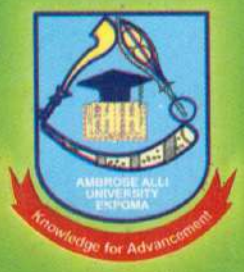

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Financial Soundness and Banking Sector Performance: Insights from Nigeria

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Abstract
The banking sector is one of the significant sectors in any country; therefore its health and efficiency are crucial to the country. This study examined financial soundness and performance of banking sector in Nigeria. Time series data for the period 1990 to 2015 for five variables representing about twenty-five (25) annual observations was generated. The study used Augmented Dickey Fuller test to determine the stationary state of the variables. It also employs the ordinary least squares multiple regression method, co-integration and error correction mechanism to analyze the data generated. The empirical findings revealed that financial soundness largely determined the performance of banks in the Nigerian banking sector as indicated by the coefficient of determination both in the short-run and long-run. Similarly, a long-run relationship exists between financial soundness and banking sector performance in Nigeria. The current periods of capital adequacy ratio, ratio of non-performing loan to gross loan and liquidity were found to increase banks performance and were not statistically significant. In the long-run, only liquidity has a positive impact on banking sector performance and was not statistically significant. The study therefore recommends that Central Bank Nigeria should put up constant review of minimum amount of capital requirement as this will reduce moral hazards by putting bank owners' money at risk.

Keywords: Cash reserve ratio, liquidity, capital adequacy ratio, ratio of non- performing loan to gross loans.

Introduction

The importance of financial soundness to the performance of banks cannot be overemphasized. Economic acceleration can be witnessed in a country like Nigeria if financial soundness and stability of financial system are given priority attentions. Financial soundness is not just a major necessity for sustained economic growth, but a key concern to policy makers and regulators like the Central Bank at ensuring sound banking system. Conventionally, a major role of The Central Bank is to provide safeguard to financial system and liquidity management during financial stress (Muhammad, Syed & Muhammad, 2015). Financial soundness is measured with financial soundness indicators and they provide insight into the financial health and soundness of a country's financial institutions as well as corporate and household sectors. The banking system could be regarded as the backbone of the financial system and it provides opportunities for efficient allocation of savings, and returns on savings and investment. The aftermath is to engender financial performance. Banks by their nature are susceptible to micro and macroeconomic risks. The macroeconomic risk arises partly from non-performing loans which can further contribute to liquidity and profitability problems. The non-financial soundness of banks contributes to financial malaise which erodes the asset value and consequently jeopardizes

the wealth of the shareholders. Adequate financial soundness assists banks to resist micro\macroeconomic shocks and influence economic performance. The financial soundness of banks reflects its ability to absorb losses for adequate capital structure, fund expansion and pay adequate dividends to shareholders.

A critical analysis of financial soundness indicators enables policy makers and regulators to easily identify the strengths and vulnerability of a financial system so they can take preventive actions to avert financial crisis. The regulatory authority in Nigeria, the Central Bank of Nigeria (CBN) in its impact assessment of 2004 rated the 89 banks and classified 62(70%) of the banks as financially sound and satisfactory, 14(16%) as marginal, 11(12%) as unsound and 2(2%) did not render any returns during the period. The CBN thereafter concluded that the Nigerian banking system was not robust enough to anchor the national economic reform designed to pull the country out of the doldrums as encapsulated in the National Economic Empowerment and Development Strategy (NEEDS) documents. Additionally, the performance of banks attracts considerable attention from bank regulators and monetary authorities due to the fact that the adverse implications that bank failures have on public confidence in the banking system (Fapohunda, 2012). Thus, in safeguarding the financial soundness of banks, minimum required capital requirements measured by capital adequacy ratio are seen as one of the most effective tools of banking supervision as they guaranteed that banks have buffers to absorb unexpected losses. The need to ensure financial soundness no doubt is one of the rationales behind the recapitalization policy of the apex bank in 2005 in the Nigerian banking sector. While studies on the impact of financial soundness on banking sector performance have been examined in developed countries, empirical researches in the Nigeria Banking sector has not gained ascendancy, hence this study. Hence, the objective of this paper is to examine the effect on financial soundness indicators on bank performance in Nigeria. Apart from the introductory section, section two contains the review of related literature; section three is the methodology, section four concerns with analysis and discussion of findings while section five is conclusion and recommendations.

