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Research Article

BANKING SECTOR CAPITALIZATION AND DEPOSIT MONEY BANKS' PROFITABILITY IN NIGERIA

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Abstract

The incessant bank distress coupled with the poor financial intermediation capacity of the banking sector has been identified as the main problems of the banking subsector in Nigeria. This underscores the continue quest for increase capital base of banks as possible remedy to these problems. This development makes it imperative for us to examine how capitalization has affected banks profitability in Nigeria. To achieve our objectives, both panel and Partial Frontier efficiency analyses were utilized in this investigation. Using gross profits of 18 DMBs as dependent variable while capital base of DMBs, real income (GDP), financial deepening, interest rate and inflation rate are independent variables, we found that: capitalization has a significant impact on profitability of banks, while financial development, real income level were found to had contributed less to profitability of banks in Nigeria. It was further discovered that, interest rate has less implication on the profitability, while the impact of inflation on profitability of banks was positively but insignificantly. We also found that 58 % of the total variation in profitability is influenced by capital base, financial deepening, interest rate, GDP and price level in Nigeria over the period. The study further revealed that impact of capitalization on profitability of banks is the same across the banks. Finally, using the partial efficiency frontier analysis, we found that Unity Bank and UBA performed better with improved capital base while Union and Heritage Banks performed abysmally with high capital base given the very low efficiency scores. Based on these findings, the study recommends; periodic upward review of capital base of banks, stable macroeconomic policy, and creating enabling environment for investments as ways of enhancing an efficient financial sector and growth of the Nigerian economy.

Keywords: GDP; Panel and Partial Efficiency Frontier; Systemic bank distress; OLS; Macroeconomic Policy; Profitability; Capital base.

Introduction

From extant literature of banking performance, Nigeria is among many developing countries faced with operational and structural weaknesses where bank consolidation has been implemented as a means of addressing the many ills of the banking sub-sector such as declining asset quality, low capital base, large number of small banks, overdependence on public sector funds, gross insider abuse, oligopolistic banking structure and weak corporate governance (Sanusi, 2011). Irrespective of the pivotal role that reforms of the banking sector are meant to play in enhancing and the Nigerian economy for growth, little empirical research exists in the area of bank consolidation (Adegbuju and Lokoyo, 2008). Adegbuju and Okoloyo (2008) acknowledged that, like it is the case in other countries of the world, the banking system in Nigeria has over the years seen unprecedented changes as there has occurred the emergence of more financial institutions, change in ownership structure and improvement in banking operations. Factors like the "financial sector deregulation, globalization of operations, technological innovations and adoption of supervisory and prudential requirements that conform to international standards" were identified by Adegbuju and Okoloyo (2008) as those responsible for the unprecedented changes that occurred in the Nigerian financial sector.

Low capital base had been a critical factor influencing poor performance or declining profits of banks right from the early days when Nigeria was under colonialism. During the colonial times, Nigeria had indigenous banks and expatriate banks side by side and both operated in the Nigeria environment. The study reveals that the indigenous banks could not compete favourably with their foreign counterpart banks as a result of poor capitalization as well as lacking skilled labour and consequently most of them collapsed and went into liquidation in quick succession. Strong capital base was expected by these indigenous banks for confidence building, infrastructure acquisition and branch expansion which was lacking by the native banks and these factors were the hallmark of growth and development of foreign banks at that time of the nation's history. Even after independence, the poor capital base of the Nigerian banks had been a critical factor and a reoccurring decimal leading to the constant bank distress and systemic crisis in the industry until the government led banking consolidation exercise of 2004.

Beside inadequate capitalization, the profitability of any business (e.g. bank) is majorly affected by organizational management. Donli (2004) posit that the distinguishing factor between a sound and unsound bank is the "quality of corporate governance". Since deregulation, poor bank management accounted for over 90% of failed banks in the US alone (Comptroller of the Currency, 1988). Unprofessional attitude of high profile bank employees and the difficulty in application of external policies and measures characterize the 'mismanagement' of banks (Donli, 2004).

Technical Mismanagement, Cosmetic mismanagement, Desperate Management and Fraud were identified by Donli (2004) as the four (4) major types of bank mismanagement. While technical mismanagement was hinged on poor business policies; cosmetic mismanagement is that which involves 'hiding past and current losses'. Mismanagement that results from declaration of false financial records like, 'operational loss' is what Donli described desperate management as. Lastly, fraud features as a tool that has transformed good bankers into bad ones (Donli, 2004).

