

MERGERS AND ACQUISITIONS: A SURVIVAL OPTION FOR NIGERIAN BANKS

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1.0 Introduction

Banks relevance in the financial system of any nation cannot be overemphasized. They are the keystones of the economy of a country. The economies of all market-oriented countries depend on the competent action of multifaceted and precisely poised systems of money and credit. Banks are essential constituent in these systems. They offer the vastness of the money supply as well as the principal means of aiding the flow of credit. Accordingly, it is submitted that the monetary well being of a country is a function of improvement and growth of her banking business (Obadan, 1997).

The monetary deregulation in Nigeria that started in 1987 and the connected monetary novelties have generated an unparalleled level of rivalry in the banking business. The deregulation originally pinned influential inducements for the growth of both size and number of banking and non-banking institutions. The resultant exceptional boost in the number of banking and non-banking institutions providing monetary services led to increased contest amongst various banking institutions, and among banks and non-banking financial intermediaries.

As specified in the lecture of Prof. Charles Soludo, former Governor of the Central Bank of Nigeria, the economic adjustments in Nigeria had focused on structural and institutional improvements, which include the followings: (i) strengthened institutional structure for the demeanor of financial policy, (ii) bank recapitalization/consolidation, (iii) to probably eradicate or decrease government possession of any bank (to not more than 10 per cent), (iv) improved precision and company supremacy, (v) nil broadmindedness to misreporting and data rendition, (vi) anti money laundering regulations, (vii) execution of Basel II principles and risk-based management, (viii) payments system reforms for competence - particularly e-payment, (ix) reforming the exchange rate administration system (adoption of the wholesale) and (x) streamlining Nigeria Security Printing & Minting Plc. Going by the main focus of economic adjustments, therefore, banks recapitalization and consolidation stands out. The main method, by which this aspect was achieved, was by directing individual bank to raise their principal base to a minimum of N25 billion or in alternative merge with other banks.

It is perchance an appealing preliminary point to deal with the fable that mergers and acquisitions (M&A) roughly always pilot to larger companies, or more profit or competence. It is not always the case. There are pitfalls as well as opportunities, which oblige cautious reflection and assessment on the part of the contract makers as well as the contract owner(s). Consolidation does not routinely equal achievement, larger banks, more produce, high profits or effectiveness. It can also mean losses and redundancies and statistics show that more than half of financial services that involve in M&A do not succeed.

In the world of business, mergers and acquisitions comprise an influential expansion tool used by companies to accomplish long-term growth and augmented proceeds or productivity. It is a tool used for expanding the operations of a company with a view to achieving growth. Mergers and acquisitions are vital to the increase and wellbeing of a country being a very attractive way for industry owners and entrepreneurs to get value from the wealth they have contributed in creating. Mergers are imperative tools used by companies for the use of growing their commerce actions with objectives ranging from growing their size, long term productivity or significance within a particular marketplace.

A merger is the synthesis of two or more companies, as separate from the take-over of one corporation by another. Mergers may be undertaken for various reasons, especially to improve the competence of two balancing companies by rationalizing productivity and taking improvement of economies of scale, and to wrestle off unwelcome takeover bids from other larger companies. The companies involved form one new corporation and their relevant shareholders swap their investment for shares in the new concern at an agreed rate. From a trade viewpoint, a merger is simply the consolidation of two or more companies into one. “Merger” presupposes the subsistence of two sovereign things or estates, the greater of which would ingest up the smaller one by the process of absorption.

The main objective behind the corporate restructuring in Nigeria has been the policy changes involving economic reforms, which favours the reduction in the number of voluminous banking houses, removal of restrictions on business investments and expansion by permitting public sector banks and financial institutions to benefit from the capital market, a procedure

to inspire inward flow of foreign direct investment and foreign institutional investment. Overhaul of banking industry has been welcomed by the national government due to its exigency to set free the ailing financial institutions and to fortify the assets base and the feasibility of these corporate institutions to help in stabilizing inflationary trends in the economic growth within and abroad. However, there is very little scope for individual companies to learn from its own past experience as merger and acquisition is a sporadic event. This however poses the question of how does an acquirer determine whether or not a planned acquisition will prove beneficial? Post M & A economic gain or synergy will be generated only if the two companies worth more together than apart. The basic motive is implicit as an effort to create value and augment in capacity (synergy). If the synergy is encouraging, there should be economic justification for the merger, hence it is important to study whether companies involved in mergers and acquisitions are gainfully feasible and what effect merger has on the wealth of shareholders. This study aims to evaluate mergers and acquisitions as a survival option for Nigerian banks.

