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## FINANCIAL DEEPENING AND ECONOMIC GROWTH IN NIGERIA

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### ABSTRACT

*The study evaluated the nature of the long-term relationship between financial deepening and economic growth in Nigeria over the period of 1981 to 2020. The study employed the stationarity test, the co-integration test, the error correction model, and the granger causality model. All variables were stationary at the second difference; the co-integration test indicates a long-run relationship as an inferential statistical tool. The study identified in the Error Correction Model (ECM) test that; amongst the variables employed for this study, only the equity market showed a positive and significant influence on the output level in Nigeria. In light of the findings, the study concluded that only the equity market can positively predict Nigeria's gross domestic product. Furthermore, Gross Domestic Product (GDP) significantly promotes credit to the private sector and the equity market. The study recommends that government and financial institutions should set aside some percentages of their loanable funds to allocate to the productive and private sector, to improve the economy through job creation and proactive campaigns on the availability of credit facilities to the private sector and entrepreneurship activities. Government should provide infrastructural facilities in the country for ease of doing business. Finally, a reduction in interest rates should be encouraged to motivate borrowers.*

### KEYWORDS

*Economic Growth, credit to private sector, Broad money supply, Equity market.*



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## Introduction

The macro-economy of the financial institutions have raised the quest on the influence of financial deepening on the growth of a nation. The relationship between financial deepening and economic growth has attracted a useful insight on how the financial system contributes to Nigeria's economic growth. The attention of the financial system is to enhance economic playing ground through increased market forces and efficiency within financial markets which invariably promote non-financial economy. Nwaolisa and Ubesie (2019) posited that financial institutions in an economy can effectively function well in mobilizing savings for investment via hitch-free financial deepening. A financial system is made up of a network of institutions, markets, lenders/borrowers, regulators and intermediaries with more focus on the length and breadth of the market as it relates to funds intermediation (Kalu et al 2019). Financial intermediaries have been argued to hover on mobilization, pooling and allocation of domestic savings into useful sectors that have more potential to economic growth. Ohwofasa and Aiyedogbon(2013) asserts that financial sector is one of the competitive environments that can drive economic growth by striking a balance between those who have funds to invest and those in need of funds. This indicates that increase in savings will stimulate liquidity in financial institutions corridor for intermediation purposes. Okereke and Nzotta (2004) argued that a well-structured financial system could serve as a wheel of economic growth. Therefore financial deepening is a wide and extensive system that attracts the reservoir of savings and unused funds and allocates them to entrepreneurs, business men and government for projects and other investment that are profitable to the nation. Nwanna and Chinwudu(2016) argued that in both banks and the capital market financial deepening impressively contributes to output level in Nigeria through structural design and implementation of effective interventions and programmes. Financial deepening has more reviving focus on economic growth than the depth of the variables. Gurley and Shaw (1955, 1967) observed that financial deepening positively responds to changes in financial structure thereby improving economic growth. These changes include flexible credit constraints, regular use of external finance, fewer distortions in the financial market and a simultaneous expansion in financial operations. The pace of development in any economy could be distinguished by the depth of the financial system. Howbeit, developing countries like Nigeria need to establish a methodology to adopt and regular reviews so as to check the effect on the system. In a fragile economy, a well-organized and structured financial deepening can enhance, support, resist shocks, facilitate macroeconomic policy effectiveness and improve solid in-depth growth. Financial deepening shows how banks and markets come into play as the economy increases its reliance on external finance and why, initially, economies rely more heavily on bank debt instead of securities like stocks and bonds and later, on securities. The Nigerian financial system consists of banks and non-bank financial institutions which are regulated by the Central Bank of Nigeria (CBN) and the Federal Ministry of Finance, Nigeria Deposit Insurance Corporation (NDIC), Securities and Exchange Commission (SEC), the National Insurance Commission (NIC), and the Federal Mortgage Bank of Nigeria (FMBN)(CBN 2017). These institutions operate in the financial market; perform a vital role in mobilization of funds from the lenders (savers) to the borrowers (investors). The attraction of the savers is the interest income that makes the surplus economic units to transmit their purchasing power to the deficit units, thereby enhancing the nation's productivity. Management of the payment system, economic growth, productivity, financial intermediation and capital formation are facilitated through the enabling environment created by a good and efficient financial system. (CBN2017). These institutions trade in financial instruments such as domestic currency, foreign currency, stocks, bonds, derivatives and in the process mobilize funds from surplus units (savers) and make available to

