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An Analysis of the Efficiency Effects of Mergers and Acquisitions in the Nigerian Banking Industry

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Abstract: This study focused on the efficiency effects of mergers and acquisitions in the Nigerian banking industry. Data was collected from the financial statements of all the sampled banks within the study period. The population of the study comprised all the (24) banks operating in the Nigerian banking industry as at 31st December 2010. Simple random sampling technique was used to select the (10) banks used for the analysis. About 3 year (2003-2005) pre merger and acquisition mean return on equity was compared with the 3 years (2006-2008) post merger and acquisition mean. Using descriptive analysis and paired sample t-test statistics, the findings revealed that there is no significant difference between the return on equity of banks pre and post merger and acquisition. On the basis of the findings, we recommend among others that mergers and acquisition in the banking industry in Nigeria must be driven by market forces to give room for efficiency and effectiveness and researchers should develop new framework and models for banks performance, stability and growth as opposed to merger and acquisition.

Key words: Acquisition, mergers, efficiency, banking industry, Nigeria

INTRODUCTION

The banking industry act as life-blood of modern trade and commerce acting as a bridge to provide a major source of financial intermediation. This is why Nzotta (2004) opine that banks owe some basic responsibilities to their communities. The traditional functions which they render in the form of financial intermediation must be efficiently delivered to retain the confidence of their clients. Banks must also sustain the interest and confidence of the public by being sufficiently responsive to their needs, honouring all maturing obligations, avoiding actions that would lead to distress and failure in the system. Banks must also meet the credit needs of their customers and thus sustain the productive process. However, the emergence of a fast-paced dynamic environment in the business world in general and in the banking industry in particular has highlighted the significance of mergers and acquisitions. Akhtar (2002) added that the intense competition among banks, rapid speed of innovations and introduction of new products, changing consumer's demands and desire have changed the way bank conducts business and services to its customers. This sophistication in banking and changing customer's desire calls for the merger and acquisition of banks to achieve value maximization.

The banking industry has experienced an unprecedented level of consolidation as mergers and acquisitions. Merger and acquisition activity results in overall benefits to shareholders when the consolidated post-merger firm is more valuable than the simple sum of the two separate pre-merger firms (Chang, 2010; DeYoung *et al*., 2009; Lensink and Maslennikova, 2008). According to Pilloff and Santomero (1996), consolidation is based on a belief that gains can accrue through expense reduction, increased market power, reduced earnings volatility and scale and scope economies. As Pasiouras *et al*. (2006) point out in a number of Asian countries, official recapitalization of banks put the government in a strong position to consolidate domestic banks in order to decrease overcapacity and cut costs while markets not dominated by government-owned banks, policy makers have tried to encourage consolidation. In addition, diversification enables to obtain additional benefits derived from a more extensive use of firm-specific assets such as brand name, consumer loyalty (Altunbas and Marques, 2008).

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The efficiency of banks which reflects the ability of banks in transforming its resources to output by making its best allocation is essential for the growth of the economy. Kaur and Kaur (2010) say with mergers and acquisitions in the banking industry, the sizes of the banks increases the efficiency of the system. Pautler (2003) argue that the potential efficiency benefits from mergers and acquisitions include both operating and managerial efficiencies.

The issue of the impact of mergers and acquisitions on the efficiency of banks has been well studied in the literature (Focarelli *et al*., 2002; Campa and Hernando, 2006; Hahn, 2007; Crouzille *et al*., 2008; Altunbas and Marques, 2008; Said *et al*., 2008; Sufian and Habibullah, 2009; Appah and John, 2011). Most of the literature relates to the impact of mergers and acquisitions on the efficiency of banks in United States of America (USA), Europe and Asia. In Nigeria, literature on banks mergers and acquisitions is scarce. This study makes notable contributions to the existing literature on banking efficiency in Nigeria. In essence, this study attempts to answer this question. What is the impact of mergers and acquisitions on the profit efficiency of banks in Nigeria? To achieve this objective, the study hypothesized in null form that there is no significant difference between pre and post mergers and acquisitions in the Nigerian banking industry.

