) in order for the banks to become strong, reliable, and ensure among others, higher returns to shareholders while being competitive players in the regional and global financial systems. However, after years of unsuccessful persuasion, the CBN in an unprecedented move in July 2004 directed banks to consolidate by recapitalizing. This policy led to the 2004/2005 widespread forced M&As in the Nigerian banking industry. Therefore there is the need to assess the impact of these forced mergers on shareholder value. Using the Chow Test for structural Break and t-statistic techniques, the study evaluated the banks Return on Assets (ROA) pre and post-mergers.

2.0 Literature Review

2.1 Merger and Acquisition

The word merger, in the views of Weston et al. (2001), connotes negotiations between friendly parties who arrive at a mutually agreeable decision to combine their companies. DePamphilis (2011) defines merger, from a legal perspective, as the combination of two or more firms in which all but one legally ceases to exist, and the combined organization continues under the original name of the surviving firm.

A merger may be classified as horizontal, vertical, or conglomerate. Horizontal merger takes place between firms in the same industry; vertical merger refers to that between two firms at different stages of production or value chain; and conglomerate merger occurs between firms in different industries (DePamphilis, 2011; Platt, 2007; Lien, 2005). Companies and Allied Matters Act (CAMA, 1990) describes merger as any amalgamation of the undertakings or any part of the undertakings or part of the undertakings of one or more companies and one or more bodies corporate.

Closely related to merger according to DePamphilis, (2011) is acquisition which occurs when one company takes a controlling ownership interest in another firm, a legal subsidiary of another firm, or selected assets of another firm such as a manufacturing facility. Parvinen, (2003) sees acquisition as the absorption of one firm by another in which the resulting firm maintains the identity of the acquiring company. Regardless of the definitions of a merger or an acquisition, larger part of the strategic management literature, treats merger and acquisition as a single business phenomenon.

2.2 Theories of Merger and Acquisition

Several theories have attempted to explain the rationale behind merger and acquisition, because being such a complex business phenomenon; several theories have tried to explain the phenomenon from different perspectives. All M&A theories investigate and indicate reasons for, and implications of, mergers and acquisitions. As each theory strives to offer explanation as regards why firms, (banks inclusive) are involved in M&A activities collectively they have highlighted financial, synergistic, market power, or regulation arguments. Broadly these theories can be classified into economic or value-maximizing theories of bank M&A and non-economic or value-maximizing theories of bank M&A.

One of the economic or value-maximizing theories of bank mergers is the *Efficiency Theory* which holds that M&As are engaged in to obtain access to financial, operational, or managerial synergies (Ayadi, et al., 2011; Calipha et al., 2011; Ullah and Ullah, 2010). Another, the *Valuation Theory* suggests that M & As are motivated by stock market valuations or misvaluations (Dong et al., 2006; Rhodes-Kropf et al., 2005). The *Growth Theory* suggests that on one hand, a fast-growing bank may encounter problems as a result of management and/or structural inability to manage and sustain the rapid growth, hence, acquirers are attracted; or on the other hand, a slow growing bank may attract a buyer seeking to accelerate its growth rate and thereby increase its market value, (Moore, 1996). Yet, firms might be attracted to be involved in acquisitions within industries that have high growth rates, while in contrast low growth may indicate the need for restructuring in an industry, hence leading to increased acquisition activity (Pasiouras et al., 2007; Harford, 2005). Non-economic or value-maximizing theories of bank M&A include *Monopoly* or *Anti-Competition Theory* which holds that mergers or acquisitions are engaged in to improve companies' competitiveness, i.e. to gain market power by eliminating or reducing competition (Gambill and Hodge, 2008; Jemison and Sitkin, 1986). Furthermore, *Management Entrenchment Theory*, also referred to as *Disciplinary Mergers Theory* holds that M&As are involved in to correct management lapses (Lausberg and Stahl, 2007; Bliss and Rosen, 2001). The *Legal/Regulatory Factors Theory* suggests that banks may also undertake M & As to meet capital or regulatory requirements (Pasiouras et al., 2007; Valkanov and Kleimeir, 2006).

