

Effect of Financial Deepening on the Nigeria Economy

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Abstract: This study investigated the effect of financial deepening on the Nigeria economy between the periods of 1981-2019. The data used were resourced from Central Bank of Nigeria (CBN) Statistical Bulletin 2018. The variables were the real gross domestic product, ratio of money supply to GDP, ratio of credit to private sector to GDP, ratio of capital market to GDP and ratio of national savings to GDP. The study employed unit root test, to determine the stationarity of the variables, co-integration approach to determine the long run equilibrium relationship of the variables and Error Correction Model (ECM) to determine the speed of adjustment. Ordinary Least Square (OLS) method of data analysis was adopted. From the model it was conclude that financial deepening has a positive significant effect on the Nigeria economy. The study found that ratio of credit to private sector to GDP (CPS/GDP) has a positive sign and statistically significant. Ratio of money supply to GDP (MS/GDP) has a positive sign and it's statistically significant. Market capitalization as a ratio of GDP (MC/GDP) negative sign and it's statistically insignificant. National saving as a ratio of GDP (NS/GDP) is positive and it's statistically significant. The study recommends that the Government should promote micro finance sector of the economy to the small entrepreneurs may have easy access to the credit availability. Policy makers should encourage the monetary authorities like central bank of Nigeria to reduce the interest rate in the economy so that investors may raise their investments and country production capacity. Policy makers should formulate the rules and regulations to strengthen the financial and capital markets.

Keywords; financial deepening, Ratio of money supply, ratio of credit to private sector, ratio of Market capitalization, Ratio of National saving

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INTRODUCTION

1.1 Background to the Study

In Nigeria, the banking sector among other sectors has faced several cases of failure as a result of poor or shallow financial depending, some of the bank include: Savannah bank PLC, Oceanic bank now known as Eco Bank, Bank of the North, Afric Bank, Mainstream Bank, City Express Bank, African Express Bank, Assurance Bank of Nigeria PLC, Hallmark Bank PLC, Lead Bank PLC, Liberty Bank PLC, Eagle Bank PLC, e.t.c. In view of this the bank sector lost public confidence in their services. This led to the intervention of the regulatory bodies who instituted

appropriate reforms to arrest the situation (Bakang 2016) this however are the concerns on the need to strengthen the financial deepening of the banking sector. This with boost public confidence and ensure efficient and effective functioning of the banking system (Soludo, 2010).

Financial reforms have been a regular feature of the Nigeria financial system. The Central Bank Of Nigeria (CBN) has been on the front burner to ensure that financial system in Nigeria maintain a considerate depth and remain liquid with a view to competing effectively within the global financial market. The reforms have evolved in response to the challenges posed by developments in the system such as systemic crisis, globalization, technological innovation, this there is a need to deepen the financial sector and reposition it for growth and intepration the global financial system in conformity with international best practices (Nwanna and Chiwudu 2016). According to Nzolta (2009) he maintains that reforms in the financial system in Nigeria which heightened with the 1986 deregulation, affected the level of financial deepening of the country and state relevance of the financial system to economic growth. Nnanna and Gogo (2016) noted that globalization of the financial markets since then and the increased level of the integration of the Nigeria financial system to the global system have generated attention on the state of financial deepening that has take place.

Bank breakdown has been recently certify in both developed and emerging economics with the reported causes of the East Asia crisis of 1997/98, the reset of Enron in 2001 and Worldcom in 2002, (Inyang 2013) and the just ended global financial crisis of 2007/2000. The break down erupts from the poor governance practices from the financial sector. The financial system plays a significant role in mobilizing and allocating of savings for productive purpose. It also provides structure for monetary management, the basis for managing liquidity in the system. It also encourage in the mimization of risks encountered by firms and business in their productive processes, improvement of portfolio diversification and insulation of the economy rom the vicissitude of international economic changes (Nzolta 2009). However, the system provides linkages for different sectors of the economy and encourages a high level of specialization expertise.

1.2. Statement of the Problem

Over the past decades, financial deepening and economic growth has attracted significant attention from finance and development experts and has been debated extensively. Several studies were carried out on financial deepening though with mixed findings. Studies carried out outside Nigeria by authors such as waqabaco (2004) in Figi, , Zege (2004) in turkey reveal that there is a positive relationship between financial deepening and economic growth. While Diambho (2004) in south Africa, Auryayet (2007) in cyprus show a negative relationship between financial deepening and economic growth

The studies in Nigeria by authors such as Oniore (2014) and Maduka (2014) Okoli (2013) show that there exist a negative relationship between financial deepening and economic growth where Agu & Chukwu (2008) & Okwofasa & Alyogbon (2013) show that there exist a positive relationship between financial deepening and Nigeria economic growth.

