# Financial Deepening and Economic Growth Causality in Nigeria

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# Abstract

This work was undertaken to determine the type of causality that subsists between financial deepening and economic growth in Nigeria for the period 1985-2023. Financial deepening was considered from the angle of the equities and debt markets, and bank and non-bank financial institutions. ARDL estimations, co-integration and granger causality test was used for data analysis. The study inferred that there is a long run relationship between financial deepening and economic growth, and there is a unidirectional causality that runs from financial deepening to economic growth in Nigeria. On this backdrop, it was suggested that there is need for massive awareness about the existence of the equities and bond markets, insurance companies and other financial institutions with emphasis on the services they render. This will go a long way in making existing and future policies geared towards increased penetration of financial services more effective.

Keywords: Financial deepening, Economic growth, Causality, Nigeria

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# **Background of the Study**

Growth of economies has remained a major macro-economic objective. Economic growth implies a sustained increase in the output of a country over a long period of time. However, economic growth cannot be possible without the combined role of investment, labour and financial deepening. Financial deepening is described as the growth and development of financial markets (equities and bond market), financial intermediaries and financial institutions (deposit money banks, insurance companies etc.) to make available financial resources in order to facilitate improved economic performance. A financial system that is properly developed would enable the correct mobilization of resource to ensure its optimum use. An imperative role of financial deepening is reduction in poverty (Anachedo & Osakwe, 2023). Finance plays quite a central role as it ultimately determines the economic growth and development of countries. This underlines the role of the financial sector to economic growth. Over time, financial sector led economic growth is one of the most discussed issues in economics; it is argued that for the growth of an economy, the financial sector must be well developed. The financial sector of a country facilitates mobilization of savings, thereby turning it into the capital required for economic growth. A well developed and an efficient financial sector increases access to funds at minimum cost. This spurs the level of economic activities which in turn enhances economic growth. Yousuo and Ekiou (2020) highlighted that "the role of financial institutions in promoting the distribution of capital resources for the development of companies brings about optimum resources allocation. In this case, banks become more productive than financial markets".

There is a plethora of research work establishing a positive link between financial deepening (increased provision of financial services) and economic growth. "Researchers argue that there is a bidirectional causality running form financial deepening and economic growth; that is, while financial deepening supports economic growth, economic growth also forms ground for financial development. This is named a supply leading (financial development  $\rightarrow$ economic growth) and demand following (economic growth  $\rightarrow$  financial development) process" (Guru & Yadav, 2018). However, Lucas (1988) and Stern (1989) suggested that "there is no relationship between financial system development and economic growth." According to Ghildiyal, Pokhriyal and Mohan (2015), "finance is an 'overstressed' determinant of economic growth. Therefore, any strategies aimed at promoting financial system development would be a waste of resources, as it diverts attention from more relevant policies such as labour and productivity improvement programs, implementation of pro-investment tax reforms, encouragement of exports; amongst others." On the other extreme are those who suggest that financial system development is anti-growth (Manasseh, Ngong, Logan, Okanya & Olelewe, 2024; Udoh, Jack, Prince, Ekeowa, Ndubuaku & Samuel, 2021). Development in financial system facilitates risk amelioration and efficient resource allocation; this may reduce the rate of savings and risk, consequently leading to lower economic growth (Yousuo & Ekiou, 2020). However, this follows the basic assertion that, where there is high risk there is high return.

