FINANCIAL EFFICIENCY, INSTITUTIONAL QUALITY AND ECONOMIC GROWTH IN NIGERIA

Babaita Kolawole Alabi
Department of Accounting & Finance, Kwara State University, Malete, Nigeria
+23435751946, babaitakolaphd@gmail.com

Muftau Adeniyi Ijaiya
Department of Finance, University of Ilorin, Nigeria
+2348036973561, muftau@unilorin.edu.ng

Abstract

The vital role played by the financial sector in promoting economic growth has been well documented. Despite this vital role of the financial sector on the economy, the financial system in Nigeria has remained poorly developed, judging from its poor level of efficiency, which has made it focused on achieving higher profitability at the expense of customers' welfare. Growth performance is also not encouraging as heavy reliance on oil for government revenue has limited government's regulatory role to provide a level-playing field for all actors. This study therefore examines the impact of financial sector efficiency and institutional quality on economic growth, with its specific objective to: (i) determine the impact of the financial sector efficiency on economic growth in Nigeria; and (ii) assess the impact of institutional quality on economic growth in Nigeria. The Autoregressive Distributed Lag (ARDL) model was employed on the time series secondary data sourced from World Bank's World Development Indicators, Global Financial Development and World Governance Indicators to achieve the objectives. The study found that lower efficiency (higher ROA, ROE and NIM) has a negative impact on economic growth in Nigeria while institutional quality (regulatory quality and political stability) does not impact economic growth. The study concluded that more efficient financial sector promotes economic growth in Nigeria and the current level of institutions in existence does not promote economic growth. The study recommended that financial sector efficiency should be sought by ensuring moderate profitability of the financial sector through stronger regulatory role of the authority.

1. Introduction

The growth in economic activities increases the capacity of such economy to produce goods and services at a more efficient level than it did in the previous periods. A growing economy is expected to give way to improvement in other social aspects, such as reduction in unemployment and poverty levels, increase in human and environmental health, as well as an increase in the value system (Biplab & Yadav, 2018). This simply indicates that development shows us how growth impacts on the society by increasing the standard of life.

The importance of economic growth to human wellbeing has led to much interest in the investigation of the factors that can help guarantee such state. Particularly, the role of financial development in achieving increased economic growth has received lots of attention in the past decades (see for example: Adusei, 2013; Asongu, 2014; Muazu, 2017; Chimaobi, 2020). This attention is well-justified, since a better understanding of how the financial sector contributes to economic growth has important regulatory implications. According to the Central Bank of Nigeria (2017), financial system is a set of rules, regulations and the aggregation of financial arrangements, institutions, agents, that interact with each other and the rest of the world to foster economic growth and development of a nation. As the development of financial system is important in general terms, the efficiency of financial systems cannot be taken for granted in specific terms, especially, as information

gathering is one of their key functions. Asymmetric information and externalities in financial markets can lead to sub-optimal levels of financing, investment and an inefficient allocation of capital with dire consequences on economic growth (Muazu, 2017). This has prompted the introduction of different reforms in Nigeria overtime which were targeted at making the system more effective to achieve its growth potentials. However, despite the various reforms in the Nigerian financial sector, the sector still has not addressed the financial gaps in the system. This simply brings the question of how strong the institutions guiding the rules of the financial and economic game in the country is. Strong institutions are expected to constrain the occurrence of foul play and guarantee a level-playing field for all actors in economic interactions. This in itself can also strengthen the relationship between financial efficiency and economic growth. Strong institutions can also directly promote economic growth, since they determine the costs of economic transactions, spur development in the form of contracts and contract enforcement and increase the availability of information, which will reduce the cost of transactions, risk and uncertainty.

The development of the financial systems in Nigeria has raised lots of concern, as many indicators show low level of financial development in terms of financial efficiency in the Nigeria economy. For instance, efficiency of financial systems is usually measured in terms of its magnitude of profitability. Continuously large profitability in the financial system may imply lower efficiency of the system (Yusifzada & Mammadova, 2015). Considering some measures of profitability in the financial system of Nigeria, available report from the World Bank's Global Financial development for 2018 shows that Nigeria had average interest rate margin 7.9 per cent in 2017, making it the 12th highest interest rate margin in Sub-Saharan Africa. The margin was also far higher than what is obtainable in advanced countries of the world in Canada (1.75 per cent), the United Kingdom (2.6 per cent) and the United States (3.42 per cent). In addition, average interest rate margin of Nigerian banks is consistently above 5 per cent every year since 1996.

Similar reports were given for return on assets and return on equity. Average return on assets and return on equity of Nigerian banks was 2.4 per cent and 16.5 per cent respectively, making Nigeria ranked the 10th highest and 17th highest in Sub-Saharan Africa. These figures are also above those of some advanced countries such as Canada (0.88 per cent and 14.4 per cent), the United Kingdom (0.4 per cent and 6.1 per cent) and the United States (0.96 per cent and 8.5 per cent). Given that higher profitability connotes less efficient financial system, these facts indicate that in terms of financial efficiency, the performance of Nigeria financial system is relatively low and this can subsequently affect the growth of economic activities in Nigeria.

