

An Empirical Assessment of the Impact of Merger on Lending Behaviour of Deposit Money Banks in Nigeria

Sadat Ibn Adam (PhD) and Mustapha Namakka Tukur (PhD)

Abstract: This study conducted an empirical assessment of the impact of Merger on lending behaviour of selected Deposit Money Banks in Nigeria from 2006 to 2016 using a panel data collected from the financial statements of the banks over the study period. Multiple Regression is used in the forms of pooled Ordinary Least Square (OLS), Fixed Effect Model (FEM) and Random Effect Model (REM) to analyse the data. Diagnostic tests in the forms of Hausman and Breusch Pagan Lagrange Multiplier Tests were conducted to select the best models. The study used capitalization and volume of deposits as proxies for Merger, while the loans and advances are proxies of lending behaviour. The results from pooled OLS, Fixed and Random Effect models revealed that capitalization and volume of deposits have significant and positive impact on lending behaviour of DMBs in Nigeria. It was also found that there exists difference in the lending behaviour of merged and unmerged banks in Nigeria. The study therefore recommended that capital base of banks should be increase so as to enhance lending activities in the Country. The study also recommended that the saving culture of customers should be encouraged through increased interest rate so that deposit could be mobilized from surplus economic units to deficit economic units in order to increase the volume of deposits.

1. INTRODUCTION

THE development of any nation's economy depends to a large extent on the strength and resilience of its banking sector. A banking sector that is effective and efficient is essential not only for intermediation functions but also for the protection of the depositors, encouragement of a healthy competition as well as maintenance of confidence and stability in the system (Appah & Banato, 2012). The intermediation roles of banks in mobilizing financial resources from areas of surplus economic units to areas of deficit economic units remain one of the most productive economic ventures. From their financial intermediation activities, banks occupy a position in the financial system that supplies the credits needs of the economy (Mogboyin, Asaolu & Ajilore, 2012), thereby playing a role in determining the amounts and distributions of credit in the economy. The distribution of credits is expected to have a multiplier effect on the economy in terms of investment, increased employment, etc. Therefore, lending is one of the primary functions of banks. Regardless of the region, every bank is keen to have sufficient portfolio for lending purposes because the function of lending in banking is considered a sole determinant for profit making (Muhammad & Muhammad, 2012).

Changes in bank lending behaviour have a market impact on the economic development of the country. Banks change their lending behaviours in response to changes in the structure of the banking market (Duangkamala, 2009). Moreover, banks thrive in their abilities to generate income through their lending activities. This is made possible only

if the banks can mobilize enough funds from their customers. Since banks depend on depositors' money as a source of funds, it means that there exists a relationship between the ability of the banks to mobilize deposits and the amounts of credit granted to the customers (Tomola, 2013).

However, for the mobilization functions of banks to be effective, the banking industry must be stable and be able to enhance confidence. This calls for reforms in order to reposition the sector in line with government economic policies, global reality and international best practices. The financial reforms in Nigeria were focused on further liberalization of banking business, ensuring competition and safety of the system as well as proactively positioning the banking industry to perform the role of intermediation and playing a catalytic role in economic development (Lemo, 2005; Ajayi, 2005 and Elumilade, 2010). The financial reform brought about changes in the perception, philosophy as well as the funding of Deposit Money Banks (DMBs) that are expected to manage the large inflows and outflows of the financial resources.

In addition, banking reforms became inevitable in the light of the global dynamic exigencies and emerging landscape. The Nigerian experience indicates that banking sector reforms were propelled by the need to deepen the financial sector and reposition it for growth and integrate it into the global financial architecture and evolve a banking sector that is consistent with regional integration requirements and international best practices, there by strengthening the banking system, embracing globalization, improving healthy competition, exploiting economies of scale, adopting advanced technologies, raising efficiency and improving profitability (Garba, 2006; Ahmad, 2011; Owolabi & Ogundalu, 2013).

