The Impact of Financial Integration on Economic Growth in Nigeria

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Abstract

The study investigated the effect financial market integration on economic growth in Nigeria over the period of thirty-two years ranging from 1990 to 2021. The study designed and specified a multiple regression model to examine the individual and joint effects of the proxies of financial market integration (trade openness, credit to private sector and government expenditure) on economic growth in Nigeria (measured in Gross Domestic Product). The model was estimated by Ordinary Least Square technique using E-views 12 statistical package. The annual time series data used were collected from Central Bank of Nigeria (CBN) statistical bulletin and analyzed with the aim of achieving the stated objectives. The study found that trade openness, credit to private sector and government expenditures have individual and joint significant effect on economic growth in Nigeria. Based on the findings, the study therefore concluded that the financial market integration plays a significant positive role in the sustenance of growth of the Nigerian economy.

INTRODUCTION

Background to the Study

The financial system of any country provides the catalyst through financial intermediation for productive activities to ensure economic growth and development. The financial sector is undoubtedly the most important tool in the economic system because it provides the necessary lubricant that keeps the wheel of the economy turning and it is an engine for economic growth (Olowe, 2015). The financial system can be examined widely from the financial institutions and the financial markets. The financial market is a collectivity or constellation of individuals, institutions, instruments and mechanisms that help to channel funds from surplus economic units to deficit economic units within a country and beyond. In other words, the financial market serves as the link between savers (lenders) and investors (borrowers) such that the operators and service providers are also referred to as financial intermediaries. The financial market is segmented into two, namely; the money and capital markets. While the money market deals in short-term funds, the capital market deals in long-terms loanable funds. The basis of distinction between the money and capital market lies in the degree of liquidity of instruments bought and sold in each of the markets (Igbinosa and Ikponmwosa, 2015).

Financial integration is the process through which the financial markets of two or more countries or regions become more connected to each other. Financial integration can take

different forms, which may include cross-border capital flows, participation of foreign interests in the domestic markets, information sharing and practices among financial institutions, or unification of market infrastructures. Financial market integration can have a regional or global dimension, depending on whether a country's financial market is more closely connected to neighbouring economies or to global financial centres (International Monetary Fund, 2016). Mougani (2019) maintained that regional benefits of financial integration arise from more efficient capital allocation, broader opportunities for risk diversification, minimal probability of asymmetric shocks, and more robust market structure. However, in a world of high mobility of capital, risk of cross-border contagion may be on the rise when regional economies become more interdependent with greater intensification of financial linkages. Hence, there is the likelihood that financial instability in one economy could be transmitted to neighbouring countries more rapidly

However, the nexus between financial integration and economic growth continues to be one of the most debated issues among economists. The growth path in the financially open economy differs a lot across countries, with different initial wealth, legislative institutions or financial deepening level. Some emerging countries achieved high growth after their financial integration to the world financial market. However, soon after they experienced severe financial and economic crisis in late 90s. The crisis in emerging markets in late 90s reveals specific challenges raised by their financial integration to the world market. Whether and how the financial market integration can be beneficial to the growth performance is thus a subject of many debates among economists and policymakers (Egbetunde and Akinlo, 2014).

Mishkin (2016) enumerated various direct and indirect channels through which financial integration could have positive impacts on financial development and economic growth as a whole. These direct and indirect channels include the entry of foreign financial institutions, the increase of competition and the diffusion of technology. Furthermore, Wurgler (2019) stated that there is a strong theoretical presumption that financial market integration not only enhances the growth benefits associated with financial globalization but also reduces vulnerability to crises. Thus, it is intuitive that well-developed domestic financial markets through integration are instrumental in efficiently allocating foreign financial flows to competing investment projects which is catalyst for economic growth and development.. Drawing from the foregoing therefore, this study seeks to empirically determine the effect of financial market integration on economic growth in Nigeria.