The burden of asymmetric information has been identified by literature as one factor that determines a bank's performance Soludo (2010). By asymmetric information, we mean a situation when the lender is less informed about the possible risk and prospects associated with an investment (Mishkin, 1996). Developed and stable economies appeared to have overcome the problem of asymmetric information as it was submitted as "often rampant in unstable" economies (Donli, 2004). Asymmetric information also made the diversion of intervention funds from government parastatals National Economic Reconstruction Fund (NERFUND) and Nation Import-Export Bank (NEXIM) in Nigeria for purposes not original meant for (Donli, 2004).

In the light of the above problems, this paper intends to empirically analyze the impact of consolidation on deposit money banks' profitability in Nigeria over the period 2001-2013.The authors operationalize profitability as proxy to performance because profit is quantifiable and measurable. Other studies like Aremu (2013), Attaamah (2010), and Akpan (2012), in their analysis of banks use profitability as proxy to performance in the Nigerian context.

We shall proceed by reviewing some relevant literature on the study in order to identify possible gap(s) to fill. This will be followed by describing steps followed to achieve the set objectives. The next section shall focus on results and findings of the study and finally, the conclusions and recommendations of the study.

Literature Review

Bank consolidation exercise is spurred by series of factors like technological advancements, business innovations and increased competition across national boundaries (Berger *et al.*, 1991: De Nicole *et al.*, 2003; IMF, 2001). Soludo (2005) perceives consolidation as an amalgamation or a combination in which all the combining companies are legally dissolved and a new company is formed with the objectives of enhancing performance through sound asset quality as one of the yardsticks. The result of this process is a larger/expanded consolidated banking institution aimed at alleviating unhealthy competing institutions. For the G-10, any bank ownership transfer characterized by loss of autonomy by one bank, acquisition of assets and liabilities of another bank and done through mergers and acquisitions within a financial industry is referred to as banking consolidation (G-10, 2010). Mergers and acquisitions are systematically carried out so as to achieve "greater output, avoidance of duplication of facilities and staff services and stronger financial base" (Akinsulire, 2002). The major objectives of banking sector consolidation or reforms are to increase intermediation process, ensure financial sector stability, promote economic growth, increase the capital base of banks, enhance liquidity and capitalization of stock market, enhance expansion of shareholders base to promote good corporate governance, facilitate evolution of strong and safe banking system, ensure efficiency in risk management and bank operation, and to ensure healthy domestic and cross-border competition (Soludo, 2005).

Amedu (2004) mentioned projected enhanced income, expected reduced production cost and business growth as the basis for seeking merger or acquisition. The purchase of a firm with: (i) a management known for its competent track record; (ii) capability of enhancing earnings (iii) ability to accommodate new innovations that can create more wealth; (iv) regular access to production inputs like materials and financial instruments; (v) possession of great assets; (vi) potentials to diversify into other lines of products; and (vii) growth were the motivating factors behind mergers and acquisitions (Akinsulire, 2002)

Banking crisis usually begins with banks instability arising from systemic distress or when the financial conditions of a major bank or group of banks in the controlling share of the industry are impaired; implying banks' inability to fulfill their financial obligations to customers as well as investors. The problems start as "bank run" resulting in massive credit withdrawals from the institution. In such circumstances, sometimes Central Banks all over the world intervene in form of liquidity support or sometimes the International Monetary Fund's (IMF) also play an interventionist role with the aim to help curb the crisis from getting worse. Consolidation in the form of merger and acquisition or recapitalization and the establishment of Asset Management companies to arrest the situation by a process of take over the controlling share of the company and recovering the process of assets and liabilities or sometimes an outright liquidation of the bank in question. As a process, most commentators have regarded consolidation as a necessary requirement for efficient banking services and operations; as consolidation has the capability of (i) reducing cost; (ii) increasing revenue; (iii) reducing banking industry risk; (iv) enhancing the financial intermediating function of banks; and (v) creating more business opportunities in other industries for banks. Bank consolidation may occur without banking crisis and from whatever causes, the importance of consolidation cannot be over emphasized because consolidation strengthens the banking system, embraces globalization, improves healthy competition, adopt advance technology and exploits economies of scale with the overall goal to strengthen the intermediation roles and improves economic performance and societal welfare gain

