Eweke, Gamaliel Oghenerugba

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Banking System Stability and Economic Growth in Nigeria: A Bounds Test to Cointegration

Gamaliel Oghenerugba Eweke[1]

Abstract: This research examined the impact of banking system stability on the Nigerian economy alongside key macroeconomic variables. The study employed banking stability index, return on assets, financial depth and interest rate, while real GDP was used to capture economic growth, using annual data from 1986 to 2016. The Augmented Dickey Fuller (ADF) and Phillip Perron (PP) tests reveals that apart from interest rate, all other variables were stationary at first difference. The Bounds test to cointegration confirms the existence of a long-run relationship amongst the variables considered for the study. The ARDL results suggests that in both long and short-run estimations that a rise in banking sector stability, financial depth and return on assets will lead to an increase in economic growth, conversely, an increase in interest rate will result to a fall in economic growth. Finally, we recommend that regulators improve both the micro-prudential and the macro-prudential supervision of the banking industry, while an upward review of the current minimum capital base has become imperative owing to the effect of inflation and fall in the country's exchange rate.

Keywords: Banking Stability Index; Return on Asset; Financial Depth; Interest Rate

JEL Classification: G24

1. Introduction

A nation's financial system which is usually dominated by its banking sector, plays a very critical and pivotal role in the smooth functioning of her economy. Banks through the vital function of financial intermediation have over the years helped to move idle funds from the surplus units to the deficit units of the economy thus helping to reduce the cost of transaction and information asymmetry. Through the transformation of small-sized, low-risk and highly liquid customers deposits (bank liabilities) into bank loans (bank assets), which are of larger size, higher risk and illiquid banks are able to perform what is regarded as "transforming function". This ultimately reconciles the varied needs of depositors (lenders) and borrowers (spenders).

Many economists have acknowledged that the financial system, with banks as its major component, provide linkages for the different sectors of the economy and encourage high level of specialization, expertise, economies of scale and a conducive environment for the implementation of various economic policies of government intended to achieve non-inflationary growth, exchange rate stability, balance of payments equilibrium and high levels of employment (Sanusi, 2011). However, the trajectory of the development of the Nigerian banking sector has over the years been characterized by numerous

[1] Federal University Otuoke, Nigeria, Corresponding author: apache664@gmail.com.

fluctuations and instabilities which can be traced to 1892 when the business of banking really commenced in Nigeria (Babalola, 2011).

The history of the Nigerian banking sector has over the years witnessed the establishment and extinction of several banking institutions in Nigeria. In 1952, the banking ordinance was promulgated and this marked the beginning of the regulated banking era. Prior to this legislation, the banking sector in Nigeria was, in a phase, popularly referred to as the free banking era where the industry was left with little or no regulation. The ordinance was designed to prevent non-viable banks from mushrooming and to ensure orderly and viable commercial banking. Although banking ordinance triggered a rapid growth in the industry, the growth was accompanied with disappointment as only 4 out of 25 indigenous banks established between 1952 and 1958 survived while 21 others went under. Owing to this sorry trend and in a bid to forestall further failures, the Central Bank Act was promulgated in 1958 so as to increase the level of regulation and supervision of Banks in Nigeria. However, between 1994 and 2003 the country witnessed another outbreak of bank failures culminating in withdrawal of the licenses of a good number of banks by the Central Bank of Nigeria (CBN). The subsequent liquidation by the National Deposit Insurance Company (NDIC) swept away fourteen more banks by the 2004 banking sector reforms.

In 2009, the Nigerian banking sector experienced another rounds of reforms which saw the exposure of a humongous sum of non-performing loans and the subsequent collapse of 9 out of the 24 banks in the country. Sanusi (2010) highlighted 8 main interdependent factors which led to the creation of an extremely fragile financial system, namely: macro-economic instability caused by large and sudden capital inflows, major failures in corporate governance at banks, lack of investor and consumer sophistication, inadequate disclosure and transparency about financial position of banks, critical gaps in regulatory framework and regulations, uneven supervision and enforcement, unstructured governance & management processes at the CBN/Weaknesses within the CBN, weaknesses in the business environment. Hence the Central Bank of Nigeria has made concerted effort via several banks reforms especially from the wake of last decade through effective surveillance and prudential guidelines, a more stringent procedure for licensing and increase in the capitalization base of the banks, among others. This was meant to ensure a sound and stable banking system capable of providing effective intermediation that would stimulate growth, encourage medium and long term lending to the real sectors capable of diversifying the productive base of the economy. (Iwedi & Igbanibo, 2015)

Accordingly, apart from the introductory section, this paper is organised into four sections with the second section considering the review of literature, third section the methodology, the fourth section focuses on the results and discussion of findings while the fifth section concludes and makes recommendations.