The reform which led to the consolidation exercise took place in Nigeria between 2004-2005 turns out to be a reflection of Mergers and Acquisitions which were driven

- Sadat Ibn Adam (PhD) is currently a lecturer in the Department of Business Administration, Faculty of Management Sciences, Usmanu Danfodiyo University, Sokoto, Nigeria.
- Mustapha Namakka Tukur (PhD) currently Associate Professor in the Department of Business Administration, Faculty of Management Sciences, Usmanu Danfodiyo University, Sokoto, Nigeria.

by survival-instinct. This is due to the fact that the major strategy to escape the sledge hammer of the CBN was for banks to galvanize their resources together to meet the book value of the minimum capital base of N25billion. Merger can be seen as a process whereby corporations come together to combine and share their resources to achieve a common objective with their shareholders. On a similar note, it is a form of consolidation in which an entity is combined with another so that initial entity loses its distinct identity (Afolabi, 2011).

There have been debates on different frontiers by researchers as to whether Merger can change the lending behaviour of banks or not. Studies such as Hancock, Laing and Wilcox (1995), Furfine (2000), Kishan and Opiela (2000), Van den Heuvel (2001), Omowunmi (2011), Leonardo and Paola (2003), Okpala (2013) and Tomola (2013), all underline the relative import of Merger in influencing lending behaviours of banks. Though, there exists a consensus amongst researchers on the link between Merger and lending behaviour, this relationship could vary as reported by Iloh (2014) who asserted that when small banks transform into bigger banks as a result of Merger, they tend to lose their existing lending relationships with smaller customers, thereby having a strong preference for high profile investments with higher returns. This assertion corroborates with that of Judith (2008) who maintained that small business may find it harder to obtain finance from larger and more complex financial institutions.

It remains contentious that Merger in Nigeria has changed the lending behavior of banks and debate on the aspect (positive or negative) is inconclusive. But the belief is that study of how the banking reform affects bank characteristics especially the lending behavior is ardently needed.

The 2004 bank consolidation exercise was predicated on convincing evidences that Nigerian financial sector actually showed a financial dis-intermediation (Mogboyin *et al*, 2012). This by implication means that the Deposit Money Banks (DMBs) which were expected to provide the credit needs of the economy by mobilizing resources from surplus to deficit economic units were likely to be affected. This has made researchers such as Sapienza (2002) and Erel (2011) to raised concern as to whether bank borrowers can benefit from the consolidation or not. The consequences of bank Merger on borrowers have been investigated from two perspectives; credit availability and loan pricing behaviour (Aspinwall, 1970; Hannan, 1991; Petersen & Rajan, 1995; Cervoissier & Gropp, 2001; De Graeve, De Jonghe & Vander, 2007; Cerqueiro, 2009; Duangkamal, 2009).

It is worth noting that some studies conducted both in Nigeria such as Ajayi and Oyetunde (2005), Okoye and Eze (2013), Tomola (2013), Ogunbiyi, Samuel and Peter (2014), and other countries such as Gambacorta and Mistrulli (2004), Berger and Udell (2006), as well as Blum and Nakane (2009) could not adequately addressed the issue of Merger on lending activities of banks. This might not be unconnected with the issue of using one measure to examine the relationship between the variables as well as

appropriate methodology to assess such relationship. A number of proxies could be used to represent bank consolidation in relation to credit availability since a number of factors determine the volume of loans banks give, capitalization and volume of deposits are considered the most important as articulated by Ahmad (2011).

Studies of Merger on lending behaviour have been well documented in the literature in advance countries such as Italy, United States of America, and United Kingdom. However, despite the high level of Merger activities in Nigeria, there are few studies on the ability of Merger to enhance the lending behaviours of Deposit Money Banks (Omowunmi, 2011; Okpala, 2013; Tomola, 2013) from the best of the researcher's knowledge that have reported the relationship between Merger and lending behaviour in Nigeria, hence the need for the study. The objectives of the study are whether bank capital base and the volume of deposits have an impact on the lending behaviour of Deposit Money Banks in Nigeria. These two objectives are further converted to research questions, viz How does bank capital base impact on the lending behaviour of DMBs in Nigeria?, and to what extent does the volume of Deposit impact on the Lending Behaviour of DMBs in Nigeria? From the above research objectives and questions, the following hypotheses are formulated to guide the study:

H₀₁: Bank Capital base does not significantly affect lending behaviour of Deposit Money Banks in Nigeria.

H₀₂: There is no significant effect between the volume of deposits and lending behaviour of Deposit Money Banks in Nigeria.