Banking industry consolidation will here be viewed from two distinct angle based the actors involved namely: (i) market-induced consolidation; and (ii) government-induced consolidation. On the one hand, the market-induced consolidation (which is mostly peculiar to developed countries) is driven by the quest for corporate advantages, increased bank's competitiveness, 'bankruptcy-proof', and efficient service delivery; government-induced consolidation on the other hand is borne out of the need to (i) find a lasting solution to challenges leading to banks becoming distressed financially (ii) protect the industry from experiencing financial crisis, and (iii) isolate banks that are performing below expectations in terms of efficiency (Ajayi, 2005). Bank consolidation is also initiated with the aim of reducing a large number of existing weak banks to a few strong banks that can bring about development in the sector and economy at large. Thus, bank performance has attracted so much investigation essentially due to the fact that deposit money banks occupy a special place and play an important role in the national economy.

According to Hyz (2011), banks' role in the growth and development of a nation is most evidence in the provision of financial resources for production of goods and services. Banks consolidations are effected with the intent of building a banking industry that is strong, technological advanced, efficient in service delivery, capable of generating high level of profit, adequately positioned for competition and globalization (Adegbaju and Olokoyo, 2008). Over the last few decades, studies tend to be more concerned with the impact created by banks' consolidation (Jones and Critchfield, 2005). One area that has received the attention of scholars in bank consolidation is competition. A recent study by Oke (2012) revealed that marketing has become a major function in the banking industry as a result of increased competition brought about by bank consolidation and reforms. As a matter of fact, banks staff involved in marketing activities in the post consolidation era have surpassed those in the Pre Consolidation era (Oke, 2012).

A review of existing empirical literature on the causes and consequences of consolidation of the financial service industry, shows that consolidation is consistent with increased in market power, especially in the case of consolidation within the same market (in-market M& A) i.e. improvements in profit efficiency and diversification of risks, but little cost efficiency improvement on average (Berger, Demsets and Dtraham, 1999). In the study of 10 mega mergers during the 1989-2000 period, the findings suggest that the motivation of mega —mergers was not to improve efficiency but to take advantage of the government too- big-to-fail policy (Okada, 2005).YamorisHarimaya and Kondo (2005) studied financial holding companies of regional banks and found that profit efficiency tended to increase when the market share in the region increases. Sakai and Tsuru, 2006 analyzed the motives and consequences of credit corporate (shinkin) bank during 1984-2002 and their findings reveal that; less profitability and cost efficient banks were more likely to be an acquirer and a target. Acquiring banks improved cost efficiency but still deteriorated their capital to assets ratio after consolidation. Consolidation of shinkin banks tended to improve profitability when difference in the ex-ante profitability between acquiring banks and target banks were large which is consistent with the relative efficiency hypothesis (Akhavein, Berge and Humphrey, 1997).

According to Mitchell and Mulherin (1996), if M&A are driven by the motivation for improving efficiency, then merger waves result from shocks to an industry's economic, technological or regulatory environment, they further argued that these shocks lead to industry reorganization. In addition, while analyzing the U.S Industrial merger waves in the 1980s & 1990s.Harford, (2005) found that operational performances measured by ROA, sales growth and others, were high prior to merger waves. Harford, (2005) used average ROA for each bank type to capture the economic environment, and the stock price index for the banking industry to capture the degree of financial constraints. Second, if M & A are driven by the motivation for strengthening market power, banks operating in a less concentrated and more competitive market are more willing to merge each other. Third, he noted that if M & A are driven by the motivation for taking advantage of a too-big-fail policy or a local market stabilization policy, then merger waves occur when the overall bank health is determinate.

Finally, Harford (2005) argued that if M & A are driven by the managerial motives for private benefits then M&A are prone to happen driven by the fact that the average expenditures for managerial private benefits such as advertisement expenditures or entertainment expenditures are high.

In a more recent time, Sammy *et al.* (2004) have investigated post post-merger productivity changes using labour and total assets and loans and advances and total deposits as outputs. It was revealed that during the period between 2000 and 2001, Post- merger Malaysian banks had achieved total factor productivity growth of 5.1%.ltwas revealed that during the period eight banks posted positive total productivity growth ranging from 1 .3%9to 19.7%, one bank exhibited total factor productivity regress of 13.3% and a bank was stagnant. The merger has not resulted in better scale efficiency of Malaysia banks as all banks exhibit scale efficiency regress with exception of two banks, and the results also suggest rapid technological change of post-merger Malaysian banks ranging from 5% to 16.8%, while two banks however experienced technological regress during the period of study. (FadzlanSufian, 2006).