2.3 Performance of Forced Bank M&As

The documented outcomes or effects of forced bank mergers and acquisitions on firm value have been mixed or controversial at best or outright negative in spite of its growing popularity and number around the world, (Yusuf, 2012; Neffati et al., 2011). Yusuf, (2012) obtained evidence that suggest that bank M & As do not have positive relationship with improved bank profitability, nor do they enhance firm value. Earlier, contrary to the policy expectation, Joshua (2011) and Ebimobowei and Sophia (2011) found evidence that suggest that the 2005 forced bank M&As in Nigeria did not improve the profitability of the banks. In addition, Almazari, (2011), found that banks with higher shareholders' equity following mergers and acquisitions do not automatically translate to higher profitability or improved shareholder value. Similarly, Mat-Nor *et al.* (2006) concluded from their study of Malaysian bank mergers that there is no significant difference in most of the financial ratios post-mergers.

3.0 Research Focus and Hypotheses

This study evaluates the value creation effects of the 2004/2005 forced mergers and acquisitions in the Nigerian banking industry.

It obtained its data from the audited annual financial reports of the banks studied. It is structured as matched-sample comparisons: comparing the ROA of the target group (merged banks) with the ROA of control group (stand-alone banks). Partly, the question this sought to answer is whether or not the target group outperformed their control group peers following these forced mergers and acquisitions.

The mergers/acquisitions that took place are the independent variable, while the ROA of the banks form the dependent variables. The studied banks are coded to hide their identity because of the pressure our findings may exert on customer loyalty, and investors' confidence. They have been coded as Merged Bank 1 (MB1), Merged Bank 2 (MB2), etc. and Stand-Alone Bank 1, (SAB1), Stand-Alone Bank 2 (SAB2) etc.

3.1 Hypotheses:

H_{01}: Positive correlation does not exist between forced bank M&A and Return on Assets (ROA).
H_{02}: Forced consolidation does not have positive relationship with the ROA of the control-group banks.
H_{03a}: There is no significant difference between the ROA of the target group banks and the control group banks before forced mergers.
H_{03b}: There is no significant difference between the ROA of the target group banks and the control-group banks after forced mergers.

4.0 Methodology

The study is a survey of how the performance (Return on Assets) of banks in Nigeria has changed following the industry-wide mergers and acquisitions of 2004/2005. Essentially, the study investigated how banks' values have been enhanced or otherwise post-mergers in Nigeria.

4.1 Population

The 25 banks that emerged following the forced consolidation form the population of this research, although the number has gone down to 24 because of the merger of Stanbic Bank and IBTC Chartered Bank in late 2008. 18 banks out of these 24 post-merger banks constitute the target group (they were engaged in mergers/acquisitions), while the remaining six banks form the control group (they were not involved in any merger or an acquisition), they are stand-alone banks.

4.2 Data

The data for this study were obtained from the audited annual financial reports of the 89 banks prior to consolidation three years before the mergers (2002 - 2004) and the 24 consolidated banks three years after mergers (2006 - 2008). These financial reports were largely sourced from Research & Data Services Limited, (REDASEL), Lagos, the publisher of Nigerian Banking, Finance & Commerce (NBFC); a reference source on Nigeria's financial and commercial sectors. To authenticate and supplement the data obtained from REDASEL, the researchers personally obtained some of the financial reports directly from some of the banks. Accounting figures were extracted from these annual financial reports to compute ROA for the banks before and after the consolidation. Return on Assets is obtained by:

$$\text{ROA} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}} \text{ X } 100. \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

To start with, three years ROA were computed for the 89 pre-merger banks. Then mean ROA of the constituent banks that formed the post-consolidation banks were computed. For instance, if MB 12 (Merged Bank Number 12) resulted from four pre-merger banks, comparing all the individual ROA of these four banks with the ROA of the one post-merger bank these four pre-merger banks merged into was impossible, hence, the need to compute the mean ROA for the constituent banks.