To achieve the aforementioned aim, the paper is structured into five sections. After this introduction the literature review is presented. The literature review is followed by research methodology and results and discussions, while the last section is conclusion and recommendations.

2. Literature Review

Bank consolidation as seen by Laderman (2003) and Basu, Druck, Marston and Susmel (2004) is a reduction in the number of banks which eventually increases the capital size as well as concentrates the remaining ones in the sector. It is also referred as bank recapitalization (Basu *et al.*, 2004.). Consolidation is often used interchangeably with concentration, even though there is a difference between the two concepts. Concentration refers to the degree of control of economic activity by large firms (Sathye, 2001). An increase in the levels of concentration could be due to substantial enlargement in the size of the dominant firm(s) or significant reduction in the size of the non-dominant firm(s) (Athanasoglou, Brissimis & Delis, 2005). In the context of this work however, the concepts are used interchangeably.

The major characteristic of consolidation is change in a firm's control, which takes place through transfer of ownership (Ayadi & Pujals, 2004). Even though, consolidation could be achieved by ways of raising capital base and proactive regulation, the key methods of

consolidation employed by firms are Mergers and Acquisitions (Ahmad, 2011). A Merger is a transaction where one entity is combined with another such that one of them loses its distinct identity. It is a combination of two firms in which only one of them survives and the merged firm goes out of existence, necessitating the acquiring company to assume the assets and liabilities of the merged company (Brockington, 1987; Gaughan, 2007; Umar, 2009; and Okpanachi, 2011). An Acquisition on the other hand, is often described as a transaction where one firm purchases a controlling stake of another without combining the assets of the firm's involved (Sudersanam, 2003). Relative to Acquisitions, Mergers provide a greater level of control, because there is only one corporate entity.

Mergers and Acquisitions are sometimes distinguished by defining the former as transactions involving two firms that are largely equal in size, while the latter as transactions where one party clearly obtains control of another (Group of 10, 2001). A number of submissions were made with regards to the reason behind Mergers. While some scholars argued from the institutional and technical point of view, some view it from the need to improve financial intermediation in the banking industry.

Similarly, concept of lending behaviour is used in this study to mean the bank-customer relationship that exists in the context of the intermediation roles which have to do with the lending relationships i.e. lending activities. This concept has also been used in the studies of Tomola (2013), Omowunmi (2011), David, Metti, Silvia, Amar and Marco (2014), Charles, George and Ben (2010) and Gambacorta and Iannotti (2001).

Volume of Deposit plays a crucial and indispensable role in bank funding. According to Bologna (2011), it is a major portion of bank asset mostly financed by customers' deposits. There have been debates in the finance literature as to what determines the volume of deposits. Khalily, Meyer and Hushak (1987), identified interest rates, access to banking facilities, transaction cost and yields on alternative investment as deposit determinant functions. Haron and Azmi (2006) provided empirical support of factors affecting volume of deposits to include level of income, customer satisfaction, service quality and demographic factors such as number of dependents and location.

Tomola (2013) investigated the extent to which deposits impact on lending behaviour. Purposively selecting seven banks after the consolidation exercise in Nigeria, the result shows that banks with high deposits and loans perform better in terms of profitability than those with low deposits and loans. The deposits and lending activities of banks determine to a large extent the profitability of banks. This is because banks generate their income from interest differential as reported by Tomola (2013) which is the difference between what is paid for deposits and what is charged for loans and advances. Similarly, Haron and Azmi (2006) concluded that business organizations especially those of developing countries are highly dependent on bank loans as a source of capital and were quick to add that

the ability of the banks in giving loans is a function of their deposits.

Capitalization is a crucial component of reforms in the Nigerian banking industry, owing to the fact that a bank with strong capital base has the ability to absolve losses arising from non-performing liabilities (Ajayi & Oyetunde, 2005). Most of the literature of capital shocks on bank lending emerged after the United States recession in the early 1990's (David *et al*, 2014), when an attempt was made by studies to assess whether the economic situation was caused by capital constrained banks cutting back on lending known as capital-crunch hypothesis. Similarly, it has equally been debated whether the capital regulations along the Basel Guideline were affecting lending. Although, this debate didn't yield a consensus, but led to the development of empirical models (Hancock & Wilcox, 1993; Berger & Udell, 1994).