Literature Review

Conceptual and Theoretical Review: Asian Development Bank (2015:1) describes financial soundness as a "key for financial stability and monitoring of the soundness of financial institutions that will help detect any possible buildup of systematic risk that may lead to a crisis". Financial soundness is measured with financial soundness indicators (FSI) and they provide insight into the financial health, efficiency and soundness of a country's financial institutions as well as corporate and household sectors. Financial soundness indicator ensures financial stability which is a essential condition for financial sector growth where the banking industry is presently predominant. The financial soundness indicators consist of two 'sets' which include 'core' and 'encouraged' indicators. The core indicators are used to determine the 'potential vulnerability of deposit-taking institutions'. They include capital adequacy, asset quality, earnings and profitability, liquidity and sensitivity to market risks. The encouraged indicators are 'collected on a country – by – country basis to examine the soundness of other financial sectors' (Asian Development Bank, 2015).

The core financial soundness indicators can be described and measured in the following ways.

Earnings and profitability ratios - it assess the efficiency of deposit-takers in using their assets (return on assets); capital (return on equity); ability to generate interest income (interest margin to gross income) and minimize administrative costs (non – interest expenses to gross income).

The capital adequacy is used to examine 'sufficiency of capital to support possible asset – side losses, measured by risk weighted assets or non performing loans'. Albulescu (2015) says with financial turbulences in banks, a considerable amount of non-performing loans has been recorded

which then affected their performance. Peterson (2015) points out that capital adequacy ratio (CAR) measures 'the ability of bank deposit to mitigate the risk of insolvency'. He notes further that the higher the ratio, the lower the need for external funding and therefore the higher the profitability of the bank. Bank loan (credit) is one of the highest assets of banks in the banking industry and serves as a major component of capital adequacy. When bank loan (credit) is poorly managed, it could have an adverse effect on the capital adequacy which consequently influences financial soundness and performance for a given period of time. Parvesh and Afroze (2014) opine that 'capital adequacy is the foremost benchmark and primary measure for safety and soundness for banks and financial institutions since loans and advances (credits) are the components of capital adequacy of banks'.

The Asset quality ratios give a picture of the deposit–taker's asset composition and reveal the non-performing loan to total loan health of the banking sector. A high ratio of non–performing loans to total loans decreases the survival time of the banking system (Kasselak & Tagkalakis, 2013). The asset quality is an important element in financial soundness of Nigerian banks.
Liquidity indicator describes the deposit – taker's ability to meet sudden demand for cash.Andrew and Osuji (2013) define bank liquidity as 'the bank's ability to meet maturing obligations without incurring unacceptable loss'. The intermediary function of banks makes them to mobilize deposit and then create money by way of extending loans, advances and overdrafts to their customers. For banks financial soundness, efficiency and performance; liquidity must be put into critical consideration. Illiquidity will occur if banks fail in their obligation to meet short-term depositors' demand. To avoid this bad occurrence, banks need to embark on efficient liquidity management with a view to enhancing its performance.
Then, finally is the sensitivity to market risk indicator, which measures the ability of capital to cushion exchange rate volatility (Asian Development Bank, 2015).

Empirical Review
In a recent study by Fapohunda and Eragbhe (2017) using Nigerian data, it reports long-run relationship between financial soundness and banking sector performance. The study by Masud and Haq (2016) on financial soundness of banks in Bangladesh reveals that different financial soundness indicators showed upward trend for the period 2006-2014. Also, they reported that these financial soundness indicators were not allowed associated with performance. A study by Muhammad et al. (2015) in Pakistan reveals that there exist inverse relationship between non-performing loans and banks' profitability. Peterson (2015) in his study discovered that bank capital adequacy is a significant determinant of bank profitability. Albulescu (2015) empirically examined banks' profitability and financial soundness indicators in emerging countries and the study reveals that non-performing loans have a negative impact on banks' profitability; while the level of liquidity has a mixed influence, the capitalization and the interest rate margins positively affect the banks' profitability.

Aymen (2013) empirically examined the impact of capital on financial performance of banks in Tunisia using static panel estimation method. The result shows that bank capital, a proxy of financial soundness is statistically significant on performance. Babihuga (2007) examined the relationship between selected macroeconomic and financial indicators for 96 countries covering the period 1998 – 2005. The study covers key macroeconomic indicators and capital adequacy. asset quality and profitability. The outcomes of the study reveal a robust negative relationship with capital adequacy and non-performing loans and a robust positive relationship with profitability. Cihak and Schaeck (2010) examined how financial soundness indicators can provide an accurate signal for the profitability of observing systemic banking vulnerabilities. They used a sample of 100 countries and the study reveals that high capital of risk weighted assets

and a high return on equity lowers the probability of a systemic banking crisis occurring. It was revealed that an increase in non-performing loans to total loans is indicative of an impending banking turmoil. A low capital adequacy ratio and a high ratio of non – performing loans to total loans decreases the survival time of the banking system but the effect is not statistically significant. Jeff (1990) study on capital adequacy and bank performance indicates that it reflects in asset size as a proxy of a well-managed bank. Since prior studies' findings were inconclusive, this paper therefore seeks to ascertain how financial soundness impacts on banks' financial performance in the Nigeria.