In light of the above explanation, it is evident that the empirical studies which focus on the link between financial deepening and economic growth show mixed results and this may be attributed to the estimation methodologies and quality and span of data used as well as the direction of

causality. In Nigeria, there are few empirical studies that focus on the effect of financial deepening on economic growth using time series data. In addition, these studies do not examine the short-run and long-run effect of financial deepening on economic growth. While a significant number of empirical studies in which Nigeria is included use panel and cross-section data to examine the relationship between financial development and economic growth, there is no consensus on the findings. This may be due to the fact that these countries have different levels of financial and economic development. The current study, therefore, intends to complement the existing empirical studies by using annual data, stability test, causality test, co-integration and error correction approach with a view of shedding light on this important relationship, by focusing on the short-run and long-run effect of financial deepening on economic growth. Hence, this country specific study will be important so as to prescribe policy recommendations deemed necessary to foster further financial deepening and economic growth in Nigeria.

1.3. Objectives of the Study

The main objective of this study is to examine the effect of financial deepening on the Nigeria economy. Specifically the study seeks to:

- i. Examine the effect of money supply as ratio of GDP on economic growth in Nigeria
- ii. Determine the effect of private sector credit as ratio of GDP on economic growth in Nigeria
- iii. Assess the effect of market capitalization as ratio of GDP on economic growth in Nigeria
- iv i Assess the effect of national savings as ratio of GDP on economic growth in Nigeria

REVIEW OF RELATED LITERATURE

2.1 Theoretical Framework and Empirical Review

2.1.2 Theoretical Framework

This study is anchored on the supply-leading and demand-following hypotheses of the financial deepening–growth nexus. The leading proponent of the supply-leading hypothesis is Schumpeter, (1911).The hypothesis asserts that financial development has a positive effect on economic growth. Accordingly, the effect runs from financial development to economic growth and it is caused by an improvement in the efficiency of capital accumulation or an increase in the rate of savings as well as the rate of investment. One of the most significant effects of the supply-leading approach is that, as entrepreneurs have new access to the supply-leading funds, their expectations increase and new horizons (or possible alternatives) are opened up, thereby making the entrepreneur “think big”.

The demand-following view, on the other hand, states that financial development responds to changes in the real sector. The Keynesian theory of financial deepening asserts that financial deepening occurs due to an expansion in government expenditure. In order to reach full employment, the government should inject money into the economy by increasing government expenditure. An increase in government expenditure increases aggregate demand and income, thereby raising demand for money (Mckinnon, 1973). Robinson, 1952 reveals that it is the necessity from high economic growth that creates demand in the financial sector. Thus, in this view, it is the improvements in the economy that drive higher demand for the use of money, which consequently promotes financial development. In other words, financial markets develop and progress as a result of increased demand for their services from the growing real sector.

Causality runs from economic growth to financial development, that is, an increase in economic growth causes a rise in demand for financial services and these results in the expansion of the financial sector

2.2 Empirical Review

Karimo and Ogbonna (2017) studied the effect of financial deepening and economic growth Nexus in Nigeria, between the periods of 1970 – 2003, the chosen variables were on growth of credit to private sector, stock market; ratio of money supply to GDP, interest rate, ordinary least square (OLS) method of data analysis was used. The study revealed that financial deepening leads to growth and not growth leading financial deepening.

Okafor, Onwumere and Ezeaku (2016) examined the causality direction of the impact of financial deepening and economic growth in Nigeria between the period of 1981-2013. The following variable were included, real gross domestic product, ratio of broad money supply to gross domestic product, ratio of private sector credit to gross domestic product, ratio of market capitalization to gross domestic product. Ordinary least square (OLS) method of data analysis was used. The study reveals a strong positive relationship between financial deepening and economic growth in Nigeria.

Ghildiyal, Porkhriyal and Mohan (2016) investigated into the casual effect of financial deepening on economic growth a study of India economy from the period 1981 – 2014. The researcher employed Autoregressive Distributed Lay (ARDL) bound testing approach. The adopted variables were on GDP per capital, ratio of broad money to GDP, stock market development, ratio of credit to private sector to GDP, ratio of total trade. The study found that there exist an equilibrium relationship in long-run between financial deepening and economic growth in India.