deficit units (investors) in the forms of loans, overdrafts and various other types of credit facilities. Although we have a variety of financial institutions and markets within the system, commercial or deposit money banks outweigh the financial sector and traditional bank deposits by representing the major forms of financial savings. Therefore, the financial markets have been adjudged to be shallow when compared with advanced and emerging economies. Eze, Abrokwa and Okolo (2016) acknowledged that financial deepening in any nation will drive output level. Ademola and Obamuyi (2018) observed that in the capital market financial deepening measured as stock market capitalization indicated indirect and significant impact on the index of manufacturing production in the short-run affirming that stock market in Nigeria has failed to influence the performance of the productive sector positively. Financial deepening boosts economic growth through capital accumulation, efficient allocation of resources, reduced transaction costs of financing investment and ultimately induces more investment which culminates to economic growth. (Safdar, 2014) Moreover, financial deepening also helps in increasing the provision and choices of financial services. International Monetary Fund (2012) observed that inadequate mobilization of deposits, poor collaterals, problems of informal sector interest rate volatility, and insufficient basic infrastructure impedes the financial deepening in developing countries. Ardic and Damar (2006) argued that the nexus between financial deepening and economic growth in Turkey is negative and insignificant. Nwanna and Chinwudu (2016) acknowledge that bank based and capital market financial deepening influence Nigeria's economic growth positively. Echekoba and Ubesie (2019) assert that a high level of money supply deepens the financial sector which promotes productivity and ultimately facilitates economic growth. Okoli (2014) contends that countries experienced low per capita income as a result of weak financial depth. Onwumere et al (2012) ascertained that money, stock diversification, economic volatility and market capitalization indicated negative relationship on economic growth of Nigeria within the period of studied. Aye (2015) revealed that the financial system of any economy through financial deepening could be viewed as a mirror for the determination of its performance in terms of effective and efficient allocation of resources and economic productivity. Considering the divergent views of the reviewed studies, Eze, Abrokwa and Okolo (2016) observed that high deposit ceiling rate, interest rate and mandatory reserve requirement stipulated by government in form of regulations impede financial deepening and economic growth in the long run. Ohwofasa and Aiyedogbon (2013) observed that lack of reliable data on measures of financial assets affect financial deepening in most SSA countries including Nigeria while Ogbuagu and Ewubare (2017) acknowledged that economic indicators fluctuate as a result of instability in political and social economic turbulence in the country. Okereke and Nzotta (2009) posit that the financial system had not showed a sound and strong intermediation as a result of low index of financial deepening in Nigeria. Therefore, the study is to examine the nature and direction of a long-run relationship between financial deepening variables and the associated economic indicators, The study intends to assert the relative impact of financial deepening on various stakeholders in Nigerian corporate environment and by implication the Nigeria's economic growth. A better understanding of this relationship has important implications to academics, practitioners and policy makers. The later section of the study covers literature review (conceptual, the theoretical and empirical reviews), research methodology, data analysis and interpretation, discussion of findings, conclusion and recommendations.

## Conceptual Framework

### Financial Deepening.

Financial deepening generally entails an expansion of the ratio of money supply to Gross Domestic Product (Nzotta, 2004). The echelon of financial deepening reveals the soundness of the financial sector and the rate at which credits are created with respect to lending and deposit rates. Financial deepening theory thus acknowledges that the economic growth of a financial system is determined by the size of the sector's activities. Deep and mature financial markets are indispensable for economic development. Olofin and Afangideh (2010) observed that in-depth and organized financial markets facilitate gross domestic product in Nigeria. Financial deepening could be seen as a dynamic architecture that involves the interaction of the various markets, instruments and investors. Alenoghena(2014)defined financial deepening as paths that deals strategically on financial intermediation process and facilitates the channel for economic development. It is the sequence of adopting proper real finance policy such as marching the real rate of return to real stock of finance .Alrabadi and Kharabsheh (2016) explained that financial deepening as the consistent supply of financial services with a broader choice of services geared to all levels of society. In this context, financial deepening could be viewed as the depth of financial system instruments as they relate to output levels. Specifically, the financial deepening here will focus on mobilisations of funds through financial system instruments such as money supply, credit to private sectors and stock market capitalisation in Nigeria.