LITERATURE REVIEW

Theoretical Framework

The theories adopted in this study include: Modern Portfolio theory, Financial Intermediation theory and Efficient Market Hypothesis (EMH)

Modern Portfolio Theory

Markowitz (1952) an American economist developed a theory of portfolio choice, which allows investors to analyze risk relative to their expected return. Markowitz's theory is today known as the Modern Portfolio Theory, (MPT). The modern portfolio theory MPT) is a theory of investment which attempts to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. Although the Modern Portfolio Theory (MPT) is widely used in practice in the financial industry. In recent years, the basic assumptions of the

Modern Portfolio Theory (MPT) have been widely challenged. The Modern Portfolio Theory, an improvement upon traditional investment models, is an important advance in the mathematical modeling of finance. The theory encourages asset diversification to hedge against market risk as well as risk that is unique to a specific company. The modern portfolio theory (MPT) is a sophisticated investment decision approach that aids an investor to classify, estimate, and control both the kind and the amount of expected risk and return; also called Portfolio Management Theory. Essential to the portfolio theory are its quantification of the relationship between risk and return and the assumption that investors must be compensated for assuming risk. Portfolio theory departs from traditional security analysis in shifting emphasis from analyzing the characteristics of individual investments to determining the statistical relationships among the individual securities that comprise the overall portfolio. The Modern Portfolio Theory (MPT) mathematically formulated the concept of diversification in investing, with the aim of selecting a collection of investment assets that has collectively lower risk than any individual asset. The possibility of this can be seen intuitively because different types of assets often change in value in opposite ways. But diversification lowers risk if assets' returns are not negatively correlated-indeed, even if they are positively correlated (Chebii, Kipchumba an Wasike, 2011).

By combining different assets whose returns are not perfectly positively correlated, Modern Portfolio Theory (MPT) seeks to reduce the total variance of the portfolio return. Modern Portfolio Theory (MPT) also assumes that investors are rational and markets are efficient. The fundamental concept behind the MPT is that assets in an investment portfolio should not be selected individually; each on their own merits. Rather, it is important to consider how each asset changes in price relative to how every other asset in the portfolio changes in price. Investing is a trade-off between risk and expected return. Generally, assets with higher expected returns are riskier (Chebii, Kipchumba & Wasike, 2011). For a given amount of risk, the Modern Portfolio Theory (MPT) describes how to select a portfolio with the highest possible expected return. Or, for a given expected return, the MPT explains how to select a portfolio with the lowest possible risk (the targeted expected return cannot be more than the highest-returning available security, of course, unless negative holdings of assets are possible).

Financial Intermediation Theory

Gurley and Shaw propounded financial Intermediation theory in 1960.in 1952. The theory hypothesis assumes that financial development is the driver of economic growth, that the economy responds to growth in the real sector facilitated by financial development. Financial intermediation is a process involving surplus units depositing funds with financial institutions who then lend to deficit units. Financial intermediation theory stated that financial intermediaries can be distinguished by four criteria: their main categories of liabilities or deposits are specified for a fixed sum which is not related to the performance of a portfolio, the deposits are typically short-term and of a much shorter term than their assets, and a high proportion of their liabilities are chequeable which can be withdrawn on demand and fourthly, their liabilities and assets are largely not transferable. The most important contribution of intermediaries is a steady flow of funds from surplus to deficit units (Bisignano, 1998).

According to Scholtens and Wensveen (2013) the role of the financial intermediary is essentially seen as that of creating specialized financial commodities. These are created whenever an intermediary finds that it can sell them for prices which are expected to cover all costs of their production, both direct costs and opportunity costs. The theory further stated that

financial intermediaries exist due to market imperfections. As such, in a 'perfect' market situation, with no transaction or information costs, financial intermediaries would not exist. Numerous markets are characterized by informational differences between buyers and sellers. In financial markets, information asymmetries are particularly pronounced. Borrowers typically know their collateral, industriousness, and moral integrity better than lenders do. On the other hand, entrepreneurs possess inside information about their own projects for which they seek financing (Leland and Pyle, 1977). Moral hazard hampers the transfer of information between market participants, which is an important factor for projects of good quality to be financed.

Conceptual Framework

Financial Integration

Various authors have perceived the concept of financial integration differently. Financial integration is said to encompass domestic financial market deregulation and capital account liberalization (McKinnon, 1973). Financial integration is defined as the integration of a country's local financial system with international financial markets. It usually requires liberalization of domestic financial sector and the capital account. Financial integration, thus, entails increase in cross-country capital movement, which involves an active participation of local borrowers and lenders in international markets and a widespread use of international financial intermediaries and instruments (Bussiere, 2004). Financial integration is the process through which financial markets in an economy become more closely integrated with those in other economies or with those in the rest of the world. This implies an increase in capital flows and a tendency for prices and returns on traded financial assets in different countries to equalize (De Brouwer, 2015). Emiris (2012) argues that assets with similar risk characteristics will have the same price if financial markets in the world are completely integrated even if these assets are traded on different markets. To him, "in completely integrated financial markets, investors face common and country-specific or idiosyncratic risk, but price only common risk factors, because country-specific risk is fully diversifiable. When markets are partially integrated, investors face both common and idiosyncratic risks and price them both. However, if markets are completely segmented, investors face and price only country specific sources of risk".