Asoranti and Alimi (2014) Employed vector auto regression (VAR) to study the effects of inflation and financial deepening on output in Nigeria from 1981 – 2013. Variance decomposition and impulse response are adopted. They include variables were on gross domestic product, financial deepening, inflation rate, government expenditure and trade openness, the result discovered that inflation rate is independence on financial development.

Oniora (2014) used Error Correction Model (ECM) to examine the impact of financial deepening and foreign direct investment affectedness on economic growth in Nigeria from 1981 – 2012. The study employed Augumented Dickey Fuller (ADF) and Co-integration approach was adopted, they employed variable were on gross domestic product, money supply, private sector credit, liquidity ratio, foreign direct investment. It was found that financial deepening has no significance effect on the Nigeria economy.

Okwofasa & Alyedogbon (2013) Analyzed financial deepening and economic growth in Nigeria using vector auto regression (VAR) between the period of 1986 – 2011. The researcher as well employed Impulse Response as well as variance decomposition. The included variables were on gross fixed capital formation, ratio of money supply to GDP. It was discovered that financial deepening in Nigeria was shallow.

Okoli (2013) studied the relationship between financial deepening and stock market in Nigeria from 1980 – 2010, the employed model was ordinary least square (OLS) method regression analysis. The interested variables were on gross domestic product as the dependent variable, stock market return, and stock market price as the independence variable. It was discovered that stock market may not promote financial deepening in Nigeria.

Sulainmain, Oke & Azeez (2012) critically explore the financial liberalization on the economic growth in developing nations with its assessment focusing on Nigeria with time series data and error correction model (ECM) between the period of 1975 – 2010. The variables were on lending rate, exchange rate, inflation rate, financial deepening (m2/GDP) and degree of openness as a proxy for financial liberalization indices. The study found that financial liberalization has a growth effect on economic growth of Nigeria.

Nwosu & Saibu (2011) studied the casual effect among financial development, foreign direct investment and economic growth in Nigeria over the period 1970-2009. Unit root test and co-integration approach was used, vector error correction mode (VECM) was also employed. The variable were on money supply, foreign direct investment and gross domestic investment.

Dele (2010) employed vector auto regression (VAR) evaluate the causality between financial deepening and economic growth and poverty in Nigeria form 1960 – 2011. The variables were on broad money supply, private sector credit and poverty rate. Unit root test and co-integration approach was used. The finding revealed that causality exists from poverty to financial deepening.

Odeniran & Udeaya (2010) examined the relationship between financial sector development and economic growth in Nigeria. The study employed Granger causality test in a VAR framework from the period of 1960 – 2009, the employed variables were on ratios of broad money stock to GDP, growth in net domestic credit to GDP in private sector, and growth in bank deposit liability to GDP were used to proxy financial sector development. The study resolve that financial sector development has not affect Nigeria economy significantly.

Okoli 2010 examined the impact of financial deepening and stock market returns volatility in the Nigeria stock market for the period of 1980 – 2009. The study employs Pakistan and Bangladesh.

The researcher disaggregated financial system into bank based and capital market based.. The employed variables were on ratio of money supply to GDP, ratio of credit to private sector to GDP, market capitalization and real gross domestic product. The empirical findings reveals that causality runs from financial development to economic growth.

2.3 Gap in Literature

Majority of the empirical studies reviewed from most developed countries such as wabaco (2004) Figi, (2004), Diambho (2004), Guryayel (2007) are with varied conclusion. Furthmore the methods applied in their analysis are also differs while time frame for most of them does not bear current data. Also, the period does not includes updated literature even the extant studies done in Nigeria like Oniore (2014) and Maduka (2014) Okoli (2013) produced conflicting conclusion. Studies in Nigeria have mostly focused on the direction of causality between financial deepening and economic growth and have produced mixed results. Moreover, most of the studies reviewed

have focused on traditional indicators such as the ratio M2/GDP and credit to the private sector/GDP. This study examines the effects of financial deepening on economy growth in Nigeria for the 1981-2016 periods using annual data. The study provides further evidence to the existing ones by making use of complementary variables such as market capitalization to GDP which is a measure is that the overall market size is positively correlated with the ability to mobilize capital and diversify risk on an economy-wide basis, the ratio of national savings, the ratio credit to the private sector to GDP and ratio of money supply to GDP

METHODOLOGY

3.1 Research Design

This study used Ex-post facto research design,. In other words, data are collected after the event or phenomenon under investigation. Ex-post facto design usually involves the study of independent and dependent variables. Therefore, it gives no room for manipulation of any variables.

