Financial Development and Economic Growth in Nigeria

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Abstract

The study empirically evaluates the impact of financial development on economics growth in Nigeria. The paper employed annual times series data spanning through a period of 43 years (1970 to 2012). The finding of our study suggests that the theoretical modelling requirements for all the variables used in the regression satisfy the statistical requirements which determine the choice of our model. The result of the co-integration estimates in the study revealed that the selected independent variable used in this study explains long-run relationship between financial development and economic growth between the period under consideration. The result from the estimated long–run Parsimonious Error Correction Model (ECM) shows that all the variables used in the study were statistically significant. The study also reveals that lending rate did not conform to our theoretical expectation but impacts significantly on gross domestic product. Commercial bank credit to private sector has the expected a priori expectation sign and also positively affected financial development and economic growth in our study. Contrary to our expectation, MGDP negatively influenced financial development and economic growth in Nigeria. The study also indicates that commercial bank credit to non-financial private firm did not conforms to a priori expectation but significantly influenced or stimulated financial development and economic growth in the Nigerian economy. The ratio of commercial bank deposit to gross domestic product (RDEP) appeared with the right sign and also impacts significantly on financial development and economic growth in Nigeria. The evidence from our study shows that the entire model is stable within the period of study. We therefore recommend that monetary authorities should endeavour to make policies that will impact positively on the overall growth of the economy. The significant impact of lending rate on GDP does not no mean that government embark on policies measures that would improve lending rate but focus policies that would lead to employment generating, increase in income as well as conducive atmosphere for businesses to operate. Given the strong positive evidence of bank credit to private sector, government should make policies as well as provide a conducive business environment that would ensure banks provide more credit to private sector (loans) for businesses, who will invest such funds for productive purposes that will yield the desired or required return and this will lead to an improvement in the GDP growth.

Keywords: Financial development, Economic growth, ECM, Stability, Granger causality.Classification Code: C22, C87, E44, F62, O47

Introduction

A key characteristic of sub-Saharan Africa countries is that the stock of bank credit to the private sector (particularly non-financial public enterprises have remained low; when compared to the situation in other developing countries. This reflects low financial intermediation as measured by the ratio of broad money (M2) to GDP, the level of commercial bank credit to the private sector, and the presence of key institutional/legal infrastructure that reduces the cost of financial transactions and reduces the financial cost of commercial banks and other financial institutions. In analyzing the ratio of bank credit to the private sector, a key determinant to consider is often the government deficit, and the amount of financing that the government is seeking from the banking system. Government deficits that have to be financed by domestic resources provide an opportunity for the banking system to push funds into a relatively safer investment outlet than credit to the private sector. This has the capacity to raise lending rates, and decrease the amount of resources channelled to private sector credit. M2 to GDP ratio may not tell the entire story of how financial development can contribute to economic growth via the supply of credit to private firms. Hence bank credit to non-financial private sector enterprises is sometimes regarded as a better measure of how financial deepening impacts on economic growth.

Several studies on the relationship between financial development and economic growth have focused on the issue of causality, that is; whether financial development granger causes economic growth or vice versa. The focus on causality tests per se, as theoretically elegant as it may appear, seems irrelevant as it is obvious in principle that financial development and economic growth are symbiotically linked. Development of the financial sector is an inseparable aspect of economic growth in the modern economy, the level and speed of economic growth defines the scope and limits for financial development. So development studies on how financial development can impact on economic growth should persevere to go beyond the mere test for causality, as testing for causality alone may serve little policy relevance. Economists are yet to reach any consensus on whether financial development causes economic growth or financial development is a consequence of economic growth. The financial development - economic growth debate is ongoing, and policy makers and development

economists in Nigeria continue to consider which one should come first. Few studies in Nigeria attempt to identify which aspects of financial development is more growth promoting, and which aspects of financial development deserve more attention. This paper intends to contribute to the consideration of how financial development can stimulate and support economic growth Nigeria. The remaining part of this paper reviews the relevant literature, methodology, analyzes and discussion of findings and lastly conclusion and recommendations.