2.0 Literature Review

2.1 Empirical Literature

The decision of an organization to engage in merger or acquire another is a decision that requires much deliberation and consideration. Some of the reflections must involve: why merger? What are the problems related with mergers? What benefits will the party derive from the merger? Merger and acquisition is the process by which a company acquires another company (Kargin, 2001). Kay (1993) opined that mergers and acquisitions often form part of the tactical options projected to transform company performances. In the opinion of Kirchoff et al (2006), mergers generally arise when neither company has the scale to acquire the other on its own weaker company; expansion can be created by entrepreneur that is already established through mergers agreement. He can merge with another company producing similar products to form a new strong identity that will be of a greater advantage to both. In mergers, both merging firms often lose their registering names to become a new company entirely; acquisition, however involves the stronger organisation swallowing the smaller or weaker one completely without the stronger firm changing its identity. Merger is basically the metamorphosing of two autonomous firms with diverse names into one sole business entity rising from the concord. Merger in reality has the capacity of bringing about synergy.

Pautler (2003) opined that, the value increase that alleged to ensue to the better and increasing wave of merger and acquisition activity has not been established. The espousal of financial reforms has often been delayed shortly after being implemented or partly implemented for fear of recessionary outcome. In support of this statement, it is a known fact that, prior to 2005, bank distress had being a serious issue or problem, which had made many citizens lost interest in the banking system without the dictatorial authorities having the courage to address it. Ravenscraf and Scherer (1987) examine the target line of business performances using working earnings. They revealed that there is no sturdy proof of improvement in performance for these target lines of business after merger. Their analysis of merger effect on regression of profits to norm shows that regression to norm exists and is faster for merging firms as compared to non-merging firms. They concluded that acquisition action lowers profitability and that; part of this was due to regression to norm from shakily high pre-merger performance. Cosh el al (1998) attempt to recognize triumphant mergers based on pre-merger characteristics, the impact of financial institutions as shareowners on the merger outcome, and finally the effect of mergers in the framework of the regression to norm. In all, they discovered that size was considerably different for the acquirers and the acquired firms. The analysis of persistence of profits shows that regression to norm exists in the want of mergers and reinforced by their presence.

Healy, Palepu and Ruback (1992) incorporate accounting and stock returns data in an unswerving form to permit richer tests of business management theories. They discovered a sturdy optimistic correlation between post-merger increase in operating cash flows and irregular stock returns at merger announcements including those expectations of economic improvements that explain a significant piece of the justness revaluation of the merging firm. Ghemawat and Ghadar (2000) found in their studies that the hurry towards vast mergers is based on defective understanding of economics and that there are better ways of addressing globalization. Venkiteswaran (1997) analyzed the budding situation in the context of reformation Corporate India, Mehta and Samantha (1997) provided a broad structure for mergers in their study “Mergers and Acquisitions: Native and Significance”. Yadav el al. (2009) conducted a study on productivity of mergers on some selected cases. In his study, pre and post merger efficiency ratios of selected companies were carried out. Results indicate that mergers give positive synergies to Corporate Organizations.

Akhavien et al (1997) observed a 15% average increase in profit efficiency of the merged banks in the United States of America. Continuing, Pillof and Santomero (1997) and Furlong (1998) noted that the elimination of redundant facilities and processes of the combining banks enhance this scenario. Increase in capital bases of banks have been known to reduce insolvency risks through assets diversification. Findings by Yuce & Minaei (2009) showed that both the target and acquiring firms' shareholders earn significantly positive abnormal return for combined operations in Canada; though Yeh (1996) observed an insignificant negative change in productivity, profit and sales growth rate. From a macro view, Somoye (2008) concluded that a sound bank merging with an unsound bank improves the long run effectiveness of the banking sector. In Kolo's view, Nigeria's capital base reforms in the banking sector should enthrone good corporate governance structures in these banks with offshore expansion bringing growth in returns to shareholders. However, Idris and Adeyinka (2013) found, on average, merger and acquisition have not improved the results of merged banks in post consolidation era of Nigerian banks.

Arising from the conflicting and inconclusive results, this study becomes imperative to bridge the missing gap and provide a robust address of the impact of mergers and acquisitions on the Nigerian banking industry.