2. Review of Literature

2.1. Theoretical Review

Micro-Prudential Approach

The micro prudential regulation assumes a partial-equilibrium condition and is aimed at averting the failure of individual financial institutions. According to Sere-Ejembi, Udom, Salihu, Atoi and Yaaba

(2014), the paradigm of micro-prudential supervision views that risks arise from individual malfeasance. Therefore, micro-prudential regulation focuses on the stability of the components of a financial system. The regulation seeks to enhance the safety and soundness of individual financial institutions by supervising and limiting the risk of distress. The principal focus is to protect the clients of the institutions and mitigate the risk of contagion and the subsequent negative externalities in terms of confidence in the overall financial system.

Macro-Prudential Approach

The macro prudential approach, on the other hand, adopts the general-equilibrium condition and is aimed at safeguarding the entire financial system (Charles, 2015). Macro prudential policies aim to increase the overall resilience of the financial system, contain the build-up of systemic risk over time. It is also reputed to address vulnerabilities stemming from structural relationships between financial intermediaries. (Ananthakrishnan, Heba & Pilar, 2016) The macro-prudential approach argues that safety and soundness of the entire financial system is not necessarily guaranteed by the safety and soundness of the individual financial institutions. In fact, there are times when individual actions of the financial institutions aimed at keeping such institutions safe and sound may pose dangers to the stability of the entire system. (Charles, 2015) According to Ananthakrishnan, Heba and Pilar, (2016), a macro prudential policy framework should ideally encompass:

(i) A system of early warning indicators that signal increased vulnerabilities to financial stability;

(ii) A set of policy tools that can help contain risks ex ante and address the increased vulnerabilities at an early stage, as well as help build buffers to absorb shocks ex post; and

(iii) An institutional framework that ensures the effective identification of systemic risks and implementation of macro prudential policies.

Micro and macro-prudential supervisions are interlinked. Macro-prudential supervision cannot achieve its objective except it has some level of impact on supervision at the micro-level.

2.2. Empirical Review

Monnin and Jokipii (2010), studied the relationship between the degree of banking sector stability and the subsequent evolution of real output growth and inflation. Adopting a panel VAR methodology for a sample of 18 OECD countries, they found a positive link between banking sector stability and real output growth. This finding is predominantly driven by periods of instability rather than by very stable periods. Laeven and Valencia (2012) presented descriptive statistics on the frequency of banking crises, their resolution, and their real effects. They identified 147 banking crises, over the period of 1970 to 2011. Results showed that advanced economies tend to experience larger output losses and increases in public debt than emerging and developing countries. These larger output losses in advanced economies were to some extent driven by deeper banking systems, which makes a banking crisis more disruptive.

Dell'Ariccia, Detragiache and Rajan (2008) studied the effects of banking crises on growth in industrial sectors and found that while adverse shocks cause both poor economic performance and bank distress, bank distress has an additional, adverse effect on growth, as banks must cut back their lending, and that the differential effect is stronger in developing countries (where alternatives to bank financing are more limited), in countries with less access to foreign finance, and where bank distress is more severe.

Demirguc-Kunt and Detragiache (1998) developed a model which identified a group of macroeconomic variables that consist of high interest rate, inflation, output downturns, decline in asset prices, adverse terms of trade, credit expansion, foreign exchange reserve's losses and market pressure. These were reported to have affected the financial system as a whole, using a multivariate logit framework and considering both industrial and emerging market economies. It was discovered that the characteristics of the banking sector and structural characteristics of the country were robustly correlated with the emergence of banking sector crisis.