3.2 Sources of Data

Data for the study were obtained from secondary sources notably from publications of the Central Bank of Nigeria (CBN), Statistical Bulletin, and World Bank data (various issues) between 1981 and 2019. The following data were sourced: real gross domestic product, ratio of money supply to GDP, ratio of credit to private sector to GDP, ratio of capital market to GDP and ratio of national savings to GDP.

3.3 Model Specification

As Maintained by Alfor Areendam, Kalemil-Ozcan & Sayek (2004) maintains that a good financial system is necessary for output to have expected impact in an economy, Taking to this inference from the above model we need a model specification to capture our research topic. The model used in this research work is a modification of the model used by Nwanna & chinwudu (2016), who studied the effect of financial deepening on the Nigeria economic growth. Their model specified that $RGDP = f(MS/GDP, CPS/GDP, MC/GDP, FSAV/GDP, TOP, INFL)$.

The above model is modified in line with the objectives of this study, Thus, we have

$$RGDP = f(CPS/GDP, MS/GDP, MC/GDP, FSAV/GDP/)$$

$$RGDP = b_0 + b_1 CPS/GDP + b_2 MS/GDP + b_3 MC/GDP + b_4 NSAV/GDP + \mu$$

Where

RGDP = Real gross domestic product.

CPS/GDP = Credit to private sector as a ratio of gross domestic product

MS/GDP = Money Supply as a ratio of gross domestic product

MC/GDP= market Capitalization as a ratio of gross domestic product

NSAV/GDP= Financial savings as a ratio of gross domestic product

f=Functional Notation

3.4 A' priori, Expectation

This is based on the principle of finance theory, Here our results can be checked for their reliability with both the size and sign of economic a' priori expectation.

VARIABLES	SIGN
CPS /GDP	+
MS /GDP	+
MC /GDP	+
NSAV /GDP	+

3.5 Estimation Techniques

This paper follows unit root test, co-integration analysis and error correction modeling techniques. These methods are believed to overcome the problem of spurious regression while at the same time provide consistent and good estimates of both long-run and short-run elasticities that satisfy the properties of the classical linear regression method. The techniques are also unique and preferred to the traditional Adaptive Expectation and Partial adjustment models because the latter are associated with the problems of spurious regression, inconsistent and indistinct short run and long-run elasticity estimates

3.5.1 Unit Root

The first stage of co-integration and error correction techniques is to test for unit root, the whole analysis then proceed from it. This study intends to use the Augmented Dickey-Fuller (ADF) unit root test. However, it is widely acknowledged that when the number of observations is relatively low, ADF unit root test have little power. Thus, we will complement the ADF unit root test with Philips-Perron(PP) unit root test. Also, while the ADF approach accounts for the autocorrelation of the first differences of a series in a parametric fashion by estimating additional nuisance parameters, the PP approach deals with the phenomenon in a non-parametric way. The Philips-Perron unit root test makes use of non-parametric statistical methods to take care of the serial correlation in the error terms without adding lagged difference terms (Gujarati, 2009). Due to the possibilities of structural changes that might have occurred during the time period covered in this study, the ADF test might be biased in identifying variables as being integrated. However, the Philips-Perron test is expected to correct these shortcomings.

Our ADF test consists of estimating the following equation:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_m \alpha_i \Delta Y_{t-1} + \varepsilon_t \text{-----(3.5)}$$

Where ε_t is a pure white noise error term; t is time trend; Y_t is the variable of interest; β_1, β_2, δ and α_i are parameters to be estimated; and Δ is the difference operator. In ADF approach, we test whether $\delta = 0$.

The Philips-Perron test is based on the following statistic:

$$t_{\alpha} = \frac{t_{\alpha}(\underline{Y}_0)^{1/2}}{f_0} - \frac{T(f_0 - Y_0)(se(\alpha))}{2f_0^{1/2} s} \text{-----} (3.6)$$

Where a is the estimate; f_a is the t-ratio of a ; $se(a)$ is the coefficient standard error and s is the standard error of the regression. Also, y_0 is a consistent estimate of the error variance in the standard Dickey-Fuller test equation (calculated as $(T-k)s^2/T$, where k is the number of regressors). The term f_0 is the estimator of the residual spectrum at zero frequency.

