

Impact of Financial Sector Reforms on the Performance of Deposit Money Banks in Nigeria

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Abstract

The study assessed the impact of financial sector reforms on the performance of Deposit Money Banks (DMBs) in Nigeria. The specific objectives were to determine the impact of financial sector reforms on Return on Assets (RoA) and Return on Equity (RoE) of the Deposit Money Banks (DMBs). Secondary data were employed, spanning a period of thirty years (i.e. 1986-2016). The RoA and RoE were used as proxies for DMBs performance while bank credits, bank deposits, real interest rates, and exchange rates were used as proxies for financial sector reforms. A multiple regression analysis was used, while the specified models were estimated using Ordinary Least Square (OLS) technique. The results obtained showed that, though the effect of financial sector reforms on bank performance in Nigeria for the period of study has been significant (especially as measured by the proxies of Return on Assets and Return on Equity), it is not efficient enough to transform the nation's economy to the desired level. Hence, the study recommended that more and proper recognition be given to the nation's Deposit Money Banks that will improve banks liquidity and stability which will in no doubt go a long way in boosting shareholder's and investors' confidence in the financial sector; and this will further improve the efficiency of the banking sector. The study also suggested a stable macroeconomic environment as a precondition for the efficiency of the financial sector which is essential in ensuring that government fiscal policy is assigned to complement monetary policies to help restore domestic and international confidence in the Nigerian banking system.

Keywords: Deposit Money Banks, Impact, return on Assets, Financial Sector Reforms, Return on Equity.

Introduction

The financial sector is of central importance for a country's growth and development, but its importance cannot be exploited unless there exist an efficient structure of intermediaries which will channel idle balances into more productive units at the highest available rate of return, and with less transaction costs (Killick and Martin, 1990). The institutions operating in the financial sector can be grouped into financial market, (such as money market, capital market and foreign exchange market), development finance institutions and other financial institutions. The major function of the money market is to facilitate the intermediation of short term loans/funds from the surplus to the deficit units of the economy. The institutional players in the money market, which serves as conduit for monetary policy implementation, are the Deposit Money Banks (DMBs), discount houses and money market dealers (CBN, 2009).

However, for the purpose of this study, attention is focused on the DMBs because they constitute a major segment of the money market and play a vital role in the sustenance and development of the market. Furthermore, the DMBs mobilize funds in form of deposits and facilitate money creation by extending credit facilities to individuals, corporate organizations and governmental bodies. The banks also engage actively in secondary market trading of money market instruments and also create other investments, such as bankers' acceptance, commercial papers and promissory notes that are sometimes used in the market (CBN, 2009).

As the prime mover of economic life, the banking sector is a key unit of the financial system. All over the world, the banking sector plays vital roles in the economic growth and development of any nation by acting as a bulldozer in the mobilization of funds and the creation of wealth. The effectiveness and efficiency in performing its roles, particularly the intermediation between the surplus and the deficit units of the economy, depend largely on the level of development of the financial system (Nkoro and Uko, 2013).

Studies by Gurley and Shaw (1967), Goldsmith (1969), McKinnon (1973), Jayarantne and Strahan (1996), Kashyap and Stein (2000), Beck *et al* (2000), Beck *et al* (2003), Driscoll (2004), as cited by Akpansung and Babalola (2012) posit that financial sector development can influence and foster economic growth by increasing saving, improving the allocation and effectiveness of loanable funds, and promoting capital accumulation. Akpansung and Babalola (2012) argued that well-developed financial markets are necessary for the overall economic advancement of under-developed and the emerging economies.

Financial intermediation can be a major factor for economic growth; it can also lead to the failure of economic growth of a particular country. The study by finance-led growth hypothesis usually focus on the role played by a financial sector in mobilizing domestic savings and investment through a more open and more liberalized financial system, and in promoting productivity by providing efficient financial market (Akpansung and Babalola, 2012).

Financial sector reforms in Nigeria could conveniently be discussed under the following eras: The post Structural Adjustment Programme (SAP) era (1986-1993), the re-introduction of regulation from (1993-1998) and the pre Soludo era. The first is the financial system reforms (1986-1993) which led to the deregulation of the banking sector which was dominated by indigenous banks with over 60% federal and state government stakes, interest rate and foreign exchange policy reforms. Basically, the deregulation of financial reforms in Nigeria took place in the fourth quarter of 1986 with the setting up of a foreign exchange market in September, 1986 (Akpansung and Gidigbi, 2014). Prior to the financial sector reforms most salient features dominated the financial sector including the following:

- i. Control on entrance into the banking sector as well as restriction on foreign ownership of domestic financial institutions.
- ii. Imposition of interest rate ceilings in lending and deposit rates which resulted in improved real interest and large margin among deposit and saving rate.
- iii. Imposition of limits on the collection choices of financial institutions in the form of inspiring the highest ceilings for vital lending to definite activities and
- iv. Imposition of greater liquidity and required reserve ratio, the liquidity ratio for banks remained at 25% (Adesegun, 2014).

