A CAUSALITY INVESTIGATION OF FINANCIAL DEEPENING AND THE GROWTH OF NIGERIAN ECONOMY (1990-2017)

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Abstract

The study investigated the relationship between financial deepening and the growth of Nigerian economy; for the period (1990-2017). Secondary data were used and collected from the Central Bank of Nigeria Statistical Bulletin. The study used Gross Domestic Product as proxy for growth of Nigerian economy and employed as dependent variable; whereas, Total Bank deposits, Market Capitalization and Credit to the Private Sector were used as the explanatory variables to measure financial deepening. Hypotheses were formulated and tested using time series econometrics model. The result revealed that the variables do not have unit roots. The study showed the existence of at least one co-integrating at 5% level of significance. The result confirmed that about 70% short-run adjustment speed from long-run disequilibrium. The study revealed that fnancial deepening had a direct causality with the growth of Nigerian economy. The coefficient of determination indicated that about 63% of variations of the growth of Nigerian economy can be explained by changes in financial deepening variables. The study concluded that financial deepening had a causal relationship with the growth of Nigerian economy. The study recommended that government and policy makers should be directed towards manipulating the money supply in such a way that will facilitate the provision of financial services in the economy. CBN should implement policies that will increase the flow of funds; that will improve the capacity of banks to extend credit facilities to the economy.

Keywords: Causality investigation, financial, deepening, economy, growth, Nigeria

INTRODUCTION

The significance of financial deepening and growth nexus had occupied central position in the financial economics literature in recent decades (Andabai, 2017). Thus, this had been identified as one of the areas in financial economics literature that can quicken the pace of growth and development in any modern economy. Hence, the effect of this relationship need to be determined and examined from time to time especially for developing economies like Nigeria. However, a theoretical investigation by Ogbenke (2017) reveals that the major concern of financial deepening is to increase provision of financial services by efficient and effective financial intermediaries with a wider choice of services geared to all sectors of the economy. Consequently, its also expected to serve as a reservoir of savings of idle funds and allocates same to entrepreneurs, investors, households and government for viable investments projects. The study conducted by Chizoba (2017) confirmed that financial deepening is characterised with the level of development and innovation of traditional and non-traditional financial services in a free-market economy. Unfortunately, in Nigeria the concepts seems to have failed to perform some of its responsibilities such as attraction of domestic and foreign investments; and, the provision of financial services for the economy.

However, the empirical study by Chinwe & Egboke (2017) showed that inspite of various reforms in the banking industry; the sector appears to have not been effectively addressed some of the challenges that are confronting the economy. This is because, neither domestic savings nor investments in the economy has significantly increased since the reforms; meanwhile, the industry is still remained largely oligopolistic and uncompetitive in nature. Therefore, this gives an opportunity to the few banks in controlling the greater segment of the market in terms of total assets and total liabilities in the industry. Hence, it has been the question whether financial deepening that contributes to economy growth or is it economic growth that spurs financial deepening in an economy? The study carried out by Onwumere, Ibe, Ozoh and Mounanu (2012) express two views namely: the supply-leading hypothesis & demand- following hypothesis. The supply-leading hypothesis states that the presence of efficient financial markets contributes to economic growth. Thus, while the demand-following hypothesis holds that financial deepening does not promote economic growth in Nigeria (Gboku, 2018). The two views appear to be in conflict with each other revealing opposing patterns of the relationship between financial deepening and economic growth; because, each having different implications for regulators and policy makers in the economy. Hence, it is against this background that this study attempts to investigate the relationship between financial deepening and the growth of Nigerian economy; for the period (1990-2017).

THEORETICAL FRAMEWORK

The theoretical framework of the study anchored on the Gurley and Shaw (1967) financial intermediation theory. The theory explains the functions of bank credit in the growth and development of an economy. The work of Ogiriki and Andabai (2016) revealed that the business of financial services in any modern economy is to provide a vibrant mechanism to draw financial flows from financially exceeding agents to those having a financial need in the economy.This means that the financial institutions are expected to have a significant influence on the economy by efficiently carrying out its responsibilities, among which is the provision of financial services to the productive sectors of the economy. Similarly, the empirical work conducted by Andabai and Achugbu (2017) reveals that a liberalized financial system is expected to have an efficient and effective intermediation processes that could facilitate the business of lending and borrowing in the economy.

The study carried out by Ajugbolu (2018) considers financial development and growth relationship from another direction such as bi-directional causality. The bi-directional causality hypothesis, according to the study is somewhere between these two (the supply-leading hypothesis and demand-following   hypothesis) in that it claims mutual impact of finance and growth. The concepts surrounding financial deepening also occurs due to an expansion in government expenditure. Ogbede and Chinde (2017) opined that in order to reach full employment, the government should inject money into the economy by increasing government expenditure. This implies that an increase in government expenditure increase aggregate demand and income, thereby raising demand for money. However, disequilibrium is usually the result of reducing private investments resulting from higher interest rates. Because, since higher interest rates lower private investment; consequently, an increase in government expenditure promotes investments and increases private investments concurrently.