Sere-Ejembi (2014) constructed a Banking System Stability Index (BSSI) for Nigeria, using a combination of financial soundness indicators and macro-fundamentals. It applied statistical and Conference Board Methodology normalization processes on Nigeria's banking and macroeconomic data from the first quarter of 2007 to the second quarter of 2012. They discovered that the resulting index traced fairly well the episodes of crisis in the system over the study period and thus concluded that the BSSI is capable of acting as an early warning mechanism of signaling fragility and could be used as a complimentary regulatory policy tool to detect potential threats to enable monetary authorities take timely pre-emptive policy measures to avert crisis. Barro (2001) examined the impact of a banking crisis on growth. They employed data from 67 industrialized and emerging countries (five-year averages) and the panel data approach was adopted. Results showed that a banking crisis reduced GDP per capita growth rate of GDP of 0.6% per annum and the investment rate of 0.9%.

Kupiec and Ramirez (2010) investigated the effect of bank failures on economic growth using data on bank failures ranging from 1900 to 1930. The sample period predated active government stabilization policies and included several severe banking crises. The VAR and difference-in-difference methods were applied to estimate the impact of bank failures on economic activity. VAR results show bank failures have negative and long-lasting effects on economic growth. While the difference-indifference results suggest that bank failures trigger an increase in non-bank failures. The evidence showed that bank failures reduce economic growth and provides a lower bound estimate of the cost of banking sector systemic risk. Soundness (i.e. reserve for money bank deposits and ratio of net foreign assets to GDP) are the factors most likely to influence its stability. Jide (2003) designed an early-warning bank failure model that captured the dynamic process underlying the banking sector slide from soundness to closure, by employing a transition probability matrix. The study used "Instrumental Variables-Generalized Maximum Entropy formalism" to assess the likelihood of the banking sector experiencing distress via the evaluation of banking crisis probabilities.

Although several studies have examined the impact of the banking sector and the financial system on the growth of a nation's economy and the cost of bank failures on the economy, very few have examined the impact of fluctuations in banking sector stability indicators on economic growth. This study therefore seeks to fill this gap by ascertaining how banking sector stability impact on the growth of the Nigerian economy using the average figures of statistically normalized values of selected banking sector indicators.

2.3. Theoretical Framework

This study draws inspiration from the works of Akpan (2017) and Sere-Ejembi, Udom, Salihu, Atoi and Yaaba (2014) in developing a banking sector stability index for Nigeria. The index can be determined from:

Equation 2.1

$$Z_t = \frac{(x_t - \mu)}{\delta}$$

Where X_t represents the value of indicators X during period t; μ is the mean and δ is the standard deviation.

Equation 2.2

$$BSSI\_3_t = \frac{\frac{CPS_t - \mu CPS}{\delta CPS} + \frac{DEP_t - \mu DEP}{\delta DEP} + \frac{FL_t - \mu FL}{\delta FL}}{3}$$

Equation 2.3

$$CPS_t = \frac{(CPS_t - \mu CPS)}{\sigma CPS}$$

Equation 2.4

$$DEP_t = \frac{(DEP_t - \mu DEP)}{\sigma DEP}$$

Equation 2.5

$$FL_t = \frac{(FL_t - \mu FL)}{\sigma FL}$$

Where:

BSSI_3 = Banking system stability index (indicator)

CPS_t = Bank claims on (credit to) the domestic private sector at a point in time

DEP_t = Bank deposits at a point in time

FL_t = Foreign liabilities of banks

μ = Arithmetic mean

δ = Standard deviation

The BSSI_3 measures the swings in the domestic banking system. A higher index (i.e. BSSI3≥50%) indicates a stable system and a lower index (i.e. BSSI3 ≤ 49%) indicates a fragile system.