Theoretical framework and empirical literature

Mergers and acquisitions in the banking industry: The banking industry has experienced changes all over the world. These changes may be derived from several forces including globalization, deregulation and technological advancement (Ismail and Davidson, 2007; DeYoung *et al*., 2009). Ismail and Davidson (2007) argue that regulation changes removes product and geographical restrictions on banks. Technological advancement enables the banks to reform their service systems such as back-office processing and payment systems (Humphrey *et al*., 2006; DeYoung *et al*., 2009). These changes have led the consolidation of banks through mergers and acquisitions. Bank mergers and acquisitions occur when previous distinct banks are consolidated into one institution (Pilloff and Santomero, 1996). Focarelli *et al*. (2002) says bank merger occurs when an independent bank loses its charter and becomes a part of an existing bank with one headquarter and a unified branch network. Also Kaur and Kaur (2010) adds that mergers occurs by adding the bidder banks assets and liabilities to the target bank's balance sheet and acquiring the bidder's bank name through a series of legal and administrative measures.

Pasiouras *et al*. (2006) argue that all firms acquisitions including mergers and acquisitions are made with the objective of maximizing shareholders wealth. Mergers and acquisitions serves as a means to increase market power, replace inefficient management achieve economies of scale and scope, decrease risk through geographic and product diversification among others (Pilloff and Santomero, 1996; Akhtar, 2002; Meijaard *et al*., 2005; Pasiouras *et al*., 2006; Altunbas and Marques, 2008; Kaur and Kaur, 2010). However, Gattoufi *et al*. (2008) argue that there is in fact an ongoing debate regarding whether getting bigger in the banking industry is always better in terms of performance in general and in terms of economic efficiency in particular, though the gain in scale and scope are often presented as the main driver for mergers and acquisitions.

Efficiency of mergers and acquisitions in the banking industry: According to Bwala (2003), efficiency is the ratio of a system's effective or useful output to its total output. It can also be defined as the degree to which actual output (s) deviate from the optimum given a unit of resources. Kolasky and Dick say that economic literature distinguishes four types of efficiency: productive efficiency; transactional efficiency; allocative efficiency; and dynamic efficiency. Productive efficiency is the ability of firms to get the highest output from the least input given current technological constraints. According to Meijaard *et al*. (2005) mergers can influence productive efficiency through economics of scale, economics of scope and synergies. Transactional efficiency recognizes that firms expend resources to protect the economic returns to their efforts and property right. Allocative efficiency concerns the clearance of markets and the achievement of maximal consumer benefits given a particular production function. Dynamic efficiency concerns the clearance of markets in a dynamic perspective through the improvement of existing products and processes and the development of new products. Said *et al*. (2008) argue that the merger in Malaysia was expected to bring about greater efficiency to domestic banking, achieve economies of scale and pave way for a strong and competitive banking sector in the country.

There are two main approaches of measuring efficiency: non-parametric and parametric. The non-parametric approaches include Data Envelopment Analysis (DEA) and Free Disposable Hull (FDH). DEA is a linear programming technique which does not impose restrictions on the functional form of the frontier. Observations with the highest outputs (given inputs level and technology) or lowest inputs (given outputs level and technology) are considered as a frontier observations.

