

THE IMPACT OF FINANCIAL DEEPENING ON ECONOMIC GROWTH IN NIGERIA (1986-2009)

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ABSTRACT

The aim of this study is to ascertain the influence of financial deepening on economic growth, and to examine the causal relationship between economic growth and financial development in Nigeria. The study used Quantitative research design and applied time series econometrics technique and ordinary least square regression model to estimate the relationship between financial deepening and economic growth, while controlling for other variables specified in the model. The study found that financial development over the years impacted significantly on economic growth in Nigeria; the growth of the financial depth is significant to economic growth even though it is relatively low over the years, and that economic growth causes financial development in Nigeria. The implication of the findings is that although the financial structure had enhanced the level of financial savings and thus affected the level of financial deepening positively, the financial system has not been efficient in resource allocation, especially credit allocation and a high level of monetization of the economy, and that the low level of financial deepening does not lie in the inefficiency of the liberalization theory, but on the macroeconomic inconsistencies that accompanied its implementation. It is therefore recommended that the financial liberalization policies be strengthened through effective and efficient regulation and supervisory framework to ensure good risk management, corporate governance and stemming of systematic crisis in the system.

Keywords: Financial Deregulation, Quasi-equity, Financial Deepening, Economic Growth.

INTRODUCTION

Background of the Study

For more than two decades after independence, the Nigerian financial system was repressed, as evidenced by high interest rate and credit expansion, selective credit policies, high reserve requirements, and restriction on entry into the banking industry. This situation inhibited the function of the financial system and especially constrained its ability to mobilize savings and facilitate productive investment. This situation led to the financial liberalization measures adopted with the introduction of structural adjustment program in 1986. Nzotta and Okereke (2009) assert that the link between financial sector stability and growth is explained by increased market depth, which potentially increase market efficiency and reduce risks through elimination of weak institutions.

The reforms in the financial system in Nigeria which heightened with the 1986 deregulation affected the level of financial deepening and the relevance of the financial system to economic growth and development. However, the rapid globalization of the financial market since then and the increased level of integration of the Nigerian financial system to the global system have generated interest on the level of financial deepening that has occurred (Nnanna and Dogo, 1998). The central focus is that a high level of financial deepening is a necessary condition for accelerating growth in an economy (Nzotta, 2004). Thus a high level of financial deepening should sustain and provide basis for moderate lending rates and high level of financial intermediation.

Opel (1990), Nnanna and Dogo (1998) and Nzotta (2004) maintain that financial deepening generally entails an increased ratio of money supply to Gross Domestic Product. Financial deepening is thus measured by relating monetary and financial aggregates such as M_1 , M_2 and M_3 to Gross Domestic Product (GDP). The logic here is that the more liquid money is available to an economy, the more opportunities exist for continued growth of the economy. Financial deepening encompasses the increase in the stock of financial assets or the ability of financial institutions in general to effectively mobilize financial resources for development (World Bank, 1994 cited in Nzotta and Okereke, 2009). This view accepts the fact that a financial system's contribution to the economy depends on the quality and quantity of its services and the efficiency with which it performs them.

Financial deepening is an outcome of real finance policy and the broadening of the market; hence it needs to be accompanied with appropriate policies for financial reforms and regulations to effectively contribute to economic growth and development of the economy. Thus, deepening the financial system and repositioning it for growth and integration into the global financial system in conformity with the international best practices remains the best approach to economic growth.

While the McKinnon-Shaw hypothesis of financial liberalization has been a subject of debate in the literature, little attempt has been made to examine its impact on financial development/financial intermediation and economic growth. It is therefore expedient to examine whether the significant switch in the regulatory regime generated substantial financial depth predicted by the financial liberalization paradigm, and the impact it has made on economic growth in Nigeria.

STATEMENT OF THE PROBLEM

The financial reforms since 1986 in Nigeria have evolved various strategies to encourage financial intermediation and mobilization of savings for investment which promotes economic growth and development. These reforms seek to act proactively to strengthen the market mechanism, remove systematic and financial crisis, ensure a more liberal financial system and increased financial depth. However, these policy shifts have not been able to adequately achieve the desired level of financial depth required for productive activities that will ensure efficient growth and development of the economy (Nzotta and Okereke, 2009). The inability of the financial system to effectively utilize the identified critical factors that affect the level of financial development and its relationship with economic growth and development has been observed as a problem.

Since the 1990s, a burgeoning empirical literature has illustrated the importance of financial sector development for economic growth. Despite the growing consensus, however, we find that the link between finance and growth has weakened considerable over time (Rousseau and Wachtel, 2007). At this time that financial liberalization spread around the world, the influence of financial sector development on economic growth has diminished. This however is the same in Nigeria where despite the financial liberalization policies put in place to encourage financial deepening, the financial depth over the years has remained relatively low (Nzotta, 2004). The index (M_2/GDP) which has become a measure of the financial deepening that has occurred has been the issue of theoretical debate on the ability of financial liberalization policies to effectively remedy the situation of low financial depth in Nigeria, hence the need for this study.

OBJECTIVES OF THE STUDY

The broad objective of this study is to examine the impact of financial deepening on economic growth in Nigeria.

The specific objectives of the study are:

- i. To ascertain whether the level of financial development in the financial system over the years have actually had significant influence on economic growth in Nigeria.
- ii. To ascertain if the financial deregulation aimed at enhancing the growth rate of financial depth (M_2/GDP) has had any significant impact on the level of economic growth in the country.
- iii. To examine the causal relationship between economic growth and financial development using respective indicators.

Research Hypotheses

To accomplish the objectives of the study, the following hypotheses were formulated.