3. Econometric Procedure

This study uses the Autoregressive Distributed Lag (ARDL)/Bounds Test methodology proposed by Pesaran and Shin (1999) and Pesaran, Shin and Smith (2001) to estimate the dynamic, long and short-run relationship among the variables. This technique has advantages over other cointegration techniques. Whereas other cointegration test requires that all variables to be integrated of the same order, the ARDL technique can be applied whether the variables are purely 1(0) and/or purely 1(1) or a mixture of 1(0) and 1(1) variables. Furthermore, the bounds test approach within the ARDL framework performs better, as it gives more robust results in small samples than the Johansen cointegration technique which requires a large data sample to obtain a valid result (Pesaran, Shin & Smith, 2001). Likewise, endogeneity problems are tackled in this technique. According to Pesaran and Shin (1999), they contended that modelling the ARDL with the appropriate lags will correct for both serial correlation and endogeneity problems. From the variables of interest, the following model has been specified;

Equation 3.1

RGDP= f (BSSI_3 ROA FIN_D INT)

Where;

RGDP is the Real Gross Domestic Product deflated by the general price level.

BSSI_3 refers to Banking system stability index

ROA refers to Return on Asset. This is used to measure the performance of the banking industry.

FIN_D refers to Financial Depth. This captures the financial sector relative to the economy. It is the size of banks, other financial institutions, and financial markets in a country, taken together and compared to a measure of economic output.

INT represents Interest Rate. This can be defined as the cost of borrowing.

To confirm linearity and also deal with heteroscedascity, a double log-linear model was specified;

Equation 3.2

$$logRGDP_{i,t} = \beta_o + \beta_1 logBSSI\_3 + \beta_2 logROA + \beta_3 logFIN\_D + \beta_4 logINT + \varepsilon_{i,t}$$

Consequently, upon applying the ARDL methodology, it becomes imperative we specify the ARDL representations of equation 3.2 as:

Equation 3.3

$$\begin{aligned}\Delta logRGDP_t = {} & \alpha_0 + \beta_1 logBSSI\_3_{t-1} + \beta_2 logROA_{t-1} + \beta_3 logFIN\_D_{t-1} + \beta_3 logINT_{t-1} \\ & + \sum_{j=1}^{n} \varphi_h \Delta\, logRGDP_{t-1} + \sum_{j=1}^{n} \phi_i \Delta\, logBSSI\_3_{t-1} + \sum_{j=1}^{n} \lambda_j \Delta\, logROA_{t-1} \\ & + \sum_{j=1}^{n} \omega_k \Delta\, logFIN\_D + \sum_{j=1}^{n} \rho_l \Delta\, logINT_{t-1} + \nu_t\end{aligned}$$

Where Δ signifies the first difference operator, α_0 is the intercept, β_1 β_2 β_3 are the long-run multipliers. δ, ϕ, λ, ω and ρ are short-run parameters and ν_t are white noise errors. This study estimated equation (3) with the bounds test in other to access the long-run relationship. The F-test was used to interpret the existence of a long-run relationship amongst the variables in equation (3). The null hypothesis of no long-run relationship in equation (3) is tested against the alternate hypotheses of a long-run relationship as shown below;

H_0: $\alpha = \beta_1 = \beta_2 = 0$

H_1: $\alpha \neq \beta_1 \neq \beta_2 \neq 0$

The bounds test provides for two asymptotic critical value for cointegration when the dependent variables are 1(d) (where 0≤d≤1): a lower value assuming the regressors are I(0) and an upper value assuming purely I(1) regressors. If the F-statistic is above the upper critical value, the null hypothesis of no long run relationship can be rejected regardless the orders of integration for the time series. Inversely, if the F-statistic falls below the lower critical value, the null hypothesis cannot be rejected. Finally, if the statistic falls between the lower and upper critical values, the result is inconclusive. The approximate critical values for the F-statistic test were obtained from Pesaran *et al* (2001).