Table 1: Mergers and acquisitions of banks in Nigeria

Bank	Constituent member
Access Bank Nigeria Plc	Access Bank, Marina Int'l Bank and capital Bank International
Afribank Nigeria Plc	Afribank Plc and Afribank Int'l (Merchant Bankers)
Bank PHB Plc	Platinum Bank Limited and Habib Nigeria Bank Limited
Diamond Bank Plc	Diamond Bank, Lion Bank and Africa International Bank
EcoBank Nigeria Plc	EcoBank Plc
Equatorial Trust Bank Plc	Equatorial Trust Bank Ltd and Devcom Bank Ltd
Fidelity Bank Plc	Fidelity Bank, FSB International Bank and FBN (Merchant bankers)
First Bank of Nigeria Plc	First Bank Plc, MBC International Bank and FBN (Merchant bankers)
First City Monument Bank Plc	First City Monument Bank, Cooperative Development Bank, Nigerian-American Bank and Midas Bank
First Inland Bank Plc	First Atlantic Bank, Inland Bank (Nigeria) Plc, International Bank Plc and NUB International Bank Limited
GT Bank Plc	GT Bank Plc
IBTC-Chartered Bank Plc	IBTC, Chartered Bank Plc and Regent Bank Plc
Intercontinental Bank Plc	Intercontinental Bank Plc, Global Bank Plc, Equity Bank of Nigeria Limited and Gateway Bank of Nigeria Plc
**Nigeria International Bank Limited (Citi group)	Nigeria International Bank Limited
Oceanic Bank International Plc	Oceanic Bank International Plc and International Trust Bank
Skye Bank Plc	Prudent Bank Plc, Bond Bank Limited, Reliance Bank Limited, Cooperative Bank Plc and EIB International Bank Plc
Spring Bank Plc	Citizens International Bank, ACB International Bank, Guardian Express Bank, Omega Bank, Trans International Bank and Fountain Trust Bank
**Stanbic Bank of Nigeria Limited	Stanbic Bank of Nigeria Limited
**Stanbic Chartered Bank Ltd	Stanbic Chartered Bank Ltd
Sterling Bank Plc	Trust Bank of Africa Limited, NBM Bank Limited, Magnum Trust Bank, NAL Bank Plc and Indo-Nigeria Bank
United Bank for Africa Plc	United Bank of Nigeria Plc, Standard Trust Bank Plc and Continental Trust Bank
Union Bank of Nigeria Plc	Union Bank of Nigeria Plc, Union Merchant Bank Limited, Broad Bank of Nigeria Limited and Universal Trust Bank Nigeria Plc
Unity Bank Plc	Intercity Bank Plc, First Interstate Bank Plc, Tropical Commercial Bank Plc, Centre-point Bank Plc, Bank of the North, New African Bank, Societe Bancaire, Pacific Bank and New Nigeria Bank
Wema Bank Plc	Wema Bank Plc and National Bank of Nigeria Limited
Zenith Bank Plc	Zenith Bank PlcSource: CBN Annual Reports 2005

**Foreign owned banks

Table 2: Basic indicators of banking sector consolidation results

	Pre-consolidation	
Indicators	2004	2006
Number of banks	89	25
Number of bank branches	3,382	4,500
Total assets base of banks (#billion)	3,209	6,555
Capital and reserves (#billion)	327	957
Industry capital adequacy ratio (%)	15.2	21.6
Ratio of non performing credit to total (%)	19.5	9.5

Central Bank of Nigeria (2005)

The efficiency frontier is formed as a convex combination of these observations. FDH is a special case of DEA which assumes that points on lines connecting best practice observations are not counted as a part of the frontier. The parametric approach (Stochastic Frontier Analysis-SFA, Thick Frontier Approach-TFA) splits the residual into random and inefficiency component (Bwala, 2003; Sufian, 2004; Harada, 2005; Georgiev and Burghof, 2007; Mehdian *et al.*, 2007; Sufian and Habibullah, 2009; Said *et al.*, 2008; Kaur and Kaur, 2010; Tecles and Tabak, 2010).

Mergers and acquisitions in the Nigerian banking industry: The former Governor of Central Bank of Nigeria, Professor Charles Soludo released a consolidation/reform time table for the banking industry in line with the policy thrust of the National Economic Empowerment Development Strategy (NEEDS) document requiring banks in Nigeria to raise their minimum capital base from #2-#25 billion with December 31, 2005 as deadline. At the end of 31 December 2005, 25 groups emerged from 75 banks out of the 89 licensed banks in the country while 14 unsuccessful banks had their operating licenses revoked. Table 1-3 are the successful banks that were able to meet the #25 billion capitalization by December 31, 2005.