4.3 Method of Analysis

Two main statistical tools, the Chow Structural Break Test and the t-statistic (explained below) were used for the analysis of data.

4.3.1 Chow Test for Structural Break

Dougherty, (2007) attests that in econometrics, the Chow test is the most commonly performed in time series analysis to test for the presence of a structural break. In this study, the Chow test is used to establish whether the independent variable (M&A) have impact on different subgroups of the population.

This indicates that our first model applies before the structural break at time t (before M&A), and second model applies after the expected structural break (i.e. after M&A).
The model is:

$$y_t = f(t) + \varepsilon \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

Where:

y_{ts} is the Return On Assets ratio (ROA)
t is the time(year). Specifically,

$y_t = \alpha + \beta t + \varepsilon$ is the general model for the combined periods . . . . . (3)

$y_{t1} = \alpha_1 + \beta_1 t_{1i} + \varepsilon_{1i}$ model for period before mergers and acquisitions . . . . . (4)

$y_{t2} = \alpha_2 + \beta_2 t_{2i} + \varepsilon_{2i}$ model for period after mergers and acquisitions . . . . . (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)

$\varepsilon =$ 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:

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

The test statistic follows the F-distribution with k and $N_1 + N_2 - 2k$ degrees of freedom.
RSS_c = RSS1 and RSS2 respectively.
k = number of parameters (α and β) will be 2.
N_a and N_b = number of years before structural break and after structural break respectively.

4.3.2 t-Statistic

The *t-statistic* was performed first, to examine any change in the mean ROA of the target group after merger, and secondly to compare the ROA of the target group with that of the control group before mergers (2002 – 2004) and after mergers (2006 – 2006). The mean ROA of the pre-merger constituent banks that make up the target group was compared with the ROA of the post-merger target group banks. The suitability of *t-statistic* is justified on the evidences of Caves (1989) that *t-statistic* is a crucial test by which accounting investigation of M & A performance proves its findings as the *t-statistic* is able to evade the difficulty of holding constant other factors that bother ex post studies of merger effects.
All hypotheses are tested at $\alpha = 0.05$, that is, level of significance. The t-test is obtained by:

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

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

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 $t_c \geq t^{\alpha} n_1 + n_2 - 2$

5.0 Results and Discussions

5.1 Chow Tests for Structural Break

To perform the Chow test for structural break, F-statistics were computed for the mean ROA of both the target and the control groups, respectively, using E-Views Vol.6; an econometric software for statistical analysis. Here, we tested the hypothesis: H_{01}: Positive correlation does not exist between forced bank M&A and Return On Assets (ROA), with the decision rule: Reject H_{01} if $F_c \geq F_{\alpha(V1,V2)}$. In other words, Reject H_{01} if the value of $F_{computed}$ is greater than or equal to the table value of $F_{(2, 2)}$ on the F_{table} or Probability of $P < 0.05$. The results are shown on Table 1.

Table 1 presents the results of Chow test for structural break performed on ROA for the target group. From the table, it can be observed that none of the 17 banks in the target group met the decision rule; hence we do not reject H_{01} for all the 17 banks in the group. This implies that no bank amongst the target group had structural break (change in performance) in terms of their ROA after the mergers; their performance in this regard remained the same after mergers as before mergers, that is, bank mergers have not enhanced ROA. To test the hypothesis, H_{02}: Forced consolidation does not have positive relationship with the ROA of the control-group banks, Chow stability test was performed with the Decision Rule: Reject H_{02} if the value of $F_{computed}$ is greater than or equal to the table value of $F_{(2,2)}$ on the F_{table} or Probability of $P < 0.05$. The results are presented on Table 2.

Table 2 summarizes the results of Chow Test for Structural Break performed on ROA for the control group. The results indicate that we do not reject H_{02}, implying that there is no difference in the ROA of the control group banks after consolidation compared to before consolidation. Evidence suggests that the control group ROA remained unchanged post-consolidations.