According to Ho (2010) "financial integration could proceed with enforcement of a formal international treaty. This refers to two distinct elements. One is the provision for concerted or cooperative policy responses to financial disturbances. The other is the elimination of restrictions on cross-border financial operations by member economies, as well as harmonization of regulations of financial systems to achieve full unification of regional financial markets, and taxes and regulations between member economies". And it is expected that in theory, financial globalization can help developing countries to better manage output and consumption volatility. Indeed, a variety of theories imply that the volatility of consumption relative to that of output should decrease as the degree of financial integration increases; the essence of global financial diversification is that a country is able to shift some of its income risk to world markets.

Concept of Economic Growth

Economic growth refers to increase in the value of goods and services produced by an economy. It is conventionally measured as the rate of increase in Gross Domestic Product

(GDP). Growth is usually calculated in real terms (netting out the effect of inflation on the price of goods and services produced). It can be studied in the short run, and the long run. The short-run variation of economic growth is known as business cycle, and all economies experience periodic recessions. The long-run path of economic growth is one of the central questions of economics: over long periods of time, even seemingly small rates of growth, through compounding, can have large effects. Growth in output can be divided into two major categories: growth through increased input and that through improvements in productivity. Given that labour and capital inputs cannot be increased indefinitely without encountering diminishing marginal returns, technological progress is needed to increase the standard of living in the long run. Economic growth is a fundamental requisite to economic development. Essentially, economic growth is associated with policies aimed at transforming and restructuring the real economic sectors. Ever since independence in 1960, the challenge facing the Nigerian economy has been how to increase economic growth in order to reduce unemployment rate and by extension extreme poverty, strengthen democratic and political stability and diminish the incidence of crime and violence (Ismaila and Imoughele 2015).

Empirical Literature

Ehiedu, Odita and Kifordu (2020) examined empirically financial integration impact on Nigeria economic growth volatility spanning from the period of 1987-2019. The empirical analysis used a Multiple regression analysis was employed to estimate the relevant variables. The result showed a non-significant degree of openness but positively associated with gross domestic product. Foreign private investment was strongly and statistically significant to gross domestic product. It was therefore recommended that for Nigeria financial sector services to take substantial benefits of broad participation in globalization, the provision of sound macroeconomic policy framework with high degree of certainty of the future of investment is needed.

Oladosu (2020) investigated the relationship between financial integration and proxy by portfolio equity flows, and economic growth in Sub-Saharan Africa from the period of 1985 to 2019. The paper applied a Generalized Methods of Moment (GMM) dynamic panel estimation framework. The results suggest that portfolio equity flows have a significant positive relationship with economic growth in SSA. To check for the consistency of the results, we analyze the data set again using the Random effects-GLS (EGLS) model. Contrary to the system GMM results, the results of the EGLS model suggest that there exists a negative insignificant relationship between portfolio equity flows and economic growth. However, the EGLS estimator confirms that there exists a significant positive relationship between financial development and economic growth. The inconsistency in the results of the two estimation models leads us to the conclusion that, there is no definite or robust link in the IFI-growth relationship in SSA.

Ekpo and Chuku (2020) addressed the progress and experience towards financial integration in Africa, the degree and timing of the integration process in selected African stock markets, and the effect of financial integration on economic activity. First, using time-varying parameters from a state-space model, we assess the degree and timing of financial integration in Africa and find results that indicate patterns toward increasing financial globalisation relative to regionalization. Second, using carefully specified parametric and nonparametric regression analyses, we find that higher levels of financial integration are associated with

higher levels of growth and investment, but not necessarily total factor productivity. The relationships become even clearer when zoomed in on the nonparametric iso-growth surface plots, which showed that there is a threshold level of financial development that is consistent with growth in a financially segmented economy. Finally, some policy implications were gleaned from the results and the experiences in Asia and Europe.