- H_{01} : The level of financial development over the years has not positively impacted significantly on economic growth of Nigeria.
- H_{A1} : The level of financial development over the years has positively impacted significantly on economic growth of Nigeria.
- H_{02} : The growth rate of the financial depth (M_2/GDP) has had no significant positive impact on economic growth of the country.
- H_{A2} : The growth rate of the financial depth (M_2/GDP) has had significant positive impact on economic growth of the country.
- H_{03} : There is no significant causal relationship between the financial development indicators and economic growth.
- H_{A3} : There is significant causal relationship between the financial development indicators and economic growth.

VIEW OF RELATED LITERATURE

THEORETICAL FRAMEWORK

Financial repression is said to exist when government tax and otherwise distort their domestic financial market, keeping real returns on financial assets low and shifting the nexus of decision-making to the government (Fry, 1982; McKinnon, 1988 and Athukorala and Rajapatirana, 1993 cited in Anyanwu, 1995). The seminal works of McKinnon (1973) and Shaw (1973) to highlight the adverse effects of "financial repression" on economic growth.

Anyanwu (1995) outlines three principal channels through which the hypothesized negative effect of financial repression works. The first is the Shaw's "debt-intermediation hypothesis" whereby real deposit rates produce financial deepening resulting in a shrinking in the volume of institutional credit. The second is McKinnon's "complimentary hypothesis" whereby the process of self-finance within enterprise is reduced because low real yields on deposits increase the cost of accumulating the necessary money for investment in preparation for making future investment. The third is the postulation that low deposit rates of interest produce a bias in favour of current consumption and against future consumption resulting in lower savings and investment levels as compared with socially optimal levels, given the high money cost of saving behaviour.

Athukorala and Rajapatirana (1993) in Anyanwu (1995) assert that the remedy to financial repression is financial liberalization. In its conceptual framework "financial liberalization"/"financial deregulation" – keeping positive and more uniformly high real rates of interest within comparable categories of bank deposits and loans by removing undue reserve requirements, interest ceilings and mandated credit allocations on the one hand, and stabilizing the price level through appropriate macro-economic measures on the other. Thus, this McKinnon-Shaw financial liberalization paradigm concludes that, with such financial liberalization; savers and investors would better "see" the true scarcity price of capital, and hence reduce the great dispersion in the profitability of investing in different sectors of the economy.

The theoretical framework for this study is the financial liberalization theory. This theory explains the role of financial market in economic growth. McKinnon (1973) and Shaw (1973) introduced financial liberalization as a process and strategy to achieve faster economic growth and development. The implication of this theory therefore, is that financial deepening would contribute most significantly to economic growth, if monetary authorities did not interfere in the operation of the financial institutions and the financial structure generally.

VIEW OF EMPIRICAL STUDIES

Many studies have investigated financial deepening and economic growth in developing and developed countries and below are their views.

Adhikari and Khatkhat (1993) used correlation graph to examine the relationship between economic growth and financial intermediation for eleven African countries. Financial intermediation is measured by the ratio of currency, demand deposits, and time and savings deposits to GDP. They found no definite relationship between economic growth and financial intermediation for the countries either individually, or for the whole group.

Adhikari (1986) used cross-section analysis to estimate the correlation between financial deepening and economic growth by using data for 20 countries in Africa from 1969-1983. The degree of financial intermediation is measured using the ratio of monetary liabilities (M_1 , M_2 and M_3) to GDP. For the full sample, all the monetary liabilities are negative and only the ratio of M_3 to GDP is statistically significant. When the countries are split into high and low income countries, some of the coefficients of the monetary liabilities are positive while some are negative. However, they are all insignificant and offer no support to the growth enhancing capabilities of financial intermediation.

Adhikari (1992) used time series econometrics estimation to see how interest rate liberalization has affected economic growth in Kenya. The author used data from 1970 to 1989 and the results showed a negative and significant coefficient for the real interest rate. The sample was then split into two sub-periods: 1970-1979 and 1980-1989. The real interest had a negative and significant coefficient for the 1970-1979 periods, but was positive and significant for the period 1980-1989; thus offering no robust result of the effect of interest rate liberalization on growth.

Adhikari and Zeirjous (1998) in their study on financial deepening and economic growth in both developing and developed countries using the standard growth regression equation and fixed panel effect estimation model found out that financial deepening has a strong impact on growth as long as a country can avoid financial crisis and that financial deepening causes growth as long as the relationship is not exploited by

policy makers who try to take advantage of the benefits of financial deepening without adequate precautions in place.

Rousseau and Wachtel (2007) in their empirical work on growth-finance nexus of countries that have or have not experienced financial sector crisis for the period 1960 to 2003 and using the King and Levine (1993) growth regression model and panel estimator technique found out that: financial deepening has a positive effect on growth if not done in excess; rapid and excessive deepening as manifested in a credit boom can be problematic even in the most developed markets because it can weaken the banking system and bring inflationary pressures; and the finance-growth relationship remains once financial crisis episodes are removed from the system.

Anyanwu (1995) studied Structural Adjustment Program, Financial Deregulation and Financial Deepening in sub-Saharan African economies for the period 1960-1992 using the ordinary least square and two stage least square regression model with the panel fixed effect estimator technique, found out that interest rate deregulation did not positively affect financial deepening as predicted by the McKinnon-Shaw paradigm. The results rather suggest that the lackluster performance of the financial deregulation comes principally from its half-hearted nature and macro economic policy inconsistencies that accompanied its implantation.

Erdal, Okan and Behiye (2007) studied Financial Development and Economic Growth: Evidence from Northern Cyprus. Using the Ordinary Least Square Estimation Method (OLSEM) and fixed and dynamic effect estimation technique found out that there is a negligible positive effect of financial development on economic growth of Northern Cyprus.