5.2 t - Statistic

Using PASW-18, a variant of Statistical Package for Social Sciences (SPSS), Paired Sample t-statistics was performed to first compare the ROA of the target-group banks after mergers with their ROA before mergers and secondly, to compare the ROA of the control-group banks before consolidation with their ROA after consolidation.

To test the hypothesis H_{01}: Positive correlation does not exist between forced bank M&A and Return On Assets (ROA), Paired Sample t-statistics was performed with the Decision Rule: Reject H_{01} if $t_c > t_{1-\alpha/2,\, df}$. In other words, reject H_{01} if the value of $t_{computed}$ is greater than the t_{table} value or Probability of $P < 0.05$. Table 3 presents the results.

Table 3 summarizes the results of paired t-statistic (t-test) performed on ROA of the target group comparing their mean ROA before mergers with their mean ROA after mergers. We reject H_{01} as the table illustrates that there is a change in ROA after mergers. However, the nature of change in yet remains a question, is the change an enhancement or deterioration? The paired difference indicates that the change in ROA after mergers was an improvement.

However, the change in ROA is although positive, it is somewhat insignificant as the paired difference reflects 0.813% change in ROA post-M&A. As well, Paired Sample t-statistics was performed on the control group banks to test the hypothesis H_{02}: Forced consolidation does not have positive relationship with the ROA of the control-group banks, with the Decision Rule: Reject H_{02} if $t_c > t_{1-\alpha/2,\ df}$. In other words, reject H_{02} if the value of $t_{computed}$ is greater than the t_{table} value or Probability of $P < 0.05$. Table 4 presents the results.

Table 4 presents the results of the paired sample t-statistic performed on the ROA of the control group. As the table reflects, we do not have enough evidence to reject H_{02}. The table indicates change in following consolidation. However, the Paired Difference on the table signifies, the suggested change is 0.46% deterioration in ROA of the control group post-consolidation.

Further, MiniTab; a statistical software was employed to perform Independent Sample t-statistic to test the hypothesis; H_{03a}: There is no significant difference between the ROA of the target group banks and the control group banks before forced mergers, with the Decision Rule: Reject H_{03a} if the value of $t_{computed}$ is greater than the t_{table} value or Probability of $P < 0.05$. The results are presented on Table 5.

Table 5 display the results of the independent sample t-test performed to compare the ROA of the target group banks with that of the control group banks before consolidation. As the table suggests there are differences between the ROA of the target group banks and the control group banks as we reject H_{03a}, implying that there were differences in the ROA of the two groups even before mergers. As the Average Difference reflects, the mean ROA of the control group is significantly higher than that of the target group before the advent of consolidation.
As well, MiniTab was engaged to perform Independent Sample t-statistic to test the hypothesis; H_{03b}: There is no significant difference between the ROA of the target group banks and the control-group banks after forced consolidation, with the Decision Rule: Reject H_{03b} if $t_c > t_{1-\alpha/2,\ df}$. That is, reject H_{03b} if the value of $t_{computed}$ is greater than the t_{table} value or Probability of $P < 0.05$. Table 6 illustrates the results.

Table 6 presents the results of the comparison of the target group ROA with that of the control group after M&A. The table depicts that there is a difference in ROA following forced consolidation 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 ROA by 1.93%.

6.0 Conclusions and Recommendations

From the statistical analyses performed on the mean ROA before consolidation and the ROA after mergers, the study obtained evidence that suggests that the overall Return On Assets following the Nigerian forced bank mergers of 2005 is significantly negative. More so, the control group (stand-alone banks) has outperformed the target group (Merged Banks) before and after mergers. Thus, if voluntary mergers have not enhanced banks' shareholders' value, how much more of forced mergers. Considering our findings and those of prior studies, we recommend to the regulatory authorities should never again compel banks to consolidate as such efforts may be doomed from the outset because the desired synergistic merger effects of two plus two equals five have in many cases translated into two plus two equals three. Without sustained enhancement of the financial performance, the much sought-after competitiveness of Nigerian banks as regional and global players may remain a mirage.