Given these circumstances, several studies (such as Torruam, Chiawa & Abur, 2013; Mehrara & Ghamati, 2014; Chimaobi, 2020) were carried out on impact of financial development variables on economic growth. The focus has almost entirely been on the depth of financial development, with little or no attention given to the impact of the efficiency of financial sector. Furthermore, these studies did not consider if institutional quality has any role to play in this impact. This therefore created the need for a study to fill these gaps. Therefore, this study examined the impact of financial efficiency on economic growth in Nigeria and the role of institutional quality in this impact.

2. Literature Review

2.1 Theoretical Framework

This study is premised on both the endogenous growth model and the supply-leading hypothesis. Embedded in the endogenous growth model is the absence of diminishing returns to capital, the presence of which makes the standard neoclassical exogenous growth models theoretically unsatisfactory. As such, this model serves as the basis for the role of labour and capital (both physical and human) in the growth of an economy.

Early theoretical discussions of the relationship between financial development and economic growth, by Bagehot (1873) and Schumpeter (1911) recognized the role of financial development in allocation of resources to the most effective producers (Levine, 1997). Later in the 60s-70s Goldsmith (1969), McKinnon (1973), Shaw (1973) emphasized those financial restrictions such as interest rate limits, and reserve requirements may jeopardize financial sector development and economic growth. Pagano (1993) explains three channels through which financial development may affect the economic performance. First of all, financial development improves efficiency of investments. Second, efficient financial systems decrease transaction costs and as a result increase savings. Third, financial sector development may increase or decrease savings.

Moreover, King and Levine (1993) argue that in addition to increasing efficiency, financial development also propel economic growth through capital accumulation. Development of financial services networks, financial markets, and instruments are necessary for transformation of savings to investments for economic growth (Montiel, 1995; Ekong & Okon, 2016; John & Nwekemezie, 2019; Chimaobi, 2020).

2.2 Empirical review

Mehrara and Ghamati (2014) studied financial development and economic growth in ten developed countries: Canada, England, Japan, Spain, Germany, America, the Netherlands, Switzerland, Italy and Russia over the period 1999-2007. The empirical study used panel data and general econometric model. Panel data analysis and unit root test were conducted in the study. The study deduced that there was a positive effect of financial development on economic growth in the sampled countries, but that the extent of economic growth depended on the level of each country's financial sector development and economic condition. Thus, these cross-country studies indicate that financial development stimulates economic growth regardless of the countries` levels of development. These studies have further revealed that private investment tends to be more volatile in countries with less developed banking sectors and financial markets. The issue of crowding-in and out also emerged, crowding-out is prone to occur in instances where public investments are funded through capital markets and increased taxes, while crowding-in may occur by raising public investment through the provision of sufficient public infrastructure that is prerequisite to public investment.

Onwumere, Ibe, Ozoh and Mounanu (2012) examined the impact of financial deepening on economic growth in Nigeria for the period of 1992 - 2008 and adopted the supply-leading hypothesis using variables such as broad money velocity, money stock diversification, economic volatility, market capitalization and market liquidity as proxies for financial deepening and gross domestic product growth rate for economic growth. They found that broad money velocity and market liquidity promote economic growth in Nigeria while money stock diversification, economic volatility and market capitalization did not within the period studied.

Bakang (2015) examined effects of financial deepening on economic growth in the Kenyan banking sector. The study achieves this objective using quarterly time series data from 2000 to 2013. Financial deepening, the independent variable was captured by four alternative indicators: Liquid Liabilities (LL) as ratio to nominal Gross Domestic Product (GDP); Credit to the Private Sector (CPS) as ratio to nominal GDP; Commercial Bank Assets as ratio to commercial bank assets plus Central Bank Assets (CCBA); and Commercial Bank Deposits (CBD) as ratio to nominal GDP. The dependent variable, economic growth, was measured by real GDP. All the variables were integrated at level I (1) and the Johansen Jeluisus cointegration test showed evidence of cointegrating equations between GDP and financial deepening indicators. Four models were estimated to determine the long run and short run effects. The study found that banking sector in Kenya

has an important role in the process of economic growth. Specifically, the empirical results reveal that liquid liabilities, credit to the private sector, commercial-central bank assets and commercial bank deposits have positive and statistically significant effects on GDP.

Asteriou and Spanos (2018) examined the relationship between financial development and growth in the EU during the past economic crises. The variables used in the study are growth rate of GDP, ratio of liquid liabilities to GDP, ratio of commercial bank assets to the sum of commercial bank plus central bank assets and stock market capitalisation to GDP. Using, panel data analysis of 26 EU countries, the results suggest that when the crisis period is not included, financial development promoted economic growth, while during the crisis periods has an adverse effect on economic activity. Bucci and Marsiglio (2019) analysed the impact of financial development on economic growth. The study used physical capital, gross capital investment and the human capital. Using, finance-extended model of endogenous growth, the study supports empirical evidence on the shape of the finance-growth nexus.