3.5.2 Co-integration Analysis

The aim of co-integration analysis is to determine the long run equilibrium relationship between variables. In the Engle-Granger co-integration analysis, variables of consideration are said to be co-integrated or have long run equilibrium relationship if in the OLS regression of one variable on the others, their residuals as the proxy for their combination are integrated less than original variables. For instance, if the variables are integrated of order one, $I(1)$, then their residuals should be integrated of order zero, $I(0)$ (Engle and Granger, 1987). Alternatively, co-integration exists among the variables if they are integrated of the same order. The implication of this analysis is that deviation or drift may occur between the variables but this is temporary as equilibrium holds in the long run for them. In this study, we use the Johansen co-integration approach to examine the existence of long run relationship between variables of interest.

The Johansen co-integration test is based on the following vector autoregressive (VAR) model:

$$Z_t = A_1 Z_{t-1} + \dots + A_p Z_{t-p} + \beta Y_t + \mu_t \text{-----} (3.7)$$

Where: Z_t is a k -vector of non-stationary variables; Y_t is a d -vector of deterministic variables; and μ_t is a vector of innovations. This can be rewritten as:

$$\Delta Z_t = \Pi Z_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Z_{t-i} + \beta Y_t + \mu_t \text{-----} (3.8)$$

$$\text{Where } \Pi = \sum_{i=1}^p A_i - I, \Gamma_i = \sum_{j=i+1}^p A_j \text{-----} (3.9)$$

In the Granger's representation theorem, if the coefficient matrix n has reduced rank $r < k$, then there exist $k \times r$ matrices α and β (each with rank r) such that $\Pi = \alpha\beta'$ and βZ_t is $I(0)$; r is the number of co-integrating relations (ie the rank) and each column of β is the co-integrating vector and the elements of α are the adjustment parameters in the vector error correction model. In general, the Johansen's approach is to estimate the n matrix from an unrestricted VAR and to test whether we can reject the restrictions implied by the reduced rank of Π .

3.5.3 Error Correction Model (ECM)

When variables are found to be co-integrated, it became customary to express them as an error correction model. An error correction model (ECM) represents an alternative way of presenting the long run equilibrium relationship between variables. It indicates the dynamic error analysis of the co-integrated variables. Thus, in this paper, the first step to ECM analysis is the estimation of the real GDP function given by equation (3.4). Upon the rejection of the null hypothesis of no co-integration, the lagged residuals from the co-integrating equation are imposed as the error correction term ECM(-1) in an error correction equation. This is given as:

$$\Delta LR GDP = \beta_0 + \beta_1 \Delta CPS / GDP + \beta_2 \Delta MS / GDP + \beta_3 \Delta L + \beta_4 \Delta MC / GDP + \beta_5 \Delta NSAV / GDP + \delta ECM(-1) + \mu \quad (3.10)$$

Where Δ is the difference operator; ECM(-1) is the error correction term; μ , is a white noise error term. The coefficient δ of error correction term in the equation represents the speed of adjustment from one period to another. If it is significant carrying with it a negative sign, it shows a strong convergence of the equilibrium after any shock.

3.5.4 Causality Test

It is widely known that the existence of long run relationship among variables entails that causality run in at least one direction. One of the main thrust of this study is to determine the causation between financial deepening and economic growth (RGDP) in Nigeria. Thus, the Pairwise-Granger causality test will be employed. The Granger causality test is a statistical test of hypothesis for determining whether a time series is useful in forecasting another time series. The null hypothesis underlying the Granger causality test is that the variable under consideration does not Granger-cause the other while the alternative is that it Granger-causes it.

The F-statistic for the restricted and unrestricted residual sum of squares were generated and tested for significance. Since we are not interested in the estimated coefficients in a model, our decision rule would be based on the F-Statistic and its associated p-values at 5% level of significance.

PRESENTATION AND ANALYSIS OF DATA

The method used was the ordinary least square regression technique, this method was chosen over others because of its “BLUE” properties “Best Linear unbiased Estimates, it is also efficient and consistent, When compared with other linear unbiased estimator. The data used in the analysis is presented in the appendix.