2.2 Bank Mergers and Acquisitions in Nigeria

Mergers are new developments in the Nigerian banking sector though frequent in other sectors of the Nigerian economy. Acquisition in the Nigerian banking sector dates back to 1894 when the British Bank for West Africa (now First Bank of Nigeria Plc) acquired the African Banking Corporation. No acquisition was recorded in the sector until 1995 when Union Bank of Nigeria acquired Citi Trust Merchant Bank and in 2004, when Standard Trust Bank Plc acquired United Bank for Africa Plc (UBA). The aim of the latter acquisition was to increase competitive edge, operational capacity and returns to the bank and shareholders. The high volume of mergers and acquisitions in the Nigerian banking sector from 2005 was brought about by the increased capital base requirements for banks in the country. The Central Bank of Nigeria (CBN) announced on July 6, 2004 that the minimum capital requirement base of banks in the country be moved up from the previous N2 billion to N25 billion with eighteen months deadline. Defaulting banks were to lose their operational licenses. At the initial stage, only Union Bank, Zenith Bank Plc, UBA, and First Bank Plc

were able to individually meet the N25 billion capital base requirement. Other banks had to merge their operations to meet this requirement. In some instances, as much as five banks merged to form a new bank in order to beat the deadline.

Though an imperative and a forced merger by policy, the attendant expectations from merged entities: gains to the combined entities, gains to shareholders of the new entity, reduction in operating costs, increased competitive edge, growth and diversification in operation are to be met. The recapitalization (merger and acquisition programme) of banks in Nigeria in the early phase of 2004 and 2005 produced 25 banks with improved capital bases, expected synergies, reduced operating costs/bank, improved corporate earnings and returns to shareholders, competitive ability and diversified operations with its gains.

New banks that emerged from the exercise were Access Bank Plc (a combination of Access Bank, Capital Bank International and Marina International Bank), Afribank Nigeria Plc (a combination of Afribank International Merchant Bankers, Lead Bank, Afribank Plc and Assurance Bank), Citi Bank Plc (from Nigeria International Bank), Bank PHB (a combination of Habib Bank and Platinum Bank), Diamond Bank Plc (a combination African International bank, Diamond Bank and Lion Bank), Ecobank Plc (from Ecobank and later, All States Trust Bank), Equitorial Trust Bank Plc (a combination of Devcom Bank and Equitorial Trust Bank), First City Monument Bank Plc (a combination of Co-operative Development Bank, Nigeria-American Bank, Midas Merchant Bank and First City Monument Bank), Fidelity Bank Plc (a combination of FSB International Bank, Manny Bank and Fidelity Bank), First Bank of Nig Plc (a combination of First Bank Nig. Plc, FBN Merchant Bankers and MBC International), First-Inland Bank later called FIN Bank Plc (a combination of First Atlantic Bank, Inland Bank, IMB International Bank, NUB International Bank), Guaranty Trust Bank Plc (from Guaranty Trust Bank), IBTC Chartered Bank Plc (a combination of Regent Bank, Chartered Bank and IBTC), Intercontinental Bank Plc (a combination of Intercontinental Bank, Gateway Bank, Equity Bank and Global Bank), Oceanic Bank International Plc (a combination of Oceanic Bank and International Trust Bank), Skye Bank Plc (a combination of Prudent Bank, Bond Bank, EIB International Bank, Co-operative Bank and Reliance Bank), Spring Bank Plc (a combination of Omega Bank, Citizens Bank, African Continental Bank, Guardian Express Bank, Trans International bank and Fountain Trust Bank), Stanbic Bank Plc (from Stanbic Bank), Sterling Bank Plc (a

combination of Trust Bank, Indo-Nigerian Bank, NBM Bank, NAL Merchant Bank and Magnum Trust Bank), Standard Chartered Bank Plc (from Standard Chartered Bank), United Bank for Africa Plc (a combination of UBA and Continental Trust Bank), Union Bank of Nig. Plc (a combination of Broad Bank, Union Bank of Nigeria, Union Merchant bank and Universal Trust Bank), Unity Bank Plc (a combination of 9 banks – Intercity Bank, Bank of the North, First Interstate Bank, New Africa Bank, Centre-Point Merchant Bank, Societe Bancaire, Pacific Bank, Tropical Commercial Bank and New Nigeria Bank), Wema Bank PLC (a combination of Wema Bank and National Bank) and Zenith Bank Plc (from Zenith Bank). Subsequently, Stanbic Bank Plc merged with IBTC Chartered Bank Plc to become Stanbic IBTC Bank Plc with expected improvements in earnings to the bank and shareholders.