The consolidation of the banking industry in Nigeria during 2004 and 2005 resulted in the reduction of the number of banks from 89-25 as at December 31, 2005 and further reduced to 24, courtesy of the merger between Stanbic Nigeria Bank Limited and IBTC Chartered Bank Plc in 2008. Table 2 shows the basic bank indicators after consolidation.

Empirical literatures on efficiency of mergers and acquisitions of banks: Many researchers have attempted to examine the effect of mergers and acquisitions on the efficiency of the banking industry. For instance, Liu and Tripe (2000) analysed a small sample of seven to fourteen banks employed accounting ratios and two DEA models to explore the efficiency of six banks mergers in New Zealand between 1989 and 1998. They found that the acquiring banks to be generally larger than their targes although, they were not consistently more efficient. They

Table 3: Empirical studies on mergers and acquisitions on efficiency of banks

Authors	Sample and methodology	Main results
Schure and Wagenvoort (1999)	A sample of 1,974 credit institutions across 15 European countries. The study used recursive thick frontier approach	The results suggest that the gains from positive economies of scale are scanty for the overall European banking industry
Huizinga *et al*. (2001)	A sample of 52 horizontal bank mergers in Europe over the period 1994-1998. The study used DEA analysis	The dynamic merger analysis indicates that cost efficiency of merging banks is positively affected by the merger while relative degree of profit efficiency improves only marginally
Turati (2002)	A sample of commercial banks in France (409 and 362 banks), Germany (276 and 203 banks), Italy (351 and 237 banks) Spain (164 and 146 banks) and U.K. (39 and 41) over the period 1992 and 1999. The study used intermediation approach	The study found no striking differences across countries in terms of mean efficiency and no linear relationship between cost efficiency and profitability
Kamberoglou *et al*. (2003)	A sample of 20 banks in Greek during the period 1993-1999. The study used the distribution free approach and correlation	The result shows that Greek banks were found to exhibit substantial cost inefficiencies indicating that there is significant room for improving their competitiveness and profitability
Sufian (2004)	A sample of 10 Malaysian commercial banks for the period 1998-2003. The study used descriptive statistics and non-parametric frontier approach	The study results suggest that the merger programme was successful particularly for the small and medium size banks which have benefitted the most from the merger and expansion via economies of scale
Mehdian *et al*. (2007)	A sample of 131 small and 131 large banks in the U.S. between 1990 and 2003. The study used descriptive statistics and non-parametric tests	The statistical evidence shows that large banks are generally more efficient than small banks for most efficiency indices in the period of study
Said *et al*. (2008)	A sample of 10 banks in Malaysia for the periods 1998-2004. The study used data envelopment analysis and panel data regression analysis	The results suggest that the mergers did not seem to enhance the productive efficiency of banks as they do not indicate any significant difference
Sufian and Habibullah (2009)	A sample of 22 banks in Malaysia covering the period 1997-2003. The study used parametric and non-parametric univariate tests	The results suggest that the merger programme among Malaysia banks was driven by economic reasons
Kaur and Kaur (2010)	The sample contains the public and private sector banks that have operated in India during 1991-2008. The study used non-parametric data envelopment analysis technique	The results of the study suggest that to some extent merger programme has been successful in the Indian banking industry
Tecles and Tabak (2010)	The sample of 156 banks in Brazil over the period 2000 -2007. The employed a Bayesian Stochastic frontier approach	The results suggest that large banks are the most cost and profit efficient

found that five of the six merged banks had efficiency gains based on the financial ratios while another only achieved a slight improvement in operating expenses to average total income. Based on DEA analysis, they found that only some merged banks were more efficient than the target banks pre-merger. The results suggest that four banks had obvious efficiency gains post-merger. Gourlay *et al*. (2006) examined the efficiency gains from mergers among Indian Banks over the period 1991-92 to 2004-05 and observed that the mergers led to improvement of efficiency for the merging banks. Table 3 shows the sample, methodology and main results of various empirical studies on mergers and acquisitions on the efficiency of the banking industry.