4.1 Unit Root Test

Table 4.1 result of the unit root test

Variable	ADF statistic	Integration	P.P statistic	Integration
LRGDP	-5.568622	1(1)	-5.352954	1(1)
CPS/GDP	-4.886752	1(1)	-4.871040	1(1)
MS/GDP	-5.258884	1(1)	-5.324830	1(1)
MC/GDP	-4.838436	1(1)	-4.400562	1(1)
NSAV/GDP	-6.368255	1(1)	-4.646256	1(1)

Source: Author's computation using E-view version 10

It is customary to determine the stationarity properties of time series before using them for formal empirical analysis. To determine the Order of integration of the chosen variables, the augmented dickey-fuller (ADF) and Philip-Perron (PP) unit root tests have been carried out on level and differences of the included variables. The tests were performed assuming intercept and no trend in both ADF and PP unit root specification. The result shows that all the variables are stationary at 1st differences. The results are reported in the tables 4.1 above

4.2 Co-Integration Test

The unit root test carried out earlier indicates that all our chosen variables are integrated of the same order I(1). Therefore, following the Johnson co-integration approach, the first condition for co-integration is that variables of interest are integrated of the same order, thus suspect the existence of long run relationship between our variables. Tables 4.3 below present the Johansen co-integration test. This test was performed allowing lag interval from 1 to 2 suggested by both AIC and SIC for optimal lag length. The null hypotheses underlying this test is that $r=0$, against alternative that $r > 0, 1, 2, 3, \text{ and } 4$. The null hypothesis of no co-integration among the variables of interest is rejected at 5% level of significance since that value of both trace statistics and max-Eigen statistics do not lead to the rejection of the null hypothesis of $r \leq 5$. In other words both trace test and Max-Eigen test indicates the existence of 5 co-integrating equations at 5% level of significance. Thus there is evidence of a long run relationship among the chosen variables.

Table 4.2 co-integration result table

Unrestricted co-integration rank test (trace)

H0	H1	Trace statistics	0.05	Max-Eigen	0.05
$r=0$	$r=0$	125.6379	69.81889	47.48142	33.87687
$r \leq 1$	$r > 1$	78.15645	47.85613	40.95147	27.58434
$r \leq 2$	$r > 2$	37.20499	29.79707	26.00307	21.13162
$r \leq 3$	$r > 3$	11.20192	15.49471	9.172253	14.26460
$r \leq 4$	$r > 4$	2.029664	3.841466	2.029664	3.841466

Source: Author's computation using E-view version 10

NB* implies rejection of the null hypothesis (Ho) of at 5% level of significance. Both the trace test and max-eigen values test indicates 3 co-integration equation at 5%

4.3 Presentation of the Regression Result

The full part of our regression result for this analysis is attached as an appendix to this study. However, the diagnostic tests or some key statistics or the variable that needs to be interpreted is shown below.

Variable	Coefficient	Std error	T-test	Prob
C	3.934238	1.114921	3.528714	0.0014
MSGDP	0.299056	0.134492	2.223596	0.0341
CPSGDP	0.236763	0.093245	2.539144	0.0167
NSAVGDP	-0.270445	0.060164	-4.495097	0.0001
MCRGDP	-0.001169	0.008875	-0.131737	0.8961
ECM(-1)	-0.821357	0.117079	-4.015433	0.0000

Source: Author's computation using E-view version 7.1

R- Square	0.890644
Adjusted	0.871789
F- Statistics	47.23766
Prob (F- statistic)	0.00000
Durbin-Watson	2.304176

4.4 Interpretation of the Regression Result

From the result in table 4.3 above, $R^2 = 0.89\%$, it means that our independent variables explained about 89% of the total variation in the dependent variables leaving the 2% which will be accounted for by other variables outside the model as captured by the error term. The adjusted R^2 is 87% which means that even an adjustment in the explanatory variables, they can still explain about 86% of the change in the dependent variables.