Schmitz (2005) ran parallel regressions for bank deposits and loans against bank capital for unbalanced panel of 4400 individual bank balance sheets in Europe following the empirical approach taken by Peek and Rosengren (1995). He found that changes in deposits and loans were positively correlated with changes in capital. This suggested that loan supply is determined by the availability of capital. His finding also disclosed that lower capitalized banks showed a stronger response to a change in capital than their higher capitalized competitors. Consistent with these findings, the Central Bank of Samoa (2010) also established a relationship between capitalization and deposit on the one hand, and on the other, between deposits and loan size.

Some studies such as Peek and Rosengren (1997), Puri, Rocholl and Steffen (2009) used loan application to examined the effect of shocks to capital on the supply of credit by comparing the performance of affected and unaffected banks. Gianetti and Simonov (2010) used Japanese data to perform a similar exercise concerning bank bailouts. The study concluded that there is relevant role for capital in determining loan volume. In addition, another group of studies which comprise Jimenev, Ongena and Peydro (2010) and Albertazzi and Marchetti (2010) used firm and bank loan-level data and concluded that there is a sizeable effect of low bank capitalization and scarce liquidity on credit supply.

3. Research Methodology

This study adopted ex-post facto and longitudinal research designs to assess the impact of merger on lending behaviour of Deposit Money Banks (DMBs) in Nigeria from 2006-2016. This becomes necessary because the study is based entirely on secondary data. Ex-post facto research design is appropriate because the researcher intends to utilize secondary data to analyse the impact of the proxies of predictor variables (Capitalization and volume of deposits) on the proxy of the response variable (Loans and advances). Bank size in this study is used as a control variable. This is done because it has been widely reported in literature as a factor that can enhance banking activities.

Longitudinal research design is appropriate because observation is done at several points in time. This design has the advantage of keeping track of changes over time. Similar researches such as Leonardo and Paola (2003), Tomola (2013), Okpala (2013), Namakka (2014) and Ahmadu (2016) also used this research design. Data was extracted from the financial statements of the selected DMBs in Nigeria for the period under review. The period under review is chosen due to the fact that 2005 witnessed major consolidation exercise. Therefore, the effect is expected to be seen thereafter. The number of banks in Nigeria is the population of the study. The study adopts a purposive sampling technique due to the fact that only merged banks are needed for the study. Therefore, the data generated from the financial statements are structured in panel form indicating financial values against number of firms across the years. The statistical technique is the panel multiple regression. However, the study used descriptive statistics for the summary of the data and also inferential statistics for hypothesis testing.

Based on the broad objective of this study, a panel regression model has been used to empirically address the specific objectives of this study. The general regression equation is presented below:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 X_{it} + \dots \beta_n X_{it} + e_{it} \text{ -----eq.1}$$

Where:

Y_{it} = Dependent Variable

β_0 = intercept

$\beta_1, \beta_2, \dots \beta_n$ = Regression coefficients

$X_1, X_2, \dots X_n$ = Independent variables

e_{it} = error term.

Thus

$$LB_{it} = \beta_0 + \beta_1 CAP_{it} + \beta_2 BS_{it} + e_{it} \text{ -----eq.2}$$

Where:

LB= Lending behavior measured by loans and advances

β_0 = intercept

β_1, β_2 = Regression coefficients

CAP_{it} = Capitalization

BS_{it} = Bank size proxied by total asset

e_{it} = error term.

To determine the extent to which volume of deposits affect lending behaviour of Deposit Money banks in Nigeria. This is analysed by the following panel regression model:

$$LB_{it} = \beta_0 + \beta_1 VD_{it} + \beta_2 BS_{it} + e_{it} \text{ -----eq.3}$$

Where:

LB=Lending behavior measured by loans and advances

β_0 =intercept

β_1, β_2 =Regression coefficients

VD_{it} =Volume of deposits

BS_{it} =Bank size proxied by total asset

e_{it} =error term.