Akintola, Oji-Okoro and Itodo (2020) investigated the impact of the financial sector development on economic growth in Nigeria, by looking at the independent contributions of the money, capital and foreign exchange markets to the growth of the economy, using quarterly data between 2000Q1 and 2019Q4. The results indicated that while financial deepening, banking system liquidity and all share index had positive and significant impact on the growth of real output in the long-run, the behaviour of exchange rate spread was consistent with falling levels of real output growth. It is therefore recommended that macroeconomic managers in Nigeria to improve the level of economic growth prioritise the growth of the money and capital markets. More specifically, the monetary authority should adjust her policy rates and other instruments of monetary policy, such as the cash reserve ratio, to increase the level of banking system liquidity. This will increase banks' lending capacity to the private sector, with the benefit of increasing economic growth in Nigeria.

Ahmed (2018) examined the effect of financial integration on economic growth in Nigeria. Using time series data from 1981 and 2012, the study employed autoregressive distributed lag (ARDL) bounds testing approach proposed. The regression results showed that, while financial integration has no short run effect on economic growth, its long run effect on growth is negative and significant. Financial development was found to have both short run and long run positive effect on economic growth in Nigeria. Hence, for Nigeria to benefit from financial integration, the government has to increase the level of competition, improve the quality of financial information and reduce corruption in the financial system.

James and Dervis (2018) determined the long-run relationship between financial liberalization, savings mobilization, and investment with a resultant effect on economic growth in the context of the Liberian economy as articulated by McKinnon and Shaw's hypothesis. The study employed time series data spanning from 1980 to 2016 and extracted from World Development Indicators (WDI). The data were analysed using econometric techniques of Combined Cointegration test, Dynamic Ordinary Least Squares (DOLS), Fully Modified Ordinary Squares (FMOLS), and Canonical Cointegration Regression (CCR). The study found that no studies have investigated the effects of financial liberalization and economic growth in Liberia, expressly, employing Combined Cointegration Test. The findings of the study revealed that (i) coefficient of the financial liberalization variable is positive and significant for Liberia, thus support the McKinnon and Shaw hypotheses. (ii) the study found combined cointegration among the estimated models. The study recommended that policymakers should refrain from any policy that will adversely affect the deposit government expenditures considering its immense impact on savings mobilization, gross investment, and the overall economic growth. Furthermore, improving the level of competition will compel deposit-taking financial institutions to raise deposit government expenditures in a bid to attract more depositors with a consequential reduction in the government expenditures spread..

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Evaluation of Literature Reviewed

In line with the empirical literature however, it was observed that some studies have been carried out on financial market integration and economic growth across the world but based on the researcher's knowledge, there are some gaps in knowledge and the researcher is confident of bridging these gaps in this present study. To start with, very few of the previous studies examined effect of financial market integration on economic growth in Nigeria context. Secondly, none of the previous related studies covered most recent events (2021). As a result, this study will empirically determine the effect of financial market integration on economic growth in Nigeria. Also, this study will cover a period from 1990 to 2021 as this will make this study to be more current and up-to-date than previous related studies.

METHODOLGY

Research Design

A research design, according to Onwumere (2005) is a kind of blueprint that guides the researcher in his or her investigation and analyses. The research design adopted in this study is *ex-post facto* research design. This is because some of the characteristics of ex post facto research design (such as formulation of hypothesis or proposed question, absence of manipulation of variables) conform to the nature of this study. This research design will also enable the researcher to gather, analyze and interpret data obtained with a view of ascertaining the effect of financial market integration on economic growth in Nigeria. In *ex-post facto* research design also, elements in the study are not under the control of the researcher since the events being investigated had already taken place and the researcher has no control over it. Thus, this research design is perfect for this research because the time scope (1990 – 2021) being considered in this study shows that the events had already taken place and as such, the researcher is only trying to analyse it.

Data Collection and Sources

In the course of this study, the researcher in an attempt to gather useful and reliable information (data) utilized secondary source of data collection. This is because the study will make use of secondary data which are annual time series data. The data covered a thirty-two (32) years period which is from 1990 to 2021. These data were sourced from Central Bank of Nigeria (CBN) statistical bulletin.