The second phase began in the late 1993- 1998 with the re-introduction of regulations. During this period, the banking industry suffered deep financial distress which necessitated another round of reforms designated to manage the distress banks. The third phase began with the advent of the civilian regime in 1999 which saw the return to liberalisation of the financial sector accompanied with the adoption of distress resolution programmes. This era also witnessed the introduction of universal banking which empowered the bank and non-bank financial institutions. The fourth phase began in 2004, and it is informed by the Nigerian monetary authorities who asserted that their catalytic role in promoting private sector could be further enhanced through a more pragmatic reform (Balogun, 2007).

The fourth phase also embraces the extant regime of Sanusi Lamido Sanusi which, with intense globalisation attendant with increased pressure on financial performances brought about significant changes in the financial sector as the country adopted comprehensive

adjustment programme designed to promote a stable environment and provide a viable institutional arrangement necessary for a free market economy (Aderibigbe, 1997).

It is impossible to deny or disprove that the banking system is not the engine of economic growth in any country, given its function of financial intermediation (Azeez and Ojo, 2012). Through this role, banks are expected to facilitate capital accumulation, lubricate the production engine and promote economic growth. However, banks' ability to promote economic growth and development depends on the health, soundness, and stability of the financial system. Among the objectives of financial reforms is to build more efficient, robust and deeper financial systems, which can help the development of private sectors enterprises and economic growth in the country (Ajilore, 2003).

The findings of many studies such as Mark (1989), Seek and El Nil (1993), Dinc (2005), Megginson (2005), Agu (1992), Asogwa (2002) as cited by Adesegun (2014) have revealed that the financial sector in most sub-saharan African countries is equated with the banking system, and examination of the roles of the banks in the mobilization of savings for the purpose of bridging the gap between savings and investment come naturally with some concern issues like stabilization issues. The stabilization issues tend to have far reaching implications on structure and nature of economic imbalances that bring about the implementation of economic reforms in those countries. It is against this background that this study is focused on assessing the impact of financial sector reforms on banks performance in Nigeria.

However, the financial sector reforms became necessary because the banking industry and other non-banking sector of the Nigerian economy are key factors to economic growth. There is evidence in the literature that financial reforms in Nigeria have affected negatively the overall performance of Nigerian banking system (Ajilore, 2003; CBN, 2004, 2006). The implication of this evidence on banking system for a fragile and weak financial system in Nigeria is far reaching. First, unguided financial liberalization exposes the banks and indeed the economy to excessive financial shocks. The recent financial crises in the Asian countries are a case in point. Second, continuous reforming the financial system makes the system unstable, planning difficult and indeed creates unfriendly operational environment that may affect the efficient operational performance of the banks. For instance, the ripples of universal banking introduced in 2001 have not settled before the recapitalization exercise was introduced in 2004. Similar reversal and rewriting of rules were noticed in the past reforms.

Therefore, the reforms are to ensure a diversified, strong and reliable environment for banking business and safety of depositors' money, return on shareholders' wealth and position the banks in a manner that will involve in global competitions and powerful developmental roles in the economic growth of the country. To this extent, this study investigates whether financial reforms have any effect on the operational performance of banks in Nigeria.

The broad aim of this study is to assess the impact of financial sector reforms on the performance of DMBs in Nigeria. The specific objectives include the following:

- i. To assess the impact of financial sector reforms on Return on Assets (RoA) of DMBs in Nigeria.
- ii. To examine the impact of financial sector reforms on Return on Equity (RoE) of DMBs in Nigeria.

Although there are number of empirical studies on the financial sector reforms, they focused mainly on economic growth as can be seen in the works of Kanayo and Emeka (2011), Iganiga (2010), Adeusi and Oke (2013). Therefore, an assessment of the impact of financial sector reforms on DMBs performance in Nigeria would hopefully assist in bridging the gap in the existing works. It is expected that, the outcome of this would enable both the DMBs and

their shareholders to know whether or not financial sector reforms have affected their return on assets, and owners' equity. Furthermore, this study might also serve as a contribution to the existing literature in the area of financial sector reforms and DMBs performances in Nigeria. Finally, this work is expected to stimulate further investigations in the area of banking and finance in Nigeria and the world at large.