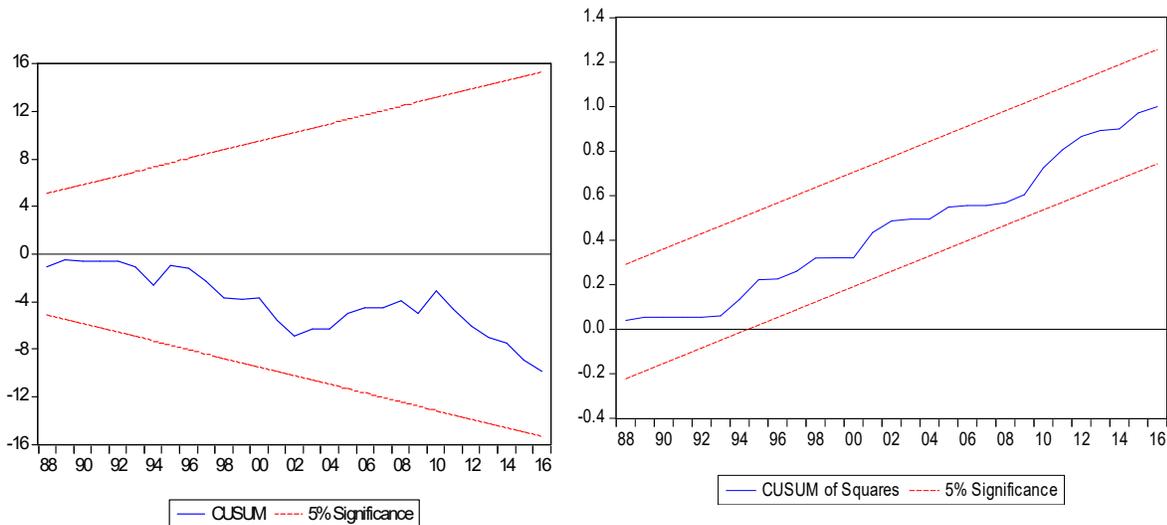
The F-statistics is used to test if or not the model has a significant relationship between the dependent and independent variables in the regression model. From table 4.3 the calculated value of F is 47.23766, while its probability is 0.00000 since 0.00000 is less than 0.05 desired 5% level of significance, we accept and state that there is a significant relationship between the variance of the estimates and that of the independent variables. This means that the parameters are statistically significant in explaining the relationship between the dependent variable and independent variables.

The a priori expectation is used to determine by the existing finance theories and this indicates the signs and magnitude of the variables. From our regression it is observed that ratio of credit to private sector to gdp (CPS/GDP) has a positive sign, given us value as 0.239056, this implies that increase in (CPS/GDP) increases the RGDP by 0.23%. This conforms to our a priori expectation. Meanwhile (MS/GDP) has a positive sign given its value as 0.299056, this implies that increase in (MS/GDP) will increase the RGDP by 0.29%, this suggest that it conform to our theoretical expectation. However, ratio of Market Capitalization (MC/GDP) has a negative sign, given its value as -0.001169, this suggest that a unit increase in ratio of Market Capitalization (MC/GDP) decrease the RGDP by 0.1% this further suggest that it does not conform to our theoretical expectation. Lastly, ratio of national saving (NS/GDP) does not confirm to financial theories because in decreases in financial savings increases Real gross domestic product my - 27%.

The t-test is used to measure the individual statistical significance of our explanatory parameter in the model. From table 4.3 above (CPS/GDP) is 2.539144, this is statistically significant this suggest that credit to private sector as it relates to financial deepening has encourage economic growth in Nigeria. (MS/GDP) is 2.223596, this implies that it is statistically significant at 1% level of significant, this further suggest that it contribute significantly the economic growth. Ratio of Market capitalization (MC/GDP)is -0.131737, P.value (0.8961) this implies its statistically insignificant and has not contributed significant to the economic growth of the nation. A look at ratio of national saving (NS/GDP) has shown its value as -4.495097 (0.0000) this maintains that its statistically significant and has contributed highly to the economic growth of Nigeria

The Durbin-Watson (DW) test for autocorrelation will be used to test for the presence of first order autocorrelation in the model when the value of DW is closer and a little above 2.00, it means the presence of autocorrelation among the explanatory variables. From the table 4.5 above our DW result is (2.3) this implies the absence of autocorrelation hence our variables can be used for predictive purposes.

Finally, the negative coefficient of the ECM (-1) confirms that the variables in the model are co-integrated and indicates a stable long-run equilibrium relationship between the variables. It shows coefficient of the ECM as -0.821357 and is the speed of adjustment and it shows that about 63% of the previous year's shocks adjust the equilibrium in the current years. The stability test enables us to predict the dependent variables in a regression with a reasonable level of precision given the independent variables used in the analysis.



Therefore, the test is carried out using the cumulative sum and cumulative sum of squares. The result shows that our model is dynamically stable because the fitted lines fall within the dotted lines for critical value of 5%.

4.4 Causality Tests

It has been stated earlier that the existence of long-run relationship among variables entails that causality run in at least one direction. The granger causality runs from LRGDP to MS/GDP. This shows a unidirectional relationship. Unidirectional relationship runs from NASV/GDP to RGDP. It was also observed that unidirectional relationship run from MS/GDP TO NSAV/GDP. It was also interesting that unidirectional relationship occurred between MS/GDP, and MC/GDP. Finally unidirectional relationship occurred between CPS/GDP and NSAV/GDP.