Biplab and Yadav (2018) examined the relationship between financial development and economic growth for five major emerging economies: Brazil, Russia, India, China and South (BRICS) during 1993 to 2014 using banking sector and stock market development indicators. The variables used are size of the financial intermediaries, credit to deposit ratio (CDR) and domestic credit to private sector (CPS), real GDP, Inflation and export. Generalized method of moment system estimation (SYS-GMM) was adopted in the study. All the selected banking development indicators such as size of financial intermediaries, CDR and CPS are positively significantly determining economic growth.

John and Nwekemezie (2019) examined the effect of financial intermediation on the development of the economy of Nigeria using data spanning 1986 to 2017. The data were obtained from Central Bank of Nigeria Statistical Bulletin, World Bank (World Development Indicators) and International Monetary Fund (World Economic Outlook). The study considered credit to private sector, lending rate and money supply as independent variables, while real GDP growth rate and unemployment rate were used as dependent variables. Auto-regressive distributed Lag (ARDL) technique was employed for the analyses. In other to achieve the objective of the study, series of tests were conducted, including normality test, stationarity test, cointegration test, ARDL estimation and error correction. The tests provided the basis for the conclusion that credit to private sector do not really contributes positively to the development of the economy.

Torruam *et al.* (2013) investigated the impact of financial deepening on economic growth in Nigeria. The study examined the causal relationship between financial deepening and economic growth In Nigeria between the period 1990 to 2011. Economic growth was proxy using the constant value of gross domestic product while financial deepening variables were proxy using stock of money supply, domestic real credit, foreign real credit, inflation, and real exchange rate. Johansen approach of cointegration was applied to test for the long-run relationship among the variables. The result indicated four (4) cointegrating relations between the variables; the granger causality suggests that there is unidirectional causality running from economic growth to financial deepening in Nigeria. The study concludes that financial deepening has an impact on economic growth in Nigeria.

Chimaobi (2020) examined financial intermediation indicators on the economic growth, The Nigerian perspective from 1990 – 2018. The variables used are credit to private sector, broad money supply, interest rate and lending rate, RDGP. Using Vector error correction model, the study showed that there is a significant relationship between financial intermediation indicators and economic growth.

From the review of empirical literature, several studies have been conducted on the financial development-economic growth relationship (e.g., Onwumere *et al.*,

2012; Mehrara & Ghamati, 2014; Bakang, 2015; Asteriou & Spanos, 2018; Biplab & Yadav, 2018; John & Nwekemezie, 2019; Chimaobi, 2020). These studies have almost entirely focused only on the depth of financial development, employing indicators such as broad money velocity and credit to private sector, which can well serve as financial depth. However, there is little or no attention given to the impact of financial efficiency on economic growth. Thereby creating a financial development variable measuring gap. It was also revealed that the role of institutional in the impact of financial development has been ignored in previous studies.

In order to bridge these gaps created in the extant literature, this study considers another aspect of financial development, which is financial efficiency, in its investigation of the impact of financial development on economic growth in Nigeria and also considered the role of institutional quality in this impact.

3. Methodology

Model Specification

The models of this study are adapted from the study of Luangpituksa (2019) which was stated as follows:

$$RGDP_t = a_0 + a_1 IMARGIN_t + a_2 ISPREAD_t + a_3 NONILIA_t + e_t \quad (1)$$

Where:

RGDP = real gross domestic product

IMARGIN = interest rate margin

ISPREAD = interest rate spread

NONILIA = the ratio of overhead cost to banks' total assets

e = Error term

a_0 = Constant term

$a_1 - a_3$ = Slope of coefficients

The model specified in the work of Luangpituksa (2019) is modified in this study by first, including theoretical factors that determine economic growth such as capital stock, population growth and human capital which were absent in Luangpituksa's (2019) model. Secondly, this study follows Yusifzada and Mammadova (2015) by including measures of financial efficiency like return on assets and return on equity alongside net interest margin rather than interest rate spread and the ratio of overhead cost to banks' total assets. Lastly, including institutional factors such as regulatory quality and political stability and absence of violence to verify if quality institutions affect economic growth or mediate the impact of financial efficiency. The models of this study are therefore, specified functionally as follows.

$$\Delta logGDP_t = f(EFF_t, INST_t, EFF_t x INST_t) \quad (2)$$

where: $\Delta logGDP$ is change in log of GDP; EFF is efficiency of financial development; INST is institutional Quality; and subscript t indicates observation over different time periods. These can be specified in structural forms as follows while splitting the institutional quality indicators, as well as their interactions with financial efficiency.