Continuous examinations of the banks revealed that Nigerian banks are still not operationally efficient. The joint special examination carried out in 2009 by the Central Bank of Nigeria (CBN) and Nigerian Deposits Insurance Corporation (NDIC) revealed that ten of the twenty four banks were in critical financial disorder. This led to the removal and replacement of eight chief executive officers and their management teams with CBN appointed ones to save the banks from distress. The CBN also injected N620 billion in the affected banks as Tier 2 capital with a deadline of 30th September, 2011 to the banks to recapitalize. Out of the ten banks, owners of Wema Bank and Unity Bank were able to adequately re-capitalize their banks (Afolabi, 2011). Five banks met the recapitalization deadline through mergers and acquisition.

S/No.	Troubled Banks	Preferred Investors/Acquirers
1.	Intercontinental Bank Plc	Access Bank Plc
2.	Oceanic Bank International Plc	Ecobank Plc
3.	Union Bank of Nigeria Plc	Shareholders and African Capital Alliance Group
4.	Finbank Plc	First City Monument Bank Plc
5.	Equitorial Trust Bank Plc	Sterling Bank Plc

The NDIC established three bridge banks for the remaining three banks that could not find investors or merger partners to take over their assets and liabilities on a going concern basis. Thus, Enterprise Bank, Keystone Bank and Mainstreet bank were established for former Spring Bank Plc, BankPHB and Afribank respectively. These banks were then sold to Assets Management Company of Nigeria (AMCON) and their banking licences revoked with monumental loses to their shareholders. Skye Bank Plc and Heritage Bank Plc had subsequently acquired two of the nationalized banks, Mainstreet Bank and Enterprise Bank, respectively.

3.0 Methodology

In order to provide a complete analysis of mergers and acquisitions as a survival option for Nigerian Banks, we shall be developing Panel Data using the following methods: Pooled Ordinary Least Square (OLS) regression model, the Fixed Effect or Least Square Dummy Variable (LSDV) Model and the Random Effect Model. This analysis shall be carried out in two different periods; pre-merger and acquisition (2000-2005) and post-merger and acquisition (2010-2014) periods. The study shall employ the Chow Test estimation technique to test the structural break/disparity between the two periods (Pre and Post Merger and Acquisition Periods) using five different banks (United Bank for Africa, Union Bank, Fidelity Bank, Guaranty Trust Bank and Skye Bank) as case study.

Following the work of Onikoyi 2012 with little modification to suit the purpose of this study, the model for this study is presented below:

$$ROE=f(PAT,SHF,TA,TD) \text{-----} (3.1)$$

Taking the natural logarithmic of both sides of equation (3.1) and assuming linearity among the variables gives:

$$\ln ROE=\alpha_0 + \alpha_1 \ln PAT+ \alpha_2 \ln SHF+ \alpha_3 \ln TA+ \alpha_4 \ln TD+ \mu \text{-----} (3.2)$$

where:

- ROE = Return on Equity
- PAT = Profit After Tax
- SHF = Shareholder's Fund
- TA = Total Assets
- TD = Total Deposit

$\alpha_1 - \alpha_5$ = Coefficients to be estimated in the model

α_0 = the intercept of the model

μ = Stochastic error term

Note: $\alpha_1 > 0, \alpha_2 > 0, \alpha_3 > 0, \alpha_4 > 0$

4.0 Results and Discussion

4.1 Pooled OLS Regression Model

In the pooled OLS regression model, we pull all the 25 observations and run the regression models for the two periods, neglecting the cross section and time series nature of data. The result of the pooled OLS regression model is presented in Table 4.1 below:

Table 4.1: Extract from the Pooled OLS Regression Models Result

(Dependent Variable = ROE) Pre-Merger and Acquisition Period (2000-2005)					(Dependent Variable = ROE) Post-Merger and Acquisition Period (2010-2014)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.608898	1.348967	1.933997	0.0674	C	1.262125	0.682126	1.850282	0.0791
SHF	0.046369	0.044220	1.048592	0.3069	SHF	0.046250	0.038141	1.212615	0.2394
PAT	0.059382	0.065691	0.903960	0.3768	PAT	0.003256	0.150121	0.021689	0.9829
TA	0.050821	0.049321	1.030411	0.3151	TA	0.017346	0.168046	0.103222	0.9188
TD	0.010991	0.091072	0.120685	0.9051	TD	0.032214	0.024104	1.336454	0.1964