Nzotta and Okereke (2009) investigated financial deepening and economic development in developing countries for the period of post financial reforms in Nigeria. Using the stepwise ordinary least square and two stage least square regression models, the study revealed that there is a significant relationship between financial deepening and economic development.

Ndebbio (1998) carried out a study on financial deepening, economic growth and development using evidence from selected sub-Saharan African countries. Using the standard growth equation, two stages least square regression model and panel fixed effect estimation technique, found out that there is a significant relationship between financial development and economic growth.

ANALYSIS OF THE FINANCIAL LIBERALIZATION POLICIES AND FINANCIAL MARKET DEPTH IN NIGERIA

Prior to the introduction of Structural Adjustment Program (SAP) in Nigeria in 1986, the Nigerian financial sector was characterized by fixed and relatively low interest rates, mandatory sectoral allocation of bank credits, and quantitative ceilings on bank credit to the private sector, all of which engendered distortions and inefficiencies.

With the introduction of SAP, financial liberalization measures were adopted, including the deregulation of the foreign exchange market, the deregulation of interest rates, rationalization of credit controls, liberal licensing of new banks, and institutional and regulatory changes (Ogwuma, 1993). Financial deregulation as used here refers to the deliberate and systematic removal of regulatory controls, structures and operational guidelines which may be considered inhibitive of orderly growth, competition and efficient allocation of resources in the financial system (Ojo, 1991). The principal aim were to stabilize the economy in the short run, induce the emergence of a market-oriented financial sector for effective mobilization of financial savings and efficient resource allocation, to increase competition, strengthen the supervisory role of the regulatory authorities and streamline public sector relationship with the financial sector.

Popiel (1990) analyzes the Nigerian financial market depth from the qualitative point of view and argued that the financial markets are deep, if the following are obtainable:

- i. That the domestic financial markets must be linked together through various financial institutions or instruments who function as market maker or intermediaries.
- ii. That the financial market must encompass a diversity of sub-markets trading in different financial instruments.
- iii. That the domestic financial markets must be mature and integrated into the international financial market.
- iv. Finally, the financial market must offer savers and investors a broad range of financial instruments, which differ in terms of liquidity, yield, maturity and level of risks, including debts, equity and in between quasi-equity instruments.

Nzotta (2004: 191) opines that the Nigerian financial market depth is shallow and supported his opinion by conclusively arguing as follows:

- i. That the range of financial instruments are limited and dominated by government securities in terms of volume.
- ii. There are limited linkages in the market and information is constrained by various institutional structures and factors.
- iii. There is virtually a limited integration of the domestic financial markets with the international financial markets, and
- iv. Even though the reforms in the financial markets have not enhanced the number of market participants, the level of their efficiency has not improved significantly, thus, constraining the intermediation process.

PROBLEMS OF FINANCIAL DEEPENING IN DEVELOPING COUNTRIES

From the empirical studies available, the following has been adduced as the reasons why financial deepening is poor in developing countries.

Ju and Wei (2007) contend that the low level of foreign direct investments, shallow capital market, distortions in interest rate, and weak association between financial openness and financial deepening are the factors responsible for poor financial deepening in developing countries.

Nzotta (2004) identifies the low level of corporate governance in financial institutions as one of the problems that have sustained poor financial deepening in the system. He however argued that in a world of frictionless capital market and various country risks, the least developed financial system in completely bypassed by international fund flows.

Furthermore, Yan (2007) states that a developing country with a poor financial infrastructure may experience large outflow of foreign capital which in real terms sustain poor financial deepening.

Anyanwu (1995) attributes the macro-economic policy inconsistencies that accompanied implementation of liberalization policies such as high and unstable exchange rates, huge and high fiscal deficits and high inflation rates which according to him operate through the interest rate variables and inflation rate to constitute hurdles for the financial deepening in Nigeria. Villanueva and Mirakhor (1990) attributed the problem of poor financial deepening to macro-economic instability and inadequate bank supervision.

FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH

Even though a growing body of work reflects the close relationship between financial development and economic growth, it is possible to encounter especially empirical researches evidencing all possibilities as positive, negative, no association or negligible relationship. In this respect, it is important to establish the relationship between financial development and economic growth in Nigeria by conducting empirical analysis.

Since the seminal work of Patrick (1966), which first postulated a bi-directional relationship between financial development and economic growth a large empirical literature has emerged testing this hypothesis. Two trends in this literature can, however, be identified. The first, testing the relationship between economic growth and financial development, frequently adopts a single measure of financial development and test the hypothesis on a number of countries using either cross section or panel data techniques (Demetriades and Hussein, 1996). The second trend in the empirical literature is to examine the hypothesis for a particular country using time series techniques (Odedokun, 1996; Agung and Ford, 1998; and Wood, 1993).

Other empirical studies on financial development and economic growth include Levine and Zervos (1998), Rousseau and Wachtel (2007), and Ndekwa (1998). Thus, financial deepening needs to be accompanied with appropriate policies for financial reforms to effectively contribute to economic growth and development of the country.

The studies by McKinnon and Shaw (1973) observed that financial repression is correlated with sluggish growth in developing economies. Such countries, according to Nnanna and Dogo (1998) are typically characterized by high and volatile inflation, distorted interest and exchange rate structures, low savings and investments and low financial intermediation, as interest rates do not reflect the cost of capital. Various studies investigated the relationship between financial system structure and development and the level of economic growth in Nigeria. These studies include Akinola and Akinola (2007), Ayida (2007), Ndebbio (1998) and Oyejide (1994).