### Financial Deepening and Economic Growth

Economic growth is the quantity of goods and services produced in the country over a period of time. It is measured by gross domestic product. Aiguh(2013) describes economic growth as the acceleration in the ability of an economy to produce goods and services in a particular period of time and able to compare it from one period to another. Economic growth could be seen as a percentage increase in goods and services of a nation. Torbiraand Abadi (2017) expressed economic growth as a surface proof shown in a country's ability and strength in production of goods and services to meet the demand of the populace while Todaro(1977)opined that economic growth is seen as the acceleration of a nation's capacity in production and services in order to meet the spontaneous needs of the citizen over time. A country is expected to witness growth when funds are available for entrepreneurs for investment purposes. In prior years, financial deepening and other factors have caused fluctuations in economic growth rate as regards to money supply/GDP is as low as (1.5)% in 1990, 1% in 2000 but in 2008 increased by6.8% while the CPS/GDP increased to 9.2% indicating increase in money supply affect credit to private sectors growth which invariably improves a nation's GDP. Between 2010 and 2020 financing deepening had not been favourable to Nigeria's gross domestic product considering the growth effect -2.3,-2% and (3.38)% ,1.2% respectively.(Central Bank of Nigeria, 2020). Nwanna and Chinwudu (2016) argued that banks-based and stock market financial deepening utilized has positive effect on economic growth and that the banking sector and stock market in Nigeria has an important role to play in the process of economic growth. Mesagan, Olunkwa and Yusuf (2018) discovered insignificant positive impact on productivity and output of credit to the private sector and money supply, but negatively impacted value added of the manufacturing sector in the short run while the long run results revealed that money supply and credit to private sector exerts positive influence on manufactured output. Adigwe,Nwanna and Ananwude (2015) contend that financial stock market indicator is expected to promote economic growth in Nigeria by creating opportunity to raise domestic savings and increase investments in numbers and letters as the market functioned effectively.

## Theoretical Framework

**Theory of Financial Intermediation:** Financial intermediation theory described the role of a financial system in an economy Gurley and Shaw(1955),Goldsmith(1969) and Hicks(1969), McKinnon (1973) and Shaw (1973) ascertained the purpose of financial intermediaries and financial markets in the growth process. Nnamdi(2015)confirmed the activities of financial markets in increasing the supply of financial services to the real sector. The McKinnon model assumed that investment can be responsive when funds are sufficiently accumulated before investment and efficiently allocate to the needy sectors. Schumpeter(1934) argued that financial institution plays a vital role in a growth process as they respond to corporate needs. As there also sector expands, there will be demand for more and more financial services which will lead to creation of more financial institutions. Therefore, financial deepening is the upshot of increase in the real sector of the economy (Patrick, 1966).Patrick (1976) argued the need for financial intermediation role in a growth process in areas of mobilization of savings, improvement in capital accumulation, increase in liquidity, allocation of the accumulated resources to growth-inducing sectors. The assertion failed to observe that as economic activities increase through productivity, supply-leading role will be outsmarted by demand-following role because finance will immediately bow to the need of the sectors accordingly.

## Empirical Review

Alenoghena(2014)studied the contributions of capital markets and financial deepening on economic growth in Nigeria from 1981 to 2012.The study employed stationarity test and error correction model. Variables such as Stock Market Capitalisation (MCAP), Narrow Money Diversification (NMD) proxies for capital market and financial deepening were employed. The findings revealed that stock market capitalisation (MCAP), narrow money diversification (NMD); credit to private sector and interest rate (INT) significantly influences the economic growth of Nigeria.

Nwaolisa and Ubesie(2019)assessed the contribution of financial deepening on the economic growth of Nigeria spanning from 1990–2016. The focus is on the influence of private sector credit, money supply and market capitalization on economic growth. The study sourced its data from CBN statistical Bulletin and National Bureau of Statistics and employed short term estimation: Ordinary Least Square regression (OLS). The findings revealed that credit to private sector, money supply and market capitalization positively and significantly influenced the Nigeria's economic growth through its financial deepening.