<i>R-squared</i>	0.327000	<i>R-squared</i>	0.459329
<i>Adjusted R-squared</i>	0.192399	<i>Adjusted R-squared</i>	0.351195
<i>Sum squared residual</i>	0.524345	<i>Sum squared residual</i>	1.257483
<i>F-statistic</i>	2.429415	<i>F-statistic</i>	4.247775
<i>Durbin-Watson stat</i>	0.293504	<i>Durbin-Watson stat</i>	0.834133
<i>Prob(F-statistic)</i>	0.081392	<i>Prob(F-statistic)</i>	0.011940

Source: Author's Computation, 2016.

Estimated Pooled OLS Regression Models

Pre-Merger and Acquisition

$$\text{roe} = \text{@coef}(1) + \text{@coef}(2) * \text{shf} + \text{@coef}(3) * \text{pat} + \text{@coef}(4) * \text{ta} + \text{@coef}(5) * \text{td}$$

@coef(1) = 2.6088978, @coef(2) = 0.0463691, @coef(3) = 0.0593817, @coef(4) = -0.0508211,
 @coef(5) = -0.0109909 -----

(4.1)

Post-Merger and Acquisition

$$\text{roe} = \text{@coef}(1) + \text{@coef}(2) * \text{shf} + \text{@coef}(3) * \text{pat} + \text{@coef}(4) * \text{ta} + \text{@coef}(5) * \text{td}$$

@coef(1) = 1.2621250, @coef(2) = 0.0462503, @coef(3) = 0.0032560, @coef(4) = 0.0173461,
 @coef(5) = 0.0322138 -----

(4.2)

The results of the pooled OLS regression models for the two periods are shown above where all the variables depict conflicting coefficients in either period. It is evident from the estimated pooled regression result for the pre-M & A period that only the parameters *TA* and *TD* variables are negative while the remaining variables depict positive relationship with the dependent variable – ROE. Conversely, the post-M & A estimated regression line shows that all the variables depict positive relationship with the dependent variable, this is in conformity to *a-priori* expectation. However, it is seen that, in both estimated period regression line, none of the variables were statistically significant, this is evident as the probability values of the estimated parameters were all more than 5% level of significance. One percent change in the negative parameter shown by the estimated total assets (*TD*) and total deposits (*TD*) variables in model 4.1 will bring about a reduction of 5.08% and 1.09% in the value of the dependent variable – ROE respectively. Consequently, in model 4.1, one percent change in the shareholder's fund (*SHF*) and profit after tax (*PAT*) variables in the pre-M & A period will further increase the value of the bank's return on equity (*ROE*) by 4.63% and 5.93% respectively. On the other hand, in model 4.2, the all-positive effect of the variables (*SHF*, *PAT*, *TA* and *TD*) in the post-M & A period will, respectively, bring about an increase in the

bank's return on equity (ROE) in this order; 4.63%, 0.32%, 1.73% and 3.22%. The R^2 coefficients of 32.7% and 45.9% in both periods are quite low. These values connote the degree of variation of the dependent variable that were explained by the explanatory variables. However, the models are statistically significant in its overall looking at the significance of the F-statistics from its probability value. However, since we assume that all the five (5) banks are the same, which normally does not happen in practice, we cannot accept this model because all the banks are not the same. However, the major problem with this model is that it does not distinguish between the various banks that we have in this study. Conversely, by combining the five (5) banks by pooling, we deny heterogeneity or individuality that may exist among the five banks selected for analysis in this study, therefore, it is imperative to carry out the remaining two regression models.

4.2.2 Fixed Effect or Least Square Dummy Variable (LSDV) Model

The fixed effect or LSDV model allows for heterogeneity or individuality among the five banks by allowing each bank to have its own intercept value. The term fixed effect is due to the fact that although the intercept may differ across banks, but intercept does not vary over time, that is, it is time invariant.

The result of the fixed effect model is presented in Table 4.2.