This study is limited to Nigeria and covers a time frame of twenty (30) years, ranging from 1986-2016. The secondary time series data were collected from the selected DMBs. The assessments were also conducted only on two measures of DMBs performances, namely: Return on Assets (RoA) and Return on Equity (RoE) because of unavailability of data on other variables. Both the RoA and RoE are the most widely used measures of bank performance (Akpansung, 2015).

Theoretical Framework

Financial sector reforms mainly derive their theoretical basis from the works of McKinnon (1973) and Shaw (1973), which stressed that financial sector policy in developing countries had led to financial repression. The authors argued for the liberalization of financial sector, as a good policy response to enhance its role of financial intermediation in mobilizing and raising the level of savings, investment and eventually economic growth in developing countries. Development policy in those days was heavily influenced by the dominant role of the state in economic activity and the input-substitution strategy was adopted by most developing countries. Financial sector policy and indeed monetary policy were characterised by directed credit, administered interest rates, high reserve requirements, and state ownership of most of the financial institutions (Ojong *et al*, 2014).

Banks promote economic growth primarily by mediating between surplus economic units and deficit economic units. In the process, banks facilitate capital formation and lubricate the process of production. This intermediation function is important because, in the absence of banks, savings would have been fragmented in small pockets, but by pooling together such savings banks are able to attain economies of scale with beneficial effects for their credit customers. For banks to perform efficiently and discharge above core functions, it is imperative that the banks are viable and healthy and that the entire industry is stable and sound (Ebong, 2006).

Empirical Literature

Many empirical studies have been carried out to examine the relationship between financial sector reforms and bank performance. A review of some of these studies is undertaken in this section. One of such studies is that of McKinnon (1973) who, in his study discovered that liberalized financial systems experience high volatility of nominal interest rates in comparison to controlled ones and especially more so if financial liberalization preceded economic stabilization. Consequently, banks are exposed to a greater risk and are therefore more vulnerable in the process of performing their financial intermediation functions. The author argued further that banks develop more interest in adopting high-risk loan portfolio because of the liberalization exercise. This is because the entry of more banks into the industry erodes the monopolistic profit as competition intensifies thereby reducing the cost of losing a banking license when a bank becomes insolvent.

Saez (2001) investigated the impact of financial reforms in two countries (India and China). The study provided evidence that banking reforms enabled India to overcome the problem of bad debt by allowing new entrant into market while China restored its state-owned banks by establishing asset management institutions.

Asamoah (2008) examined the impact of the financial sector reforms on savings, investment, and growth of gross domestic product (GDP) of the Ghanaian economy. Regression analysis and saving-investment model were used. It was revealed that financial sector reforms stimulated savings, investment and growth of GDP and consequently economic growth by increasing the rate of capital accumulation and improving the optimum allocation of capital.

Iganiga (2010) examined the effectiveness and the efficiency of financial reforms on Nigerian financial institutions with emphasis on the banking sub-sector. Using the classical least squares techniques, the results showed that the performance of the financial sector has been greatly influenced over time by these reforms that began in 1986.

Rehman (2011) conducted an empirical analysis of financial reforms in Pakistan to examine whether it affects economic growth. It explored correlation among economic growth, deposits, lending, real interest rate, savings, and inflation, taking data of thirty-six years (1973-2008). The regression analysis showed a positive impact of financial reforms on the growth of the Pakistani economy.

Using Granger-Causality test and a two-stage least squares (TSLS) estimation techniques, Akpansung and Babalola (2012) confirmed that financial/banking sector development can foster economic growth, by raising saving, improving allocative efficiency of loanable funds, and promoting capital accumulation.

Akpansung and Gidigbi (2014) examined the impact of recent banking reforms in Nigeria, using ordinary least squares estimating technique. It was found that, despite the fact that the number of commercial banks in the country reduced drastically during the period, the banking sector retained reasonable asset values and extended credits to the various activity sectors in the Nigerian economy, ultimately, facilitating its role of financial intermediation.

Kamau and Were (2013) analyzed the driving factors behind the impressive banking sector performance in Kenya for 13 years (1997 – 2011) using Data envelopment analysis (DEA) and found that the supporting base for such drive was the systems' market structure.