Nevertheless, as economies continue to develop, additional funds must be provided to address this rapid development, and the financial sector serves as an efficient means for mobilizing and

allocating capital between competitive needs, which are vital for the growth and productivity in an economy. However, in the literature, there are countless studies on financial deepening and economic growth, with contrasting results and findings (Manasseh, Ngong, Logan, Okanya & Olelewe, 2024; Okete & Okuma, 2024; Anachedo & Osakwe, 2023; Ajudua & Odishika, 2022; Nwosu, Itodo & Ogbonnaya-Orji, 2021; Okafor, Bowale, Onabote, Afolabi & Ejemeyovwi, 2021; Yousuo & Ekiou, 2020; Udoh, Jack, Prince, Ekeowa, Ndubuaku & Samuel, 2021; Puatwoe & Piabuo, 2017; Alrabadi & Kharabsheh, 2016; and Ghildiyal, Pokhriyal & Mohan, 2015). This is fully down to the methodology adopted by these studies. These studies used different financial deepening and economic growth indicators. Accordingly, based on the reviewed studies, it was observed that none considered change in GDP as economic growth indicator. In addition, none of these studies considered equities and debt market capitalization to GDP, deposit money banks' asset to GDP and insurance companies' asset to GDP as financial deepening indicators. As such, the question that readily calls to mind is: what is the impact of these components of financial deepening on the GDP growth rate of Nigeria? This study is designed to fill the gap arising from the above question. This work is further structured into conceptual, theoretical and empirical review of related literature, methodology, data presentation, analysis and interpretation; and conclusion and recommendations.

# Review of Literature Conceptual Review Financial Deepening

Ndebbio (2014) defines financial deepening as "an increase in the stock of assets of financial markets, institutions and organizations in a country." Ohwafasa and Aiyedogbon (2013) opined that "it is a process which involves specialization in financial functions and institutions through which organized domestic institution and markets relate to foreign markets." They stressed that "an increase in the real size of the monetary system will generate opportunity for the profitable operation of other institutions as well via bill dealers to industrial banks and insurance companies." Financial deepening as such can be defined as the increased provision of financial services with a wider choice of services geared to all levels of society. In other terms, it is described as the growth and development of financial markets, financial intermediaries and financial institutions to make available financial resources in order to facilitate improved economic performance. Okafor, Bowale, Onabote, Afolabi and Ejemeyovwi (2021) added that "financial deepening is the ability of financial institutions in an economy to effectively mobilize savings for investment purposes." On the measures of financial deepening, Nnanna and Dogo (2018) submitted that it entails an increased ratio of money supply to Gross Domestic product. Thus, financial deepening is measured by relating monetary and financial aggregates such as M1, M2 and M3 to Gross Domestic Product (GDP). However, Fry (1978) opined that "since financial deepening means an increase in the supply of financial assets in the economy, it is important to develop some measures of the widest range of financial assets, including money. This range of financial assets includes but not limited to: broad money (M2), liabilities of bank and non-bank financial institutions, treasury bills, value of shares and money market fund. The sum of these financial assets can thus approximate the widest measures of financial deepening."

# **Economic Growth**

Economic growth is defined as "the process by which the supply of goods and services is increasing while improving the quality of life" (Manasseh, Ngong, Logan, Okanya & Olelewe, 2024). According to Azam and Khattak (2009), economic growth is "the automatic birthright of an economy; therefore, for an economy to grow, it has to create the right conditions for growth." However, Dwivedi (2008) added that "economic growth means a sustained increase in per capital national output or net national product over a long period of time. It means as such that the rate of increase in total output must be greater than the rate of population growth. Economic growth is measured by the increase in GNP (Gross National Product) and GDP (Gross Domestic Product). "The World Bank now replaces GNP per capital with Gross National Income (GNI) per capital to compare wealth among countries" (Dang & Pheng, 2015). As such, this work adopted increase in GDP as a measure of economic growth.

# **Theoretical Review**

# Supply - Leading Hypothesis

The supply-leading hypothesis suggests that financial deepening spurs growth. In other words, the existence and development of financial markets bring about a higher level of saving and investment and enhance the efficiency of capital accumulation. "This hypothesis contends that well-functioning financial institutions can promote overall economic efficiency, create and expand liquidity, mobilize savings, enhance capital accumulation, transfer resources from traditional (non-growth) sectors to the more modem growth inducing sectors, and also promote a competent entrepreneur response in these modern sectors of the economy" (Anachedo & Osakwe, 2023; Puatwoe and Piabuo, 2017). There are countless studies that support this hypothesis. To them, it is crucial to motivate policymakers to prioritize financial sector policies and devote attention to policy determinants of financial development as a mechanism for promoting growth.