$$\Delta logGDP_t = \gamma_0 + \gamma_1 LAB_t + \gamma_2 CAP_t + \gamma_3 HC_t + \gamma_4 NIM_t + \gamma_5 ROA_t + \gamma_6 ROE_t + \alpha_7 REGQ_t + \alpha_8 PSTAB_t + \alpha_9 NIMxREGQ_t + \alpha_{10} ROAxREGQ_t + \alpha_{11} ROExREGQ_t + \alpha_{12} NIMxPSTAB_t + \alpha_{13} ROAxPSTAB_t + \alpha_{14} ROExPSTAB_t + \epsilon_t \quad (3)$$

where: LAB is the availability of labour and is captured by the growth of the population; CAP is physical capital and is measured by gross capital formation; HC is human capital and is measured human capital development index; NIM is net interest margin and is captured by the aggregation of the difference between lending interest rate and deposit interest of all financial institutions in Nigeria; ROA is return on Assets and is measured by the aggregation of the return on assets of all financial institutions in Nigeria; ROE is return on Equity and is measured by the aggregation of the return on equity of all financial institutions in Nigeria; REGQ is regulatory quality measured in percentile rank (0 – 100); PSTAB is political stability and absence of violence measured in percentile rank (0 – 100); ϵ is the disturbance term of the models.

The Dynamic ARDL form of the Models

$\Delta y_t = c_0 + c_1 t - \alpha(y_{t-1} - \theta x_t) + \sum_{i=1}^{p-1} \aleph_{yi} \Delta y_{t-i} + \sum_{i=1}^{q-1} \aleph'_{xi} \Delta x_{t-i} + v_t$ .. (3.7)

where: y represents the dependent variable in this study, i.e. $\Delta logGDP_t$; x represents the set of explanatory variables, i.e. the indicators of each financial efficiency; α is the speed-of-adjustment coefficient; and θ represents the long-run coefficients. The selection of p number of lags for the dependent variable and q number of lags for the independent variables are automatic based on Akaike info criterion.

The expected a priori direction of this study is that, NIM, ROA and ROE are expected to have negative signs while all other explanatory variables in the model are expected to have positive signs. This means that labour, physical capital and human capital are expected to have positive impact on economic growth while net interest margin, return on assets and return on equity are expected to affect economic growth negatively. This is because low profitability in form of these indicators reflect the efficiency of financial intermediaries (Yusifzada & Mammadova, 2015). Although, excessively low profitability may also reflect inefficiency. This can be expressed in mathematical notation as follows:

$\gamma_1, \gamma_2, \gamma_3, \gamma_7, \gamma_8 > 0,\ \gamma_4, \gamma_5, \gamma_6 < 0$

Method of Analysis

The estimation method of this study is based on the nature of data used for the study. Autoregressive distributed lags model (ARDL) will be employed to achieve the objectives of the study. Time series data may have some kind of relationship with its previous values. The autoregressive (AR) character of time series model indicates that present value of any variable is determined by its past value and some adjustment factors. When one cointegrating vector exists, Johansen and Juselius (1990) cointegration procedure cannot be applied. Hence, it become imperative to explore Pesaran and Shin (1999) and Pesaran et al (1996b) proposed Autoregressive Distributed Lag (ARDL) approach to cointegration or bound procedure for a long-run relationship, irrespective of whether the underlying variables are I(0), I(1) or a combination of both. In such situation, the application of ARDL approach to cointegration will give realistic and efficient estimates.

Research Design

This study adopts *ex-post facto* method of research design and this is because investigation started after the fact has occurred without interference from the researcher and also for the fact that data needed for the study already exists.

Sources of Data

The data to be used for the study covers the period between 1981 and 2019 and is sourced secondarily from World Bank's 2020 report on World Development Indicators and Global Financial Development database. While data for variables such as growth of real GDP, growth of per capita GDP, labour force, human capital development and were sourced secondarily from World Bank's World Development Indicators (WDI), data for interest rate margin, return on assets and return on equity were sourced from the World Bank's Global Financial Development Database (GFDD) and data for regulatory quality and political stability and absence of violence were sourced from World Bank's World Governance indicators (WGI). Data extrapolation was done following Evans, Hastings and Peacock (2000) linear data interpolation method to generate the missing data for all variables that do not have data from 1981 in order to have enough observations to conduct the ARDL model.

4. Data Presentation and Results

Descriptive Analysis

GDP growth has a mean of 3.15, standard deviation of 5.47, minimum of -13.13 and maximum of 15.33. These signify that average growth of the Nigerian economy in terms of GDP was 3.15 per cent, with a spread of 5.47 per cent over the periods. The year that recorded the lowest economic growth had a negative growth of 13.13 per cent and the year that recorded that largest economic growth had a growth of 15.33 per cent. The Nigerian

economy grows averagely over the periods under investigation. In spite of this, there are periods of negative growth, in fact, recession, which suggests that some factors are into play to determine the performance of the Nigerian economy and these factors needs to be investigated.