Material and Methods

This study adopted descriptive approach which is exploratory in nature. The exploratory approach was used to find out the effects of financial sector reforms on deposit of money banks. The Ordinary Least Squares (OLS) technique was used to determine the impact of the financial sector reforms on the performance of the listed banks. For practical purposes, the population of this study consists of all the deposit money banks (commercial banks) operating in Nigeria, with branches in all states of the federation and Federal Capital Territory (FCT). The time frame considered for this study is 1986 to 2016, covering 30 years period. This period covers pre- reforms, reforms and post- reforms periods.

All the DMBs in Nigeria constitute the study organizations. This study was made extensive use of secondary data. The study took advantage of available literature as well as published information such as annual reports and financial statements of the various financial institutions under review, as well as policy statements, guidelines, circulars and other information that regularly emanate from regulatory and statutory agencies such as Central Bank of Nigeria (CBN), Nigerian Deposit Insurance Corporation (NDIC), Nigerian Stock Exchange fact books, among other relevant information acknowledged on the reference list, as at 2016.

Table 1: Population of the Study

S/N	Names of banks	Year of creation
01.	Access Bank Plc	1989
02.	Diamond Bank Plc	1990
03.	Eco bank Plc	1989
04.	Fidelity Bank Plc	2006
05.	First City Monument Bank Plc	1983
06.	First Bank Plc	1894
07.	Guaranty Trust Bank Plc	1990
08.	Heritage Bank Nigeria Ltd	2012
09.	Keystone Bank Ltd	2001
10.	Stanbic IBTC Bank Plc	2006
11.	Skye Bank Plc	2006
12.	Sterling Bank Plc	1960
13.	United Bank for Africa Plc	1949
14.	Union Bank Plc	1917
15.	Unity Bank Plc	2006
16.	Zenith Bank Plc	1961

Source: Nwaze (2016)

Model Specification

The empirical test centred on determining the impact of financial sector reforms on DMBs performance in Nigeria. For this purpose, two categories of performance measures are explored. These are the Return on Assets (RoA), and the Return on Equity (RoE). In addition, three classes of explanatory factors are considered; these are banking reform indicators, financial structure indicators and banks’ internal characteristics indicators. A linear equation relating the performance measures to a variety of indicators is depicted in equation 1:

$$BP_{it}=c+\beta_1X^j_t+\beta_2X^l_t+\beta_3X^m_t+\beta_4X^k_t+\mu_{it} \dots\dots\dots (3.1)$$

Where BP_{it} represents the alternative performance measures of bank I at time t , with $i = 1, \dots, N$; $t = 1, \dots, T$; c is a constant term, the X s are explanatory variables (grouped into financial reforms variables, bank internal variables and measures of financial structure indicators. j, l, m and k respectively) and μ_{it} is the disturbance term.

Although the primary focus of this study is to examine the relationship between financial reforms and DMBs performance, the inclusion of banks internal variables and financial structure indicators is intended to control for cyclical factors that might affect bank performance in Nigeria.

Two measures of performance are used in the study: The Return on Assets (ROA), and the Return on Equity (RoE). Three indicators of financial/banking sector reforms are considered in the analysis. These are market capitalization (MCAP), real interest rate (RIR), and nominal effective exchange rate indices (EXR). The three variables respectively reveal the impact of financial sector reforms on the performance of Nigerian DMBs. This choice is informed by the fact that financial sectors reforms during the period of analysis can be categorized under three headings namely;

The financial structure indicators serve to examine how the performance of the banking sector is related to the relative development of the banks and stock markets. In addition, the study use stock market capitalization divided by GDP (MCAP) as a proxy of financial market development and as a measure of the size of the equity market.

Following from the foregoing discussion, the estimated form of equation 3.1 takes the form:

$$BP_{it} = \beta_0 + \beta_1 RIR_t + \beta_2 EXR_t + \beta_3 BDS_t + \beta_4 BCR_t + \beta_5 MCAP_t + \mu_{t1} \dots \dots \dots (3.2)$$

$$RoA_t = \beta_0 + \beta_1 RIR_t + \beta_2 EXR_t + \beta_3 BDS_t + \beta_4 BCR_t + \beta_5 MCAP_t + \mu_{t2} \dots \dots \dots (3.3)$$

$$RoE_t = \beta_0 + \beta_1 RIR_t + \beta_2 EXR_t + \beta_3 BDS_t + \beta_4 BCR_t + \beta_5 MCAP_t + \mu_{t3} \dots \dots \dots (3.4)$$

Where:

BP = commercial bank performance, *RoA* = return on assets, *RoE* = return on equity, *RIR* = Real Interest Rate, *EXR* = Real Exchange Rate (₦/\$), *BDS* = the ratio of bank saving divided by Gross Domestic Product (GDP), *BCR* = the ratio of bank’s credit to private sector divided by Gross Domestic Product (GDP), *MCAP* = market capitalization divided by Gross Domestic Product (GDP) and μ_t = error term.