The granger causality tests are reported in table 4.6 below.

Pairwise Granger Causality Tests

Date: 08/13/21 Time: 02:56

Sample: 1981 2019

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
MSGDP does not Granger Cause LRGDP	39	1.08534	0.3511
LRGDP does not Granger Cause MSGDP		2.01816	0.0511
NSAVGDP does not Granger Cause LRGDP	39	3.21839	0.0547
LRGDP does not Granger Cause NSAVGDP		0.85922	0.4340

NSAVGDP does not Granger Cause MSGDP	39	0.57294	0.5701
MSGDP does not Granger Cause NSAVGDP		3.34900	0.0491
<hr/>			
MCRGDP does not Granger Cause MSGDP	39	0.75654	0.4783
MSGDP does not Granger Cause MCRGDP		3.35387	0.0489
<hr/>			
NSAVGDP does not Granger Cause CPSGDP	39	0.24474	0.7845
CPSGDP does not Granger Cause NSAVGDP		3.14328	0.0581
<hr/>			

SUMMARY OF FINDING, CONCLUSION, AND RECOMMENDATION

5.1 Summary of the Finding

Therefore the result of our estimated model revealed the following important findings

- i. It was observed that ratio of credit to private sector to GDP (CPS/GDP) has a positive sign and statistically significant
- ii. It was also observed that ratio money supply to GDP (MS/GDP) has a positive sign and it's statistically significant.
- iii. Market capitalization as a ratio of GDP (MC/GDP) negative sign and it's statistically insignificant.
- iv. National saving as a ratio of GDP (NS/GDP) is positive and it's statistically significant..

5.2 Recommendation

The following recommendation where made based or the findings generated from this research

- i. Government should promote micro finance sector of the economy to the small entrepreneurs may have easy access to the credit availability.
- ii. Policy makers should encourage the monetary authorities like central bank of Nigeria to reduce the interest rate in the economy so that investors may raise their investments and country production capacity.
- iii. Policy makers should formulate the rules and regulations to strengthen the financial and capital markets
- iv. The government must ensure the efficiency in policies and supervision of all financial institutions to expand their financial markets to improve financial structure which leads to development in economic growth.

5.3 Conclusion

The study was carried out to empirically test the relationship between financial deepening and economic growth of Nigeria.. We employed econometric analysis to test this relationship in Nigeria. the data were on real gross domestic product, CPS/GDP, MS/GDP, MC/GDP and NSAV/GDP, generated from central bank of Nigeria statistical bulletin vol. 26 2016. The researcher adopted ordinary least square(OLS) method of data analysis using econometric view version 8.1 the findings of this work is consistent with the orthodox perspective this will serve as a source of inspiration and consultation to policy makers and other related bodies when the need arises.

5.4 Contribution to Knowledge

The study was able to re-modify the growth model by Levine (2005) and expanded the existing contemporary literatures, empirical review, and geographical spreads and updated the data of the study that will enable researchers and scholars to use it for further studies. Consequently, from the results, this study has also contributed to knowledge by discovering that Nigerian economy has a direct causal relationship with financial deepening. The factor responsible for this can be traceable to increased provision of financial services by the financial intermediaries in the economy.

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REGRESSION RESULT

APPENDIX

Dependent Variable: LRGDP

Method: Least Squares

Date: 08/13/21 Time: 12:11

Sample (adjusted): 1982 2019

Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.934238	1.114921	3.528714	0.0014
MSGDP	0.299056	0.134492	2.223596	0.0341
CPSGDP	0.236763	0.093245	2.539144	0.0167
NSAVGDP	-0.270445	0.060164	-4.495097	0.0001
MCRGDP	-0.001169	0.008875	-0.131737	0.8961
ECM(-1)	-0.821357	0.117079	-4.015433	0.0000

R-squared	0.890644	Mean dependent var	8.257901
Adjusted R-squared	0.871789	S.D. dependent var	2.274164
S.E. of regression	0.814299	Akaike info criterion	2.581827
Sum squared resid	19.22942	Schwarz criterion	2.848458
Log likelihood	-39.18198	Hannan-Quinn criter.	2.673868
F-statistic	47.23766	Durbin-Watson stat	2.304176
Prob(F-statistic)	0.000000		