Sammy *et al.* (2004), investigated Malaysian banks post-merger productivity changes by applying labour and total assets and loans and advances and total deposits as output. The literature reveals that from 2000-2001; Post-Merger Malaysian banks had achieved a total factor productivity growth of 5.1 %. Investigation shows that during the period eight banks posted positive total productivity growth ranging from 1.3% to 19.7% one bank exhibited total factor productivity regress of 13.3% and a bank was stagnant during the period. The result of the finding further revealed, that merger has not resulted in better scale efficiency of Malaysian banks as all banks exhibit scale efficiency regress with exception of two banks. The same results also suggest rapid technology change of Post-Merger Malaysian bank ranging from 5.0% to 16.8%. However, the result shows that two banks experienced technological regress during the period of study.Berger *et al.*, (1993), in his presentation of window Analysis of average pure technical efficiency score, 1992-2003 found out that large Malaysian banks average pure technical efficiency is higher compared to its smaller counterparts but lower in comparison to the very large bank. According to (Suffian, 2006), a possible explanation for the higher pure technical efficiency of the large banks could be due to the fact that large banks may have the advantage over their smaller counterparts as large banks attract more deposits and loan transactions and that the large banks may command larger interest rate spreads. Suffian (2006), further argues that larger banks offer wider range of services and in the process derive substantial non-interest income from commissions, fees and other treasury activities. Suffian (2006), also argued that large banks extensive branch networks and larger depositors base attract cheap source of funds while on the other hand, the smaller banks with smaller depositors base might resort to purchasing funds in the inter-bank market, which is more costly and may explain the lower technical efficiency scores of the small Malaysian banks. According to Suffian(2006), these results are consistent with the findings by Chu and Lim (1998) and Lim and Randhawa (2005) on Singapore banks, which operate in a similar Oligopolistic banking environment, adding that the large Singapore banks have better advantage through their extensive branch networks in attracting cheap deposits and help the larger banks to exhibit higher pure technical efficiency compared to their smaller counterparts.

In contrast to the pure technical efficiency, the literature suggest that small Malaysian commercial banks exhibit the highest average scale efficiency scores compared to their large and were large countries and that the very large bank in the sample of study reported the lowest average scale efficiency score during the period (Suffian F, 2006). According to Suffian (2000), a possible explanation for the lower scale efficiency of large Malaysian banks could be due to the large depositors base resulting from government protection, high capital reserve requirement and overly conservative loan growth strategies, particularly during the post crises period as Malaysian banks have been reluctant to lend large amounts to corporations after being burnt during the crisis.

Studies carried out in Nigeria reveals that profit efficiency /asset utilization has not been impressive. According to Somoye (2008) although the banks have been able to double their gross earnings from their per-consolidation performance level their profit and asset utilization efficiency have declined since the conclusion of the consolidation. Somoye (2008), noted that the industry return on equity declined from 35.28 % in 2004 to 11.12 % in 2006, while Return on asset declined from 8,37 % to 2.09 % over the same period. The findings also shows that asset ratio also declined, while an overage bank was able to earn 34 kobo for every N1.0 asset in 2004, this declined to Ilkobo in 2006, and that while the consolidation has improved the structure of the Nigeria banking industry in terms of asset size, deposit base and capital adequacy, the profit efficiency has note been impressive. And lastly, the literature also reveals that the lending capacity of the banks improved significantly as a result of the consolidation because as at 2004, an average bank could only lend about N14,371 billion, where ease consolidation strengthen the bank where a typical bank in Nigeria in 2006 could lend an average of N80.788 billion representing a growth of 462.13 % growth.

Aghojafor (2012) conducted a test where the performance of banks where compared on the basis of their capital and profit before and after merger using independent sample t-test statistics at 0.05 alpha level using financial records of selected banks average capital of banks sample in pre-merger period was N1433.20 million while post-merger period recorded average capital of N6358.76 million meaning that the main difference between pre-merger and post-merger period was statistically significant at 0.05 level ($t = 6.755$, $p < 0.05$). In the same vein Oghojafor (2012) noted that the same banks recorded average profit of N2192 .48 million during the pre-merger period while the post-merger period increased significantly to 4 1683912 million. The test also shows that the mean difference between banks profit in pre-merger and post-merger periods was equally statistically significant at 0.05 level (t 5.276>p< 0.05. Somoye(2008) noted that the market capitalization of quoted banks was 34.41 % of total market capitalization of the Nigerian stock exchange(NSE) in 2004, but rose significantly to 41.80 % in 2005 and remain at 41 .84 % by 2006. The NSE market capitalization grew by 160.70 % between 2004 and 2006, whereas, the banking sector market capitalization grew by 223.33 % over the same period adding that about 46.32 % of the total growth in market capitalization came from the growth in banking sector market capitalization (Somoye, 2008). Somoye (2008) concludes that from the capital market perspective, the banking sector has made a significant contribution, and it has further improved the value and liquidity of the Nigerian capital market during the period under consideration.