MATERIALS AND METHODS

Akhtar (2002) stated that the efficiency of banks can be measured either by using the operating approach or the intermediation approach. The operating approach is where the bank is perceived to be the producer of services for its account holders and it is known as the cost revenue perspective. Bwala (2003) says the efficiency ratio is the ratio of total operating expenses to operating income (net interest income plus non-interest income) measures how optimally the resources of a bank are used in generating outputs from which income is derived. The intermediation approach considers banks as entities which convert and transfer financial assets between surplus units acting as intermediary better called a mechanical perspective. This study used the operating approach.

The study used ex-post research design. Documentary data is utilized from the annual reports and accounts of the sampled banks for the periods 2003-2005 and 2006-2008 using ROE as proxy for profit efficiency of pre and post mergers and acquisitions of banks in Nigeria. The population of the study comprised all the (24) banks operating in the Nigerian banking industry as at December 31, 2010. The sample was drawn from the population by selecting the banks with random digits circles on the table of random numbers. In this way every element of the population was given an equal and independent chance of being included in the sample. The sample size of the study comprised of (10) banks as follows: Access Bank Nigeria Plc, Afribank of Nigeria Plc, Diamond Bank of

Nigeria Plc, First Bank of Nigeria Plc, First City Monument Bank Plc, Intercontinental Bank Plc, Oceanic Bank International Plc, United Bank for Africa Plc, Union Bank Plc and Wema Bank Plc. Excel software helped us to transform the data into a format suitable for analysis after which the Statistical Package for Social Sciences (SPSS) was utilized for data analysis. The paired sample t-test statistics and descriptive analysis were adopted for the analysis of data.

RESULTS AND DISCUSSION

The Return On Equity (ROE) of the sampled banks pre mergers and acquisitions showed a total of #2.11 for the year 2003, #2.04 for the year 2004 and #1.42 for the year 2005. Also the Return On Equity (ROE) post mergers and acquisitions showed a total of #1.05 for 2006, #1.58 for 2007 and #1.27 for 2008. The pre merger and acquisition period (2003-2005) showed an average combined ROE of #1.86 and the post merger and acquisition period (2006-2008) showed an average combined ROE of #1.30. Therefore, we can conclude that the sampled banks performed better during the pre merger and acquisition (2003-2005) than the post merger and acquisition period (2006-2008). This may be as a result of several factors ranging from the written off of goodwill, merger and acquisition expenses, investment on Information and Communication Technology (ICT), expansion of branches etc.

The Table 4 and 5 show a mean of #0.2110 for the year 2003, #0.2040 for 2004 and #0.1420 for 2005 (pre mergers and acquisitions). The post merger and acquisition showed a mean of #0.1050 for 2006, #0.1580 for 2007 and #0.1270 for 2008, respectively. The year 2006 and 2008 showed the worst mean as a result of huge merger and acquisition cost that was written off and the global financial meltdown that affected the industry.

Table 6 show the mean of the ten sampled banks for the periods 2003-2005 and 2006-2008. Access bank Nigeria PLC, First Bank of Nigeria PLC, Oceanic Bank International PLC, Intercontinental Bank PLC, United Bank for Africa PLC, Union Bank PLC and Wema Bank PLC had decline in their respective ROE pre and post merger and acquisition. Also AfriBank Nigeria PLC, Diamond Bank Nigeria PLC and First City Monument Bank PLC had an increase in their respective ROE between pre and post mergers and acquisitions.