The studies relied on money market indicators and established a positive and significant relationship between financial development and economic growth.

EFFECTS OF FINANCIAL REFORMS ON DEVELOPING COUNTRIES

Through the removal of the elements of financial repression, particularly controlled interest rates, financial sector reform is expected to lead to higher nominal and real interest rates. This is the postulate of the McKinnon-Shaw hypothesis. A higher real interest rate encourages people to substitute consumption for savings (the substitution effect). On the other hand, the higher interest income on savings makes savers to achieve their savings target with lower stock of savings (the wealth or income effect). The two effects operate in opposing directions and the net outcome would depend on which one that dominates. The underlying logic of McKinnon-Shaw doctrine is that the substitution effect would outweigh the wealth effect. Financial savings will further be boosted by a shift in the savers wealth portfolio from non-financial assets to financial assets (asset substitution effect).

Contrary to McKinnon-Shaw premise, the increased real interest rate may not necessarily lead to improved private savings. In very poor countries for instance, the level of income could be so low that households spend very high proportion of their earnings on basic needs. In such a case, even with high real interest rates, very little (if any) proportion of income could be saved. This implies that the McKinnon-Shaw proposition would therefore be more relevant in rich nations. A recent study of this proposition (Ogaki, Ostry and Reinhart, 1996) found that 10% rise in real interest rate leads, in the long-run, to a 66.7% rise in savings in high income countries but only 10% rise in very low income countries. This basic needs explanation and even the tendency for dissaving in Africa might explain the insensitivity of savings to real interest rates in some African countries (Oshikoya, 1992 for the case of Kenya).

Also, in an under-banked economy, where the financial market are rudimentary, with large size of financial intermediation taking place in the informal sector, savings may not be sensitive to real interest rates. The informal financial sector is of course large in most of sub-Saharan Africa (Aryeetey and Udry, 1994). For savers who operate in the formal financial sector, a history of government interference in the deposit market or growing incidence of bank distress could scare them from saving in financial instruments despite the lure of rising real interest rate. Also, innovations in financial products following financial liberalization, such as consumer credit could induce a rise in the consumption habit of people, thereby reducing their savings (a liquidity effect).

Even when financial reforms lead to increased savings, it may not promote growth. The use to which savings is committed is an important linkage. Economic activities would be stimulated if more of the growth in savings is channeled to the productive activities. On the contrary, the gains to economic growth through increased credit to the private sector would be sidelined if the increased savings is used to finance public sector deficit (Wijnbergen, 1983). Also, if the increase in interest rate is excessive, the lending portfolio of banks could become riskier just as firms would face harder times in meeting interest and capital repayment commitments. Baring some of these possible developments, financial liberalization would naturally improve the financial intermediation process and lead to more investment, productivity and increased economic growth (McKinnon, 1988).

Measures of financial sector development are used to assess the effectiveness of financial reforms. Some of these measures according to (Biscat, Johnson and Sundarajan, 1992) are as follows:

- i. The growth of private financial asset as measured by M_2/GDP , which indicates the liquidity position of the financial system. Their growth rates and ratio to GDP show the degree of monetization and financial market development.
- ii. The flow of credit to the private sector from the financial institutions.
- iii. The growth of financial institutions credit to the private sector relative to the growth of private deposits with financial institutions.

Other general indices used to assess the performance of the financial system and the effectiveness of liberalization policies include, the trend of real interest rates, real GDP growth rates, number and types of institutions, and the spread between lending and deposit rates which show the efficacy of the financial intermediation process.

METHODOLOGY

Research Design

This research used the Quantitative research design. A set of regression estimation techniques was applied to resolve the three hypotheses stated with the aim of examining the relationship between financial deepening and economic growth in Nigeria. This type of design was used for a similar study by Odedokun (1996) for Nigeria, Lyon and Murinde (1994) for Ghana, Agung and Ford (1998) for Indonesia, and Wood (1994) for Barbados. Given the secondary nature of the study, the population shall be taken to be all the deposit money banks that operated in the country from 1986 to 2009. The data generated from the CBN and Federal Bureau

Statistics repositories are believed to cover all the deposit money banks in operation over the period under review. Hence, the sample of the study shall be taken to be the same with the population of the study. This period chosen for the study encompasses the phases of major reforms in the financial system and the period of consolidation of banking and insurance in Nigeria.

Model Estimation and Analysis

In this study, the association between financial deepening and economic growth is measured by using the functional specification of Rati Ram (1999) which was slightly modified to growth model of Odedokun (1996) and King and Levine (1993). It was also used by Rousseau and Wachtel (2007).

This model estimates that:

$$Y_t = \beta_0 + \beta_1 F_t + \beta_2 X_t + \mu_t \quad \text{--- (1)}$$

Equation (1) above is the standard growth equation.

Y_t = The growth rate of real per capita GDP.

F_t = A measure of financial sector development

X_t = A set of baseline explanatory variables that have been shown to be robust determinants of growth.

The above model was modified and estimated as follows:

$$Y_t = \beta_0 + \beta_1 M_2/GDP_t + \beta_2 PSC_t + \beta_3 IY_t + \beta_4 GX_t + \beta_5 INF_t + U_t \quad \text{--- (2)}$$

Y_t = Per Capital Gross Domestic Product i.e the dependent variable.

M_2/GDP = the ratio of Broad Money Supply to GDP

PSC = the ratio of credit to the private sector

IY = the ratio of domestic investment to GDP.

GX = the trade Openness (i.e ratio of Import + Export/GDP).

INF = Inflation rate (Annual).

U_t = Error or disturbance term.

t = Time series (Annual).