Literature Review and theoretical framework
Financial development and economic growth in Nigeria

There is sizeable theoretical and empirical literature on the link between finance development and economic growth. From the perspective of conventional neoclassical economic theory, economic growth models accept that the rate of the growth of an economy is determined by the accumulation of physical and human capital and the efficiency of resources use. These theories see finance as the major determinant of investment and therefore of economic growth (Cheney and Bruno, 1962). Recent studies have also shown that liberalization of financial markets can lead to greater investment efficiency and mobilization of financial resources to finance investment. Empirical evidence supports the view that there is a strong relationship between financial deepening and economic performance. It is obvious that scarcity of long term finance is the major impediment to higher investment levels and output growth in poor countries like Nigeria. By implication therefore, stimulating sustained economic growth requires additional financial inflow and the optimal utilization of financial assets. While it is broadly accepted that financial development contributes to economic development, there are strong arguments that economic growth and an economy's absorptive capacity can directly influence the robustness and speed of financial development. Development of key infrastructures for transportation, communication, and security are essential for financial development. Accordingly, conventional economic theories support the case for bi-causality between financial development and economic growth.

A major concern of governments in Sub-Saharan African countries is that their banking systems are not providing enough support to new economic initiatives and the expansion of small- and medium-scale enterprises (SMEs) and agriculture. It is argued that faster economic growth will not be possible without a deepening of the financial system and, in particular, more support from the banking system. It is noted that banks remain highly liquid in many countries in the subcontinent but are very reluctant to expand credit other than to credit worthiest borrowers (Sacerdoti, 2005). Consequently, while microfinance institutions (MFIs) have expanded vigorously in a number of countries, the size of their credit remains limited, and the cost of their funds have remained high (as high as 60 percent per annum in Nigeria). In Nigeria, experts are divided on whether financial capital is the most critical constraint to economic growth. The high ratio of money supply to GDP suggests that financial capital is not the problem, but the low ratio of banking system's credit to the private sector to GDP suggests otherwise. Existing empirical evidence however suggests that various factors affect the availability of investable fund in Nigeria, including: funds mobilization/aggregate savings, high banks' lending rates, inflationary expectations, institutional factors {the risk premium, banks cost of funds}, appropriate sectoral policies, paucity of external capital, public sector deposits, regulator and monetary policies, the level of economic activities, and the structure and efficiency of the financial system. A major source of concern however is that growth rates registered in most African countries, including Nigeria, does not march the quantum of export earnings they receive. Nigeria particularly earned enormous revenue from crude petroleum export during the oil boom years of mid 1970s and mid 2000s. The huge revenue inflow from oil exports caused public sector spending to increase significantly without particularly leading to economic growth.

For example, during the oil boom years of the 1970s, gross investment as percentage of GDP, was 16.8 and 31.4 percent in 1974 and 1976 respectively; whereas it declined to 9.5 and 8.9 percent, respectively in 1984 and 1985. The rise in oil prices during the 1990-91 was expected to spark off an investment boom; that was not the case in Nigeria because much of the accruing windfall in oil revenue was spent on government overheads and other capacity maintenance sub-heads. There is always this incapacity to channel financial resources into core growth activities; or utilize lessons from experiences with past failures in the country's development history. There is also the tendency to resort to stopgap and unplanned measures whose unintended consequences are not well assessed and considered. Attempts to implement a variety of reform programmes has not yielded the desired results due largely to political economic constraints that generally rewards and sustain bad governance and fiscal rascality. Beginning from the Structural Adjustment Programme (SAP) 1986-1992 and Guided Deregulation 1994-1998., to the National Economic Empowerment and Development Strategy (NEEDS) 1999-2007, National Poverty Eradication Programme (NAPEP) 1999-2013, Youth Enterprise With Innovation in Nigeria (YouWin) programme, Subsidy Reinvestment Programme (SURE–P) 2011-2013 there are strong tendency towards abandoning set plans and the resort to stop-gap measures that promotes waste, duplication of functions, accumulation of debts, and fiscal recklessness.