Result of the Findings

This section presents and discusses the empirical results obtained from the regression estimates. The result is presented in three categories. The first category presents the result of descriptive statistics of the study variables; the second category presents the correlation matrix, while the third category presents the regression results with the view to examining how financial sector reforms influenced the DMBs performance in Nigeria.

Table 2 presents the descriptive statistics of the data employed in this study. The minimum and maximum values of BAP are 10.43810 and 44.18154 with an average of 19.830592. BCR and BDS, vary from a minimum of 8.801553 and 8.480822 to a maximum of 36.0099 and 34.65512 with an average of 14.36693 and 16.28736, respectively. RIR and EXR range from minimum values of -43.57256 and 21.88443 to maximum values of 25.28227 and 158.5526 with average of 1.997513 and 106.1051, respectively. The ROA, ROE and MCAP range from minimum values of -18.1600, 0.941371 and 4.521985, while the average values range from 0.946319, 23.81917 and 13.04430. BAP, BCR, BDS, ROE and MCAP have a positive skewness, while RIR, EXR and ROA have negative skewness and the probability for all the variables are statistically significant, except for EXR with insignificant level of probability for the period of 30 years.

Table 3 shows the correlations matrix explaining the link between the study variables. Return on Asset (RoA) has negative relationship with BCR, BDS as well as EXR. The degree of associations ranges between -0.95%, -0.98%, -0.07% and -2.66% for EXR. While on the other hand, (RoA) register a positive relationship with RIR with a degree of association of 5.99%. With regards to Return on Equity (RoE), register a negative relationship with BCR, BDS, and EXR with the degree of association of -2.55%, -4.42% and -6.13%. While on the hand, RoE has a positive relationship with RIR and MCAP at 0.39% and 2.80%, respectively. BAP register a positive relationship on all the study variables with the degree of association of 9.73%, 9.77%, 2.81%, 4.83%, and 7.10% respectively.

Table 2: Descriptive Statistics of all the Variables used in this Study

	BAP	BCR	BDS	RIR	EXR	ROA	ROE	MCAP
Mean	19.82059	14.36693	16.28736	1.997513	106.101	0.946319	23.81917	13.04430
Median	17.79424	12.47039	15.79590	5.941526	125.81	1.947793	14.84456	10.34743
Maximum	44.18154	36.00991	34.65512	25.28227	158.556	4.520000	86.08000	35.89477
Minimum	10.43810	8.801553	8.480822	43.57256	21.8843	18.16000	0.941371	4.521985
Std. dev.	7.842685	6.348870	5.865893	18.66825	51.4320	4.648312	26.14039	8.513915
Skewness	1.862321	2.423892	1.601565	1.133837	0.83878	3.497809	1.381091	1.825451
Kurtosis	6.280135	8.216383	6.034965	3.955210	2.15155	15.04218	3.522095	5.414389
Jarque-bera	21.55321	44.37270	17.03717	5.298209	3.09235	169.7087	6.914452	16.76357
Prob.	0.000021	0.000000	0.000200	0.070714	0.21306	0.000000	0.031517	0.000229
Sum	416.2324	301.7055	342.0346	41.94923	2228.20	19.87269	500.2025	273.9303
Sum sq.dev.	1230.154	806.1629	688.1739	6970.069	52905.1	432.1361	13666.40	1449.735
Obs.	30	30	30	30	30	30	30	30

Source: Computed from Raw Data of the Study, 2016

Table 3: Correlation Matrix of the Study Variables

	BAP	BCR	BDS	RIR	EXR	RoA	RoE	MCAP
BAP	1.0000							
BCR	0.9733	1.0000						
BDS	0.9770	0.9302	1.0000					
RIR	0.2817	0.2570	0.2958	1.0000				
EXR	0.4830	0.3261	0.5269	0.1779	1.0000			
RoA	-0.0953	-0.0980	-0.1079	0.5999	-0.2660	1.0000		
RoE	-0.3874	-0.2558	-0.4426	0.2808	-0.6131	0.3922	1.0000	
MCAP	0.7100	0.7198	0.6744	-0.0760	0.5134	-0.6644	-0.3674	1.0000