EMPIRICAL REVIEW

Onwumere; Ibe; Ozoh and Mounanu (2012) investigated the impact of financial deepening on economic growth in Nigeria for the period 1992 to 2003. The study adopted supply-Leading hypothesis thereby 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 rates for economic growth. The paper discovered that broad money velocity and market liquidity promote economic growth in Nigeria while money stock diversification, economic volatility and market capitalization do not.

Akinlo and Egbetunde (2010) examined the long-run and causal relationship between financial development and economic growth for ten countries in sub-Saharan Africa using the

vector error correction model (VECM). The study revealed that financial development is co-integrated with economic growth in the selected ten countries in sub-Saharan African countries. it went in central African Republic, Congo Republic, Gabon, and Nigerian while economic growth Granger causes financial development in Zambia and a bidirectional relationship between financial development and economic growth was found in Kenya, Chad, South Africa, Sierra Leone and Swaziland.

Ogboke (2017) assessed the financial repression and liberalization in Nigeria. The study selected periods that would reflect important policy periods in Nigeria. The study multiple regression analysis to estimate the model constructed for the research. The results of the study reveal that financial development during the period of financial liberalization significantly impact more on the growth variable (GDP).

Owuale (2016) examined the empirical relationship between the level of development by financial intermediates and growth. The study employed data on aggregate deposit money bank credit over time and gross domestic product to establish that a moderate positive relationship exist between financial deepening and economic growth. The study concludes that the development of financial intermediary institutions in Nigeria is fundamental for overall economic growth. Wadud (2005) examines the long-run causal relationship between financial development and economic growth for 3 South Asian countries namely India, Pakistan and Bangladesh. The study employed a cointegrated vector autoregressive model to assess the long-run relationship between financial development and economic growth. The results indicate causality between financial development and economic growth.

Adumule (2017) examined how efficient the financial intermediation process has been in Nigeria's growth performance. The study employed the OLS approach. The empirical results show that financial intermediation process is sub-optimal and caused by high lending rate. High inflation rate, low per capita income, and poor branch networking. Sackey and Nkrumah (2012) examined the effects of financial sector development on economic growth in Ghana using Johansen Co-integration analysis. The study also examined empirically the causal link between financial sector development and economic growth in Ghana. The result of the study shows that, there is a statistically significant positive relationship between the financial sector development and economic growth in Ghana.

METHODOLOGY

The study employed the *ex-post-facto* research design. Secondary data were used and collected from Central Bank of Nigeria Statistical Bulletin, 2017. The rationale of selecting this time series data is because it covers a major economic reforms such as 2005 banking sector

reforms in Nigeria. Financial deepening was proxy as Total Bank Deposits, Market Capitalization and Credit to the Private Sector to represent the independent variables; whereas, the growth of Nigerian economy was proxy as Gross Domestic Product to represent dependent variable as indicated in appendix I.

Multivariate linear regression model is used to test the null hypotheses formulated for this study: There is no significant long-run relationship between financial deepening and the growth of Nigerian economy. There is no causality between financial deepening and the growth of Nigerian economy. Based on these hypotheses, a model is adapted from the study conducted by (Chinwe & Egboke, 2017).

Hence, the functional model is stated as: GDP = f(CPS, M_2, MAC)

Where:

GDP = Gross Domestic Product as proxy for Economic Growth

CPS = Credit to Private Sector

M_2 = Broad Money Supply

MAC= Market Capitalization

The above model is modified in this study by introducing total bank deposits as proxy for broad money supply and was employed as explanatory variable. The modified model is written as:

GDP = f(TBD, CPS, MAC)……………… ……………………………………….(i)

The econometric model is stated as:

GDP = b_o+ b_1TBD+ b_2MAC + b_3CPS + μ…………………………………………(ii)

Where:

GDP = Gross Domestic Product

TBD = Total Bank Deposits

MAC = Market Capitalization

CPS= Credit to the Private Sector, b_o, b_1, b_2, b_3 = Regression parameters, μ = stochastic error term which absorbs the influence of omitted variables.

ANALYSIS AND DISCUSSION OF FINDINGS

The stationary test of the variables were done using the Augmented Dicker Fuller (ADF) Unit Root Test. The result on table 1 shows that all the variables are integrated at first difference i.e. 1(1) at the 5% or 1% level of significance.