Immediately cointegration is detected the ARDL long-run model for $RGDP_t$ can be estimated as:

Equation 3.4

$$logRGDP_t = \alpha_0 + \sum_{j=1}^{n} \varphi_h \Delta\, logRGDP_{t-1} + \sum_{j=1}^{n} \phi_i \Delta\, logBSSI\_3_{t-1} + \sum_{j=1}^{n} \lambda_j \Delta\, logROA_{t-1} + \sum_{j=1}^{n} \omega_k \Delta\, logFIN\_D_{t-1} + \sum_{j=1}^{n} \rho_l \Delta\, logINT_{t-1} + \nu_t$$

The next step is to obtain the short-run dynamic parameters by estimating an error correction model within the ARDL framework. Thus specified as:

Equation 3.5

$$\Delta logRGDP_t = \mu_0 + \sum_{j=1}^{n} \varphi_h \Delta\, logRGDP_{t-1} + \sum_{j=1}^{n} \phi_i \Delta\, logBSSI\_3_{t-1} + \sum_{j=1}^{n} \lambda_j \Delta\, logROA_{t-1} + \sum_{j=1}^{n} \omega_k \Delta\, logFIN\_D_{t-1} + \sum_{j=1}^{n} \rho_l \Delta\, logINT_{t-1} + \vartheta ECT_{t-1} + \nu_t$$

Where ϑ denotes the speed of adjustment of the parameters to the long-run equilibrium following a shock to the system and ECT_{t-1} represents the residuals obtained from equation (5). Furthermore, the coefficient of the lagged error correction term ϑ is expected to be negative and statistically significant to further confirm the existence of a cointegrating relationship.

4. Results and Discussion of Findings

4.1. Unit Root Test

Before estimating the Bounds test to cointegration, unit root test would be conducted to examine the stationarity process of the variables to ensure that none of the variables are integrated of order two, 1(2) to avoid spurious results. This is necessary because the computed F-statistics by Pesaran, Shin and Smith (2001) are not valid in the presence of 1(2) variables. The study utilized the Augmented Dickey Fuller (ADF) and Phillip Perron (PP) test to access the order of integration amongst the variables. From Table 1, all variables were stationary at I(1) apart from interest rate which was stationary at levels.

Table 1. Unit Root Test Results

Variables	ADF Test	Remarks	PP Test	Remarks
logRGDP	-3.229346**	1(1)	-3.044705**	1(1)
logBSSI_3	-11.54228*	1(1)	-11.54228*	1(1)
logFIN_D	-4.586771*	1(1)	-4.814938*	1(1)
logINT	-4.228115*	I(0)	-4.228115*	I(0)
logROA	-5.067558*	I(1)	-5.180230*	I(1)

Critical Values of ADF Test:

1% level = -3.639407

5% level = -2.951125

10% level = -2.614300

Critical Values of PP Test:

1% level = -3.639407

5% level = -2.951125

10% level = -2.614300

//***, indicates significance at 1%, 5% & 10% respectively.*

Test includes Trend and Intercept

Source: Author's Computation Using Eviews 10+

4.2. Bounds Test

In other to examine the presence of a long-run relationship among the variables, we therefore proceed to estimate equation (3). A maximum of one (1) lag length was selected based on the Akaike info criterion (AIC). According to Table 2, the F-statistic for the model with a value of 15.39791 exceeds the upper critical bound at 10% significance level. We therefore reject the null hypothesis of no cointegration. This indicates the existence of a long-run relationship between economic growth and its explanatory variables.

Table 2. ARDL Bounds Test

			Null Hypothesis: No levels relationship	
F-Bounds Test				
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	15.39791	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Author's Computation Using Eviews 10+

4.3. Long-Run Estimates

Since the variables are cointegrated, we therefore proceed to estimate equation (4). From Table 3, the results obtained by normalizing the explanatory variables on economic growth in the long-run, indicates that banking system stability, bank performance and financial depth has a positive but non-significant effect on economic growth in Nigeria. However financial deepening has a negative but non-significant on economic growth in Nigeria. The result further reveals that an increase in banking sector stability index would lead to a increase in Real GDP, similarly an increase in Return on Asset of the Nigerian Banking Industry will lead to a rise in Real GDP.

Table 3. Estimated Coefficients of the Long-Run Model

Dependent Variable: RGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BSSI_3	0.492419	0.686133	0.717674	0.4822
LOG(FIN_D)	4.028961	4.435821	0.908279	0.3757
LOG(INT)	-0.076497	2.000522	-0.038238	0.9699
ROA	0.159930	0.250344	0.638841	0.5310
C	0.667774	13.84699	0.048225	0.9621

Source: Author's Computation Using Eviews 10+

4.4. Short-Run Dynamics

The study further estimates the short-run relationship among the variables. According to Table 4, the coefficient of the lagged error correction term (ECM_{t-1}) is of the expected negative sign and significant at 1% with economic growth. The ECM captures the speed of adjustment to restore equilibrium in case of any shock to any of the exogenous variables. The coefficient of the error term, -0.024211 which is significant at 1% level, indicates that about 2.42% of disequilibrium from previous year's shock in economic growth converges back to the long-run equilibrium within the current year. This suggests a very low speed of adjustment in the model.