Methodology

The longitudinal research design was adopted in this study while the population is the entire banking sector in Nigeria; the sample period is 1990-2015. Thus, annual data set for the period 1990-2015 was extracted from the Central Bank of Nigeria Statistical Bulletin various issues, World Bank Indicators, Nigeria Deposit Insurance Corporation annual reports and used for the econometric analysis. The choice of this period is based on the fact that several banking reforms/ financial regulations were made by the monetary authority in Nigeria to reposition the banking sector. The statistical technique employed in this study includes the error correction model (ECM) and the Ordinary Least Squares (OLS) multivariate regression to establish short run relationship between the variables; and also determine how the independent variables impact on the dependent variable. Johansen and Juselius (1988) approach is utilized in examining the presence or absence of long–run relationships among the variables. Various diagnostic tests were carried out to ensure stability of the model. Prior to estimation of the model; stationary tests were conducted to test for its stochastic properties in order to avoid estimating spurious regressions results since estimating regressions using non-stationary variables based on ordinary least square could lead to spurious and inconsistent results (Aiyedogbon, 2012). The stationarity properties of the time series data are investigated in this study using the Augmented Dickey-Fuller (ADF) test. The null hypothesis of the existence of unit roots is rejected against the alternative if the ADF test statistic is greater than the critical value otherwise the test fails to reject the null hypothesis at 5% level of significance.

Model Specification

The model employed in this study is stated in deterministic form as:

Performance = F (Financial soundness) ..... (1)

Equation (1) was expressed in its econometric form as follows:

ROE = Return on equity
CADR= Capital adequacy ratio
CRR = Cash reserve ratio of banks
AQ = Asset Quality (proxy with bank non- performing loan/total gross loans)
LIQ = Banking sector liquidity.
Ut = Stochastic error term.
t = Time period
β_0 = the intercept term

Empirical Analysis

Table 1: Summary of unit root

Variables	ADF test at level/first difference	Critical statistic value at 5%	Meaning
BPR	-5.117426	-3.020686	Stationary at first difference
CRR	-5.641138	-2.991878	Stationary at first difference
FS	-4.868243	-2.998064	Stationary at first difference
LIQ	-3.680355	-3.004861	Stationary at first difference
CADR	-5.613319	-2.998064	Stationary at first difference

Source: Computed from E-view 8.0, 2017

The unit root test of the time series in table 1 shows that the variables were stationary at first difference. For example, the table reveals that CRR, FS, LIQ and CADR were stationary at first difference. This implies that the existence of unit root among the variables cannot be accepted.

Long Run Analysis

In order to capture the long run impact of financial soundness indicators (the explanatory variables) on banks performance, the study present and analyze the estimates from the ordinary least square multivariate regression model.

Ordinary Least Square Multivariate Regression Equation

BPR = 91037037C -13824.15CRR -12206.62FS +400.26LIQ- 116.96CADR

t-stat	(0.020)	(-0.395)	(-1.472)	(0.158)	(-0.960)
p-value	(0.984)	(0.696)	(0.157)	(0.875)	(0.349)

R-squared = 0.936

Adjusted R-squared = 0.920

F-statistic = 56.402

Prob (F-statistic) = 0.000

Durbin Watson statistic = 1.55

Source: Computed from E-view 8.0, 2017

The regression result above reveals that the model determined about 92% systematic variation in the dependent variable, performance of banks in the Nigeria using the adjusted coefficient of determination, leaving about 8% unaccounted for due to stochastic error term. It suggests that financial soundness indicators enhance the financial performance of banks in the period considered; and this finding is intriguing. It is a pointer that financial soundness has the propensity to improve the performance of banks in Nigeria if adequately monitored by the apex bank, the Central Bank of Nigeria. The F – Statistic value of 56.402 reveals that all the explanatory variables put together are statistically significant at 99% level. It indicates the goodness of fit of the model and that the components of financial indicators have significantly increased banks financial performance in Nigeria generally. The individual coefficients indicated that a unit change in CRR, FS and CADR do not increase banks financial performance and were not statistically significant at 5% levels. While a unit change in LIQ is observed to cause an increase in banks' financial performance and was also not statistically significant at 5% levels. The Durbin – Watson statistic value of 1.55 shows a complete absence of serial Autocorrelation in the time series data; and of course this level of autocorrelation is expected in this kind of study because the period the time series covered are considerably lengthy enough.

Co-integration Test

According to the unit root test result all the series have same integrating level, that is, the first difference, thus making co-integration applicable on this analysis. Therefore, the Johansen co-

integration technique is employed in ascertaining the number of long run equilibrium relationships or co-integrating vectors among the variables and how financial soundness have affected performance of banks in Nigeria. In econometric analysis, when series are found to be integrated of the same order, such as I[1] as in this study, it implies that an equilibrium relationship exists among the variables.