Population growth has a mean of 2.58, standard deviation of 0.07, minimum of 2.49 and maximum of 2.71. These signify that average growth of total population in Nigeria was 2.85 per cent, with a very minimal spread of 0.07 per cent over the periods. The growth total population was at its lowest of 2.71 per cent and at its highest of 2.85 per cent. This signifies that population growth is almost similar for most of the years included in this analysis. This consistent growth might implication for the economy, as this growth provides vital human resources, if utilized effectively, to achieve better growth performance. Gross fixed capital formation, used to proxy the stock of capital, has a mean of 35.94, standard deviation of 19.39, minimum of 14.17 and maximum of 89.39. These signify that capital stock averaged 35.94 per cent of GDP during the periods, with a relatively large spread of 19.39 per cent. The result also indicates that the ratio of capital stock to GDP was at its lowest of 14.17 per cent during the periods and was at its highest of 89.39 per cent. Although these values seem to be minimally impressive from this analysis, the time plots show that stock of is continuously falling. This may imply that less and less capital are being created year-in year-out which may deter economic growth through low level of investment. Human capital, which is measured by adult literacy rate has a mean of 56.89, standard deviation of 2.94, minimum of 51.08 and maximum of 70.20. This indicates that on the average, more than half of adult population in Nigeria can read and write every year. It also indicates that most of the years have close rate of adult literacy as suggested by the low standard deviation.

The summary statistics for financial efficiency indicators show that net interest margin, return on assets and return on equity have mean values of 10.6 per cent, 0.94 per cent and 12.14 per cent respectively. This indicates that average gap between lending and deposit interest, which determines the net interest income is 10.6 per cent interest rate. Also, average yearly share of profits in total assets was 0.94 percent while average yearly share of profits in equity was 12.14 per cent. These average values are minimally spread over the periods by about 3.25 per cent, 2.51 per cent and 6.65 per cent respectively. The lowest obtainable interest margin, returns on assets and returns on equity over the periods were 5.60 per cent, -12.83 per cent and 0.14 per cent respectively while the highest obtainable interest margin, returns on assets and returns on equity over the periods were 16.08 per cent, 3.26 per cent and 34.09 per cent respectively. Since an efficient financial system is considered to have minimal interest margin and returns on assets and equity, higher levels as those witnessed in the years with highest levels suggest periods with less efficient financial sector in Nigeria.

Table 4.1: Results of Summary Statistics

Variable	Mean	Std. Dev.	Min	Max	Jarque-Bera Normality	p-val
GDPGR (%)	3.15	5.47	-13.13	15.33	9.23*	0.009
POPG (%)	2.58	0.07	2.49	2.71	2.62	0.269
GFCF (% of GDP)	35.94	19.39	14.17	89.39	7.69*	0.021
HC (%)	56.89	2.94	51.08	70.20	180.1*	0.000
NIM (%)	10.60	3.25	5.60	16.08	4.40	0.110
ROA (%)	0.94	2.51	-12.83	3.26	882.1*	0.000
ROE (%)	12.14	6.65	0.14	34.09	13.14*	0.001
PSTAB (Percentile rank)	12.32	7.61	2.42	26.60	4.74*	0.093
REGQ (Percentile rank)	18.54	4.18	7.88	27.01	0.74	0.692

Source: Author's Computation, 2021

*Note: * indicates significance at least at 10%; GDPGR is economic growth measured by growth of GDP; POPG is population growth; GFCF is gross fixed capital formation; HC is human capital; NIM is net interest margin; ROA is average bank return on assets; ROE is average bank return on equity; REGQ is regulatory quality; PSTAB is political stability and absence of violence.*

As for the institutional variables, political stability and absence of violence as a mean value of 12.32, standard deviation of 7.61, minimum of 2.42 and maximum of 26.6. These indicate that average yearly level of political stability and absence of violence in Nigeria, in a percentile rank is very low, considering the value of 12.32 in a percentile rank. Even though this average is minimally spread as indicated by the standard deviation, Nigeria witnessed an extremely low level of political stability and absence of violence during this period which can be gauged by the value of 2.42 in a percentile rank and also witnessed a level as high as 26.6 in a percentile rank. Regulatory quality as a mean value of 18.54, standard deviation of 4.18, minimum of 7.88 and maximum of 27.01. These also indicate that average yearly level of regulatory quality in Nigeria, in a percentile rank is very low, considering the value of 18.54 in a percentile rank. As it can be seen that this average is minimally spread as indicated by the standard deviation, Nigeria witnessed an extremely low level of regulatory quality during this period which can be gauged by the value of 7.88 in a percentile rank and also witnessed a level as high as 27.01 in a percentile rank.

Table 4.2: Results of Pairwise Correlation Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variable	GDPGR	POPG	GFCF	HC	NIM	ROA	ROE	REGQ	PSTAB
GDPGR	1.00								
POPG	0.04	1.00							
	(0.80)								
GFCF	-0.64*	-0.23	1.00						
	(0.00)	(0.17)							
HC	0.20	0.19	-0.34*	1.00					
	(0.21)	(0.24)	(0.04)						
NIM	-0.31*	-0.42*	0.67*	-0.49*	1.00				
	(0.05)	(0.01)	(0.00)	(0.00)					
ROA	0.05	-0.10	-0.16	-0.06	-0.14	1.00			
	(0.76)	(0.55)	(0.32)	(0.71)	(0.40)				
ROE	0.33*	-0.13	-0.35*	0.06	-0.33*	0.52*	1.00		
	(0.04)	(0.44)	(0.03)	(0.71)	(0.04)	(0.00)			
CAR	-0.02	-0.11	-0.04	-0.11	0.02	0.51*	0.16		
	(0.89)	(0.52)	(0.83)	(0.52)	(0.92)	(0.00)	(0.34)		
LIQ	-0.06	-0.56*	0.59*	-0.22	0.63*	0.05	0.00		
	(0.73)	(0.00)	(0.00)	(0.17)	(0.00)	(0.78)	(1.00)		
REGQ	0.08	0.57*	-0.41*	0.19	-0.44*	-0.13	-0.08	1.00	
	(0.64)	(0.00)	(0.01)	(0.24)	(0.00)	(0.42)	(0.63)		
PSTAB	-0.46*	-0.51*	0.69*	-0.49*	0.62*	-0.13	-0.33*	-0.42*	1.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.43)	(0.04)	(0.01)	