The Role of finance in 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. King and Levine (1993) analyzed Schumpeter (1983) theory on the importance of financial development for economic growth. Their results show that better financial development can positively impact on economic growth. More recent studies test the hypothesis using more sophisticated econometric techniques. Levin and Zervos (1996) showed that there is a positive and significant relation between stock market growth and growth in gross domestic product. Levine (1996) argues however that the preponderance of theoretical reasoning and empirical evidence suggests a positive, first-order relationship between financial development and economic growth, which has prompted many to suggest that the level of financial development is a good predictor of future rates of economic growth, capital accumulation, and technological change. The work equally reviews cross-country, case study, industry-level, and firm-level evidences of how financial development (or the lack thereof) crucially affects the speed and pattern of economic development.

Levine (1996) further explains how the financial system is affected by economic growth; well-developed financial systems reduce information and transaction costs, influence savings rates, investment decisions, technological innovation, and long- run growth rates. Without minimizing the role of institutions, the work advocates a functional approach to understanding the role of financial systems in economic growth. This approach focuses on the ties between growth and the quality of the functions provided by the financial system. This discourages a narrow focus on one financial instrument, such as money, or a particular institution, such as banks. Instead, Levine (1996) addresses the more comprehensive, and difficult question, namely; what is the relationship between financial structure and the functioning of the financial system? Colderon and Liu (2003) identifies three levels in the relationship between financial development and economic growth: first broadens the base for economic growth at the early stages of development; second is a mutual Granger causality between economic growth and financial development; and third, financial development leads again as the society becomes technologically advanced. Hondroyiannis and Lolos (2005) show a mutual Granger causality between financial development and economic growth in Greece. While Nieuwerburgh et al. (2006) show that increase in the market stocks led to economical growth in Belgium. Güryay, safakli and Tüzel (2007) empirically examine the relationship between financial development and economic growth in Northern Cyprus using a model earlier used by Odedokun (1996) for Nigeria. Using the method of ordinary least squares (OLS), the study found that the impact of financial development on economic growth is minimal in Northern Cyprus. Granger causality tests showed that financial development does not cause economic growth, but economic growth causes development. The results showed that there is a negligible positive effect of financial development on economic growth in Northern Cyprus. Although Granger causality test showed that financial development does not cause economic growth, on the other hand there is evidence of causality from economic growth to the development of financial intermediaries. The key indicators of financial development used by Güryay, safakli and Tüzel (2007) include is ratio of deposits to GDP (DEP), and the ratio of loans to GDP (LOA) were considered most appropriate because data on them are widely available. The model adopted by Güryay, safakli and Tüzel (2007) was actually a modified version of Odedokun (1996) that was re-specified by Rati Ram (1999). The ratio of deposits to GDP (DEP) and the ratio of loan to GDP (LOA) were adopted as the financial development variables in Güryay, safakli and Tüzel (2007) because they were directly indicative of financial development. The study found that economic growth caused financial development over the period under study.

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 (Levine, 1997 for survey). Two trends in this literature are identified; the first is testing the relationship between economic growth and financial development using either cross section or panel data techniques (Jung, 1986; Rubini and Sala-i-Martin, 1992; Demetriades and Hussein, 1996; and Luintel and Khan, 1999). The second is to examine the hypothesis for a particular country using time series techniques (as for example, Murinde and Eng, (1994) for Singapore, Lyons and Murinde (1994) for Ghana, Odedokun (1989) for Nigeria, Agung and Ford (1998) for Indonesia and Wood (1993) for Barbados. This work contributes to the second strand of the literature by using the modified growth model of Odedokun (1996) (for Nigeria); Güryay, safakli and Tüzel (2007) (for the case of North Cyprus); and Abu-Bader and Abu-Qarn (2005) (for Iran). The literature survey above puts x-

rays three views concerning the potential importance of finance in economic growth. While the first one of these considers finance as a critical element of growth (Schumpeter, 1911; Goldsmith, 1969; McKinnon, 1973; Shaw, 1973; Odedokun, 1996; King and Levine (1993a, 1993b), finance is regarded as a relatively unimportant factor in growth according to second view (Robinson, 1952; Lucas, 1988; Stern, 1989). The third view concentrates on the potential negative impact of finance on growth (Van Wijnbergen, 1983; Buffie, 1984). Parallel to these views, empirical studies of the effects of financial development on economic growth has produced mixed evidences showing no clear direction for convergence (Xu, 2000).