Source: Computed from Raw Data of the Study, 2016

Analysis of Regression Results

The result of Model 1 in Table 4 contains regression results on the effects of financial sector reform on the performance of deposit money banks in Nigeria. The results indicated that the coefficient of BCR, BDS and EXR are statistically significant, while the coefficient of RIR and MCAP are found to be insignificant, although this is not in line with a priori expectations. The coefficient of BCR, BDS and EXR are found to be statistically significant as indicated by their probability values of 0.0000, 0.0031 and 0.0116. The coefficient of RIR and MCAP is indicated negative, with the coefficient of -0.0071 and -0.0588, and their probability values of 0.5751 for RIR and 0.2065 for MCAP. This therefore implies that one percent change in BCR, BDS and RIR increase bank performance by 82%, 45% and 10%, respectively for BCR, BDS and RIR. While an increase in RIR and MCAP by 11% lead to a decrease in bank performance by 7% and 5%, respectively.

The result of Model 2 also contains the regression results on the impact of financial sector reforms on Return Asset (RoA). The results indicated that the coefficient of BCR, RIR, EXR are statistically significant, this is in line with the a priori expectation, expect for the RIR which supposed to be insignificant that is negative to bank performance, with their coefficient values of 0.8012, 0.0906 and 0.0179, respectively. BDS and MCAP are found to be statistically insignificant with coefficient value of -0.4488 and 0.6248 respectively also contrary to expectations the bank deposit which is expected to have a positive impact to bank performance turned out insignificant. By interpretation, any increase in BCR, RIR and EXR by one (1 percent) will have a positive increase in Return of Asset of DMBs by 80%, 9% and 1%. While on the other hand, an increase in BDS and MCAP by 1%, this will lead to a decrease in Return on Asset of Banks by -0.44% and -0.62%, respectively.

Table 4: Linear Regression Results

S/N	Dep. var.	Ind. var.	Coefficient	T-statisti	Prob.	F - stat.	Prob.	R ²	Adj. R ²	Durbin-watson statistic
Model 1	BAP	BCR	0.827013	6.617000	0.0000	318.686	0.000	0.990	0.987	1.493273
		BDS	0.451624	3.524841	0.0031					
		RIR	-0.007137	0.573035	0.5751					
		EXR	0.018688	2.320466	0.0116					
		MCAP	-0.058886	1.320466	0.2065					
Model 2	ROA	BCR	0.801258	3.012136	0.0088	5.821	0.003	0.659	0.54	1.579290
		BDS	-0.448801	1.645772	0.1206					
		RIR	0.090614	3.418167	0.0038					
		EXR	0.017923	1.294676	0.2150					
		MCAP	-0.624810	6.582916	0.0000					
Model 3	ROE	BCR	2.267120	0.901218	0.3817	5.821	0.003	0.659	0.546	1.57290
		BDS	-4.417592	1.712988	0.1073					
		RIR	0.7338526	2.945900	0.0100					
		EXR	-0.231860	1.771052	0.0969					
		MCAP	0.549813	0.612545	0.5494					

Source: Computed from Raw Data of the Study, 2016

The estimated RoE in model 3 as contains in Table 4 shows that, the bank credit, real interest rate, and market capitalization all entered the model with a positive relationship with bank performance as indicated by their probability values. While the bank deposit and exchange rate had a negative relationship with bank performance at 4.41% and 0.23%. This implies that, an increase in BDS and EXR by 1%, this leads to a decrease in RoE of banks by 4.41% and 0.23%, respectively.

The Coefficient of the Multiple Determinations (R²)

Model 1 contains the coefficient of the multiple determination (R²), this was used to test the goodness of fit from regression results, the value of R² is 0.990 which implies that in the long run, 99% of the variation in the volume of bank performance is explained by the independent variables (BCR, BDS, EXR, RIR, and MCAP). The goodness of fit of the regression remains too higher after adjusting for the degree of freedom as indicated by the adjusted R² (0.987 or 98%).

As contained in Table 5, the coefficient of the multiple determination (R²), was used to test the goodness of fit of model, the value of R² is 0.659, which implies that in the long run, 65% of the variation in RoA is explained by the independent variables (BCR, BDS, EXR, RIR, and MCAP). The goodness of fit of the regression Model remains too low after adjusting for the degree of freedom as indicated by the adjusted R² (0.546 or 55%)

Model 3 contained the coefficient of the multiple determination (R²), which was used to test the goodness of fit of the regression models the results or the value of R² is 0.659 which Implies that in the long run, 65% of the variation of Return on Asset is explained by the independent variables (BCR, BDS, EXR, RIR, and MCAP). The goodness of fit of the regression remains too low after adjusting for the degree of freedom as indicated by the adjusted R² (0.546 or 56%).