Source: Author's Computation, 2021

*Note: * indicates significance at least at 10%; GDPGR is economic growth measured by growth of GDP; POPG is population growth; GFCF is gross fixed capital formation; HC is human capital; NIM is net interest margin; ROA is average bank return on assets; ROE is average bank return on equity; REGQ is regulatory quality; PSTAB is political stability and absence of violence.*

In Table 4.2, the relationship among variables are presented, where the correlation coefficients of the relationships are presented alongside their p-values (in parenthesis) beneath them to show if these relationships are significant. The main purpose of conducting this analysis is to verify if the relationships are not high enough (i.e. correlation coefficient of 0.8 and above) to cause multicollinearity problem when these variables are employed together in a regression model. The results signify that none of these correlation coefficients are up to 0.8 and hence, inclusion of these variables together in a regression model will not cause multicollinearity problem.

Inferential Analysis

The unit root test results from both the ADF and PP test procedures presented in Table 4.3 show that GDP growth, human capital, net interest margin, return on assets and return on equity are stationary at their level series. This can be verified by their respective t-statistic values which are statistically significant because they have p-values lower than the conventional significance levels. These imply rejection of the test's null hypothesis, which states that the series has unit root (i.e. the series is not stationary). On the other hand, the ADF and PP test procedures indicate that gross fixed capital formation, political stability and regulatory quality are not stationary at their level series but became stationary after first-differencing them. The first set of variables are therefore, regarded as I(0) series while the second set of variables are regarded as I(1) series.

The implication of this outcome is that employing these variables directly in a regression model without further test of cointegration may lead to spurious regression result. Therefore, cointegration test is

necessary to verify if long run cointegration exist among the variables of the models of this study. Given that there is a combination of I(0) and I(1) series, the most suitable cointegration test is the ARDL bounds test procedure to cointegration. As argued by Peseran and Shin (1999), each variable must be I(0) or I(1) in order to satisfy the bounds test assumption of the ARDL models, under no circumstances, should it be I(2). Although, De Vita *et al.* (2006) also noted that the dependent variable should be I(1), however, this is not widely claimed in the current literature (Menegaki, 2019), nor in the original article by Peseran and Shin (1999). Therefore, with the dependent variable of this study being I(0), the ARDL bounds test procedure can be conducted to test the long run cointegration of variables.

The results in Table 4.4 show that the model is cointegrated and have long run equilibrating relationships. This can be verified by the F-statistic value of 7.04 being greater than the I(1) critical bounds. This suggest rejection of the test's null hypothesis that there is no long run level relationship in the model. This result implies that the ARDL model, in form of the short- and long-run estimates are most suitable for the parameter estimation in this study.

Table 4.3: Results of augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) Unit Root Tests

	ADF				PP			
	Level		First Difference		Level		First Difference	
Variable	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value
GDPGR	-4.15***	0.002			-4.17***	0.002		
POPG	-4.35***	0.008			-2.88	0.177	-4.07**	0.014
GFCF	-2.64	0.265	-5.13***	0.000	-2.56	0.298	-5.13***	0.000
HC	-4.36***	0.001			-4.39***	0.001		
NIM	-3.58**	0.044			-3.45*	0.058		
ROA	-6.57***	0.000			-6.57***	0.000		
ROE	-4.21***	0.002			-4.37***	0.001		
PSTAB	-2.54	0.113	-6.91***	0.000	-2.53	0.114	-7.44***	0.000
REGQ	-1.07	0.715	-6.02***	0.000	-1.01	0.739	-5.54***	0.000

Source: Author's Computation, 2021

*Note: * indicates significance at 10%; ** indicates significance at 5%; *** indicates significance at 1%; GDPGR is economic growth measured by growth of GDP; POPG is population growth; GFCF is gross fixed capital formation; HC is human capital; NIM is net interest margin; ROA is average bank return on assets; ROE is average bank return on equity; REGQ is regulatory quality; PSTAB is political stability and absence of violence.*