Financial development and absorptive capacity

Developing the domestic financial markets is necessary for expanding the absorptive capacity of low-income countries. A stronger financial system will mop up funds from the informal sectors and ensure that idle funds are put to optimal use in the formal financial system. Bourguignon and Sundberg (2006) emphasize the link between weak absorptive capacity and the flow of external finance to less developed countries. The ability of low-income countries to productively absorb large amounts of external assistance is a central issue for efforts to scale-up aid. Low-income countries are unable to absorb large amounts of aid due to structural and institutional incapacities that are linked to slow development of the financial system. There is broad agreement that countries with 'good policies and institutions' can absorb larger amounts of aid than otherwise.

This view is corroborated by Shahnoushi, et al (2008) in a study on causality between financial development and economic growth in Iran (using time series data for period 1961-2004). Shahnoushi, et al (2008) argue that financial development should be treated as the most important dimension of economic development, as it leads to not just financial investment, but also investment in social and economical substructure and investment in human resource, as it enables increases in the skills and expert level of the work force. This agrees with the views of early economists like Schumpeter (1983), Goldsmith (1969), Mackinnon (1973), and Shaw (1973).

Theoretical framework

The literature on financial development provides some theoretical explanation on the relationship between financial development and economic growth. The general view is that financial development can improve long run growth. This section discusses selected theories that link financial development to economic growth.

Demand-Following and Supply-Leading theory: This theory places emphasis on the demand and supply side of financial development. For demand-following theory, it can also be called "growth-led finance" hypothesis. It states that the growth of the economy generates additional and new demand for financial services, "which bring about a supply response in the growth of the financial system" (Patrick 1966). This theory suggests a demand – following relationship between financial and economic developments. High economic growth creates the demand for modern financial institutions; their services, their assets and liabilities and arrangements, by investors and savers in the real economy. The financial market in turn responds to such demands. In this case, the evolutionary development of the financial system is a continuing consequence of the pervasive, sweeping process of economic development. The level of demand for financial services depends upon growth of real output, and commercialization and monetization of agriculture and other traditional substance sectors. (Patrick, 1996, Meier, 1984). An accelerated growth rate of real national income stimulates greater demand for external funds by enterprises and this will bring about increase in the level of financial intermediation, as firms find it increasingly difficult to pursue expansion policy from internally generated funds. Moreover, the greater the variance in the growth rates among different sector of the economy, the greater will the responsibility of the financial system to perform the role of financial intermediation by allocating savings to fast growing industries away from slow growing industries and firms. In this way, the system can thus support and sustain the leading sectors in the process of growth.

The demand following financial hypothesis assumes that there is high elasticity in the supply of entrepreneurship in the financial services "relative to growing opportunities for profits from provision of financial services", in such a way that there is sufficient expansion in the number and diversity of types of financial institutions. It is also assumed that there is in existence favourable legal, institutional and economic environment. Supply leading theory can be described as the finance-lead hypothesis. It postulates that the existence of "financial institutions and the supply of their financial assets, liabilities and related financial services in advance of demand for them. This would provide efficient allocation of resources from surplus units to deficit units, thereby leading the other economic sectors in their growth process" (Patrick, 1996). The supply – leading phenomenon performs two functions: first it transfers resources from traditional (non-growth) sectors to modern sectors; and second, it promotes and stimulates an entrepreneurial response in the modern sectors. The supply – leading financial intermediation can be likened to the term "innovation financing" (Schumpeter, 1912). One of the most significant effect of supply – leading approach is that, as entrepreneurs have new access to the