Model Specification

Model specification is the determination of the endogenous and exogenous variables to be included in the model as well as the a priori expectation about the sign and size of the parameters of the function (Ibenta, 2012). In line with the foregoing, multiple regression model

will be adopted in this study. Multiple regression model is an economic model that shows the relationship between the variables being examined in this study. This multiple regression model will be used to establish the relationship that exists between the independent variable (financial market integration) and the dependent variable (economic growth). The model will be stated in three different forms as follow:

The functional specification of the model is given as:

$$\mathbf{GDP} = f(\mathbf{TON}, \mathbf{CPS}, \mathbf{GEX}) \quad (3.1)$$

To show the linear mathematical relationship, the model can be written as;

$$\mathbf{GDP} = \delta_0 + \delta_1\mathbf{TON} + \delta_2\mathbf{CPS} + \delta_3\mathbf{GEX} \quad (3.2)$$

Including the stochastic or error term (ε_t) in our econometric model, our model became;

$$\mathbf{GDP} = \delta_0 + \delta_1\mathbf{TON} + \delta_2\mathbf{CPS} + \delta_3\mathbf{GEX} + \varepsilon_t \quad (3.3)$$

Where:

GDP = Gross Domestic Product
TON = trade openness
CPS = credit to private sector
GEX = government expenditure
δ_0 = Regression Intercept
δ_1 = elasticity or coefficient of trade openness
δ_2 = elasticity or coefficient of credit to private sector
δ_3 = elasticity or coefficient of government expenditure
ε_t = error term

Variable Description

The variables to be used in the model of this study are classified as dependent and independent variable:

Dependent Variable

The dependent variable in this study is economic growth. Gross Domestic Product measures this:

i. **Gross Domestic Product:** This is the money of all the goods and services produced within a country but excluding net income from abroad.

Independent Variable

On the other hand, financial market integration is the independent variable and it is proxied trade openness, credit to private sector and government expenditure:

i. **Trade Openness:** This is an economic metric calculated as the ratio of country's total tra de (the sum of exports plus imports) to the country's Gross Domestic Product.
ii. **Credit to Private Sector:** This refers to financial resources provided to the private se ctor, such as through loans, purchases of non-equity securities, and trade credits and o ther accounts receivable, that establish a claim for repayment.
iii. **Government expenditure:** This refers to expenses accrued to government for its mai ntenance, sustaining the society and the economy at large likewise for helping other c ountries.

Data Analysis Techniques

This research work made use of econometric method. Econometric method is statistical method specifically adopted to the peculiarities of economic phenomena. This method is adopted because of its ability to offer and accurate and precise prediction of economic magnitude. To achieve this, method of Ordinary Least Square (OLS) estimation is employed for the econometric analysis. The adoption of this technique will be based on the premise that the

Ordinary Least Square is assumed to be the Best Linear Unbiased Estimator (BLUE). Moreover, data analysis will be facilitated by E-Views 12 statistical package. Specifically, test such as coefficient of determination (R^2), the t-test and the F-test, will also be carried out in this research work.

DATA ANALYSIS AND DISCUSSION OF FINDINGS

This chapter focuses on the, data analysis and discussion of findings on the effect of financial market integration on economic growth in Nigeria. This chapter is therefore approached under the following sub-heading:

Unit Root Test

The unit root test was conducted to test for the stationarity or non-stationarity of the variables used in the model. To achieve this Augmented Dickey-Fuller (ADF) test Thus, the results of the Unit Root test are presented in the tables below:

Table 4.2: Unit Root Test Results

Augmented Dickey-Fuller (ADF)

Variables	ADF	Mackinnon Critical Value @ 5%	Prob. *	Hypothesis	Decision	Order of Integration
GDP	9.795457	-2.960411	1.0000	GDP has a unit root	Reject H_0	I(0)
TON	-3.339327	-2.960411	0.0215	TON has a unit root	Reject H_0	I(0)
CPS	4.535298	-2.991878	1.0000	CPS has a unit root	Reject H_0	I(0)
GEX	4.623262	-2.981038	1.0000	GEX has a unit root	Reject H_0	I(0)

Source: Researcher's Computation, 2022.

The results of the Unit Root Test as shown in Table 4.2 indicates at 5% level of significance, the Augmented Dickey Fuller (ADF) test statistic for Gross Domestic Product (GDP) is greater in absolute value than the individual critical values. This therefore indicates that Gross Domestic Product (GDP) was stationary at level [I(0)]. Also, the results of the Unit Root Test as shown in Table 4.2 indicates at 5% level of significance, the Augmented Dickey Fuller (ADF) test statistic for trade openness (TON) is greater in absolute value than the individual critical values. This therefore indicates that trade openness (TON) was stationary at level [I(0)]. In addition, the results of the Unit Root Test as shown in Table 4.2 indicates at 5% level of significance, the Augmented Dickey Fuller (ADF) test statistic for credit to private sector (CPS) is greater in absolute value than the individual critical values. This therefore indicates that credit to private sector (CPS) was stationary at level [I(0)]. Also, the results of the Unit Root Test as shown in Table 4.2 indicates at 5% level of significance, the Augmented Dickey Fuller (ADF) test statistic for government expenditure (GEX) is greater in absolute value than

the individual critical values. This therefore indicates that government expenditure (EDS) was stationary at level [I(0)].