#### **Demand - Following Hypothesis**

Demand following hypotheses as led by Robinson (1952) holds that "financial market is essentially hand maiden of domestic industry, and respond passively to other factors that produce cross country different growth. The demand-following view of the development of the financial markets is merely a lagged response to economic growth (growth generates demand for financial products)" (Ajudua & Odishika, 2022; Nwosu, Itodo & Ogbonnaya-Orji, 2021). This implies that any early efforts to develop financial markets might lead to a waste of resources which could be allocated to more useful purposes in the early stages of growth. As the economy advances, this triggers an increased demand for more financial services and thus leads to greater financial development. Some research work postulate that economic growth is a causal factor for financial services stimulates the financial sector". It is argued that financial deepening is merely a by-product or an outcome of growth in the real side of the economy. Accordingly, Guru and Yadav (2018) inferred that "any evolution in financial markets is simply a passive response to a growing economy" (Guru & Yadav, 2018).

# **Empirical Review**

Manasseh, Ngong, Logan, Okanya and Olelewe (2024) examine the long run nexus between financial deepening and economic growth in emerging African economies by adopting the fully modified and dynamic Ordinary Least Square (OLS) analytical methods. Result amongst other things revealed that bidirectional causality exists between domestic credit to the private sector, money supply ratio, trade openness and gross domestic product per capital; while a unidirectional causality runs from capital formation for GDP per capita.

Similarly, Okete and Okuma (2024) studied the effects of financial deepening on economic growth in Nigeria between 1986 and 2022. Adopting the Autoregressive Distributed Lag approach, they realized that long run relationship exists between the variables but no regressor was statistically significant. Also, credit to the private sector, and market capitalization to RGDP have positive effects on economic growth, whereas money supply, inflation rate and prime lending rate to GDP have negative effects on economic growth rate.

Anachedo and Osakwe (2023) investigated the effects of financial deepening on economic growth in Nigeria for the period 1985 to 2021. They adopted the Ordinary Least Square regression method and the Granger Causality test for data analysis and findings revealed that increasing credit to private sector has actually coincided with rising economic growth rate; and market capitalization as a percentage of GDP has a positive association with the rate of economic growth in Nigeria. The study further showed that percentage of money supply to GDP and insurance industry premiums have negative and significant effects on economic growth rate in Nigeria.

Ajudua and Odishika (2022) in a related study examined the impact of financial deepening on Nigeria's economic growth from 1986 to 2020 using the Auto-regressive Distributed Lag Model (ARDL) and the Error Correction Mechanism estimation techniques. Basically, results showed that money supply, market capitalization and liquid liabilities have positive impacts on economic growth; while credit to private sector, and lending rate have no significant impacts on economic growth in Nigeria.

Nwosu, Itodo and Ogbonnaya-Orji (2021) explored the nexus between financial deepening, financial system fragility and economic growth in Nigeria by utilizing quarterly data from 2007Q1-2018Q4. They employed a non-linear co-integrating ARDL model in assessing the nexus between these variables and results suggested that there is a positive nexus between financial deepening and growth, but a non-linear relationship subsists between financial system fragility and economic growth in Nigeria.

Okafor, Bowale, Onabote, Afolabi and Ejemeyovwi (2021) adopted the Johannsen and Error Correction Model and granger causality techniques in an effort to determine the type of relationship that exist between finance and growth and result mainly showed that economic growth in Nigeria is positively and significantly influenced by financial deepening, especially the bank-based financial depth. Udoh, Jack, Prince, Ekeowa, Ndubuaku and Samuel (2021) adopted ARDL and NARDL techniques in examining the association between financial deepening and economic growth in Nigeria using quarterly data from 1999 to 2019. To observe if there is a possibility of a non-linear association, for structural breaks, the Zivot and Andrews tests were used, as well as Granger causality to test for causality. Findings revealed that economic growth adjusts non-linearly at a faster pace; and a bi-directional link was observed between the variables.