Finally, the results obtained from the short-run estimates buttresses the position of the long-run model as all the coefficients of the model has the same signs attached as found in the long-run model.

Table 4. Estimated Coefficients of the Short-Run Dynamic Error Correction Model

Dependent Variable: RGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016167	0.353824	0.045693	0.9641
$\Delta LOG(RGDP)_{t-1}$	-0.024211	0.030429	-0.795637	0.4366
BSSI_3**	0.011922	0.019544	0.609990	0.5495
$LOG(FIN\_D)_{t-1}$	0.097544	0.033644	2.899296	0.0096
$LOG(INT)_{t-1}$	-0.001852	0.049391	-0.037498	0.9705
$LOG(ROA)_{t-1}$	0.003872	0.003189	1.214053	0.2404
$DLOG(FIN\_D)_{t-1}$	0.034592	0.032988	1.048615	0.3082
ECT_{t-1}	-0.024211	0.002228	-10.86511	0.0000

Source: Author's Computation Using Eviews 10+

4.5. Model Diagnostics

To ensure that the model is correctly specified and to avoid spurious results, it is therefore mandatory to examine for model misspecification which may occur due to unstable parameters and afterward lead to bias estimates. From Table 3, the test statistics with its antecedent p-values > 10% significance level indicates that the model is free from Serial Correlation and Heteroskedasticity Likewise, the Jarque-Bera test statistics (0.9724) indicates that the model residuals are normally distributed.

Furthermore, from Appendix 1, the R^2 with a value of 0.996956 indicates that 99.70% of the variation in economic growth is explained by banking sector stability, return on asset, interest rate, financial depth and one-period lag of real GDP, while the standard error of 0.028987 signifies that about 2.89% of variations in economic growth will not be explained by the independent variables. The Durbin-Watson statistics of 2.109927 confirms the results of the ARCH test indicating the absence of serial correlation. The Akaike Info Criterion value of -4.012449, suggests that information loss is well minimized by the model. The F-Statistics value of 982.5652 indicates that the overall model is significant at 1% level and is a good fit.

The CUSUM and CUSUMQ of recursive residuals test as suggested by Pesaran and Pesaran (1997) was used to access the coefficient stability in the model. From Appendix 2, the plot of the CUSUM and CUSUMQ of recursive residual stability test indicates that all estimated coefficients of the model are stable over the study period since they are within the 5% critical bounds.

Table 5. Diagnostics

Diagnostic Test	Test Statistics	P-value
Serial Correlation (Breusch-Godfrey)	0.731923	0.4026
Heteroskedasticity (ARCH)	0.014570	0.9051
Normality (Jarque-Bera)	1.790171	0.9724

Source: Author's Computation Using Eviews 10+

5. Conclusion and Recommendation

The aim of this study was to examine the intertwining relationship between banking sector stability and economic growth amidst other macroeconomic variables in Nigeria. The study estimates both the long and short run models using the ARDL/Bounds Test framework using data from 1986 – 2016. Both the Augmented Dickey Fuller and Philip Perron's test suggested that none of the variables where integrated of order two i.e. I(2), while the bounds test indicated the presence of a long-run relationship among the variables.

The findings of the study indicated that in both long and short-run estimations that an increase in banking system stability index (BSSI_3), return on asset (ROA) and financial depth (FIN_D) will lead to a rise in economic growth (RGDP) though not significant. Conversely, the impact of Interest rates on the Nigeria Economy although negative and insignificant, suggests that a rise in the banking lending rate is unhealthy for the Nigerian economy. This non-significance of the long-run impact of banking sector performance and banking sector stability on the growth of the Nigerian economy this could be attributed to the high level of instability that has plagued the banking sector, and inadequate loans and advance from banks to the private sector owing to the fact that banks have over the years focused on raking in

profits rather than assisting to provide funding for small and medium scale enterprises which have the potential to significantly stimulate economic growth in Nigeria.