Onoriode and Aiyedogbon (2013) evaluated the magnitude of financial deepening development on economic growth from 1986-2011. Vector autoregressive (VAR) methodology and its derivatives, impulse response function and variance decomposition, were employed for data analysis. The findings showed that the PSC/GDP (lag 2) and GNS/GDP (lag 2) happened to be key determinants of M2/GDP. Similarly, the key indicators variables include its year 1 and 2 lagged values and GNS/GDP (lag 2) with GNS/GDP (lag 2) and PSC/GDP (lag 2) exhibiting negative impact. Finally, on the current level of GNS/GDP, it was observed that M2/GDP (lag 1) and PSC/GDP (lag 2) exhibited significantly negative determining influence while PSC/GDP (lag 1) and the past value of GNS/GDP (lag 2) were also seen as its key determinant. Ogbuagu and Ewubare (2017)studied the rational between financial depth, macroeconomic volatility, and economic growth in Nigeria from 1985-2012.The study employed the following statistical model for data analysis: error correction and causality model with time series sourced from Central Bank of Nigeria Bulletin. The result shows a long-run relationship between financial deepening on exchange rate volatility and

gross domestic product while the error correction result showed that there is a long-run and short-run effect of financial deepening on economic growth. There is no causality between financial deepening variables, economic growth, and growth volatility but a unidirectional causality between exchange rate volatility, stock traded, stock market capitalization, and broad money.

Igwe Et al (2014) engaged the following statistical tools and variables for the data analysis: unit root test, Johansen Co-integration test, Error correction model and value of broad money supply/GDP, credit to the private sector/GDP to evaluate the influence of financial deepening on the output growth in Nigeria from 1981-2012. The result showed that value of broad money supply/GDP and Credit to private sector/GDP are statistically and significantly predicts Nigeria's gross domestic product.

Aye (2015) x-rayed the role of financial development on economic growth in Nigeria from 1962-2012. The bootstrap rolling window was adopted to evaluate the granger causality between financial deepening and economic growth from 1973-2011. These tests result showed that financial deepening had the capability of influencing economic growth 1973-1974 and 1976 as well as periods where economic growth has predictive power for financial deepening: 1980-1982, 1985-86, 1995-96, 1998-2000, 2004 and 2008-2011. The empirical findings highlighted the risk of misleading conclusion based on the standard. Granger causality tests indicated non significant relationship between economic growth and the variables used for the period under review.

Safdar(2014) examined the long run relationship between financial deepening (FD) and economic growth (GDP) in Pakistan with inclusive of foreign direct investment (FDI) and inflation (INF). The methodology applied for the study were Stationarity Johanson Cointegration test, VECM and granger causality test for data analysis Foreign direct investment, inflation and gross domestic product were utilized as variables for the study. Foreign direct investment, inflation and economic growth exhibit long run relationship exists among variables. Results of VECM showed the existence of short run relationship among variables and error correction model for GDP and FD shows the adjustment effect back towards long run. Moreover, Granger causality test showed the unidirectional relationship among variables.

Onwumere et al (2012) examined the impact of financial deepening on economic growth in Nigeria spanning from 1992-2008 utilizing 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. Adopting the supply-leading hypothesis. The empirical findings indicated that broad money velocity and market liquidity promote economic growth in Nigeria while money stock diversification, economic volatility and market capitalization could not predict with in the period covered. Kalu, et al (2019) deduced that economic growth tends to adjust nonlinearly to financial deepening than it does linearly in assessing the relationship between financial deepening and economic growth in Nigeria from 1981Q1 to 2017Q4 using the Autoregressive Distributed Lag (ARDL) and Nonlinear Auto regressive distributed Lag (NARDL) models for data analysis.

Adeyefaand Obamuyi(2018) investigated the antecedent of financial deepening on the growth process of manufacturing firms during pre and post financial reform period in Nigeria from 1970 to 2016. The model utilized were co-integration, Autoregressive Distributed Lag (ARDL) estimation technique and the Mann-Whitney U test and variables are (MFGI) index of manufacturing production (performance of the manufacturing sector), (FDMS) Ratio of broad money supply to gross domestic product, (FDPC) Ratio of private sector credit to gross domestic product, (RCAP) Ratio of market capitalization to gross domestic product, (RGCF) Ratio of gross capital formation to gross domestic product, (LQDR)

Liquidity ratio for banks Interest rate,(GEXP )Growth in government expenditure. The findings revealed that there exist a relationship between broad money supply, market capitalization and index of manufacturing production in Nigeria, credit to private sector has indirect and insignificant impact on index of manufacturing production in Nigeria. Further findings showed that financial deepening positively influenced more on the manufacturing sector performance in the post-financial reforms period.