supply – leading funds, their expectations increase and new horizons as to possible alternatives are opened, thereby making the entrepreneur to "think big". A number of studies have argued in favour of finance – led growth approach (see Cameron, 1963, Levine, 1997). It should however be emphasized that rationale for the supply – leading approach to the development of a country's financial system and hence overall economic development, lies in its potential benefits to the economy in stimulating real economic development. Otherwise, if the use of resources (especially entrepreneurial talents and managerial skills) in supply – leading finance generate more cost than benefits to the economy, then the objective of the approach is far from being achieved, and the entire supply – leading financial theory results to an exercise in futility. It can also be argued that while the supply – leading finance is not a necessity for launching an country to the path of "self sustained economic development", it presents an opportunity to induce real growth by financial means. Its use, analysts believe, is more result oriented at the early level of a country's development than later. According to Gerschenkron (1962) "the more backward the economy relative to others in the same time period, the greater the emphasis on supply - leading finance".

On the other hand, the Financial Liberalization hypothesis as developed by Mckinnon and Shaw (1973) sees the role of government intervention in the financial markets as a major constraint to savings mobilization, investment, and growth. Government's role in controlling interest rates and directing credit to priority sectors of the economy in developing countries inhibits savings mobilization and impedes the holding of financial assets, capital formation, and economic growth. Indirectly, ceiling on deposit interest rates discourages financial savings, which leads to excess liquidity outside the banking system. According to Mckinnon and Shaw (1973), pervasive government intervention and involvement in the financial system through the regulatory and supervisory network, particularly in controlling interest rates and the allocation of credit, tends to distort financial markets. Government intervention, thus adversely affect savings and investment decision of market participants and lead to fragmentation of financial mediation. The ultimate result is a financial repressed economy. The central idea of Mckinnon and Shaw (1973) is that financial markets should be liberalized and allocation of credit determinant by the free market. In this case, the real interest rate will adjust to its equilibrium levels and low yielding projects will be eliminated. This will lead to increase in overall efficiency of investment, savings and total real supply of credit would increase. This in turn induces a higher volume of investment which will then lead to economic growth.

The main critique of the financial liberalization theory emanates from the imperfect information paradigm. This school of thought disagrees with the proposition of these scholars and examines the problem of financial development in the context of information asymmetry and costly information that results in credit rationing. As observed by Stiglitz and Weiss (1981), asymmetric information leads to two serious problems, first, adverse selection and second, moral hazard. The implication is that the information asymmetries of higher interest rates which actually follow financial reforms and financial liberalization policies in particular exacerbate risk taking throughout the economy and hence threatens the stability of the financial system, which can easily lead to financial crises while the Feed back theory suggests a two–way causality between economic growth and financial development. The analysis is as follows: a country with well – developed financial markets could stimulate and promote high economic growth through technology changes, and product and services innovation (Schumpeter, 1912); this in turn will create high demand in financial arrangements and services (Levine, 1997, Chong et al, 2005). As the financial institutions effectively respond to this demand, higher economic performance is ensured. In this regard, both financial development and economic growth are positively interdependent and their relationship could lead to feed back causality (Khan, 1999). In summary, none of the works so far reviewed considered the possibility that the financial markets may not consider it appropriate to lend to the private sector even when there are funds, and the ratio of credit issued to non-financial private firms to total domestic credit (BCR) is not taken seriously. However, the studies of Shahnoushi, et al. (2008), Abu-Bader and Abu-Qarn (2005) and Güryay et al (2007) are key to this paper as their models were augmented to suit the target of this paper.

Method of Analysis and model specification

The single equation technique of Ordinary Least Square (OLS) was used to estimate the model. Error correction and cointegration techniques were used to normalize the data set. As with other studies reviewed, the Augmented Dickey-Fuller test was employed to determine causality tests between economic growth and financial development.