The panel data for this study warranted the use of regression test with Fixed and Random effects models. The equation for the Fixed Effect Model (FEM) is presented as:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + U_{it} \text{ -----eq.3}$$

Where:

α_i ($i = 1, \dots, n$) is the unknown intercept for each entity (n entity-specific intercept)

Y_{it} represents the dependent variable, where i = entity and t = time

X_{it} represents one independent variable

β_1 is the coefficient of the independent variable

U_{it} is the error term

The equation for Random Effect Model (REM) is presented as :

$$Y_{it} = \beta_1 X_{it} + \alpha_i + U_{it} + \varepsilon_{it} \text{ -----eq.4}$$

Where:

α_i the intercept

Y_{it} is the dependent variable, where i = entity and t = time

X_{it} represents one independent variable

β_1 is the coefficient of the independent variable

ε_{it} is the error term

The equation for Hausman Test is presented as:

$$H = (B_c - B_e)(V_c - V_e)(B_c - B_e) \text{ -----eq.5}$$

Where:

B_c is the coefficient vector from the constant estimator

B_e is the coefficient vector from the efficient estimator

V_c is the covariance matrix of the consistent estimator

V_e is the covariance matrix of the efficient estimator

4. Results and Discussion

Data used for analysis were computed from the information obtained on capitalization, Bank size, volume of deposits and that of loans and advances obtained from the Financial Statements, CBN Statistical Bullions and Nigeria Stock Exchange daily official lists of quoted banks for the period 2006- 2016. The raw-data utilized in carrying

out the descriptive analysis and regression analysis for the study are presented as Appendix

This section gives a descriptive account of the data used for this study together with its interpretation. The

discussion is based on the eight (8) banks analysed. Table 1 presents the mean, standard deviation, minimum and maximum values of the selected banks.

Table 1: Descriptive Results of Banks

VARIABLES	MEAN	STD.DEV	MINIMUM	MAXIMUM
Loans and Advances	25.895	2.936	23.671	27.718
Capitalization	24.867	2.789	22.695	26.692
Volume of Deposits	26.439	2.970	24.767	28.225
Total Asset	26.720	2.997	25.392	28.563

Source: Author's Computation, 2018.

Table 1 reveals that the mean value of loans and advances of the banks stood at 25.895billion and a standard deviation of 2.936. Table 1 also shows that the minimum loans and advances given by the banks is 23.671 billion, while the maximum stood at 27.718 billion. Similarly, the mean value of capitalization is 24.867 and a standard deviation of 2.789, while the minimum and maximum values were 22.695 and 26.692 billion respectively. Table 1 equally reveals that the volume of deposits by customers have a mean value of 26.439 billion and a standard deviation of 2.970. While the minimum value of deposits is 24.767 and a maximum value of 28.225.

Similarly, the summary of statistics has been made for individual banks so as to have an insight on the nature of data with a view to understanding the variables of the study across the banks. The output is attached as appendix. Diamond Bank Plc has a mean value of 26.52 for loans and advances with a standard deviation of 0.75. The minimum and maximum values stood at 25.08 and 27.41. The standard deviation value shows lack of skewness in the loans and advances due to the fact that it is less than the mean value. Skewness is detected if the standard deviation is more than three times its mean value (Mehwish, 2014).

Table 2 presents the results as follows:

However, the summary statistics across all the banks have shown that the mean values for Fidelity, FCMB, GTB, Stanbic IBTC, Skye, Sterling, Unity and UBA were 26.18 , 26.27, 27.01, 25.92, 26.56, 25.71, 25.46 and 26.91 respectively. This is a clear indication that the banks under review loanable funds are similar in quantum. The Standard Deviation of loans and advances across the banks are less than the mean values which indicates an absence of skewness. The same development could be seen under the capitalization across the banks.

Since the result of the descriptive analysis is not sufficient to draw a valid conclusion, inferential analysis is further employed to validate the descriptive results. Inferential analysis in the form of multiple regressions is used to analyze the data.