Table 4.2: Extract from the Fixed Effect or LSDV Regression Model Result

(Dependent Variable = ROE) Pre-Merger and Acquisition Period (2000-2005)					(Dependent Variable = ROE) Post-Merger and Acquisition Period (2010-2014)				
Variabl	Coeffici	Std.	t-	Prob.	Varia	Coeffici	Std.	t-	Prob.

ent	Error	Statistic		ble	ent	Error	Statistic		
C	2.797668	0.327622	8.539322	0.0000	C	5.761948	2.676601	2.152710	0.0469
SHF	0.015402	0.015221	1.011896	0.3266	SHF	0.108820	0.078013	1.394882	0.1821
PAT	0.033088	0.015943	2.075355	0.0544	PAT	0.157343	0.211591	0.743621	0.4679
TA	0.017560	0.011473	1.530554	0.1454	TA	0.306138	0.165179	1.853365	0.0824
TD	0.010294	0.023868	0.431266	0.6720	TD	0.002640	0.042332	0.062359	0.9510
<i>R-squared</i>			0.973913		<i>R-squared</i>			0.707980	
<i>Adjusted R-squared</i>			0.960870		<i>Adjusted R-squared</i>			0.561969	
<i>F-statistic</i>			74.66782		<i>F-statistic</i>			4.848835	
<i>Sum squared residual</i>			0.020324		<i>Sum squared residual</i>			0.679177	
<i>Durbin-Watson stat</i>			1.073468		<i>Durbin-Watson stat</i>			1.291634	
<i>Prob(F-statistic)</i>			0.000000		<i>Prob(F-statistic)</i>			0.003559	

Source: Author's Computation, 2016.

Estimated Pooled OLS Regression Models (Fixed Effect Model)

Pre-Merger and Acquisition

$$roe = @coef(1) + @coef(2) * shf + @coef(3) * pat + @coef(4) * ta + @coef(5) * td + eq01_efct$$

$$@coef(1) = 2.7976683, @coef(2) = -0.0154018, @coef(3) = 0.0330883, @coef(4) = -0.0175602, @coef(5) = 0.0102936$$

(4.3)

Post-Merger and Acquisition

$$\text{roe} = \text{@coef}(1) + \text{@coef}(2) * \text{shf} + \text{@coef}(3) * \text{pat} + \text{@coef}(4) * \text{ta} + \text{@coef}(5) * \text{td} + \text{eq01_efct}$$

@coef(1) = -5.7619480, @coef(2) = 0.1088196, @coef(3) = 0.1573432, @coef(4) = 0.3061377,
 @coef(5) = 0.0026398

(4.4)

Presented in Table 4.2 are the fixed effect regression models for the two periods under consideration. It can be seen in the estimated models that all the variables depict conflicting coefficients in the two periods. From model 4.3 and 4.4, one percent change in the value of each of the explanatory variables will either increase or decrease the value of the dependent variables depending on their respective coefficient signs. The R^2 values of 97.39% and 70.79% in both periods are quite high. In its overall, the models are statistically significant owing to the statistical significance of their F-statistics. The third model (random effect model) will hence be analysis below as earlier specified.

4.2.3 Random Effect Model

The random effect model assumed that all the five (5) banks have a common mean value for the intercept. The result of the random effect model is presented in Table 4.3.

Table 4.3: Extract from the Random Effect Regression Model Result

(Dependent Variable = ROE) Pre-Merger and Acquisition Period (2000-2005)					(Dependent Variable = ROE) Post-Merger and Acquisition Period (2010-2014)				
Variab le	Coeffici ent	Std. Error	t- Statistic	Prob.	Vari able	Coeffici ent	Std. Error	t- Statistic	Prob.
C	2.608898	0.296932	8.786179	0.0000	C	1.262125	0.560479	2.251867	0.0357
SHF	0.046369	0.009734	4.763772	0.0001	SHF	0.046250	0.031339	1.475800	0.1556
PAT	0.059382	0.014460	4.106705	0.0005	PAT	0.003256	0.123349	0.026397	0.9792
TA	0.050821	0.010856	4.681173	0.0001	TA	0.017346	0.138078	0.125625	0.9013
TD	0.010991	0.020046	0.548272	0.5896	TD	0.032214	0.019805	1.626517	0.1195
<i>R-squared</i>			0.327000		<i>R-squared</i>			0.459329	
<i>Adjusted R-squared</i>			0.192399		<i>Adjusted R-squared</i>			0.351195	
<i>F-statistic</i>			2.429415		<i>F-statistic</i>			4.247775	
<i>Sum squared residual</i>			0.524345		<i>Sum squared residual</i>			1.257483	

<i>Durbin-Watson stat</i>	0.293504	<i>Durbin-Watson stat</i>	0.834133
<i>Prob(F-statistic)</i>	0.081392	<i>Prob(F-statistic)</i>	0.011940

Source: Author's Computation, 2016.