Table 1: Unit Root Tests Analysis (E-views 8.0 output)

Variables	ADF test Statistics	Mackinnon critical vale @ 5%	No of the time difference	Remark
GDP	3.2895884	-2.564872	I(1)	Stationary
TBD	-6.8735869	-2.214360	I(1)	Stationary
MAC	-5.8375987	-2.112398	I(1)	Stationary
CPS	3.7387925	-2.523181	I(1)	Stationary

Notes: (1)1% level of significance, 5% level of significance, 10% level of significance.

The tests accepted at 5% level of significance.

Test for Co-Integration

Hence, having found that all the variables are stationary at first difference, the next step is to perform Johansen co-integration procedure to ascertain whether Gross Domestic Product (GDP), total bank deposits (TBD), market capitalization (MAC) and credit to the private sector (CPS) are co-integrated in the same order. Hence, the result of the test is presented in table 2.

Table 2: Multivariate Johansen's Co-integration Test Result

Null hypothesis	Alternative hypothesis	Eigen value	Likelihood ratio	Critical vales 5%	Critical value 1%	Hypothesized No. of CE(s)
r=0	r=1	0.76571	95.98938	56.31	47.43	None
rd≤1	r=2	0.73202	78.80109	45.42	32.62	At most 1
rd≤2	r=3	0.67820	69.71387	25.36	27.31	At most 2
rd≤3	r=4	0.38524	19.84468	11.62	14.43	At most 3

Note:* (**) denotes rejection of hypothesis at 5% (1%) significance level.

Vector Error Correction Model

The existence of long-run cointegrating equilibrium provides for short-run fluctuations, in order to straighten out or absolve these fluctuations, an attempt was made to apply the Error Correction model (ECM) (Ibenta, 2012).

Table 3: Vector Error Correction Estimates

Variables	Coefficient	Std. Error	t-Statistic	Prob.
(ECM(-1)	-0.704329	-0.423205	3.769586	0.002408
$D(GDP_{-1})$	1.7345701	6.960191	0.857693	0.000123
$D(GDP_{-2})$	1.3436699	-0.641147	1.769879	0.000245
TBD	8.7865934	0.986368	2.587986	0.000011
MAC	6.4234039	0.243352	0.386770	0.002409
CPS	7.5464665	0.468375	0.476837	0.007586
C	5.7862898	-2.201398	4.798048	0.000780
R-squared	0.630991	Mean dependent var		3.857670
Adjusted R-squared	0.604238	S.D. dependent var		54.86846
S.E. of regression	3.635216	Akaike info criterion		5.023003

				Table 3...
R-correlation	0.796878	Schwarz criterion	5.646215	
Log likelihood	122.8766	F – statistic	8.987830	
Durbin-Watson stat	1.988339	Prob (F-statistic)	0.000000	

The result on table 3 shows that error-correction coefficient is statistically significant and has a negative sign, which confirms a necessary condition for the variables to be co-integrated. There is also a long-run equilibrium relationship between financial deepening and the growth of Nigerian economy; and, the result confirms that about 70% short-run adjustment speed from long-run disequilibrium. The coefficient of determination indicates that about 63% of the variations in the growth of Nigerian economy can be explained by changes in the financial deepening variables (TBD, CPS and MAC). This implies that a good portion of economic growth trends in the Nigerian economy is explained by the financial deepening variables. The F-statistics of 8.987830 which is statistically significant (F-probability = 0.00000) at 5% accepts the causality investigation of financial deepening and the growth of Nigerian economy. The influence of the explanatory variables on the dependent variable is statistically significant and this is also confirmed by the F-probability which is statistically zero.

Table 4: Result of Pairwise Granger-Causality Test (1990-2017) with 2-period Lag length

Null Hypothesis:	Obs	F-Statistic	Probability	Decision
MAC does not Granger Cause GDP	26	4.97441	0.00209	Causality
GDP does not Granger Cause MAC		5.54605	0.00100	Causality
CPS does not Granger Cause GDP	26	2.97594	0.00681	Causality
GDP does not Granger Cause CPS		2.23491	0.00074	Causality
TBD does not Granger Cause GDP	26	5.57678	0.00533	Causality
GDP does not Granger Cause TBD		2.57434	0.00362	Causality
CPS does not Granger Cause MAC	26	5.76562	0.00076	Causality
MAC does not Granger Cause CPS		4.25610	0.00002	Causality
TBD does not Granger Cause CPS	26	8.25562	0.00074	Causality
CPS does not Granger Cause TBD		6.35673	0.00043	Causality
TBD does not Granger Cause MAC	26	7.34269	0.00034	Causality
MAC does not Granger Cause TBD		3.13488	0.00234	Causality

Notes: The decision rule of a causality test states that if the probability value of the estimate is higher than the 5% (0.05) level of significance, we accept the null hypothesis, and vice versa.