β_i = Beta coefficients.

To determine the consistency of the effects of financial deepening on economic growth in Nigeria, lagged values of the variables were included in the regression estimation of equation (2) above. This gave rise to equation (3) below.

$$Y_t = \beta_0 + \beta_1 LM_2/GDP_t + \beta_2 LPSC_t + \beta_3 LIY_t + \beta_4 LGX_t + \beta_5 LINF_t + \mu_t \quad \text{--- (3)}$$

However, due to the identified violations of the Ordinary Least Square (OLS) regression assumptions for normality and presence of heteroscedasticity in the model equation specified, some acceptable transformation of the parameters was carried out.

Model Validity and Reliability

Certain fundamental assumptions are expected to be met for the results of a multiple Ordinary Least Square (OLS) regression and the specified model to be adjudged efficient. These assumptions have to do with the normality of the estimation model and the independence or distribution of the arising error term. Error terms are said to be independent if the population covariance of the error term is distributed independently. The F-test is used to test the significance of the joint explanatory variables. The T-test is used to test the significance of the contributions of the individual explanatory variables in the model specified. The Durbin-Watson test at $(du < 4-du)$ confirmed the absence of auto correlation. The test for heteroscedasticity for constant variable indicates that the distribution is normally distributed.

Techniques of Data Analysis

Before equation (3) can be estimated, the time series properties of the variables need to be discovered. For instance, are the variables stationary in levels or first difference? To test whether each variable is non-stationary, we perform the unit root test on the variables or test of the order of integration of each series. This unit root test is evaluated by Dickey-Fuller (DF) test and the Augmented Dickey-Fuller (ADF) test. Olayinka (1995) asserts that the essence of unit root test is to allow both the levels and first difference of the relevant variables to enter financial deepening regression and at the same time avoid spurious regression, yielding accurate policy-oriented results.

The statistical descriptive test was used to identify the characteristics of the research data generated. Such statistics include the mean, standard deviation and correlation coefficient. The F-test was used to test for the linearity assumption at 5% level of significance. The t-test was used to test the significance of each of the selected individual independent variables in the model.

The Durbin-Watson test was used to test for auto-correlation and integration of variables in the model. The coefficient of the parameters was validated on theoretical criteria. The R^2 was used to measure the degree to which the explanatory variables are responsible for the change in the dependent variable while the adjusted R^2 was used to measure the goodness of fit as a result of addition of explanatory variable.

The Granger Causality test was used to test for the causal relationship between economic growth and financial development. The null hypothesis and the t-values of each variable were used to establish the causal relationship. This approach was used by Erdal, et al., (2007) to study financial development and economic growth in Northern Cyprus.

To test the validity of each of the three hypotheses, the research considered the t-values, sign and size of each of the selected independent variables. Essentially, the decision rule is to conclude the existence of significant relationship between the dependent and independent variables if the t-values is significant at 5% level of significance.

The results based on equation 3 above are used to test the research hypotheses specified. This decision is based on the advice of Kennedy (2003) that the t-test approach can be used as a hypothesis test technique on estimates of each of the parameters in an OLS model. Therefore, each of the hypotheses was tested based on the following factors:

- The sign and size of the Beta coefficients of each parameter or variable.
- The value of the t-test

The statistical package called the Regression Analysis of Time Series (RATS) was used to run the regression.

RESEARCH FINDINGS

Descriptive Results

The unit root test evaluated by ADF-test subjected the dependent and independent explanatory variables to separate stationarity test. The descriptive results compare the statistical averages and standard deviations of the selected parameters over the period 1986 to 2009. The correlation results explain the theoretical relationship between the dependent and independent variables. The Granger Causality test results explain the causal relationship between financial development and economic growth. The descriptive statistics as reported in table 1 below shows the unit root test (stationarity test) of the research variables which was evaluated using the ADF test. As can be seen from the table 1, while some of the variables are stationary (inflation), others are non-stationary. Those non-stationary time series are co integrated in same difference and the regression is not spurious. We analyze and make comment by using regression t-test. Co integration test result show that series individually exhibit random walk $I(1)$, there seem to be a stable long-run relationship between random variables.

Table 1: Unit Root Statistics

Variable	ADF Test Result	McKinnon Critical Statistic	Order of integration $I[1]$
GY	-4.425**	(-3.922/-3.065/- 2.674)	
M ₂ /GDP	-4.412**	(-3.922/-3.065/- 2.674)	1(∞)
PSC	-4.323**	(-3.922/-3.065/- 2.674)	1(∞)
IY	-3.164**	(-3.922/-3.065/- 2.674)	1(∞)
GX	-3.153**	(-3.922/-3.065/- 2.674)	1(∞)
INF	-2.882*	(-3.922/-3.065/- 2.674)	1(∞)
			0(∞)

Note: Values within the () are McKinnon critical values according to 1%, 5% and 10% significant values respectively. $I[1]$: integrated of order 1, /** ADF stationary at first difference, /* ADF stationary at level.

ADF Equation

$$\Delta Y_t = \alpha + \alpha Y_{t-1} + \sum k_s \Delta X_{t-s} + n_t$$

Where,

Y_t = pertinent variable, n_t = a random disturbance term,

K = number of lagged changes in Y_t necessary to make n_t serially uncorrelated. Thus, if $\alpha < 1$, then Y_t is stationary series but if $\alpha > 1$, then Y_t has a unit root and is non-stationary.

Table 2 indicates the mean values and the standard deviation of the estimation parameters. It shows that the Per Capita Gross Domestic Product (GY) stand at average of 32%. This indicates that the per capita income in Nigeria is low and this probably constraints savings with effect that investment is stifled. The standard deviation of 4.93 indicates that the per capita GDP was relatively uniform over the period between 1986 and 2009. This however reflects the standard of living in Nigeria.