Omuemu et al (2020) examined the influence of financial deepening on economic growth in Nigeria spanning from 1990-2017. The variables adopted for the study are ratio of money supply to GDP, ratio of credit to private sector to gross domestic product, inflation rate and ratio of capital formation to gross domestic product. The study adopted a short term and long term estimation such as multiple regression techniques, error correction model. The short run test result revealed that there is a negative and insignificant relationship between the ratio of credit to private sector to gross domestic product (CPS\_GDP), inflation rate (INFL), ratio of money supply to gross domestic product and gross domestic product (GDP) while further findings revealed that there is a positive but in significant impact between the ratio of gross fixed capital formation to gross domestic product and gross domestic product (GDP).

Karimo and Ogbonna(2017) empirically estimate the supply leading and Demand following role of financial deepening on economic growth of Nigeria from 1970-2013.Variables adopted for the study are Ratio of bank credit to private sector to GDP, Bank total asset as a ratio of GDP, Annual growth rate of the real gross domestic product, Prime lending rate, Ratio of market capitalization to GDP, Stock market turnover ratio. The study employed the TodaYamamotoaugmented Granger causality test and results showed that the growth-financial deepening relationship in Nigeria follows the supply-leading hypothesis indicating that the higher the financial deepening in Nigeria, the bigger leverage for investors to access more funds through financial intermediaries for production of goods and services which translates to output performance.

Dima and Kharabsheh (2016) evaluated the dynamic relationship between financial deepening and economic growth in Jordan over the period (1992-2014). The study proxies total bank loans granted, total bank deposits and the money supply (M2) as percentages of GDP as financial Deeping variables and Economic growth proxied as Gross domsetic product. The study adopted the following statistical tools for data analysis: vector auto regression, Johansen- Juseliusco-integration test and Granger causality the study utilized quarterly data from Central bank of Jodan, the short run estimation indicated statistically relationship of financial deepening on economic growth. However, theco-integration tests showed evidence of long run relationship between the two variables. The Granger causality test showed a bi-directional causality between economic growth and credit granted to private sector. However, a one way causal relationship from the economic growth to financial deepening was found between total bank deposits and money supply (M2).

Balago(2014) used econometric techniques such as Augmented Dickey Fuller (ADF) test, Johansen Multivariate Co-integration Test, Ordinary Least Square Regression and Vector Error Correction Model (VEC) to analyse the relationship between Financial Sector Development and Economic Growth in Nigeria from 1990-2009. The result of the OLS shows that, there is positive relationship between each of the MCAF, FDI, BCRDT and RGDP.

Nyamweya, et al (2020)assessed the significance of financial deepening between economic growth and poverty levels in East African Community countries from 1989 to 2018.The study employed

normality, heteroscedasticity, multicollinearity, serial correlation and unit root diagnostic tests to estimate population centred on the five countries of EAC countries which included Kenya, Rwanda, Uganda, Burundi, and Tanzania. The empirical outcome revealed that the impact on poverty levels in East African Community countries had a linked to economic growth.

Nwakobi et al (2019) viewed the significant of financial deepening on the economic growth of Nigeria over the period from 1986-2018. The methodological approach followed the Auto-regressive Distributive Lag (ARDL) and Granger Causality model. The empirical findings discovered that it is the level of growth in the economy that influences development in the banking sector.

Nwanna and Chinwudu (2016) examined financial deepening and economic growth in Nigeria from 1985 to 2014 with more focused on the relevant of stock market and bank deepening variables such as money supply, market capitalization, private sector credit and financial savings have on economic growth of Nigeria. The ordinary least square (OLS) econometric techniques were utilized in analysing money supply ratio to gross domestic product, private sector credit ratio to gross domestic product, market capitalization ratio to gross domestic product and financial saving ratio to gross domestic product. The result of the data analysis revealed that bank based and stock market financial deepening and positively predicts gross domestic product in Nigeria.

Akomolafe(2014)studied the relationship between financial deepening and economic growth in Nigeria from 1980 to 2010. Financial deepening measures applied for study are money supply proxied by M2, total commercial banks loans while GDP represent dependent variable. Johansen Co-integration, Granger causality test and Vector Error Correction Mechanism (VECM) were used to analyse the relationship among the variables at the long run and the short run respectively. The findings revealed that there is long run and short run positive relationship among the variables. The unidirectional causality flows from the ratio of money supply to GDP per capita to total loan advance (TLA) while no causality between gross domestic product and total loan advances (TLA).