The literature reviewed on selected countries around the world reveals that banking consolidation was precipitated by different causes- unique historical circumstances, socio-economic and political. The Nigerian economy has witnessed remarkable changes during the consolidation and various reforms. As much as increased capitalization was emphasized in the reform process, other issues such as corporate governance, robust management techniques, information and communication technology and capacity building are also germane in the efficient and effective management as well as strategic direction to improve bank performance and above all, the stability of the macroeconomic fundamentals cannot be overemphasized in addressing the overall growth and performance of the banking sub-sector and the national economy.

Methodology

Adegboye *et al.* (2013) studied the empirical relationship between capital base and profitability of deposit money banks in Nigeria and Aregbeyen (2011) investigated the impact of recapitalization and consolidation on Banks costs of equity in Nigeria. Both studies employed data on capital base of deposit money banks as proxy for recapitalization/consolidation as independent variable while profit of the banks was used as dependent variable. Aransiola (2013) investigated the impact of consolidation on profitability of commercial banks in Nigeria while Sanni *et al.* (2012) also studied post consolidation profitability ranking of Nigerian Banks using data on minimum capital base as independent variable. Otieno (2013) investigated the impact of financial deepening on profitability of commercial Banks in Kenya using data on financial deepening (MS2/GDP) and profit of commercial banks.

This work is original in context by using the following examples: The study by Koko Hara (2007) on “Consequences and Consolidation of Japanese Banking Industry” uses qualitative interpretation of the identified variables without subjecting the variables to empirical test. In another development, the study by Prompitak (2009), on based his argument of bank consolidation on lending behavior, places more emphasis of qualitative analysis on the identified variables such as bank characteristics, macroeconomic conditions, taxation, legal and institutional factors etc. as responsible in explaining the behavior of bank lending. Of course, behavior is a dummy variable that can only better be qualitatively evaluated in any academic discourse, while this study is a quantitative impact assessment of profitability/performance of banks in Nigeria.

In another development, the study by Okafor (2012), applied two key central bank of Nigeria objectives, emphasizes change as affected growth and size resulting from consolidation of banks in Nigeria. In the analysis, the author applied mixed methodology using primary & secondary data, used ratio and qualitative analysis to obtain his result. And lastly, the study by Nwankwo (2012), titled “The Impact of Pre and Post Bank Consolidation on Growth of The Nigeria Economy”, uses multiple linear regression equation, but incidentally, he omitted capital base in the model and the duration of data collection period covered only six years which makes the data points defective and rendered the degree of freedom to be very small. The work itself is on the Nigeria economy. This study emphasis is on banks specific outcome, using the explanatory variables to empirically determine profitability of banks and not testing the impact of consolidation on the Nigeria economy generally.These are gaps that make the present work original and different from the previous studies in the field.

This paper therefore, tends to consolidate on earlier studies carried out by scholars in and out of Nigeria but however differs in terms of variables, scope and methodology. This paper used profitability as dependent variable while capital base, financial deepening and some key macroeconomic variables like real income level; interest rate and price level were considered as independent variables. The paper also studied eighteen deposit money banks for the period 2001-2013. Finally, the paper adopted both the panel and partial efficiency frontier analyses to assess impact performance and ranking of banks which were not the case in other studies investigated.