Engle and Granger (1987) causality test was performed on the variables to determine the direction of relationship as indicated in table 4. The results indicate that Gross Domestic Product

(GDP) has causality with MAC (market capitalization), CPS (credit to the private sector) and TBD (total bank deposits). This implies that there is a direct causality between financial deepening variables and the growth of Nigerian economy.

CONCLUSION AND RECOMMENDATIONS

The study concluded that there is a causality between financial deepening and the growth of Nigerian economy as shown in the empirical results. Thus, financial deepening is expected to perform an   intermediation function to ensure that funds get to the users of the economy that will enhance growth and development of the economy (Andabai, 2017). This study is limited by the difficulty in sourcing for the most suitable variables that are used to measure financial deepening and the growth of Nigerian economy. Financial deepening is proxy as Total Bank Deposits, Market Capitalization and Credit to the Private Sector to represent the independent variables; whereas, growth of Nigerian economy is proxy as Gross Domestic Product to represent dependent variable. The study is limited to these variables; because, they are intended to capture all the activities within the scope of the study from 1990 to 2017. Thus, another limitation is the accuracy of the data that were used for this study. This limitation was overcome by using Central Bank of Nigeria Statistical Bulletin and National Bureau of Statistics data. Data from these sources have been accepted as the most reliable on the subject and which have also been used by governments and its agencies in their various economic planning activities. Thus, the study recommends that government and policy makers should be directed towards manipulating effective money supply in such a way that will facilitate the provision of financial services in the economy Securities and Exchange Commission should be diligent in the supervision of the market to ensure that efficiency and discipline is restored. CBN should implement policies that will increase the flow of funds; that will enable financial institutions to provide financial services in the economy.

CONTRIBUTION TO KNOWLEDGE

The study was able to modified the model and expanded the existing contemporary literature, empirical review, geographical spreads and updated the data of the study that will enable researchers and scholars to use it for further studies. Thus, from the results this study has also contributed to knowledge by discovering that financial deepening has a direct causal relationship with the growth of Nigerian economy. The factor responsible for this can be traceable to increased provision of financial services by the financial intermediaries in the economy.

SCOPE FOR FUTURE STUDIES

The study made the following suggestions for further research:

i. Future investigation could be conducted to know the extent of causality between financial development and economic growth in Nigeria.

ii. Further research could use Generalized Method of Moment (GMM). The non-application of this model may limited knowledge; and therefore, suggest for further investigation.

iii. Finally, the study suggests that the period should be 1980-2016 to accommodate the financial liberalization policy in 1986.

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APPENDIX 1

Financial Deepening and the Growth of Nigerian Economy (1990–2017)

YEAR	Gross Domestic Product at Current Market Price (GDP) (N'billion)	Credit to the Private Sector (CPS) (N'billion)	Market Capitalization (MAC) (N 'Billion)	Total Bank Deposits (TBD) (N'billion)
1990	472.65	33.55	16.45	51.6
1991	545.67	41.35	23.13	52.4
1992	875.34	58.12	31.24	75.1
1993	1,089.68	127.12	47.54	110.4
1994	1,399.70	143.42	66.34	142.5
1995	2,907.36	180.00	180.43	179.2
1996	4,032.30	238.60	285.84	2,14.4
1997	4,189.25	316.21	281.90	269.9
1998	3,989.45	351.96	262.63	314.4
1999	4,679.21	431.17	300.04	476.4
2000	6,713.57	530.37	472.32	702.1
2001	6,895.20	764.96	662.53	947.2
2002	7,795.76	930.49	764.90	1.157.1
2003	9,913.52	1,096.54	1,359.3	1,337.3
2004	11,411.07	1,421.66	2,112.5	1,661.5
2005	14,610.88	1,838.39	2,900.1	2,036.1
2006	18,564.59	2,290.62	5,120.9	3,245.2
2007	20,657.32	3,668.66	13,181.7	5,001.5
2008	24,296.33	6,920.50	9,563.0	7,960.1
2009	24,794.24	9,110.86	7,030.8	9,150.5
2010	54,204.80	10,157.02	9,918.2	9,784.6
2011	63,258.58	10,660.07	10,275.3	11,452.8
2012	71,186.53	14,649.28	14,800.9	13,132.1
2013	80,222.13	15,778.31	19,077.4	13,623.4
2014	83,193.46	17,680.52	16,875.1	17,158.2
2015	94,144.96	18,682..87	17,003.4	17,237.4
2016	92,488.01	19,926.46	16,357.1	16,735.8
2017	91,235.11	16,635.23	14,369.9	15,245.3

SOURCE: Central Bank of Nigeria Statistical Bulletin, 2017