The broad money supply to GDP (M_2 /GDP) averaged 29%, and this indicates a low level of financial depth, which probably may be due to the existence of informal financial sectors and low level of financial intermediation/development in the financial system. The low standard deviation of 1.88% possibly indicates that the persistent cases of distress and failure in the banking system may have eroded the benefits of the advancements in financial development over the period.

The growth rate of Private Sector Credit (PSC) averaged 21.8% over the period. This demonstrates the high premium placed on the private sector as the engine of economic growth. The private sector credit however, has not been translated to significant economic growth. The low standard deviation of 1.94 indicates that unstable economic environment and distortions in inflation and interest rates variable must have accounted for its abysmal contribution to economic growth.

The ratio of domestic investment to GDP (IY) averaged 18.56% over the period. The standard deviation stands at 7.40%. The average investment ratio appears to be high, but its impact on the GDP is relatively low. This could be as a result of low rate of investment in the real sectors of the economy. It is only investment in real sectors of the economy that will generate the needed economic growth required.

The openness of the economy measured as import + export to GDP averaged 66.90%. This shows that trade openness is high and that measures be put in place to encourage a healthier exchange rate system and competitive global business climate. However, a high standard deviation of 28.94% indicates a high fluctuation of values of trade openness parameters such as exchange rates, interest rates and inflation rate.

The rate of inflation averaged 22.61% over the period. However, a high standard deviation for the inflation parameter is an indication that there was very significant and noticeable fluctuation in the level of inflation over the years. It is possible that such volatility could account for the recorded level of economic growth in the country.

Table 2: Descriptive Result on Estimation Parameters

Variables	Observation	Mean	Standard deviation	Min.	Max
GY	22	0.32	4.93	-15.8	20.15
M_2 /GDP	22	0.29	1.88	-3.31	3.94
PSC	22	2.18	1.94	0.01	5.00
IY	22	18.56	7.40	3.38	59.73
GX	22	66.90	28.94	6.32	153.95
INF	22	22.61	15.67	0.81	181.60

Source: Regression Analysis of Time Series (RATS)

Results of the Correlation Analysis

A correlation matrix of the independent variables as presented in table 3 reveals that, at 93.2% and 61.4% respectively, the financial development measures (M_2 /GDP and PSC ratios) have significant positive correlation with the per capita gross domestic product (GY) at 5% level. Also the domestic investment to GDP ratio (IY) at 35% has significant positive correlation with GY at 5% level. While trade openness (GX) is negatively correlated, inflation rate is positively correlated with per capita gross domestic product (GY). This leaves a theoretical impression that growth in investment rate and financial sector development translates to economic growth as measured by GY.

Among the independent variables, only the measures of financial development (M_2 /GDP and PSC ratios) and domestic investment ratio have significant correlation relationship. This correlation results however could be interpreted to mean very less presence of multicollinearity in our choice of parameters. This result is however subject to empirical examination.

Table 3: Correlation Matrix Results on the Relationship among the Estimation Variables

	GY	M ₂ /GDP	PSC	IY	GX	INF
GY	1.000					
M ₂ /GDP	0.932**	1.000				
PSC	0.614**	0.435	1.000			
IY	0.351**	0.025	0.041	1.000		
GX	-0.025	-0.022	-0.014*	0.045	1.000	
INF	0.036	-0.044	0.024*	-0.243	-0.052	1.000

Note: ** significant at 5% level, * significant at 1% level.

DISCUSSION OF REGRESSION RESULTS

In this section, the results from the validated model (equation 2) are presented hereunder and used to test the research hypotheses. To describe the usefulness and efficiency of the Ordinary Least Square (OLS) regression model adopted in the study, the F-values, R² and adjusted R² are examined. The F-values are used to test the significance of the whole regression model while the t-test is used to test the significance of the individual parameters in the model at 5% level of significance respectively. The R² is used to measure the degree to which the explanatory variables are responsible for the change in the dependent variable while the R² adjusted measures the goodness of fit as a result of the addition of explanatory variables. The regression results are based on table 4 and 5. From table 4, the F-test (F5, 16) at 5% level of significance is 18.546. This means that the model provided very significant explanation as to the relationship between economic growth and other independent variables specified. The R²-statistics of 93.2% shows that 93.2% of the changes in economic growth might be explained by the measures of financial sector development and other independent variables specified in the equation. The adjusted R² of 87.4% show that only 12.6% change in the estimated model could be accounted for by the addition of other explanatory variables. The Durbin Watson statistics of 1.555 shows the absence of serial correlation in the regression model or autocorrelation among the residual errors. Hence, the problem of multi-collinearity is non-existent in the model. Table 5 is used to discuss the result of the causality relationship between financial development and economic growth. One of the objectives of this work is to examine the causal relationship between economic growth and financial development. The null hypothesis, t-statistics and P-values of each variable are shown in table 5. The test result shows that GY granger causes M₂/GDP, PSC and IY at 5% significance level. GY M₂/GDP, GY PSC and GY IY. There is causal relationship between GY, M₂/GDP, PSC. Economic growth indicator causes financial development indicators M₂/GDP and PSC. Also, there is no causal relationship between GY, GX and INF. The causality test also reveals that the t-values of M₂/GDP, PSC and IY corresponding to 4.384, 3.239 and 2.985 respectively are significant at 5% level of significance.