Adesola et al (2019) used Ratio of Money Supply to GDP, Ratio of Credit to the private sector to GDP, Money supply and interest rate spread as indicated for financial deepening and gross domestic growth rate as our endogenous variable for data analysis of financial deepening on economic growth in Nigeria from 1981 to 2017. The study adopted Stationarity test and Autoregressive distributed lag model (ARDL) as methodology. The outcome of our analysis did not show a mixed result that there is neither significant long run relationship, nor short run causality among the variables employed.

Ogbonna(2018) viewed the influence of financial deepening on economic growth in Nigeria between 1970 and 2015, using Vector Error Correction Model, Impulse Response Function, and Forecast Error Variance Decomposition, with a distinction between size and activity variables of financial deepening. The results show that financial deepening and economic growth have a stable long-run relationship, and that activity variables of the financial deepening have more stimulating effect on economic growth than the size variables.

Nwaeze et al (2014) studied the extent to which financial intermediation impacts on the economic growth of Nigeria between the periods of 1992 – 2011. The study adopted Ordinary Least Squares (OLS) regression technique to estimate the hypotheses formulated in line with the objectives of the study. Real Gross Domestic Product, (proxy for economic growth) as the dependent variable and the independent variables included total bank deposits and total bank credits. The empirical evidence exhibit that both total bank deposits and total bank credits exerts a positive and significant relationship on the economic growth of Nigeria.

Ogbuaguand Ewubare (2017) investigated the relationship between financial depth, macro economic volatility, and economic growth in Nigeria using a general model of error correction and causality model with time series sourced from Central Bank of Nigeria Bulletin 2012. The result displayed a long-run effect of financial deepening on exchange rate volatility and economic growth while the error correction term indicated an inverse impact of financial depth on growth volatility. On one hand, there is no short run impact of financial depth on exchange rate and growth volatility though most of the financial deepening variables show signs of dampening the volatility of exchange rate and growth. On the other hand, the error correction result suggests that there is a long-run and short-run impact of financial deepening on economic growth. The causality result showed no causality between financial deepening variable, economic growth, and growth volatility but a unidirectional causality between exchange rate volatility, stock traded, stock market capitalization, and broad money.

Igwebuike et al (2019) employed insurance industry premium to GDP, bank savings to GDP and credit to private sector by commercial banks to GDP to evaluate the effects of financial Deepening on Economic Growth of Nigeria from 1981-2016. The study variables used were insurance industry premium to GDP, bank savings to GDP and credit to private sector by commercial banks to GDP on economic growth in Nigeria. The study employed short-term estimation such as Ordinary Least Squares Regression (OLS). The study findings evidenced that credit to private sector by commercial banks to GDP has significant effect on economic growth while insurance industry premium to GDP has no significant effect on economic growth in Nigeria.

### Methodology

In a view to examine the nature and direction of long run relationship between financial deepening variables and the associated economic indicators? Econometric tools of stationary test, Johansen Co integration test, Error correction model and pair wise granger causality test were employed. The data for the study shall be sourced from secondary data of Central Bank of Nigeria statistical Bulletin. The study period covered the period from 1981-2020. Financial deepening indicators such as credit to the private sector, broad money supply to and equity market were employed as the predictors variables and the proxy for Economic Growth (GDP) is used as the criterion variable.

### Operational measures and Definition of variables

The operational measure of variables is an indication of how the variables are to be measured in form of the operational use and quantitative values attached to them. The operational measure defines the dependent and independent variables. These are enumerated as follows.

**Credit to private sector:** It is the amount of credit allocated to non-financial private sector by financial institutions. The measure is more inclusive than other measures of financial development, and it also represents the activities of the financial sector in allocation of surplus funds to the productive sectors of economy (private sector). (Onwumere, Ibe, Ozoh & Muonanu (2012).

**Broad Money Supply:** Broad money is a measure of the total amount of money held by households and investors in the economy. Broad money is made up mainly of commercial bank deposits which are essentially loans from commercial banks to households and companies and it is mostly borrowed from the central bank. It is the rate of bank deposit to GDP. It reflects the depth of the financial market

relative to the overall economy. Increases in this ratio indicate further expansion in the financial sector relative to the rest of the economy.

**Equity market:** This is the total number of shares available for issuance and trade in shares and stocks of firms listed or not listed on the official stock exchange market. The higher the total number of shares listed, the higher the opportunity for investors to engage in fund raising and also determine the net worth of the company listed, thus indicating the liquidity of the market. This is a measure of the total value of shares divided by GDP.

**Gross Domestic Product:** This is the total value of goods and services produced in a country over a given period usually one year at a current market price. Thus the nominal GDP was used because it includes all the changes that have occurred in the market prices due to inflation.