Table 4.4: Results of ARDL Bounds Cointegration Test

F-stat	I(0) Bound	I(1) Bound
7.04*	2.45	3.61

Source: Author's Computation, 2021

*Note: * indicates significance at least at 5%.*

The results of the impact of financial efficiency and quality of institution on economic growth (measured by GDP growth) are presented in Table 4.5. The short run estimates presented in the upper part of the table shows that, under case (1), where only financial efficiency indicators are included, capital formation, human capital, net interest margin, return on assets and return on equity have significant negative coefficients while population growth does not have a significant coefficient. The results suggest that a per cent point increase in the ratio of capital stock to GDP will induce a fall in GDP growth in the short run by 0.98 per cent points; a per cent point increase in the proportion of literate adult population will induce a fall in GDP growth in the short run by 1.08 per cent points; a per cent point increase in the gap between lending interest rate and deposit interest rate will induce a fall in GDP growth in the short run by 1.56 per cent points; a per cent point increase in the ratio of profits to total assets will induce a fall in GDP growth in the short run by 4.31 per cent points; and a per cent point increase in the ratio of profits to total equity will induce a fall in GDP growth in the short run by 2.40 per cent points. The significant negative coefficient of error correction term (ECT) in first-period lag indicates that the model is converging back to equilibrium and its coefficient value of 1.04 indicates that more than 100 per cent of the short-run errors are corrected in a single period.

The long run estimates presented in the lower part of the table shows that, population growth has a significant positive coefficient while capital formation, human capital, net interest margin, return on assets and return on equity have significant negative coefficients. The results suggest that a per cent point increase in the annual growth of population will cause a fall in GDP growth in the long run by 39.9 per cent points. On the other hand, a per cent point increase in the ratio of capital stock to GDP will induce a long-run decline in GDP growth by 0.95 per cent points; a per cent point increase in the proportion of literate adult population will lead to a long-run fall in GDP growth by 1.04 per cent points; a per cent point increase in the gap between lending interest rate and deposit interest rate will induce a fall in GDP growth in the long run by 1.50 per cent points; a per cent point increase in the ratio of profits to total assets will lead to a decrease in GDP growth in the long run by 3.71 per cent points; and a per cent point increase in the ratio of profits to total equity will cause a long-run fall in GDP growth by 1.82 per cent points.

Under case (2) where regulatory quality was added to the model, the short-run estimates show that population growth has a significant positive coefficient while capital formation has a significant negative coefficient. Other variables including financial efficiency and institutions indicators do not have significant coefficients. The results suggest that a per cent point increase in the rate at which the population grows will induce a short-run rise in GDP growth by 64.4 per cent points. On the other hand, a per cent point increase in the ratio of capital stock to GDP will induce a fall in GDP growth in the short run by 0.14 per cent points. The significant negative coefficient of error correction term (ECT) in first-period lag indicates that the model is converging back to equilibrium and its coefficient value of 0.88 indicates that more than about 88 per cent of the short-run errors are corrected in a single period. Therefore, all errors are corrected before the end of the second period.

In the long-run estimates, population growth has a significant positive coefficient while capital formation has a significant negative coefficient. Other variables are not statistically significant. The results suggest that a per cent point increase in the rate at which the population grows will induce a long-run rise in GDP growth by 27.5 per cent points. On the other hand, a per cent point increase in the ratio of capital stock to GDP will induce a fall in GDP growth in the long run by 0.16 per cent points.

Under case (3) where political stability is included, the short-run estimates show that population growth has a significant positive coefficient while other variables do

not have significant coefficient. The results suggest that a per cent point increase in the rate at which the population grows will induce a short-run rise in GDP growth by 106.9 per cent points. The significant negative coefficient of error correction term (ECT) in first-period lag indicates that the model is converging back to equilibrium and its coefficient value of 0.98 indicates that more than about 98 per cent of the short-run errors are corrected in a single period. Therefore, all errors are corrected before the end of the second period.

In the long-run estimates, population growth has a significant positive coefficient while other variables do not have significant coefficient. The results suggest that a per cent point increase in the rate at which the population grows will induce a long-run rise in GDP growth by 31.6 per cent points.

Considering the model diagnostics, the reported R-squared shows values 0.656, 0.660 and 0.664, which indicate that 65.6 per cent, 66.0 per cent and 66.4 per cent of variations in GDP growth is explained by the independent variables included in the three cases respectively. F-statistic values of 3.18, 4.20 and 3.24 and its p-values of 0.008, 0.006 and 0.005 signify that the overall models are statistically significant and hence, the models are in good fit. Breusch-Godfrey autocorrelation statistics of 2.32, 0.03 and 0.62 with p-values of 0.124, 0.965 and 0.545 suggest that there is absence of serial correlation in the models because the statistics are not significant and the test's null hypothesis of no serial correlation is not rejected. Breusch-Pagan heteroskedasticity statistics of 0.57, 0.17 and 0.19 with p-values of 0.848, 0.999 and 0.998 suggest that there is absence of heteroskedasticity in the models because the statistics are not significant and the test's null hypothesis of equal variance is not rejected. Jarque-Bera normality statistics of 2.11, 0.91 and 0.52 with p-values of 0.282, 0.745 and 0.829 suggest that the residuals of these model are normally distributed because the statistics are not significant which imply that the test's null hypothesis of normally distributed residuals is not rejected.