Estimated Pooled OLS Regression Models (Random Effect Model)

Pre-Merger and Acquisition

$$roe = @coef(1) + @coef(2) * shf + @coef(3) * pat + @coef(4) * ta + @coef(5) * td + eq01_efct$$

$$@coef(1) = 2.6088978, @coef(2) = 0.0463691, @coef(3) = 0.0593817, @coef(4) = -0.0508211,$$

$$@coef(5) = -0.0109909 \quad \text{-----}$$

(4.5)

Post-Merger and Acquisition

$$roe = @coef(1) + @coef(2) * shf + @coef(3) * pat + @coef(4) * ta + @coef(5) * td + eq01_efct$$

$$@coef(1) = 1.2621250, @coef(2) = 0.0462503, @coef(3) = 0.0032560, @coef(4) = 0.0173461,$$

$$@coef(5) = 0.0322138 \quad \text{-----}$$

(4.6)

The estimated random effect models are presented in equation 4.5 and 4.6. The result showed that the replica of the direction of estimates in the preceding models estimated earlier in the pooled OLS regression as well as the fixed effect regression model where the variables tends to have conflicting direction of effect on the dependent variables in both periods. While only the total assets (TA) and total deposits (TD) variables depict negative relationship with the explained variable in the pre-M & A period, all the variables depict positive effect on the explained variable in the post-M & A period; this is theoretically expected as the positive relationship conforms to the *a-priori* expectation. In model 4.5, only TA and TD variables will decrease the value of the bank's return on equity (ROE) while the remaining variables will increase the dependent variable with their respective value of estimates. However, all the independent variables will bring about an increase in the dependent variable (ROE) with their respective estimated values in model 4.6 as the estimated parameters are all positive. The R^2 values of 32.7% and 45.93% imply the variation in the dependent variable as explained by the independent variables while the remaining percentage is ascribed to the stochastic error term. The random effect model is statistically significant in its overall owing to the significance of the model's F-statistic value.

To ascertain the appropriateness of either of these estimated models, the study shall employ the Hausman Test to know which of the models to accept for analytical and policy implication purpose in each of the periods under consideration; this is the model that will hence be analyzed to explain the disparity between the two periods.

4.3 Hausman Test

Having estimated the three models above, we shall have to decide which model is good to accept. To check it, the study shall use the Hausman Test to check which model is suitable to accept.

Hausman Test Hypothesis:

H₀: Random effect model is appropriate

H₁: Fixed effect model is appropriate

NB: If the probability value is statistically significant, we shall use fixed effect model, otherwise, random effect model.

Table 4.4: Extract from the Hausman Test Results

	Pre-Merger and Acquisition Period (2000-2005)			Post- Merger and Acquisition Period (2010-2014)		
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	396.779851	4	0.0000	13.623710	4	0.0086

Source: *Author's Computation, 2016.*

Looking at the Chi-square values of the cross-section random in Table 4.4, the probability values of the chi-square statistics are 0.00% and 0.01% for pre-merger and acquisition and post-merger and acquisition periods respectively, these values are less than 5%. This implies that we will reject the null hypothesis and accept the alternative hypothesis. We therefore conclude that, the fixed effect model is the appropriate model to accept for analytical *raison d'être*.

Nonetheless, looking at the estimated fixed effect models in both periods as shown in Table 4.3, it is evident that the explanatory variables explained the dependent variable more than they did in the other two models; this is evident from the high value of the coefficient of multiple determination (R^2). In model 4.3, shareholder's fund (SHF) and total assets (TA) variables depict negative and statistically insignificant relationship with the dependent variable; one percent change in the value of these variables will bring about a reduction of

1.54% and 1.75% in the value of the bank’s return on equity respectively. On the other hand, the remaining two variables – profit after tax (PAT) and total deposit (TD) depict positive effect on the dependent variable, this implies that, a unit change in the values of these variables will bring about an increase of 3.30% and 1.02% in the bank’s return on equity (ROE) respectively. Conversely, in model 4.4, all the variables depict positive effect on the dependent variable; this is in conformity to the expected *a-priori* relationship. However, only the total asset variable is statistically significant at 10% level to increasing the value of the bank’s return on equity. In the order of arrangement as shown in model 4.4, one percent change in each of the variables (SHF, PAT, TA, TD) will increase the dependent variable (ROE) by 10.88%, 15.73%, 30.61% and 0.26% respectively. It is hence imperative to say that the various banks under consideration have an increased profitability in the post-merger and acquisition era, this can be ascribed to the various consolidation activities aimed at harnessing the banks, performances.