Table 5: Outcomes of the Parameters

Dependent variables	Independent variables	Expected	Obtained	Correlation
BAP	Bank credits (BCR)	Positive	Positive	Conform
	Bank Deposits (BDS)	Positive	Positive	Conform
	Exchange Rate (EXR)	Negative	Positive	Do not
	Real Interest Rate (RIR)	Positive	Negative	Do not
	Market Capitalization (MCAP)	Positive	Negative	Do not
RoA	Bank credits (BCR)	Positive	Positive	Conform
	Bank Deposits (BDS)	Positive	Positive	Do not
	Exchange Rate (EXR)	Negative	Positive	Do not
	Real Interest Rate (RIR)	Positive	Negative	Conform
	Market Capitalization (MCAP)	Positive	Negative	Do not
RoE	Bank credits (BCR)	Positive	Positive	Conform
	Bank Deposits (BDS)	Positive	Negative	Do not
	Exchange Rate (EXR)	Negative	Negative	Conform
	Real Interest Rate (RIR)	Positive	Positive	Conform
	Market Capitalization (MCAP)	Positive	Positive	Conform

Source: Computed from Raw Data of the Study, 2016

Test of the Significance of the Parameter (t -Statistic)

The student t-test method was adopted in this study in order to determine the significance of individual parameters t-value in regression result and compare with the result in t-tabulated at n- k degree of freedom (df) at 5 percent level of significance. The value of t-calculated at 5 percent significant level obtained is 1.753 as summarized on Table 6

The F- Statistic

This test is conducted purposely to ascertain if the independent variables in the model are all together statistically significant or not. The results obtained from Table 7 indicated that the slope of coefficients of BAP are insignificant and slope of coefficients of RoA and RoE are altogether not equal to zero, both RoA and RoE are statistical insignificant. Therefore, the null hypothesis was rejected because the joint effect of the independent variables in the summarized model above is statistically insignificant.

Autocorrelation Test

Autocorrelation test is carried out with the aim of determining if the error terms are correlated. According to Gujarati (2003) autocorrelation considered as correlation among the members of series order in time.

Table 6: Summarized the Result of T-test Statistics and the Decision made Against Them.

Dep Var.	Ind.variables	T – tabulated	T- calculated	Decision rule	Conclusion
BAP	BCR	6.617000	1.753	Reject Ho	Significant
	BDS	3.524841	1.753	Reject Ho	Significant
	EXR	0.57305	1.753	Accept Ho	Insignificant
	RIR	2.32046	1.753	Reject Ho	Significant
	MCAP	1.32046	1.753	Accept Ho	Insignificant
RoA	BCR	3.01210	1.753	Reject Ho	Significant
	BDS	1.64577	1.753	Accept Ho	Insignificant
	EXR	3.41816	1.753	Reject Ho	Significant
	RIR	1.29467	1.753	Accept Ho	Insignificant
	MCAP	6.58291	1.753	Reject Ho	Significant
RoE	BCR	0.90121	1.753	Accept Ho	Insignificant
	BDS	1.71298	1.753	Reject Ho	Significant
	EXR	2.94590	1.753	Reject Ho	Significant
	RIR	1.77105	1.753	Reject Ho	Significant
	MCAP	0.61254	1.753	Accept Ho	Insignificant

Source: Computed from Raw Data of the Study, 2016

Table 7: Summary Results of F- test Statistics

S/N	Dependent variable	Independent variable	F- cal.	F- tab.	Decision rule
(i)	BAP	BCR, BDS, EXR, RIR, MCAP	318.686	5.697	Accept Ho
(ii)	RoA	BCR, BDS, EXR, RIR, MCAP	5.821	5.697	Reject Ho
(iii)	RoE	BCR, BDS, EXR, RIR, MCAP	5.821	5.697	Reject Ho

Source: Computed from Raw Data of the Study, 2016

Findings in Table 3 contains regression results on the effects of financial sector reforms proxies by (bank credit, bank deposits, exchange rate, real interest rate and market capitalization) on RoA and RoE.

Therefore, the durbin-Watson for this study are analyze as follows based on the decision criteria stated in Table 8. Since the calculated dw (i.e 1.493) lies out du and 4-du (i.e it lies outside 2.22 and 1.78), the one could report that model1 is not free from serial correlation of residuals. Therefore, the estimates should be taken with caution. Since the calculated dw (i.e 1.579) lies out du and 4-du (i.e. it lies outside 2.220 and 1.780), the one could report that model 2 also is not free from serial correlation of residuals. Therefore, the estimates should be taken with caution. Since the calculated dw (i.e 1.579) lies out du and 4-du (i.e it lies outside 2.220 and 1.780), the one could report that model3 is not free from serial correlation of residuals. Therefore, the estimates should be taken with caution.