In conclusion, the results of the Augmented Dickey Fuller (ADF) unit root tests displayed in Table 4.2 revealed that all the variables for investigation were stationary at order levels. This implies that they attain stability at levels. However, the single order of stationarity among the variables necessitates the use of ordinary least square regression technique to estimate the specified model.

Data Analysis and the Results

This section analysed the data sourced and presents the empirical results obtained which are econometric in nature. Consequently, the multiple regression model specified in the chapter three i.e. $\mathbf{GDP} = \delta_0 + \delta_1\mathbf{TON} + \delta_2\mathbf{CPS} + \delta_3\mathbf{GEX} + \varepsilon_t$ is estimated in this section through Ordinary Least Square (OLS) technique while the data analysis was carried out by E-views 12 statistical package. The results obtained from our data analysis are presented in table 4.3:

Table 4.2: Ordinary Least Square Regression Analysis Results

Dependent Variable: GDP
Method: Least Squares
Date: 10/29/22 Time: 15:12
Sample: 1990 2021
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.423602	0.490829	6.975148	0.0000
TON	0.447398	0.117472	3.808567	0.0007
CPS	0.606025	0.111125	5.453561	0.0000
GEX	0.442639	0.126559	3.497489	0.0016

R-squared	0.964089	Mean dependent var	9.772368
Adjusted R-squared	0.953456	S.D. dependent var	1.771856
S.E. of regression	0.143334	Akaike info criterion	-0.930807
Sum squared resid	0.575251	Schwarz criterion	-0.747590
Log likelihood	18.89292	Hannan-Quinn criter.	-0.870076
F-statistic	1569.724	Durbin-Watson stat	2.213805
Prob(F-statistic)	0.000000		

Source: Researcher's Computation, 2022.

Interpretation of Regression Results

This section discusses the empirical results obtained from the estimation of our regression model through ordinary least square (OLS) technique as follows:

GDP = 3.423602 + 0.447398TON + 0.606025CPS + 0.442639GEX

Interpretation of Regression Coefficients

Trade Openness (TON) and Gross Domestic Product (RGDP)

The positive value (0.447398) of the coefficient of trade openness as shown in table 4.3 indicates that there is a positive relationship between trade openness and Gross Domestic Product in Nigeria. This indicates that a unit increase in trade openness will bring about

0.447398 increase in Gross Domestic Product while a unit decrease in trade openness will bring about 0.447398 decrease in Gross Domestic Product.

Credit to Private Sector (CPS) and Gross Domestic Product (RGDP)

The positive value (0.606025) of the coefficient of credit to private sector as shown in table 4.3 indicates that there is a positive relationship between credit to private sector and Gross Domestic Product in Nigeria. This indicates that a unit increase in credit to private sector will bring about 0.606025 increase in Gross Domestic Product while a unit decrease in credit to private sector will bring about 0.606025 units decrease in Gross Domestic Product.

Government Expenditure (GEX) and Gross Domestic Product (RGDP)

The positive value (0.442639) of the coefficient of government expenditure as shown in table 4.3 indicates that there is a positive relationship between government expenditure and Gross Domestic Product in Nigeria. This indicates that a unit increase in government expenditure will bring about 0.442639 units increase in Gross Domestic Product while a unit decrease in government expenditure will bring about 0.442639 units decrease in Gross Domestic Product.

Interpretation of the Adjusted R-Squared

The adjusted coefficient of determination (Adjusted R-squared) is 0.953456 (95%). This shows that the coefficient of determination obtained is very reliable. The result also implies that, if the coefficient of determination is adjusted, 95% of the total variations in Gross Domestic Product can be explained by trade openness, credit to private sector and government expenditure while the remaining 5% are explained by other variables or factors that are not included in the model.

Test of Significance of Individual Parameter (T-Test)

This was used to measure the statistical significance of the coefficient of the explanatory or independent variables in the specified models. We made use of five percent level of significance with (n-k) degrees of freedom. Where *n* is the number of observation and *k* is the number of parameter. In carrying out this test, the t-statistic of individual parameter under consideration is interpreted based on the following statement of hypotheses:

Null hypothesis (H_0): The individual parameter is not statistically significant.