Given this background, the studyspecified a deposit money banks profitability model that incorporated selected Eighteen (18) banks, interest rate, capital base, inflation rates, real GDP and level of financial deepening over the period 2001-2013 was pooled together into 234 observations as follows;

$PRFT_i$= F($CAPB_{it}$, $INTR_{it}$, MSS/GDP_{it}, $RGDP_{it}INFR_{it}$)---1

Where: $PRFT_i$= profit of the selected 18 banks, $CAPB_t$= capital base of the banking sector,$INTR_t$= interest rate (lending rate) of the banks, MSS/GDP_t = level of financial deepening, $RGDP_{it}$ = real GDP(income level), $INFR_{it}$ = inflation rate/price level, During estimation, parameters are introduced and a disturbance term "ε" to take care of variables not included in the model but affect economic growth. Hence equation 1 above is transformed thus:

$PRFT_{it}= \beta_i+\beta_2 CAPB_{it}+\beta_3 INTR_{it}+\beta_4 FIDE_{it}+ \beta_5 RGDP_{it} + \beta_6 INFR_{it} + u_{it}$ --------------------------2

After expressing equation (ii) in log-linear form, the model is to reduce instability and gives the variables a uniform scale which is specified as follows:

$lnPRFT_{it}= \beta_i+\beta_2 lnCAPB_{it}+\beta_3 lnINTR_{it}+\beta_4 lnFIDE_{it}+ \beta_5 lnRGDP_{it} + \beta_6 lnINR_{it} + u_{it}$---------3

Apriori Expectation: $\beta_2> 0$, $\beta_3> 0$, $\beta_4> 0$, $\beta_5> 0$, $\beta_6< 0$

Capital requirement, interest rate, financial deepening and real GDP are expected to be positively related to profitability of banks, while price level (inflation) is expected to be negatively linked to deposit money banks profitability, and

$u_{it} = \mu_i + \varepsilon_{it}$--4

Where

i = 1, 2, 3, 4,…,18

t = 1, 2, 3, 4, 5,…,234

μ_i= unobservable individual specific effects

$_{it}$= unobservable time specific effects

ε_{it}= idiosyncratic or random effects (remainder disturbance term)

Estimation Procedure

We started our analysis by conducting descriptive statistics and correlation analysis.This was followed by the panel analysis. The panel analysis helps us to determine the:Fixed effect (if impact of consolidation on the banks differs across banks) and Random effect (whether impact of consolidation is the same across banks). In order to assess how individual banks have fared over the period, line graphs and the partial frontier efficiency analysis were used the partial efficiency frontier analysis which ranks performance based on input utilized and output is based on the production function-output (Q) = f(inputs). In this study,Output = deposit money banks profitability while Inputs = capital base, financial deepening, real income, inflation rate and interest rate.

Results and Findings

The result of the descriptive statistics indicates that the mean value of profit for all the eighteen banks over the period 2001-2013 was N670,000,000 while the mean level of capitalization was N342,000,000. During the period under investigation financial deepening has a mean value of 22.2%, Gross domestic product has mean value of N656.8231b, inflation rate has mean value of 12.4% and interest rate has mean value of 22.1%.

Profit level of the banks has minimum value of N1682b and a maximum value of N74, 000,000,000 over the period. Level of bank's capitalization has minimum value of N2759b and a maximum value of N9, 490,000,000. Financial deepening has minimum value of 18.1% and maximum value of 38%. Gross domestic product has minimum value of N431.8b and a maximum value of N950.1b over the period of the study. During the period of our investigation, inflation has minimum value of 5.38% and maximum value of 18.87%. Finally, interest rate has minimum value of 18.36% and maximum value of 30.19% over the period of the study (Table 1).

Table 1: Descriptive Statistics

Variable	Observation	Mean	Std. Deviation	Minimum	Maximum
Prft	234	670000000	6760000000	1682b	74000000000
Cap	234	342000000	1260000000	2759b	9490000000
Fid	234	22.19231	5.990395	18.1%	38%
Gdp	234	656.8231	161.6951	431.8b	950.1b
Inf	234	12.37385	3.594065	5.38%	18.87%
Inr	234	22.05846	3.090469	18.36%	30.19%

Table 2: Pair wise Correlation Test Result

Variable	Prft	Cap	Fid	Gdp	Inf	Inr
Prft	1.0000					
Cap	-0.0019	1.0000				
Fid	-0.0451	0.0223	1.0000			
Gdp	-0.0832	0.0238	0.1235	1.0000		
Inf	0.0534	-0.0783	-0.2876	-0.4748	1.0000	
Inr	-0.0107	-0.1253	-0.2313	0.0621	0.1016	1.0000

The correlation test result reported in Table 2 shows that level of bank capitalization, financial deepening, gross domestic product and interest rate have weak and negative relationship with profit level of the banking sector while the relationship between profit level and inflation is weak and positive over the period of this study.