Testing for Hypothesis 1

To test the null hypothesis (Ho:1) there is no significant relationship between financial sector reform and RoA of deposit money banks in Nigeria. To determine if the null hypothesis can be accepted or rejected at 5% level of significance, reference to Appendix II which shows that P- value associated with F- statistics which is the joint effects of independent variables to dependent variable is greater than Alpha ($5.821 > 0.005$). Therefore, the study fails to reject the null hypothesis and submits with strong evidence that, there is no significant positive relationship between financial sector reforms and bank performance of DMBs in Nigeria, as measured by RoA.

Table 8: Decision Rule for Accepting or Rejecting Serial Auto Correlation

Null hypothesis	Decision	If
No positive auto correlation	Reject	$0 < d < d_l$
No positive auto correlation	No decision	$d_l \leq d \leq d_u$
No negative correlation	Reject	$4 - d_u < d < 4$
No negative correlation	No decision	$4 - d_u \leq d \leq 4 - d_l$
No auto correlation (positive and negative)	Do not reject	$d_u < d < 4 - d_u$

Testing for Hypothesis 2

To test the null hypothesis (Ho:2) there is no significant relationship between financial sector reform and RoE of deposit money banks in Nigeria. To determine if the null hypothesis can be accepted or rejected at 5% level of significance, reference to Appendix II which shows that P- value associated with F- statistics which is the joint effects of independent variables to dependent variable is greater than Alpha ($5.821 > 0.005$). Therefore, the study fails to reject the null hypothesis and submit with strong evidence that, there is no significant positive relationship between financial sector reforms and bank performance of DMBs in Nigeria, as measured by the RoE.

Result from descriptive statistic shows that, banks in Nigerian are not affected by the financial sector reforms for their operations. It could be due to or lack of stability in the financial reforms policies in the Nigerian financial institutions. Another reason could be due to the under developed nature of the Nigerian financial system. This submission is in line with the argument of Fadare (2010) and Odufu (2005) who asserted that strong banking sector exemplified by adequate capitalization, promotes profitability, growth and sustainability of banks and indeed the economy.

Results obtained from the study models shows that, RIR, BDS, MCAP, EXR, had negative impact on banks performance in the deposit money banks in Nigerian. This finding is in line with the study conducted by Sanusi (2011) who asserted that banking sector reforms the world over is predicted on the need to ensuring the expansion of saving mobilization base, promotion of investment and growth through market based interest rate. This could be described as being the movement from an initial situation of controlled interest rate towards a situation of flexible interest rate.

Conclusion

This study provides empirical evidence on the effects of financial sector reforms on the performance of DMBs in Nigeria for the period 1986-2016. It assessed the various reforms models, most of which focused on bank credits, bank deposits, behavior of real interest rates and foreign exchange rates amongst others. It also examined some models of bank performances and tested two major hypotheses. First, that financial sector reforms has no significant impact on banks' RoA in Nigeria, which focuses on the impact of financial sector reforms on the behavior of real interest rates as it affects banks' Return from its Assets. Second, that the financial sector reforms has no significant impact on banks' RoE which investigates the effect of financial sector reforms on the relationship that exists between DMBs performance and foreign exchange rates. A number of diagnostic tests were also conducted on the residuals to evaluate the models; these include the descriptive statistics, correlation matrix and regression analysis.

The study essentially rejected the null hypotheses for the alternative hypotheses. With respect to the financial sector reforms hypotheses, the study provides some evidences that financial sector reforms have reduced financial repression in the banking system in Nigeria.

Though studies reviewed were found to be in support of the main propositions of the models, the time series data technique revealed that financial sector reforms has a positive and significant effect on DMBs performance in Nigeria, especially as measured by the proxies of RoA, and RoE but has not been significant enough to transform the nations' economy to the desired level. Hence, the study recommends the more and proper recognition be given to the nation's Deposit Money Banks that will improve banks liquidity and stability which will in no doubt go a long way in boosting shareholder's and investors' confidence in the financial sector; and this will further improve the more efficiency of the banking sector. It also suggests that a stable macroeconomic environment as a precondition for the efficiency of a financial sector which is essential in ensuring that government fiscal policy is assigned to complement monetary policies and help restore domestic and international confidence in the Nigerian banking system. Also this work calls for further research using a panel of five banks and other research methods to analyze the financial sector reforms on the performances of deposit money banks in Nigeria.

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