The findings of this study therefore revealed that financial efficiency indicators such a net interest margin, return on assets and return on equity have negative impact on economic growth in Nigeria. This finding is in line with the a priori expectation of this study and is strongly corroborate by the study of Yusifzada and Mammadova (2015). This logical explanation of these negative impacts is from the fact that continuous increase in banks' net interest income, as well as their productivity indicate a lack of efficiency of the financial sector, which benefits the producers of financial activities than it benefits the consumers. Moreover, it is the efficiency that guarantees equity in the gains and improve economic activities and growth.

Table 4.5: ARDL Estimates for Impact of Financial Efficiency and Institutions on GDP growth

	Case 1			Case 2			Case 3		
Variable	Coeff.	t	p-val	Coeff.	t	p-val	Coeff.	t	p-val
Long Run Estimates									
ΔPOPG	42.5	0.39	0.709	64.4*	2.04	0.052	106.9*	2.21	0.037
ΔGFCF	-0.98*	-13.62	0.000	-0.14*	-1.97	0.060	-0.04	-0.36	0.722
ΔHC	-1.08*	-5.70	0.000	0.17	0.74	0.469	0.24	0.83	0.416
ΔNIM	-1.56*	-5.02	0.000	-0.59	-0.22	0.829	1.15	1.50	0.147
ΔROA	-4.31*	-18.93	0.000	6.78	0.50	0.619	-2.77	-0.79	0.440
ΔROE	-2.40*	-24.37	0.000	-0.70	-0.41	0.688	0.62	1.06	0.300
ΔREGQ				-0.99	-0.63	0.536			
ΔREGQxNIM				0.10	0.60	0.551			
ΔREGQxROA				-0.29	-0.52	0.604			
ΔREGQxROE				0.04	0.48	0.635			
ΔPSTAB							0.26	0.42	0.676
ΔPSTABxNIM							0.03	1.06	0.302
ΔPSTABxROA							0.60	0.74	0.466
ΔPSTABxROE							-0.09	-0.81	0.424
ECT(-1)	-1.04*	-6.69	0.000	-0.88*	-5.79	0.000	-0.98*	-5.77	0.000
Short Run Estimates									
POPG	39.9*	3.38	0.002	27.5*	1.81	0.083	31.6*	1.77	0.089
GFCF	-0.95*	-6.02	0.000	-0.16*	-2.08	0.048	-0.04	-0.35	0.726
HC	-1.04*	-4.45	0.000	0.20	0.73	0.474	0.24	0.82	0.422
NIM	-1.50*	-3.93	0.000	-0.67	-0.22	0.830	1.17	1.51	0.143
ROA	-3.71*	-5.78	0.000	7.70	0.50	0.623	-2.82	-0.79	0.437
ROE	-1.82*	-5.34	0.000	-0.40	-0.22	0.830	0.97	1.62	0.117
REGQ				-1.12	-0.61	0.546			
REGQxNIM				0.11	0.59	0.560			
REGQxROA				-0.35	-0.55	0.586			
REGQxROE				0.04	0.47	0.640			
PSTAB							0.26	0.42	0.678
PSTABxNIM							0.03	1.14	0.266
PSTABxROA							0.52	0.67	0.510
PSTABxROE							-0.09	-0.82	0.421
Constant	-0.13	0.00	0.997	-72.18	-1.59	0.125	-109.1*	-1.97	0.061
R-squared	0.652			0.660			0.664		
F-Statistic	3.18*		0.008	3.20*		0.006	3.24*		0.005
Autocorrelation	2.32		0.124	0.03		0.965	0.62		0.545
Heteroskedasticity	0.57		0.848	0.17		0.999	0.19		0.998
Normality	2.11		0.282	0.91		0.745	0.52		0.829

Source: Author's Computation, 2021

*Note: * indicates significance at least at 10%; Δ indicates first difference; ECT indicates error correction term; (-1) indicates first period lag; POPG is population growth; GFCF is gross fixed capital formation; HC is human capital; NIM is net interest margin; ROA is return on asset; ROE is return on equity; REGQ is regulatory quality; PSTAB is political stability and absence of violence.*

5. Conclusion and Policy Recommendation

The conclusion that can be drawn from the revealed findings of this study is that financial efficiency facilitates better level of economic growth through the reduction of net interest margin, return on assets and return on equity. Therefore, an efficient financial sector in important to achieve improvement in

economic growth of Nigeria. Further conclusion from these findings is that the current level and structure of institutions do not support the growth of the economy.

This study therefore recommended that effective policy should be made to achieve a downward review of the gap between lending and deposit interest rate, as well as in the overall profits earned by banks. This is because effectively reducing these indices will improve the efficiency of banks and a fair economic playing ground will be achieved which tends to promote economic growth. It also recommended that government should look towards strengthening the quality of institutions in the country in order to provide effective regulation that can restrain foul play from any actor in the financial system. These institutions should also be strengthened to ensure the economic and political environment in Nigeria are stable and are those that allow economic activities to triumph.

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