The overall significance of the entire models in both periods connotes that the explanatory variables are able to explain the behavior and direction of relationships of the dependent variables as inherent in the estimated models in both periods.

4.4 Analysis of Chow Test

The Chow Test analysis is employed to test the structural change between the two periods (pre-merger and acquisition and post-merger and acquisition) examined in this study. The F-test shall be employed to ascertain if there exist significant structural changes between the two periods examined.

$$\text{Time period 2000-2005: } Y_t = \lambda_1 + \lambda_2 X_t + \mu_{1t} \quad n_1 = 30 \quad \text{-----}$$

(4.7)

$$\text{Time period 2010-2014: } Y_t = \gamma_1 + \gamma_2 X_t + \mu_{2t} \quad n_2 = 25 \quad \text{-----}$$

(4.8)

$$\text{Time period 2000-2014: } Y_t = \phi_1 + \phi_2 X_t + \mu_{3t} \quad n = (n_1 + n_2) = 55 \quad \text{-----}$$

(4.9)

Regression (4.9) assumes that there is no difference between the two time periods and therefore estimates the relationship between return on equity and the explanatory variables for the entire time period consisting of 55 observations. In other words, this regression assumes that the intercept as well as the slope coefficient remains the same over the entire

period; that is, there is no structural change. If this is in fact the situation, then $\phi_1 = \lambda_1 = \gamma_1$ and $\phi_2 = \lambda_2 = \gamma_2$. Regressions (4.7) and (4.8) assume that the regressions in the two time periods are different; that is, the intercept and the slope coefficients are different, as indicated by the subscripted parameters. In the preceding regressions, the μ 's represent the error terms and the n 's represent the number of observations.

Chow Test Hypothesis

H_0 : There is no significant structural change/break between the periods

H_1 : There is significant structural change/break between the periods

$$F = \frac{(RSS_R - RSS_{UR})/k}{(RSS_{UR})/(n_1 + n_2 - 2k)} \approx F[k, (n_1 + n_2 - 2k)]$$

where:

RSS_R = Residual Sum of Square = 2.851563

RSS_{UR} = Unrestricted Residual Sum of Square ($RSS_1 + RSS_2$) = 0.020324 + 0.679177 = 0.699501

$$F = \frac{(2.851563 - 0.699501)/5}{[0.699501]/(30 + 25 - 2(5))} = \frac{0.430412}{0.015544} = 27.69$$

From the F tables, we find that for $k=5$ and $n=45$ (i.e. n_1+n_2-2k) degree of freedom, the 5 percent (5%) critical F value is 3.91. However, since the F_{cal} (27.69) is greater than the $F_{0.05}$ (3.91), we reject the null hypothesis of parameter stability and conclude that the regressions (4.7) and (4.8) are different, in which case the pooled regression (4.9) is of dubious value, to say the least.

The chow test result has however affirmed that there exists structural break/changes in the Nigeria banking system for the period under consideration.

5.0 Summary, Conclusion and Recommendations

This paper has established that bank consolidation in the Nigerian financial system secured through mergers and acquisitions increases shareholders' funds, investor's confidence as well as financial stability and operational efficiency of the consolidated banks. In summary, the research has established that bank consolidation through merger and acquisition helps in shoring up investment capital, enhances shareholder value, and protects creditors and depositors as well as strengthening banks capacity to attract funds at lower costs enhancing their liquidity positions.

Having established that bank combinations should preferably be through mergers and non-leverage acquisitions to reduce debt interest impacts on post merger earnings, boosting returns to both the banks and shareholders, it is however recommended that stable banks should acquire loss making banks to reduce post merger and acquisition tax liabilities of the combined entities, reducing cash flows, increasing investment abilities of the banks, thus increasing earnings to both the banks and shareholders. Acquisition premiums for banks should be low to reduce acquisition burden on acquiring banks, increasing profitability and returns to both the firm-banks and the shareholders. The regulatory agency in the monetary sector: the Central Bank of Nigeria, should demonstrate courage to instill transparency in future recapitalization code of conduct, supervise and control the banks to ensure the effectiveness of recapitalization policy initiatives, and institute policy framework to improve banks' management quality and security to reduce fraudulent and sharp practices in the banking sector, improving post merger and acquisition returns to shareholders.

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