4.2 Regression Analysis and Interpretation of Results for Model One

In order to assess the impact of capitalization on loans and advances, both the Fixed Effect Model (FEM) and the Random Effect Model (REM) were run and Table 2 presents the results as follows:

Table 2: Regression Results showing the Impact of Capitalization on Loans and Advances

Variable	OLS			FIXED EFFECT			RANDOM EFFECT		
	Coeff.	Std.Err	P>/t/	Coeff.	Std.Err	P>/t/	Coeff.	Std.Err	P>/t/
Log CAP	.6761	.0827	0.000***	.6323	.1031	0.000***	.6761	.0827	0.000***
Log TA	.3443	.0770	0.000***	.3965	.0952	0.000***	.3443	.0769	0.000***
CONS	-.1174	.4246	0.783	-.4238	.4348	0.333	-.1173	.4246	0.782
R ²	0.9781			0.9780			0.9781		
F-Stat	1901.36		0.0000***	1854.43		0.0000	3089.72		0.0000
Hausman	15.34(0.0005)								
Normality	4.233984(0.120393)			5.486563(0.064359)			4.233984(0.120393)		
Pesaran	9.777117(0.112505)			10.24020(0.543612)			9.777117(0.321132)		

Source: Author's Computation, 2018.

Note: ***, **, * denote 1%, 5% and 10% significance levels respectively.

Table 2 depicts the estimate of model one, the objective is to establish the impact bank capitalization has on loans advanced by banks while controlling for bank size. Three different models were estimated (pooled regression, fixed

effect and random effect). The pooled regression results show that loans and advances is positively and statistically significant related to capitalization. A percentage raise in bank capitalization will increase bank lending by 0.676

point. This is in line with theory and convention, banks raise capitals to enhance lending abilities and consequently raise turnover on investments. This was further consolidated with the R^2 value of 0.978. This by implication means that 97% variation in loans and advances is explained by banks capitalization. Similarly, the P-value of 0.000 under the OLS indicates that the estimators are significant at 1% level of significance.

In fixed effect estimates, the coefficient of bank capitalization stands at 0.6323 with standard error of 0.1031 and Probability value of 0.000 which equally show that positive impact exists and statistically significant at 1%. The relationship between the variables were further strengthened in the R-Square value of 0.9780 which shows that 97.8% variation in loans are explained by banks capitalization while others factors were held constant in disturbance term. The Hausman test shows a Prob>Chi2 of 0.0005 suggesting that the fixed effect is the preferred model that can be used to draw a valid conclusion and policy implication in the banking sector when capitalization is used as a proxy to determine the amount of loans and advances in Nigeria.

Moreover, the Random Effect shows that loans and advances have significant impact on capitalization. As observed from Table 2, capitalization impacts positively on the loans lend out by commercial banks significantly, although the magnitude is infinitesimal. A percentage raise in banks capitalization will increase banks' loans by approximately 0.68 point. The coefficient of determination in this respect stands at 97.8% indicating high effect of independent variables in actualizing the response.

However, the decision to choose between fixed and random effect models for panel analysis warrants estimation of the popular Hausman test of specification.

The null hypothesis for Hausman states that the random effect is appropriate, while alternative states that fixed effect is appropriate, decision rule requires that null hypothesis should be rejected if the probability value is at least less than 5%. Hausman statistics of 15.34 with probability value of 0.005 leads to rejection of null hypothesis, hence fixed effect model is appropriate to explain the impact under investigation.

The robustness of the model was further augmented with normality and cross sectional dependence tests. The result of Jaque Bera statistics and corresponding probability value were reported for each and every model i.e. pooled regression, fixed effect and random effect regression. In all the three cases, the null hypothesis of normal distribution could not be rejected as shown by the probability value. In other words, the residual of the three estimates are normally distributed. Result of Pesaran cross sectional dependence test indicates that three estimated models are free from cross sectional dependence, because the null hypothesis of no cross sectional dependence cannot be rejected at 1% and 5% level of significance. By implication, the banks under investigation are independent from the perspectives of all the variables considered.

In line with the stated objective, the study is equally interested in establishing the impact volume of deposits has on loans and advances in banks after consolidation. In view of the above, model two was formulated.

4.3 Regression Analysis and Interpretation of Results for Model Two

Three different models were estimated, pooled Ordinary Least Square Regression, the Fixed Effect Model (FEM), as well as the Random Effect Model (REM) and the results were presented in Table 3.

Table 3: Regression Results Showing the Impact of Volume of Deposits on Loans and Advances.