Alternate hypothesis (H_A): The individual parameter is statistically significant.

The decision rule states that:

- If t-calculated value is greater than t-tabulated value, reject the null hypothesis (H_O) at five percent level of significance.
- On the other hand, if t-calculated value is less than t-tabulated value, accept the null hypothesis (H_O) at five percent level of significance.

Level of significance: 5%

Degree of freedom: n – k

Where,

n = sample size.

k = number of parameters.

Computation

n = 32 and k = 4

n – k = 32 – 4 = 28

The t-tabulated value from the statistical table at 33 degrees of freedom and 5% level of significance is 2.048. Thus, the interpretations and conclusion are summarized in the table 4.3.1 below:

TABLE 4.3.1: SUMMARY OF T-TEST

Variable	t-calculated Value	t-tabulated Value	Decision Rule	Conclusion
Trade Openness	3.808567	2.048	Reject H_0	Significant
Credit to Private Sector	5.453561	2.048	Reject H_0	Significant
Government Expenditure	3.497489	2.048	Reject H_0	Significant

Source: *Researcher's Computation, 2022.*

From the summary of t-test in table 4.3.1 above, the decision rule for the statistical significance of each independent variable shows that trade openness is statistically significant. This means that trade openness contributes significantly to Gross Domestic Product.
Also, credit to private sector is statistically significant. This means that the contribution of credit to private sector to Gross Domestic Product is significant.
Lastly, government expenditure is statistically significant. This means that government expenditure contributes significantly to Gross Domestic Product.

Test of Overall Significance of the Model (F-test)

This was used to test for the overall significance of regression. The test was aimed at finding out whether the joint influence of the explanatory variable on the explained variable is statistically significant. We made use of five percent level of significance with (n-k) and (k-1) degrees of freedom. Where *n* is the number of observation and *k* is the number of parameter. Statistically, the F-statistics of the variables under consideration is interpreted based on the following statement of hypotheses:

Null Hypothesis (H_O): The estimated regression plan (model) is not statistically significant.
Alternative Hypothesis (H_1): The estimated regression plan (model) is statistically significant.
The decision rule states that:

- If F-calculated value is greater than F-tabulated value, reject the null hypothesis (H_O) at five percent level of significance.
- On the other hand, if F-calculated value is less than F-tabulated value, accept the null hypothesis (H_O) at five percent level of significance.

Level of significance = 5%
Degree of freedom: $F = \frac{k-1}{n-k}$

Where,
n = sample size and k = number of parameters.
n = 32 and k = 4
k - 1 = 4 – 1 = 3 (numerator)
n - k = 32 - 4 = 28 (denominator)
The F-tabulated value from the statistical table at (3, 28) degrees of freedom and 5% level of significance is 2.93. Thus, the interpretations and conclusion are summarized in the table 4.3.2 below:

Table 4.3.2: Summary of F-Test

F-calculated Value	F-tabulated Value	Decision Rule	Conclusion
1569.724	2.93	Reject H_0	Significant

Source: *Researcher's Computation, 2022.*

From table 4.3.2 above, the F-calculated value (1569.724) is greater than F-tabulated value of 2.87. We therefore reject the null hypothesis (H_0) and conclude that the estimated regression model is significant. In other words, the p-value of the F-statistics (0.000000) which is sufficiently low (less than 0.05) is another indication that trade openness, credit to private sector and government expenditure have joint significant impact on economic growth as measured by Gross Domestic Product.

Testing of Hypotheses

In testing a hypothesis, Clarke (2003) noted that to reach decision about population on the basis of sample information, we make must certain assumptions about the population. Such assumptions which may or may not be true, are called statistical hypothesis. Thus, testing of hypothesis is concerned with the acceptance or rejection of an assumption made about an unknown characteristics. Our hypotheses testing in this study were carried out using the p-values from the regression results. The decision rule for accepting or rejecting any of the hypotheses (specifically the null hypothesis) is stated below:

i. Reject the null hypothesis (H_0) at 5% level of significance if the p-value is less than the alpha value of 0.05.
ii. Accept the null hypothesis (H_0) at 5% level of significance if the p-value is greater than the alpha value of 0.05.

Testing of Hypothesis One

H_{01}: There is no significant relationship between trade openness and Gross Domestic Product in Nigeria.

H_{A1}: There is a significant relationship between trade openness and Gross Domestic Product in Nigeria.