The result also indicates that financial deepening and gross domestic product have positive but weak relationship with level of banks capitalization while inflation rate and interest have negative but weak relationship with level of banks capitalization. Gross domestic product was found to have weak but positive relationship with level of financial deepening from our result while interest rate and inflation level have negative but weak relationship with financial deepening over the period of this study. Our result also shows that gross domestic product has negative but weak relationship with inflation rate while its relationship with interest rate is positive but weak. Finally, inflation has weak but positive relationship with interest rate. Collectively the overall pair wise correlation result reveals that all the independent variables have weak relationship with the performance (profit level) of the bank over the period of our study.

The panel result indicates that level of bank capital base is positively related to banking sector performance (profit level) both in the random and fixed effect models. Bank capitalization is also significant at 5 % level (Table 3). This result is in tandem with that of Kanu and Isu, (2013), Berger (1995), Hughes and Mester (1997).

Financial development measured as financial deepening was found to be positively but insignificantly related to banking sector profitability both in the random and fixed effect models. This result is in agreement with that of Ting (2012).

Gross Domestic product is negatively and insignificantly related to banking sector profitability in both the random and fixed effect models. This result is in agreement with that of Tan and Floros (2012).

The panel result also shows that Inflation rate is positively but insignificantly related to profitability of the banking sector (profit) both in the fixed and random effects models. The above finding also conforms to earlier studies (Demirguc-kunt and Huizinga, 1999; Demirrguc-kunt and Huizinga, 2001; Uche, 1996; Ogowewo and Uche, 2006)

Interest rate was found to be negatively and insignificantly related to banking sector profitability (profit). This implies that interest rate has negative impact on the level of bank's profitability over the period of this study. This result is in tandem with that of Ogunbiyi and Ihejirika (2014).

The result further revealed that about 58 % of the total variation in deposit money banks profitability is explained by capital base, financial deepening, real income level, interest rate and price level.

The Hausman test for fixed effect is insignificant and shows that the impact of capitalization on the profitability/performance of the banking sector does not vary across the banks. This position is supported by the Breusch and Pagan Lagrangian multiplier test for random effects which is significant and reveals that the effect of capitalization on the performance of the banking sector is same across the banks. The panel result thereby shows that the impact of capitalization on the profitability of deposit money banks does not differ across the banks over the period of this study.

The partial efficiency frontier analysis which ranks performance based on input utilized and output revealed that the result of our input-oriented efficiency scores indicates that all the banks under investigation were all efficient in the use of input variables. This implies that level of capitalization, financial deepening, real GDP, inflation rate and interest rate all affected on the banks in the same proportion. For instance, the input-oriented efficiency scores indicate that all the banks were efficient in the use of inputs from 2001-2008 but were inefficient in the use of inputs from 2009-2010. However, the utilization of inputs variables by the banks was found to improve from 2011-2013.

Table 3: Panel Results of Bank Capitalization and DMBs' Profitability in Nigeria

Variable	Regression Result	Fixed effect	Random effect
Constant	7.490092 (0.189)	8.183787 (0.090)	7.958346 (0.098)
Log(Cap)	.7459936 (0.000)	.6566052 (0.000)	.6856552 (0.000)
Log(Fid)	.2393089 (0.709)	.2450861 (0.651)	.2432086 (0.653)
Log(Gdp)	-.2638771 (0.669)	-.0985134 (0.852)	-.1522542 (0.772)
Log(Inf)	.3437606 (0.478)	.3031547 (0.459)	.316351 (0.439)
Log(Inr)	-1.636144 (0.131)	-1.717223 (0.061)	-1.690874 (0.064)
F*	64.76	28.25***	
R^2	0.59	0.59	0.59
Adjusted R^2	0.58		
Hausman test for fixed effect		1.22 (0.9429)	
Breusch and Pagan Lagrangian multiplier test for random effects			108.52 (0.0000)

[Figures in parentheses are probability values. b = consistent under Ho and Ha; obtained from xtreg. B = inconsistent under Ha, efficient under Ho; obtained from xtreg]

The result of the output-oriented efficiency score reveals that unity bank plc was the most efficient in output-oriented efficiency score. This implies that capitalization impacted more on the performance (profit) of Unity bank plc than the other seventeen banks. The result shows that unity bank has the highest rating of 1 from 2001-2010. This is followed by United Bank for Africa (UBA) which was found to be efficient in output rating from 2001-2004. Wema Bank, Stabic IBTC, GT Bank, First Bank, Skye Bank and Enterprise were only efficient in output-efficiency rating for two years each during the period of this study.