### Model specification

This study adopted a multiple linear regression technique which is used by many studies because it makes use of more than one variable for estimation. The equation relies on the estimation of empirical relationship between Nigeria's gross domestic product and the explanatory variables-broad money, credit to private sector and equities. The functional form of the model is stated as follows;

$$GDP = f(CPS, BMS, EM) \quad (1)$$

Where

GDP =Gross domestic product

CPS =Credit to private Sector

BM =Broad money supply

EM= Equity market

The mathematical form of the model by the introduction of the constant term ( $\beta_0$ ) and error term ( $\mu$ ) is written by introducing estimation parameters in the following model below:

$$GDP_t = \lambda_0 + \lambda_1 CPS_t + \lambda_2 BMS_t + \lambda_3 EM_t + \mu_t \quad (2)$$

Where;

GDP =Gross domestic product

CPS =Credit to private Sector

BMS =Broad money supply

EM= Equity market

$\mu_t$  = Random error term

$\lambda_0$  =Intercepts

$\lambda_1, \lambda_2, \lambda_3$  = Slope

$\lambda_1, \lambda_2, \lambda_3 > 0$

### Method of Data Analysis

The main aim of this study is to evaluate the long-run relationship prevailing between financial deepening and economic growth in Nigeria as well as the causal relationship among the variables, in order to determine the extent to which these study variables tend to promote Nigeria's economic growth;

**Stationarity test:** The stationarity test is necessary to measure unit root properties of the time series.. The decision is to reject the null hypothesis if the ADF test statistics is absolutely higher than the Mackinnon's critical values at 1%, 5% and 10% level of significance (Brooks 2009).

**Johansen's co-integration test:** This test was utilized to ascertain the extent and level of long-run equilibrium relationship between employed study variables (Awe 2012).The decision rule is based on significance at 0.05level, of the co-integrating equation.

**Error Correction Model:** Brooks (2009) observed that error correction estimates tend to evaluate the long run sensitivities of dependent variables to each of the explanatory variables. Decision rule for null hypothesis, accept at 5% level of significance, otherwise reject.

### Granger Causality Test.

For the purpose of determining the extent to which the dependent variables and each of the explanatory variable do support or promote themselves in the growth process ,granger causality was executed to determine whether the variation in one variable (X) is caused by variation in another variable(y).Also to ascertain the extent to which they significantly support or promote each other in the economic growth process in the light of the inclusion of lag of the time series (Granger, 1981), Eagle and Granger, 1987).

**Table 1: Unit Root Output (Augmented Dickey Fuller)**

Variable	ADF T-statistics	Test Critical Values			Probability Level	Order of Integration
	1 <sup>st</sup> diff	1%	5%	10%		
GDP	-9.097231	-3.621023	2.943427	-2.610263	0.0000	1(2)
CPS	-4.905738	-3.689194	-2.971853	-2.6255121	0.0034	1(2)
BMS	-4.076006	-3.639407	-2.951125	-2.614300	0.0000	1(2))
EM	-4.422014	-3.653730	-2.957110	-2.617434	0.0014	I(1)

*Source:* Extracts from E-Views 11 output.

It was discovered that, all employed variables were statistically significant as second difference 2(1) except equity market because the probability values are less than the critical value of 0.05. This shows that employed variables possessed vital characteristics for employment in subsequent estimations. This makes the co-integration/long run test imperative.

### Co-integration Test

The Johansen's co-integration test was employed to test the long run association amongst employed variable that is financial deepening components and economic growth in Nigeria. The result is slated below.

**Table 2: Cointegration Test (Johansen Cointegration)  
CO INTEGRATION TEST RESULT**

Date: 10/06/21 Time: 20:31

Sample (adjusted): 1983 2020

Included observations: 38 after adjustments

Trend assumption: Linear deterministic trend

Series: CREDIT TO PRIVATE SECTOR GDP MARKET CAPITALIZATION EQ  
MONEY\_SUPPLY

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.857568	127.8682	47.85613	0.0000
At most 1 *	0.506750	53.81027	29.79707	0.0000
At most 2 *	0.399558	26.95421	15.49471	0.0006
At most 3 *	0.180640	7.570801	3.841466	0.0059

Trace test indicates 4 cointegratingeqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.857568	74.05796	27.58434	0.0000
At most 1 *	0.506750	26.85606	21.13162	0.0070
At most 2 *	0.399558	19.38341	14.26460	0.0071
At most 3 *	0.180640	7.570801	3.841466	0.0059

Max-eigenvalue test indicates 4 cointegratingeqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

**Source:** Author's computation using E-views 11

The study discovered the presence of 4 co-integration equation. This means that, there are evidences of long run relationship among the employed variables.