Table 4: Estimation Result

Variable	Coefficients	Std Error	T-Statistic
Constant	-11.005	7.158	-1.538
M ₂ /GDP	0.092	0.528	2.985
PSC	0.204	0.070	2.894
IY	0.789	0.450	2.724
GX	0.016	0.045	1.752
INF	-0.018	0.032	-0.555

R² = 0.932

Adj. R² = 0.874 →

→

→

F_{0.05} (5, 16) = 18.546

Durbin Watson statistics = 1.555

DF = 22.

Table 5: Granger Causality Test Result

Null Hypothesis	Causal Inference	T-Statistic
M ₂ /GDP does not granger cause GY	Accept Ho	4.384**
GY does not granger cause M ₂ /GDP	Reject Ho	0.046
PSC does not granger cause GY	Accept Ho	3.239**
GY does not granger cause PSC	Reject Ho	1.051

Y does not granger cause GY	Accept H_0	2.985
Y does not granger cause IY	Reject H_0	0.254
YX does not granger cause GY	Accept H_0	0.019
Y does not granger cause GX	Accept H_0	0.003
YF does not granger cause GY	Accept H_0	0.123
Y does not granger cause INF	Accept H_0	0.232

Note: *5% level of significance. Critical t-value = 2.101

Test of Research Hypotheses

Basically, this study adopted the ordinary least square regression coefficients and the values of t-statistic as the basis for testing the hypothesis. Kennedy (2003) noted that t-test assesses whether the individual contributions of the explanatory variables are significant, and hence can be used as a basis for testing the hypothesis on the relationship between the dependent variable and the exogenous and control variables. Table 4 and 5 are thus used to assess the acceptability or otherwise of the hypothesis.

Hypothesis I

H_{01} : The level of financial development over the years has not positively impacted significantly on economic growth.

H_{A1} : The level of financial development over the years has positively impacted significantly on economic growth.

Test Statistics

The test statistics chosen are:

- The sign and size of beta coefficients for the financial development variables (M_2/GDP and PSC).
- The size of the t-statistic.
- The probability of the t-statistic (P-values).

The estimation is accepted at 5% level of significance.

The Decision Rule

The null hypothesis is rejected if the t-values of the arising coefficients of the financial development variables at 5% level are significant.

Results

From table 4 above, the beta coefficients of the financial development variables (M_2/GDP and PSC) are 0.092 and 0.204, while the t-statistic is 2.985 and 2.894 at 5% level of significance. It is significant and positive, and agrees with the alternate hypothesis.

Based on the results, we reject the null hypothesis, and accept the alternate hypothesis and conclude that financial development measured by M_2/GDP and PSC have indeed had significant positive impact on economic growth in Nigeria.

Hypothesis II

H_{02} : The growth rate of the financial depth (M_2/GDP) has had no significant positive impact on economic growth.

H_{A2} : The growth rate of the financial depth (M_2/GDP) has had significant positive impact on economic growth.

Results

The test result as contained in table 4 above indicates that the beta coefficient is 0.092 and the t-statistic is 2.985. This indicates a lack of support for the null hypothesis and acceptance of the alternate hypothesis. It leads to a conclusion that even though the growth rate of the financial depth has been relatively low over the years, it still has significant impact on economic growth.

Hypothesis III

H_{03} : There is no significant causal relationship between the financial development indicators and economic growth.

H_{A3} : There is significant causal relationship between the financial development indicators and economic growth.

Results

The granger causality test result presented in table 5 suggests that the direction of causality is from economic growth to financial development. It indicates that there is a causal relationship between GY and M_2/GDP , PSC and IY. This means that economic growth indicator (GY) causes financial development indicators M_2/GDP and PSC at 5% level of significance. There is no causal linkage between economic growth, trade openness and inflation rate. It therefore leads to conclusion that economic growth causes financial development in Nigeria. Hence we accept the alternate hypothesis that there is a significant causal relationship between financial development and economic growth in Nigeria.

Results with the Control Variables

Other explanatory variables in the estimation model are inflation and baseline economic growth variables (domestic investment/GDP ratio (IY) and import + export/GDP (GX)). From table 4, ratio of domestic investment to GDP (IY) has a beta coefficient of 0.789 and a significant t-value of 2.724 at 5% level of significance. This implies that investment is an integral element of economic growth. Both inflation and trade openness has no significant relationship with economic growth, though there is a statistical relationship.

From table (5), the Granger Causality test indicates that there is a causal relationship between economic growth (GY) and domestic investment ratio (IY). The investment ratio is significant at 5% level of significance with a t-value of 2.985. However, both inflation (INF) and trade openness (GX) are not statistically significant because the t-values are below the critical t-value of 2.101 at 5% level of significance.

DISCUSSION OF RESEARCH FINDINGS

Relationship between Financial Development and Economic Growth

The regression results indicate that financial development is positive and have significant relationship with economic growth in Nigeria. The financial development variables (M_2/GDP and PSC) all had significant positive relationship at 5% level of significance. The R^2 result of 0.932 indicates that only 6.68% of the change in the dependent variable could be accounted for by other variables not included in the model estimation. The significant nature of the financial development variables confirms the importance of the level of financial system development in economic growth as demonstrated by McKinnon (1973) and Shaw (1973) in their financial liberalization theory. The significant relationship also confirms the efficacy of financial liberalization measures and consolidation programmes in the financial system that have been adopted in Nigeria over the years. This result conforms to the findings of Ndebbio (2004), Odedokun (1996) and King and Levine (1993) which considers the level of financial system development as a critical element of economic growth.

The result however is in sharp contrast with the findings of Erdal, et al., (2007) that financial development has a negligible effect on economic growth in Northern Cyprus.