Okoebor (2021) investigated the effects of financial deepening on economic growth in Nigeria for the period 1981 to 2018. Adopting the Ordinary Least Square regression method, findings indicated that the ratio of money supply to GDP has positive significant effects on per capita income; inflation has a negative significant influence on per capital income both at the short and long run; while financial savings and private sector credit to Gross Domestic Product has insignificant negative and positive relationship with per capita income in the short-run respectively.

Yousuo and Ekiou (2020) investigated on the impact of financial deepening on economic growth in Nigeria for a period of thirty-eight years (1981 - 2018). The classical Least Square of multiple regressions was applied for data analysis and results showed that financial deepening has both short and long-term effects on economic growth; and the estimated regression line was significance. Also, stock market's credit criteria have positive and significant effects on economic growth, while the monetized criteria have positive and insignificant effects on growth in the short run.

Guru and Yadav (2018) examined the relationship between financial development and economic growth in Brazil, Russia, India, China and South (BRICS) from 1993 to 2014 using generalized method of moment system estimation (SYS-GMM). The examination of the principal indicators of financial development and macroeconomic variables showed considerable differences between the selected economies. Results further confirmed banking sector development and stock market development indicators are complementary to each other in stimulating economic growth.

Puatwoe and Piabuo (2017) assessed the impact of financial development on economic growth in Cameroon. This assessment was done using Auto Regressive Distributive Lag (ARDL) technique of estimation and they discovered that there exists a short-run positive relationship between money supply (M2), government expenditure and economic growth; and a short run negative relationship between bank deposits, private investment and economic growth equally exist. However, in the long run, all indicators of financial development showed a positive and significant impact on economic growth.

Alrabadi and Kharabsheh (2016) investigated the dynamic relationship between financial deepening and economic growth in Jordan over the period (1992-2014). Vector auto regressive regressions, Granger causality and Johansen-Juselius cointegration tests were employed to achieve the objectives of the study. Using quarterly data, the results indicated no statistically significant effect of financial deepening on economic growth on the short run. However, there

is a statistically significant long run equilibrium relationship between the two variables. Finally, a bi-directional causality exists between economic growth and financial deepening in Jordan.

Ghildiyal, Pokhriyal and Mohan (2015) investigated into the causal impact of financial deepening on economic growth in India by employing the Autoregressive Distributed Lag (ARDL) Bound testing approach and Granger Error Correction Model (ECM) technique. Findings suggested that there exists an equilibrium relationship in the long run between financial deepening and economic development. Also, financial deepening causes economic growth in the long run and also in the short run.

# Gap in Literature

The uniqueness of this work lies in the fact that it introduces percentage change in GDP and not the absolute value of nominal GDP or real GDP as economic growth indicator. Secondly, it introduces equities and debt market capitalization to GDP, deposit money banks' asset to GDP and insurance companies' asset to GDP as financial deepening indicators. This is because financial deepening is all about the depth of financial services in a country; and the equities market, debt (bond) market, deposit money banks and insurance companies are recognized financial institutions.

# Methodology

Given the need to establish the cause-effect relationship between financial deepening and economic growth in Nigeria, the quasi-experimental research design was adopted in the study. Thus, the study relied on secondary data and these data were sourced from Central Bank of Nigeria (CBN) statistical bulletin, volume 34. Accordingly, the ARDL (Autoregressive Distributed Lag) model was chosen for this work. This is because of its numerous benefits over other techniques, which are: "efficiency in small samples analysis, a combination of linear variables with diverse orders of integration of I(0) and I(1), and the fact that it is less prone to autocorrelation" (Pesaran, Shin & Smith, 2001). The analysis also covered ADF unit root test, descriptive analysis, bounds cointegration test, and series of diagnostic tests. The simple version of the adopted model of the study is functionally given as:

 $PCGDP = F(EMCGDP, DMCGDP, DMBAGDP, INSCAGDP) \dots (1)$ 

Where:

PCGDP = Percentage change in GDP, EMCGDP = Equities market capitalization to GDP, DMCGDP = Debt market capitalization to GDP, DMBAGDP = Deposit Money Banks' asset to GDP, INSCAGDP = Insurance Companies asset to GDP

#### **Interpretation of Results**

Statistics	PCGDP	EMCGDP		DMCGDP	
DMBAGDP	INSCAGDP				
Mean	21.71524	8.512285	3.273343	23.78738	3.618402
Median	15.90608	8.389398	1.593911	22.34734	0.010118
Maximum	75.27420	29.35837	11.34628	39.78771	16.17115
Minimum	5.479698	1.437465	0.087784	11.22786	0.005788
Std. Dev.	14.94144	5.761100	3.381150	7.489029	5.694292
Skewness	1.562252	1.277084	0.698693	0.284640	1.010286
Kurtosis	5.910149	5.817117	2.059393	2.199903	2.197464
Jarque-Bera	27.34724	21.68988	4.256141	1.446354	7.090158
Probability	0.000001	0.000020	0.119067	0.485208	0.028866
Sum	781.7486	306.4422	117.8404	856.3458	130.2625
Sum Sq. Dev.	7813.635	1161.660	400.1260	1962.994	1134.874
Observations	39	39	39	39	39

Table 1: Descriptive Analysis

# Source: E-Views Output

The table above contains the data characteristics of the variables used in this study. The table as such contains the mean, median, maximum value, minimum value, standard deviation, skewness and kurtosis of the variables PCGDP, EMCGDP, DMCGDP, DMBAGDP and INSCAGDP from 1985–2023. All these variables were positively skewed, with no exception. Examining the kurtosis, all variables had their kurtosis coefficient greater than zero, which indicates that they are all leptokurtic. The Jarque-Bera statistics tested the null hypothesis that a series is normally distributed. The null hypothesis is rejected when the probability value is significant at 5 percent. Using the probability values as shown above, the variables PCGDP, EMCGDP and INSCAGDP are not normally distributed except for DMCGDP and DMBAGDP which are normally distributed as their respective probability values are greater than 0.05.

Variables	ADF Test	Critical Values		Order of	Remarks	
	Statistics	1%	5%	10%	Integration	
PCGDP	-3.423228	-3.632900	-2.948404	-2.612874	I (0)	Stationary
EMCGDP	-6.238590	-3.646342	-2.954021	-2.615817	I (1)	Stationary
DMCGDP	-5.366966	-3.639407	-2.951125	-2.614300	I (1)	Stationary
INSCAGDP	-18.89825	-3.711457	-2.981038	-2.629906	I (1)	Stationary
DMBAGDP	-4.380414	-3.653730	-2.957110	-2.617434	I (0)	Stationary

#### Table 2: Unit Root Test

Source: Researcher's Compilation

The table above shows results of the unit root test, where the variables were either integrated at level or of order one. The variables tested as seen in the table had ADF statistics that were higher than the critical level at 5 percent level of significance.