Variable	OLS			FIXED EFFECT			RANDOM EFFECT		
	Coeff.	Std.Err	P>/t/	Coeff.	Std.Err	P>/t/	Coeff.	Std.Err	P>/t/
Log VD	.9659	.0876	0.000***	.9920	.0946	0.000***	.9834	.0898	0.000***
Log TA	.0146	.0868	0.866	.0005	.0935	0.996	.0058	.0888	0.948
-CONS	-.0355	.3630	0.922	-.3458	.3391	0.311	-.2618	.3416	0.443
R ^s	0.9835			0.9839			0.9839		
F-Stat	2600.68		0.0000	3038.12		0.0000	3933.67		0.0000
Hausman	3.27(0.195)								
BP LM	15.91(0.00)								
Normality	38.33343(0.3213)			51.24387(0.1124)			38.49140(0.7685)		
Pesaran	4.530413(0.0912)			4.779447(0.1232)			4.749604(0.1120)		

Source: Author's Computation, 2018.

Note: ***, **, * denote 1%, 5% and 10% significance levels respectively.

Table 3 presents regression results showing the impact volume of deposits has on loans and advances. The OLS column shows that the coefficient of volume of deposits stood at 0.966 which implies significant positive impact between loanable funds and volume of deposits, this further affirms the law of demand that the more the deposits, the more banks are willing to lend out ceteris

paribus. A percentage raise in deposits will enhance the banks' ability to give out loans by 0.966 point. Robustness of this particular model was augmented by high R^2 , 98% variation in banks' ability to extend loans to individuals and firms was explained by volume of deposits. This is because the R^2 is a numerical explanation of the overlap of the dependent and independent variables.

Both fixed and random effects results in Table 4.3 showed that loanable funds are positively and significantly impacted by the volume of deposits. Individual coefficient and probability values for each stood at 0.9920 (0.000) and 0.9834(0.00) respectively, meaning that they are significant even at 1% level of significance. Furthermore, both models maintained high coefficient of determinations.

In order to select the most appropriate model in explaining the impact between the variables, a further test was conducted through the Hausman test of specification to determine appropriate model between fixed and random effects. Similarly, to choose between the OLS and the random effect, the Breusch-Pagan Lagrangian Multiplier (LM) was conducted. Hausman statistics of 3.27 with corresponding probability value of 0.195 affirms appropriateness of random effect. Furthermore, to choose between random and pooled regression, Breusch and Pagan LM test of random effect indicates that random effect should be sustained because a rejection was made of the null hypothesis at 1% level of significance. Therefore, random effect model is what effectively explains adequately the impact between loanable funds and volume of deposits. As observed from Table 3.

The normality test was carried out for the three models. Jaque Bera statistics indicates that the residuals of the models are normally distributed as the probability values are greater than 5% in all the three estimations. However, the result of cross sectional dependence among the banks indicates that the null hypothesis cannot be rejected as such conclusion of no cross sectional dependence was drawn out of the test using the probability value.

4.3 Hypotheses Testing

Testing of hypotheses were done using the regression results obtained from the entire data set in the Tables 2 and 3.

4.3.1 Test of Hypothesis one

Test of hypothesis one was done using regression results generated in Table 4.2. The hypothesis earlier stated is shown below:

H₀₁: That Bank Capital does not significantly affect lending behaviour of Deposit Money Banks in Nigeria.

Table 2 shows that all the three (3) models i.e. Pooled OLS, Fixed Effect and Random Effect estimates are significant at 1% level. Test of hypothesis one was done using Fixed Effect Model because the results of Hausman specification favoured it. The coefficient of bank capitalization and its corresponding p-value indicated positive and significant effect on lending behaviour of commercial banks. Therefore, the study rejects the null hypothesis one and concludes that capitalization has significant effect on lending behaviour of merged banks in Nigeria. This finding corroborates with that of Gianetti and Simonov (2010), Jimenev, Ongena and Peydro (2010), Albertazzi and Marchetti (2010) and Santos and Winton (2010).

4.3.2 Test of Hypothesis Two

Test of hypothesis two was done using regression results generated in Table 3. The hypothesis is shown below:

H₀₂: There is no significant effect between the volume of deposits and lending behaviour of Deposit Money Banks in Nigeria.