To this extent the study therefore recommends that:

i) There should be an increased and concerted effort on the part of regulators to improve both the micro-prudential and the macro-prudential supervision of the industry;

ii) There is need for an upward review of the current minimum capital base as it has become inadequate owing to the effect of inflation and fall in the country's exchange rate;

iii) Also there is need for a strict implementation of the recommendations of the Basel accord in order to improve the health and international competitiveness of Nigerian Banks;

iv) Non-performing loans and other fictitious assets and revenue have over the years constituted a large portion of the reported assets of banks in the country, banks made public information on their operations on a highly selective basis, thus giving a misleading view of the performance of the industry to regulators, investors and the general public at large. Hence there is a need for a stricter enforcement of financial reporting standards which would help enhance the data quality in banks to ensure their reports are accurate, also the time period taken to declare a loan as bad should be contracted so at to reduce the number of non-performing loans in the industry;

v) Furthermore banks should be encouraged to increase their loans and advances to the real sector at lower interest rates, there should be a regulatory framework that will ensure that banks channel their resources to the viable sectors of the economy with potential to grow the economy;

vi) Although, all the banks in Nigeria agreed to set aside 10 percent of their profit before tax for equity investments in small scale industries in order to stimulate economic growth and reduce the growing rate of unemployment in the country, banks have however being are reluctant to release the fund owing to the inability of the local entrepreneurs to provide collateral and good feasibility study hence the collateral bottlenecks associated with the procurement credit facilities should be reduced.

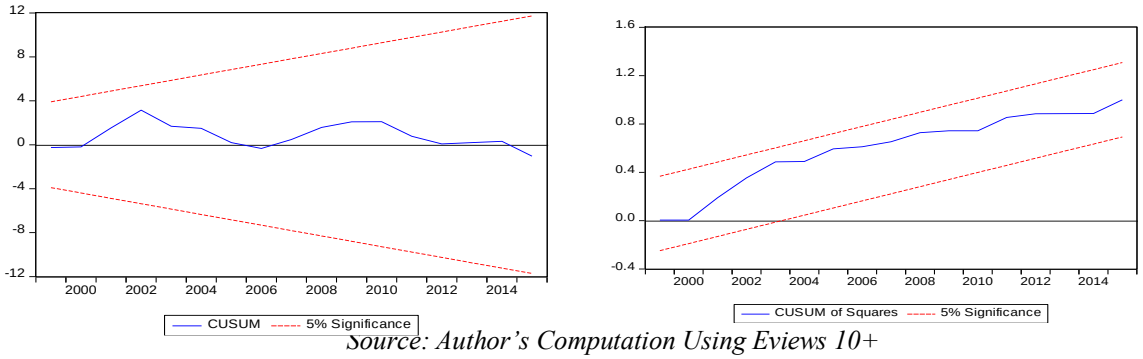
Appendix 1. Autoregressive Distributed Lag Model

Dependent Variable: LOG(RGDP)
Method: ARDL
Sample (adjusted): 1987 2016
Included observations: 29 after adjustments
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): BSSI_3 LOG(FIN_D) LOG(INT) ROA
Fixed regressors: C
Number of models evalulated: 16
Selected Model: ARDL(1, 0, 1, 0, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOG(RGDP(-1))	0.975789	0.030429	32.06725	0.0000
BSSI_3	0.011922	0.019544	0.609990	0.5495

LOG(FIN_D)	0.034592	0.032988	1.048615	0.3082
LOG(FIN_D(-1))	0.062953	0.035372	1.779721	0.0920
LOG(INT)	-0.001852	0.049391	-0.037498	0.9705
ROA	0.003872	0.003189	1.214053	0.2404
C	0.016167	0.353824	0.045693	0.9641
R-squared	0.996956	Mean dependent var		10.41173
Adjusted R-squared	0.995941	S.D. dependent var		0.455003
S.E. of regression	0.028987	Akaike info criterion		-4.012449
Sum squared resid	0.015124	Schwarz criterion		-3.671164
Log likelihood	57.15562	Hannan-Quinn criter.		-3.917791
F-statistic	982.5652	Durbin-Watson stat		2.109927
Prob(F-statistic)	0.000000			