### Error Correction Model

**Table 3 Error Correction Model Output**

Error Correction Model

Dependent Variable: GDP

Method: Least Squares

Date: 10/09/21 Time: 06:45

Sample (adjusted): 1982 2020

Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1363.824	2758.262	0.494450	0.6242
CPS	-0.249374	2.719064	-0.091713	0.9275
EQ	8.198282	0.486397	16.85513	0.0000
BMS	0.189568	2.120853	0.089383	0.9293
ECM(-1)	0.448879	0.174398	2.573880	0.0146
R-squared	0.924366	Mean dependent var		34510.98
Adjusted R-squared	0.915468	S.D. dependent var		45797.71
S.E. of regression	13315.44	Akaike info criterion		21.95045
Sum squared resid	6.03E+09	Schwarz criterion		22.16372
Log likelihood	-423.0337	Hannan-Quinn criter.		22.02697
F-statistic	103.8828	Durbin-Watson stat		1.890492
Prob(F-statistic)	0.000000			

**Source:** Author's computation using E-views 11

The result of Error Correction Model analysis in Table 3 shows that 92% of variation in gross domestic product is caused by explanatory variables. The remaining 8% could be as a result of error term. The F- statistics of 0.000000 revealed that the mode is fit and good for forecast. It can be seen that all financial deepening variables failed the significance test, with the exception of Equity Market (EQM) over the study period. Similarly, only the Equity Market(EQM) coefficient confirm the a priori expectation since it showed a positive coefficient of 8.198282 while other variables like Credit to

private sectors totally negate the a priori expectation with negative coefficient  $-0.249374$  with  $0.9275$  probability and Broad money supply(BMS) has a positive relationship but not significant. The ECM displays the positive sign with coefficient of  $.448879$  meaning that the short run adjustment in the long run is corrected at 45percent.

### Pair wise Granger Causality Test

To evaluate the causal relationship between employed variables, the following test is presented below as follows:

**Table 4: Pair wise granger causality Test output**

Pairwise Granger Causality Tests

Date: 10/09/21 Time: 06:59

Sample: 1981 2020

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
D(GDP) does not Granger Cause D(CPS)	38	3.93535	0.0293
D(CPS) does not Granger Cause D(GDP)		0.16101	0.8519
D(EQM) does not Granger Cause D(GDP)	38	0.20202	0.8181
D(GDP) does not Granger Cause D(EQM)		15.3881	2.E-05
D(BMS) does not Granger Cause D(GDP)	38	0.87657	0.4257
D(GDP) does not Granger Cause D(BMS)		1.49636	0.3527

**Source:** Extracts from E-views 10.

The Granger Causality tests result at .05% level of significant above indicates a unidirectional causality flowing from gross domestic product to credit to private sector, gross domestic product to Equity market. This implies that an increase in output level of goods and services in the economy can motivate economic activities, increase investment, which will invariably deepen the financial system and at the same time improve the demand for more funds.

### Discussions, Conclusions and Policy Recommendations

The study evaluate the nature of long term relationship between financial deepening and economic growth in Nigeria from 1981-2020, employ in gun it root test, Johansen co-integration, Error correction model and Granger causality as statistical tools. The long run estimation shows evidence of long run co-integration among the variables employed. The ECM result shows that only Equity market relate significantly to economic growth in Nigeria business environment. This could be as a result of low interest rate, indepth of capital market funds. Credit to private sector fails to relate significantly to the growth of Nigerian economy. The granger causality test result largely reveals that

bank credit to private sector and equity market depends strongly on output performance instead of promoting its operations.

In the light of the above it is concluded that Nigeria's financial system presently depend significantly and function independently on the performance of economic activities.

This study recommends as follows:

1. Government and financial institution should set aside some percentages of their loan able funds to allocate to productive and private sector .This will improve the economy through job creation.
2. Financial institutions should provide more financial product that will be borrowers' friendly, thus deepening the financial system and capital accumulation.
3. Reduction in interest rate should be encouraged to motivate borrowers.
4. Proactive campaign on the availability of credit facility for private sector and entrepreneurship activity should be promoted by the government.

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