Table 3 reveals that Pooled OLS, Fixed Effect and Random Effect estimates were significant at 1% level of significance. Test of hypothesis two was done using Random Effect model because the results of Hausman did not favoured the use of the Fixed Effect. This necessitated the use of Breusch Pagan lagrangian Multiplier to select between random effect and pooled regression. However, Breusch Pagan lagrangian Multiplier statistics rejected pooled OLS at 1% level of significance and warranted the use of random effect to draw a valid conclusion. From the result of random effect model, volume of deposits has a positive and statistical impact on the lending behaviour at 1 % level of significance. The study therefore rejects the null hypothesis one and concludes that Volume of deposits has significant effect on lending behaviour of merged banks in Nigeria. This finding is in line with the works of Haron and Azmi (2006) and Tomola (2013).

4.4 Discussion of Results and Findings

Based on the issues raised in the study, data collected and analysed, the study has arrived at a number of findings. This section presents the key findings and the implications that emerge thereof.

The study found that bank capital size has a positive and significant impact on loans and advances of merged banks in Nigeria as presented in Table 4.2. This by implication means that an increase in one Naira in capital in the form of shareholders' equity will result to an increase in one Naira on the lending activities of these banks. This finding is in line with Kishan and Opiela (2000) who were of the opinion that low capitalized banks have more difficulties to continue their credit relationship. Literature has argued as seen in the works of Kim and Santonero (1988), Rochet (1992), and Hellman, Murdock and Stiglitz (2000) that well capitalized banks are less risk-averse. They are of the opinion that banks that maintain higher level of capital have their lending portfolio riskier. Similarly, Nier and Zicchino (2005) concluded in their study that stress on capital may curtail the lending activities of banks. The conclusion was supported by Freixas and Rochet (2008).

On the contrary, the finding of Ahmad (2011) debunked the finding and concluded that there is no positive and significant impact between bank capital size and credit size of banks. This finding of Ahmad (2011) might not be unconnected with the non-normality and presence of outliers and skewness in the data. This is clear because the time frame in which the study was carried out is between the periods in which there was abrupt jump in the capital base of banks in Nigeria. Moreover, the results do not also show support to the studies of Goldberg and De Young (1999), Sapienza (2002), Bonaccorsi di Patti and Gobbi

(2003), Graig and Hardee (2004), Carrow *et al* (2005) which clearly showed that capitalization has no positive impact on the size of credits. However, the finding is in line with the bank concentration theory of merger which the proponents such as Sathye (2001), Beck *et al.* (2005) and Aburime (2006) are of the view that concentrated banking systems may boast market power and increase bank capital and profit, thus allowing for better intermediation roles. The combined effect of which is ability of the banks to provide more affordable loans and advances.

Capital size was further replaced with deposits based on the arguments that capital size is not a correct measure of credit size since banks do not give loans and advances from shareholders' funds but use it for acquiring assets and expanding branch networks which consequently enable banks to mobilize more deposits for lending activities (Ahmad, 2011). The study discovered that volume of deposits in banks significantly positively affect lending activities of merged banks. This means that the more these banks are able to mobilize deposits from the surplus economic units, the more they will be able to lend out to customers. The finding corroborates Bologna (2011) who maintained that deposits play a pivotal role in bank ability to lend. Gupta (2003) also has agreed with the finding and argued that since liquidity liabilities include deposit made by customers at bank, policies which increase the deposits, *ceteris paribus* should have positive influence on bank lending to all businesses. Van den Heuvel (2002) is of the opinion that an extension of acceptance of deposits will strengthen the reserves of banks and further flourish the banks' lending into the productive channels. Jayaratne and Morgan (1997) found out that lending and deposits were positively related. They recommended that government should make savings attractive in order to positively influence the liquidity positions of the banks. This is in line with Hulagu and Kele (2002) who also argued that any monetary policy which alters liquidity is potentially effective on credit supply. However, the finding of Ahmad (2011) contradicts the findings. In addition, this finding corroborates the financial intermediation theory which according to Scholtens and Wensveer (2003) stated that the purpose of banks can be explained by the role they play in the modern economy. This by extension means that the intermediation role in terms of mobilizing resources from the areas of surplus to deficit economic units remains sacrosanct. This clearly portrays the ability of banks to mobilize deposits from the surplus units to the deficit units to enhance economic activities.

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