Furthermore, the regulatory authorities should formulate more market-oriented policies that would encourage further banking consolidation that are more market-based mergers and acquisitions rather than regulation-induced consolidation. To the banks' management and leadership, we recommend that they avail themselves of the benefits of the hindsight this study has offered, as hard evidence has shown that large capital base does not automatically translate to improved shareholder value. To bank analysts and the banking public, financial performance of banks following major industry-wide restructuring/reforms should not be taken on the surface as rigorous statistical analysis have revealed otherwise.

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Appendix

Table 1: Results of Chow stability Test Performed on ROA for the Target Group.

S/N	Consolidated Bank	$F_{computed}$	F_{table}	Probability of F	Decision
1	MB1	8.92	19	0.1	Do Not Reject H_0
2	MB2	2.38	19	0.29	Do Not Reject H_0
3	MB3	3.43	19	0.22	Do Not Reject H_0
4	MB4	0.22	19	0.81	Do Not Reject H_0
5	MB5	0.08	19	0.91	Do Not Reject H_0
6	MB6	0.017	19	0.98	Do Not Reject H_0
7	MB7	0.31	19	0.76	Do Not Reject H_0
8	MB8	4	19	0.19	Do Not Reject H_0
9	MB9	6.31	19	0.13	Do Not Reject H_0
10	MB10	0.24	19	0.8	Do Not Reject H_0
11	MB11	0.031	19	0.96	Do Not Reject H_0
12	MB12	2.28	19	0.3	Do Not Reject H_0
13	MB13	5.47	19	0.15	Do Not Reject H_0
14	MB14	3.83	19	0.2	Do Not Reject H_0
15	MB15	1.55	19	0.39	Do Not Reject H_0
16	MB16	0.0086	19	0.99	Do Not Reject H_0
17	MB17	0.89	19	0.52	Do Not Reject H_0

Source: Analysis of survey data

Table 2: Results of Chow Test Performed on ROA of the Control Group.

S/No	Bank	$F_{computed}$	F_{table}	Probability of F	Decision
1	SAB 1	0.3	19	0.76	Do Not Reject H_0
2	SAB 2	0.88	19	0.52	Do Not Reject H_0
3	SAB 3	4.34	19	0.18	Do Not Reject H_0
4	SAB 4	0.95	19	0.51	Do Not Reject H_0
5	SAB 5	4.84	19	0.17	Do Not Reject H_0

Source: Analysis of survey data

Table 3: Results of Paired Sample t-statistics performed on ROA for the Target Group (Before vs After M&As).

Paired Difference	t-computed	Probability	$t_{1-\alpha/2, df}$	Decision
0.813	3.733	0	$t_{0.975, 50} = 2.01$	Reject H_0

Source: Analysis of survey data

Table 4: Results of Paired Sample t-statistic Performed on the ROA of the Control Group (Before Vs After Consolidation)

Paired Diff.	t-computed	Probability	$t_{1-\alpha/2, df}$	Decision
-0.46%	-0.596	0.355	$t_{0.975, 14} = 2.145$	Do Not Reject H_0

Source: Analysis of survey data

Table 5: Results of Independent Sample t-test performed on ROA of the Target Vs Control Group (Before Mergers)

Target Group	Control Group	Average Difference	t-computed	Probability	$t_{1-\alpha/2, df}$	Decision
2.78%	3.45%	0.67%	2.39	0.023	$t_{0.975, 64} = 2.00$	Reject H_0

Source: Analysis of survey data

Table 6: Results of Independent Sample t-statistic Performed on the ROA of the Target Vs Control Group Post-Consolidation.

Target Group	Control Group	Average Difference	t-computed	Probability	t-table ($t_{1-\alpha/2, df}$)	Decision
1.97%	3.90%	1.93%	3.84	0.0014	$t_{0.975, 64} = 2.00$	Reject H_0

Source: Analysis of survey data