Evidence from the financial statements and information obtained from the AGM of the institutions provide abundant evidence why some of the banks such as unity bank, UBA,WEMA Bank etc were more efficient and higher in their efficiency rating after the consolidation exercise in the Nigerian banking sub-sector.Unity bank had impressive gross earnings, profits and stable business environment. The bright steady out-look is predicted on growth strategy to operational efficiency derived from its business model and that agriculture remained a major strategic focus of the bank based on its historical strength, thereby emerging as a middle market entrepreneurs retail banker in the industry.

Discussions of findings

The positive and significant contribution of capital base to performance of banks supports reasons advanced for the recapitalization of the banking/financial sector in Nigeria and most countries is the repositioning of the sector for efficiency especially in financial service delivery which is the principal focus of banking service. Before the banking sector reforms in Nigeria, some of the banks were found to be inefficient and low returns for shareholders hence raising the sector capital base which was a cardinal part of the reform was to improve the financial base of the banks in order to broaden its financial obligation role. As the single obligor limit growing banks in Nigeria can now invest in oil and gas sector, power and the real sectors which is vital for economic growth and development. Earlier studies by Kanu and Isu, (2013), Berger (1995), Hughes and Mester (1997) also laid credence to this paper on the critical role of capital base on the performance of DMBs and the economy at large

As earlier mentioned, the result on financial development supports earlier study by Ting (2012). Financial spreads measured in term of broad money supply/GDP is an indicator of bank lending and investment. It is important to note that profitability depend significantly on how much credit banks lend out to investors. Hence the result is an affirmation of improvement in lending to investors in Nigeria. The surge in bank branches which have made financial services accessible to even the rural populace in Nigeria is another indicator increase in financial development.

Evidence from literature on the works of Tan and Floros (2012) show an inverse and insignificant nexus between performance of DMBs and real GDP. Our result and that of Tan and Floros tend to support, though not totally, the opinion that improved and safe business environment and ease of entry by bank results from increased economic growth. High competition among banks will also result in reduced profitability among banks. This finding is also in line with economic philosophy in real life situation in oligopolistic market, firms make supernormal profits. But when perfect market exists in the system, firms would make normal profits because of healthy competition which wipe out the abnormal profits enjoyed by the oligopolistic market. In a healthy competitive market, the less efficient firms close shop or fiddle out of the system as a result of declining profits overtime. In a perfect market under short-run price and quantity determination, the firm is enjoying increasing return

Our findings on price level ally with earlier studies by Huizinga (1999) and Demirrguc-kunt and Huizinga (2001) and Uche (1996) and Ogowewo and Uche (2006:164-165). Their studies suggest deposit money bank profitability can be enhanced when price level is high. They also argued that the existence of a direct impact of price level on bank's profitability implies that bank's outlays increases more with rising price level than the running cost of banks. Their study further reveals that with rise in cost of credits, inflationary rates soars and also resulting to high incomes. However, CBN(1994) and Afolabi and Oluyemi(1995) observed that high rate of inflation in the Nigerian economy reduces demand for banks financial assets, thus leading to a situation characterized by diversion of deposits to other sectors like real estate and further impairing the banking sector from performing its financial intermediation function.

This paper found interest rate to impact negatively on the level of bank's profitability. This conforms to previous study by Ogunbiyi and Ihejirika (2014). Increase in interest rate by the banks reduces borrowing by prospective investors which in the long run reduce bank's profitability since banks earnings to larger extent is dependent on the credit/loans to investors/borrowers. It could be observed that cost of borrowing in Nigeria has been at double digits (precisely above 20 % in years). This scenario had hampered lending since most investors could not afford to borrow at the high interest rate. Sanusi(2012) also attributed the causes of banks instability to high interest rate and profiteering by DMBs.

Concluding Remarks

Based on the result and findings, the paper found capital base of deposit money banks to have higher propensity of increasing profitability/performance of deposit money banks in Nigeria. It also discovered financial development contributed less to the profitability of deposit money banks in Nigeria. Though some macroeconomic variables like real GDP, price level and interest were found to be weak in enhancing performance of bank, the paper re-emphasise the critical role of the macroeconomic environment and therefore argued for an improvement in banks' capital base and a stable macroeconomic environment as possible ways of improving the performance of the banking sector for greater investment and economic prosperity of the Nigerian economy.

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