Interpretation One: The p-value for trade openness from the regression result as shown in table 4.3 is 0.0007 while the alpha value is 0.05. However, since the p-value (0.0007) is less than the alpha value (0.05), we therefore reject the first hypothesis and conclude that there is a significant relationship between trade openness and Gross Domestic Product in Nigeria.

Testing of Hypothesis Two

H_{02}: There is no significant relationship between credit to private sector and Gross Domestic Product in Nigeria.

H_{A2}: There is a significant relationship between credit to private sector and Gross Domestic Product in Nigeria.

Interpretation Two: The p-value for credit to private sector from the regression result as shown in table 4.3 is 0.0000 while the alpha value is 0.05. However, since the p-value (0.0000) is less than the alpha value (0.05), we therefore reject the second hypothesis and conclude that there is a significant relationship between credit to private sector and Gross Domestic Product in Nigeria.

Testing of Hypothesis Three

H_{03}: There is no significant relationship between government expenditure and Gross Domestic Product in Nigeria.

H_{A3}: There is a significant relationship between government expenditure and Gross Domestic Product in Nigeria.

Interpretation Three: The p-value for government expenditure from the regression result as shown in table 4.3 is 0.0016 while the alpha value is 0.05. However, since the p-value (0.0016) is less than the alpha value (0.05), we therefore reject the third hypothesis and conclude that there is a significant relationship between government expenditure and Gross Domestic Product in Nigeria.

Post-Estimation Tests

In order to accord some level of confidence to the finding, diagnostics tests were carried on the model. The results presented in table 4.4 enumerates that the model was subjected to autocorrelation, normality and heteroscedasticity tests:

Table 4.4: Post-Estimation Test

Test	Statistics	P-Value	Null Hypothesis	Decision
Jarque Bera (Normality) Test	0.754566	0.685585	**Ho:** Normal distribution	Accept H_0
Breusch-Godfrey Serial Correlation LM Test	2.065957	0.1470	**H_0:** No serial correlation	Accept H_0
Breusch-Pagan-Godfrey Heteroskedasticity Test	1.253205	0.1065	**H_0:** Homoscedasticity	Accept H_0
Ramsey RESET test	0.307733	0.7606	**H_0:** Correctly specified	Accept H_0

Source: *Researcher's Computation, 2022.*

The Jarque Bera (Normality) test result in Table 4.4 shows that the probability value (0.685585) is greater than 0.05 levels of significance which imply that the null hypothesis of Normal distribution cannot be rejected. Thus, this necessitates the acceptance of null hypothesis and therefore concludes that the model is normally distributed. Also, the Breusch-Godfrey Serial Correlation LM test result in Table 4.4 shows that the probability values (0.1470) is greater than 0.05 levels of significance which imply that the null hypothesis of no serial correlation cannot be rejected. Thus, this necessitates the acceptance of null hypothesis and therefore concludes that the model has no serial correlation problem. Also, the Breusch-Pagan-Godfrey heteroskedasticity test result in Table 4.4 shows that the probability values (0.1065) is greater than 0.05 levels of significance which imply that the null hypothesis of homoscedasticity cannot be rejected. Thus, this necessitates the acceptance of null hypothesis and therefore concludes that the model has homoscedasticity. This implies that relevant variables were not omitted.

Lastly, the Ramsey RESET test result in Table 4.4 shows that the probability values (0.7606) is greater than 0.05 levels of significance which imply that the null hypothesis of correctly specified cannot be rejected. Thus, this necessitates the acceptance of null hypothesis and

therefore concludes that the model is correctly specified. This implies that the functional form of the model is correct.

CONCLUSION

The study investigated the effect financial market integration on economic growth in Nigeria over the period of thirty-two years ranging from 1990 to 2021. The study designed and specified a multiple regression model to examine the individual and joint effects of the proxies of financial market integration (trade openness, credit to private sector and government expenditure) on economic growth in Nigeria (measured in Gross Domestic Product). The model was estimated by Ordinary Least Square technique using E-views 12 statistical package. The annual time series data used were collected from Central Bank of Nigeria (CBN) statistical bulletin and analyzed with the aim of achieving the stated objectives. The study found that trade openness, credit to private sector and government expenditures have individual and joint significant effect on economic growth in Nigeria. Based on the findings, the study therefore concluded that the financial market integration plays a significant positive role in the sustenance of growth of the Nigerian economy.

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