# ARDL Model Estimation

**Table 3:** Dependent Variable: PCGDPMethod: ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
PCGDP(-1)	0.022469	0.311351	0.072168	0.9442
PCGDP(-2)	0.848792	0.461037	1.841052	0.1029
PCGDP(-3)	0.179886	0.350129	0.513772	0.6213
PCGDP(-4)	0.294656	0.211309	1.394434	0.2007
EMCGDP	-2.115919	1.414036	-1.496368	0.1729
EMCGDP(-1)	0.273941	1.398289	0.195911	0.8496
EMCGDP(-2)	-1.201342	1.052704	-1.141196	0.2868
EMCGDP(-3)	0.931674	1.471542	0.633128	0.5443
EMCGDP(-4)	1.591595	1.276398	1.246943	0.2477
DMCGDP	7.457812	3.405458	2.189958	0.0599
DMCGDP(-1)	-2.725814	4.045748	-0.673748	0.5195
DMCGDP(-2)	0.037238	2.635590	0.014129	0.9891
DMCGDP(-3)	-3.054818	3.001779	-1.017669	0.3386
DMBAGDP	-4.495209	1.222816	-3.676111	0.0063
DMBAGDP(-1)	4.418310	1.385240	3.189562	0.0128
DMBAGDP(-2)	0.762686	2.016423	0.378237	0.7151
DMBAGDP(-3)	-4.374101	2.201433	-1.986934	0.0822
DMBAGDP(-4)	1.153491	1.090911	1.057365	0.3212
INSCAGDP	2.881856	2.149376	1.340788	0.2168
INSCAGDP(-1)	-1.892433	2.029888	-0.932284	0.3785
INSCAGDP(-2)	4.592419	1.727469	2.658468	0.0289
INSCAGDP(-3)	-2.282412	1.787618	-1.276790	0.2375
INSCAGDP(-4)	-4.018610	2.781426	-1.444802	0.1865
С	58.31765	34.52499	1.689143	0.1297
R-squared	0.924815	Mean deper	ndent var	22.20402
Adjusted R-squared	0.708660	S.D. dependent var		15.46549
S.E. of regression	8.347648	Akaike info criterion		7.195542
Sum squared resid	557.4659	Schwarz criterion		8.294844
Log likelihood	-91.12868	Hannan-Qu	inn criter.	7.559930
F-statistic	4.278467	Durbin-Watson stat		2.613011
Prob(F-statistic)	0.019705			

#### Source: E-Views Output

ARDL regression results generally showed that financial deepening has a significant impact on economic growth in Nigeria. Specifically, it showed amongst other things that PCGDP(-1), EMCGDP(-1) and DMBAGDP(-1) have positive effects on PCGDP, while DMCGDP(-1) and INSCAGDP(-1) have negative effects on the regressand; however, only DMBAGDP(-1) was statistically significant. Again, the table showed that the regressors put together have a collective impact of about 92.48% on PCGDP.

#### **Co-integration Test Table 4:** ARDL Bounds Test

Test Statistic	Value	k				
F-statistic	8.863419	4				
Critical Value Bounds						

Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: E-Views Output

Bounds test technique was adopted for co-integration test here. From the above table, it was revealed there is a long run relationship exists among the variables of financial deepening and economic growth in Nigeria. This is because F-statistic (8.863419) above is > the upper critical bound (UCB) value (4.01) at 5%; hence, the need to estimate the long run parameters of the exogenous variables.

Table 5: Long Run Results

Cointegrating Form						
Variable	Coefficient	Std. Error	t-Statistic	Prob.		
D(EMCGDP)	1.188884	0.571741	2.079412	0.0472		
D(DMCGDP)	-2.207323	0.888124	-2.485376	0.0194		
D(DMBAGDP)	-1.612483	0.723280	-2.229404	0.0343		
D(INSCAGDP)	-1.458231	0.959210	-1.520242	0.1401		
CointEq(-1) -0.948066 0.154108 -6.151950 0.0000						
Cointeq = PCGDP - (1.2540*EMCGDP -2.3282*DMCGDP +						

0.0323

\*DMBAGDP + 1.3072\*INSCAGDP + 13.4318)

Long Run Coefficients

-					
	Variable	Coefficient	Std. Error	t-Statistic	Prob.
	EMCGDP	1.254010	0.547680	2.289675	0.0301
	DMCGDP	-2.328238	0.940781	-2.474794	0.0199
	DMBAGDP	0.032327	0.490965	0.065844	0.9480
	INSCAGDP	1.307190	0.461678	2.831389	0.0086
	С	13.431802	10.751759	1.249266	0.2223

Source: E-Views Output

The table shows that the ECM CointEq(-1) above is correctly signed (negatively significant). As such, the model has a 94.8% adjustment speed. This further implies that economic growth adjusts at a rate of 94.8 percent to financial deepening shocks and dynamics every year. In addition, in the long run, the other explanatory variables except DMCGDP have negative impacts on PCGDP; however, only DMBAGDP was statistically insignificant.