The Table 7 show the paired sample t-test for the combined banks pre and post merger and acquisition. The t = 1.668 being significant at 0.130 is not significant at 0.05 (1.83) hence, we accept the null hypothesis that there is no significant difference between the returns on equity of sampled banks pre and post merger and acquisition in the Nigerian banking industry.

The findings of this study indicated that there is no significant difference between the profitability of banks in Nigeria pre and post merger and acquisition. The pre merger and acquisition period of 3 years (2003-2005) were compared with that of the post merger and acquisition period (2006-2008) to ascertain whether any difference exists in their return on equity. The findings exposed certain important facts relating to the merger and acquisition of banks in Nigeria. The result was in line with the study of Sanni (2009) that the 2006 consolidation of banks in Nigeria did not improve the profitability of banks. However, some of banks showed improved return on equity.

Table 4: Return on equity of sampled banks for the study period

Banks	2003#	2004#	2005#	2006#	2007#	2008#
Access	0.22	0.21	0.04	0.03	0.21	0.09
Afri	0.13	0.15	0.02	0.11	0.29	0.10
Diamond	0.07	0.12	0.12	0.11	0.13	0.11
First	0.41	0.26	0.27	0.26	0.23	0.08
First city	0.02	0.09	0.11	0.11	0.19	0.12
Oceanic	0.35	0.32	0.19	0.25	0.08	0.09
Intercon	0.30	0.30	0.15	0.16	0.09	0.17
UBA	0.20	0.25	0.26	0.24	0.13	0.21
Union	0.21	0.22	0.23	0.10	0.13	0.22
Wema	0.20	0.12	0.03	0.32	0.10	0.08
Total	2.11	2.04	1.42	1.05	1.58	1.27

Published Financial Statements of Banks

Table 5: Descriptive statistics

Years	N	Min.	Max	Sum	Mean	SD	Skewness	Kurtosis
2003	10	0.02	0.41	2.11	0.2110	0.12023	0.077	-0.397
2004	10	0.09	0.32	2.04	0.2040	0.08044	-0.027	-1.434
2005	10	0.02	0.27	1.42	0.1420	0.09414	0.035	-1.516
2006	10	-0.32	0.26	1.05	0.1050	0.16755	-2.002	5.082
2007	10	0.08	0.29	1.58	0.1580	0.06893	0.762	-0.371
2008	10	0.08	0.22	1.27	0.1270	0.05334	1.026	-0.571

SPSS output version 15.0

Table 6: Mean of sampled banks for the period

Banks	Pre merger (2003-2005)	Post merger (2006-2008)
Access	0.160	0.110
Afribank	0.100	0.170
Diamond	0.103	0.117
First bank	0.313	0.200
First city	0.073	0.130
Oceanic	0.860	0.140
Intercon	0.250	0.140
UBA	0.237	0.193
Union	0.210	0.150
Wema	0.117	-0.140

Table 7: Paired samples test

Pair 1	Mean	SD	Lower interval	Higher interval	t	df	Sig. (2-tailed)
Pre-Post	0.12160	0.23048	0.07289	0.28648	1.668	9	0.130

SPSS output version 15.0

CONCLUSION

This study revealed that the pre and post merger and acquisition of banks in Nigeria showed no significant difference in return on equity of all the banks combined together. This result could be attributed to the fact that most of the banks spent huge sums of money after the merger and acquisition to expand branches, invested heavily on ICT, merger and acquisition expenses, goodwill written off etc.

Consequently, the researcher recommended among others that mergers and acquisitions should be left in the hands of the banks to decide when and how to merge rather than the quick fix method used by the regulatory authority (Central Bank of Nigeria) for banks to capitalize. Therefore, mergers and acquisitions in the banking industry must be market driven to give room for efficiency and effectiveness. Also, the banks should put in place strategies that would improve their performance, stability and growth. Mergers and acquisitions of banks may not be the sufficient approach for performance, stability and growth rather new frameworks should be developed by researchers in place of mergers and acquisitions.

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