Table 2: Unrestricted Co-integration rank test (Trace)

Null hypothesis	Trace statistics	Critical value at 5%	Maximum Eigenvalue	Critical values at 5%
R = 0	99.488	69.818	52.075	33.876
.	47.413	47.856	24.500	27.584
R ≤ 2	22.912	29.797	13.880	21.131
R ≤ 3	9.032	15.494	8.511	14.264
R ≤ 4	0.520	3.841	0.520	3.841

Source: Computed from E-view 8.0 (2017)

Table 2 shows the result of the trace and maximum eigen-value statistics, which indicates that 1 co-integrating equation exists among the variables at 5% significance level, which suggests the existence of a long run stable relationship among the variable employed and gives justification for the application of the Error Correction Mechanism (ECM) in this empirical analysis. The trace statistic values compared against the critical values indicates that there is at least 1 co-integrating vector. The maximum Eigen value statistics points out that there is one co-integrating equations. Usually, the maximum Eigen value is used as a basis of establishing the long-run co-integration between variables. Therefore, from the result, it can be arrived at that there is a long-run relationship between financial soundness and banking sector performance in Nigeria.

Table 3: Parsimonious ECM

Variables	Coefficient	Std-Error	t-ratio	Prob.
C	85361.67	44658.24	1.911	0.076
DBPR(-2)	0.4332	0.175994	2.461	0.027
DCADR	66.687	113.03	0.589	0.564
DCADR(-1)	-297.940	84.975	-3.506	0.003
DCRR	-21709.81	27533.43	-0.788	0.443
DCRR(-2)	-17945.42	30801.33	-0.582	0.569
DFS	3515.73	7527.06	0.467	0.647
DLIQ	869.33	1732.79	0.501	0.623
ECM(-1)	-0.259	0.108	-2.400	0.030
R-squared	0.708			
Adjusted R-squared	0.541			
F-statistic	4.244			
Prob (F- statistic)	0.009			

Source: Computed from E-view 8.0 (2017)

The results, as presented in table 3, show a robust adjusted R-square of about 70 percent, indicating that about 70 percent change in dependent variable (BPR) is explained by changes in the explanatory variables (CADR,CRR,FS and LIQ). The f-statistic value of 4.244 is significant at the 5 percent level, suggesting that the significant linear relationship between the independent variables and bank performance (BPR) is validated. On the basis of the individual statistical significant of the model, as shown by the probability value, the result reveals that in the short run, a two period change in bank performance impact positively on itself and was statistically

significant at 5% level. Units change in FS and LIQ impact positively on banks performance in the short run and were not statistically significant at 5% levels. A unit change in the current value of CADR and CRR increased the financial performance of banking sector and were not statistically significant at 5% level. One period lag of CADR has a negative impact on banking sector performance and was statistically significant at 5% level. While a two period lag of CRR impact negatively on banking sector performance and was not statistically significant at 5% level. The Durbin Watson statistic value of 1.57 is approximately 2, and it shows the absence of serial autocorrelation in the result. Meanwhile, the ECM equation accounts for the correction of about 29.5% of the error generated in the past period. Similarly, from the value of the t-statistic compared with the p-value, the error term's coefficient is statistically significant. This clearly underscores the fact that short – run dynamic relationship exists between financial soundness and banking sector performance in Nigeria.

Conclusion and Recommendations

This study examined the impact of financial soundness on bank performance in Nigeria over the period 1990-2015. The specified model was estimated using multivariate OLS, co-integration analysis and the associated Error correction mechanism (ECM). The result reveals that cash reserve ratio, capital adequacy ratio, liquidity and non-performing loan to gross loans have significant influence on bank performance in both the short run and long-run respectively. Our empirical result does support the view that financial soundness plays a key role in bank performance in Nigeria. The significant relationship of cash reserve ratio, capital adequacy ratio, non-performing loan to gross loans and liquidity with bank performance suggests that these variables are critical propelling factors of banks financial performance and assist them to resist micro and macroeconomic shocks in Nigeria both in the short run and long run. Regulatory agencies (Central Bank of Nigeria, NDIC etc) should be given more power to strengthen bank regulation and supervision in Nigeria at ensuring financial soundness of banks in the banking sector. They should firm up prudential guidelines and encourage market discipline. They should also put up tighter limits on excessive concentration of risk. Tightening provisioning requirements on non- performing loans is essential to ensuring that banks remain liquid during economic downturns. Constant review of minimum amount of capital requirement will reduce moral hazards by putting bank owners' money at risk. It can also help banks weather economic slow-downs and make problem banks easier to sell. Stringent credit policies should be made the regulators of banks in Nigeria to reduce toxic assets and thereby enhances the financial soundness of the banks so they can compete meaningfully with their international counterparts.

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