Relationship between Financial Depth and Economic Growth

The result of the relationship between financial depth (M_2/GDP) and economic growth as replicated in research hypothesis two, confirms that financial deepening has positively and significantly impacted on economic growth. The implication of this result is that although the financial liberalization paradigm has encouraged financial system development; its effect has not been translated to efficient financial intermediation (Nzotta and Okereke, 2009). This is evident from the fact that the loan to deposit ratio has not relatively enhanced increased savings and investment. Rousseau and Wachtel (2007) suggest that direct finance and inflation may have contributed to the perception of increased financial depth in developing countries. The result however agrees with the study by Nzotta and Okereke (2009) and Nnanna and Dogo (1998) that financial deepening impact positively on economic growth. However, this result contrasts with Anyanwu (1995), which concluded that, the McKinnon-Shaw financial liberalization paradigm negatively affect financial deepening in Nigeria. According to him, the financial liberalization measures working through the interest variables and inflation rate has constituted hurdles for financial deepening, thus constraining economic growth in Nigeria.

Causal Relationship between Financial Development and Economic Growth

The Granger Causality test was carried out to determine the causal relationship between economic growth and financial development. The results of hypothesis three show that there is a causal relationship between economic growth and financial development measured by M_2/GDP and PSC. This means that whereas economic growth causes financial development, financial development does not cause economic growth. This is supported by the fact that the financial development variables are statistically significant as their

calculated t-values are higher than the critical t-values of 2.101 at 5% level of significance. The results agree with the findings of Erdal, et al., (2007) that even though there is a negligible positive effect of financial development on economic growth; financial development does not cause economic growth.

Relationship between Economic Growth and other Explanatory Variables

The relationship with the explanatory variables reveals that the ratio of domestic investment is positive and significant to economic growth. This could be interpreted to mean that domestic investment is a major factor in economic growth. The ratio of trade openness (GX) is positive and insignificant. This could as well be interpreted to mean that the financial system credit to the private sector was not directed to the real sectors of the economy; hence the low level of trade openness and its insignificance to economic growth. The inflation rate is negative and insignificant. This result means that inflation may not be a major factor in economic growth and financial development.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

SUMMARY OF RESEARCH FINDINGS

The result emanating from the descriptive analysis reveal that the per capita GDP ratio is low as its average stands at 32% with a standard deviation of 4.93%. This gives an impression that the per capita GDP is relatively uniform and low over the years under review. The financial depth averaged 29% with a standard deviation of 1.88%. This shows that the financial depth is low. The private sector credit averaged 21.8% with a standard deviation of 1.94%. This is a case of low rate of investment in the real sector of the economy.

Based on the objectives of the study and the stated hypotheses, three empirical results emerged. The conclusion arising from the test of hypothesis one shows that financial development (M_2/GDP and PSC) have indeed had a significant impact on economic growth. The beta coefficients are 0.092 and 0.204, t-statistics are 2.985 and 2.894, while P-values are 0.010 and 0.012 respectively. The significant positive relationship indicates that the more developed the financial system, the more opportunity exists for continued economic growth.

Results from hypothesis two conclude that the growth rate of financial dept (M_2 /GDP) has a significant impact on economic growth. The beta coefficient is 0.092, with t-statistic of 2.985 and probability value of 0.010. This positive and significant relationship indicates that even though the growth of the financial depth has been relatively low over the years under review; the McKinnon – Shaw financial liberalization paradigm have actually positively affected financial deepening in Nigeria.

The Granger Causality test was used to test the causal relationship in hypothesis three. The test results conclude that economic growth causes financial development. The t-statistics are 4.385 and 3.239 with P-values of 0.051 and 0.092 for M_2/GDP and PSC respectively. This result indicates that economic growth (GY) granger causes financial development (M_2/GDP and PSC) at 5% level of significance.

CONCLUSION

This study set and equally achieved three research objectives. From the research findings, the study has yielded empirical evidence and thus concludes that financial development has indeed impacted significantly on economic growth; that the growth rate of the financial depth has had significant impact on economic growth; and that there is a significant causal relationship between economic growth and financial development.

From the analysis done in this study, we can conclude that the level of financial deepening has remained relatively low in spite of the various reforms and institutional changes put in place by the monetary authorities. The study also concludes, based on the granger causality test, that economic growth causes financial development in Nigeria. This is reminiscent of Robinson (1952) that economic growth is the prime mover behind financial development.

Finally, the causality test result does not however dispel the fact that financial development is significant to economic growth in Nigeria. The study therefore submits that liberalizing the financial markets to enhance financial deepening promotes economic growth.

RECOMMENDATIONS

Based on the research finding and the implications, the following are recommended:

- i. From the foregoing, it is recommended that there is an urgent need to sustain a higher level of macro-economic stability in Nigeria, ensure that credit to the private sector are channeled to the real (productive) sector of the economy, ensure that the informal financial sector is integrated into the formal financial sector, and ensure enhanced level of corporate governance in the

financial system. This obviously will ensure increased financial system performance and development, and economic growth.

- ii. This study also recommends that the liberalization policies be strengthened through effective supervision and regulatory framework of the financial system by the monetary authorities. Hence, continuous financial reforms that will achieve the desired macroeconomic stability, increased private sector credit and investment to boost economic growth are advocated.
- iii. Finally, it is recommended that there is need for increase in level of per capita income if the McKinnon-Shaw financial liberalization paradigm is to work efficiently in developing countries like Nigeria.

If this is done and the increase in income is saved and invested in productive activities, then economic growth will be promoted and financial intermediation improved.

Suggested Areas for Further Studies

The suggested areas of further research are:

- The impact of corporate governance on financial deepening in Nigeria.
- Financial markets innovations, financial deepening and economic development-The Nigerian experience.

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