Appendix 2. Plot of Cumulative Sum and Cumulative Sum of Squares of Recursive Residuals Stability Tests



Source: Author's Computation Using Eviews 10+

Appendix 3. Descriptive Statistics

	1.	2. RGDP	3. BSSI_3	4. FIN_D	5. INT	6. ROA
7.	Mean	8. 36095.70	9. 0.000000	10. 17.87692	11. 19.04462	12. 3.886538
13.	Median	14. 30333.58	15. -0.115000	16. 18.55000	17. 18.29000	18. 4.295000
19.	Maximum	20. 69023.93	21. 1.120000	22. 38.00000	23. 29.80000	24. 7.350000
25.	Minimum	26. 19199.06	27. -0.590000	28. 8.600000	29. 13.54000	30. -5.170000
31.	Std. Dev.	32. 17039.52	33. 0.486818	34. 6.633570	35. 3.447662	36. 2.650846
37.	Skewness	38. 0.642425	39. 1.016083	40. 1.297523	41. 1.397108	42. -1.772219
43.	Kurtosis	44. 1.964002	45. 3.090282	46. 5.139393	47. 5.215573	48. 6.810028
	49.	50.	51.	52.	53.	54.
55.	Jarque-Bera	56. 2.951144	57. 4.482674	58. 12.25387	59. 13.77610	60. 29.33597
61.	Probability	62. 0.228648	63. 0.106316	64. 0.002183	65. 0.001020	66. 0.000000
67.	Sum	68. 938488.1	69. 0.000000	70. 464.8000	71. 495.1600	72. 101.0500
73.	Sum Sq. Dev.	74. 7.26E+09	75. 5.924800	76. 1100.106	77. 297.1592	78. 175.6746

79.	Observations	**80.**	30	**81.**	30	**82.**	30	**83.**	30	**84.**	30

Source: Author's Computation Using Eviews 10+

Appendix 4. Breusch-Godfrey Serial Correlation LM Test:

Null hypothesis: No serial correlation at up to 1 lag

F-statistic	0.731923	Prob. F(2,15)	0.4026
Obs*R-squared	1.059730	Prob. Chi-Square(2)	0.3033

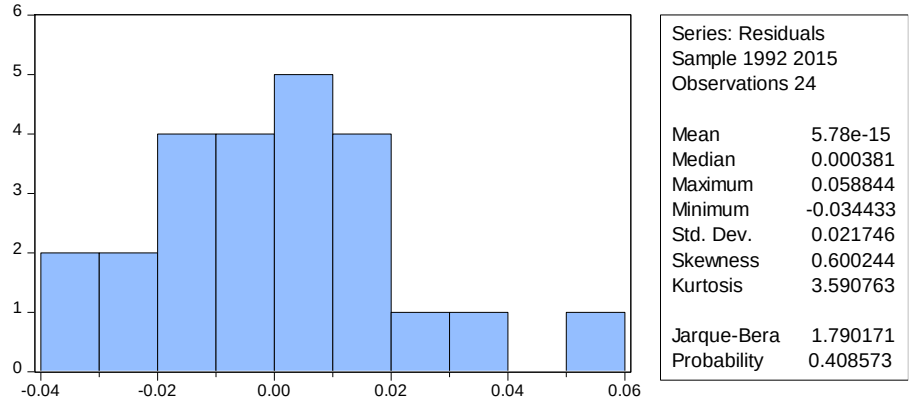
Source: Author's Computation Using Eviews 10+

Appendix 5 Heteroskedasticity Test: ARCH

F-statistic	*0.014570*	*Prob. F(1,21)*	*0.9051*
*Obs*R-squared*	*0.015946*	*Prob. Chi-Square(1)*	*0.8995*

Source: Author's Computation Using Eviews 10+

Appendix 6. Residual Normality Tests



Source: Author's Computation Using Eviews 10+

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