Null Hypothesis:	Obs	F-Statistic	Prob.
EMCGDP does not Granger Cause PCGDP PCGDP does not Granger Cause EMCGDP	34	2.62016 0.28612	0.0899 0.7533
DMCGDP does not Granger Cause PCGDP PCGDP does not Granger Cause DMCGDP	34	2.97845 0.13706	0.0666 0.8725
DMBAGDP does not Granger Cause PCGDP PCGDP does not Granger Cause DMBAGDP	34	0.84911 0.15596	0.4382 0.8563
INSCAGDP does not Granger Cause PCGDP PCGDP does not Granger Cause INSCAGDP	34	5.31602 1.03751	0.0108* 0.3671
DMCGDP does not Granger Cause EMCGDP EMCGDP does not Granger Cause DMCGDP	34	0.47481 0.05215	0.6268 0.9493
DMBAGDP does not Granger Cause EMCGDP EMCGDP does not Granger Cause DMBAGDP	34	0.11984 7.51013	0.8875 0.0024*
INSCAGDP does not Granger Cause EMCGDP EMCGDP does not Granger Cause INSCAGDP	34	1.54053 0.23002	0.2313 0.7960
DMBAGDP does not Granger Cause DMCGDP DMCGDP does not Granger Cause DMBAGDP	34	0.83974 7.08387	0.4421 0.0031*
INSCAGDP does not Granger Cause DMCGDP DMCGDP does not Granger Cause INSCAGDP	34	0.87414	0.4279 0.9978
INSCAGDP does not Granger Cause DMBAGDP DMBAGDP does not Granger Cause INSCAGDF	34	3.86793 0.00518	0.0324* 0.9948

#### Table 6: Granger causality Test

#### Source: E-Views Output

Pairwise granger causality test result revealed a unidirectional causality between INSCAGDP and PCGDP, EMCGDP and DMBAGDP, DMCGDP and DMBAGDP, and INSCAGDP and DMBAGDP. As such, one of the financial deepening indicators (INSCAGDP) granger causes economic growth (PCGDP).

Table 7: Diagnostic Tests

Test Criterion		Test statistic	P-value
Autocorrelation	Q-Stat	$0.0025 \leq Q\text{-Stat} \leq 9.1894$	> 0.05
Normality	Jarque-Bera	2.406375	0.300236
Serial Correlation	Breusch-Godfrey	0.005777	0.9942
Heteroscedasticity	Breusch-Pagan-Godfrey	1.548031	0.1938

Source: Researcher's Compilation

The above table shows absence of auto and serial correlation in the model; the errors of the model are normally distributed; and the errors are homoscedastic which means they have constant variance.

# **Conclusion and Recommendations**

The concern of this study was to determine the nature of causality that subsists between financial deepening and economic growth in Nigeria between 1985 and 2023. Adopting the ARDL approach and granger causality test, results showed that in the short run, Deposit Money Banks' total assets to GDP has a significant effect on GDP growth; while in the long run, only insurance companies' total assets to GDP was insignificant. Results also showed that there is a long run relationship between financial deepening and economic growth while causality runs from the former to the latter. Hence, the supply leading hypothesis is applicable in Nigeria. It was advised that there is need for massive awareness about the existence of the equities market, the bond market, insurance companies and other financial institutions vis-avis the services they render; as this will go a long way in making existing and future policies geared towards increased penetration of financial services more effective. There is also the need to improve on power supply, poor state of roads and insecurity in the country, as these are serious bottlenecks when it comes to the issue of financial deepening in developing countries.

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