As mentioned the preceding section, this paper is based on the theoretical underpinning of Shahnoushi, et al. (2008), Abu-Bader and Abu-Qarn (2005) and Güryay et al (2007). Empirical model used in those studies is the linear OLS model that regresses four measures of financial development (independent variables) against an index of Real GDP (dependent variable). For Shahnoushi, et al. (2008) economic growth is the dependent variable and is measured as the annual data of real GDP as indicator for economic growth. But real GDP does

not necessarily measure growth; therefore nominal GDP (GDP at basic market prices) was used as dependent variable in this work. Also the independent variables are key indicators of financial development, these are the ratio of money supply (M2) to GDP), different definitions of monetary aggregate, bank deposit to GDP ratio, credit of private banks to private sector, (real interest rate (deflated by inflation). Basically, credit of banks to the private sector was considered as the most important indicator of financial development. This did not account for credit issued to non-financial private firms and ratio of commercial bank deposit to GDP. Therefore, it has been included as an argument in this model. Given the above, the model is specified below as follows:

GDP = f(MGDP, RDEP, BCRP, CNFPF, INTR) ……………….......   ..… (1)

Where: GDP = Natural logarithm of the GDP or Economic Growth; MGDP = the ratio of money supply to GDP; RDEP = the ratio of bank deposit to GDP; BCRP = Natural logarithm of granted credit of banks to private sector; CNFPF = the ratio of credit issued to non financial private firms to total domestic credit; INTR = the real interest rate

Equation (1) can be rewritten in Econometric semi-log linear form thus:

$$LogGDP = \beta_0 + \beta_1 MGDP + \beta_2 RDEP + \beta_3 logBCRP + \beta_4 log\ CNFPF - \beta_5 LR + \mu \ \text{……. (2)}$$

$\beta_1 > 0,\ \beta2 > 0,\ \beta_3 > 0,\ \beta_4 > 0,\ \beta_5 < 0$

Positive correlations exist among all the variables used in the study; some with high correlation and others with low correlation as shown in Table 1. For example there is a high positive correlation between LGDP and LCNFPF (95 percent). While the correlation between LGDP and MGDP is very low (10 percent)

Table 1: Correlation Test Analysis

	LGDP	LBCRP	LCNFPF	MGDP	LR	RDEP
LGDP	1.000000					
LBCRP	0.951086	1.000000				
LCNFPF	0.941858	0.991288	1.000000			
MGDP	0.103602	0.357825	0.349706	1.000000		
LR	0.747472	0.663627	0.636271	0.003579	1.000000	
RDEP	0.103132	0.356581	0.348947	0.999932	0.001119	1.000000

Source: Author's own computation

The unit root results which indicate the order of integration of each of the variables is presented in Table 2. The test revealed that the variables: LRGDP, LBCRP, LCNFPF and LR are all stationary at first difference; the variables are integrated of order I (1). While MGDP and RDEP are stationary at levels, which means integrated of order I (0). This implies that the null hypothesis of non-stationarity for all the variables is rejected.

Table 2: Stationarity and order of integration of the series

Variables	ADF		Decision	Lag
	Levels	1st Diff		
LRGDP	-0.617617	-9.244811	I (1)	2
LBCRP	0.625693	-4.396609	I (1)	2
LCNFPF	0.867350	-8.231017	I (1)	2
MGDP	7.640522	12.24785	I (0)	2
RDEP	8.814674	14.53450	I (0)	2
LR	-2.211685	-6.934996	I (1)	2
ECM(–1)	-6.276851	-6.293577	I (0)	2

Source: Author's own computation

Given the unit root properties of the variables, we proceed to establish whether or not there is a long run cointegrating relationship among the variables in the equation by using the Johansen full information maximum likelihood method. The Johansen cointegration test revealed that the trace and maximal Eigen statistics show the existence of three and two cointegrating relationship between LGDP and it determinants at the 5 percent level of significance as shown in Table 3.

Table 3: Johansen maximum likelihood cointegration test for GDP in Nigeria
Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.928569	183.5355	94.15	103.18
At most 1 **	0.641896	88.53060	68.52	76.07
At most 2 *	0.495421	51.56101	47.21	54.46
At most 3	0.381628	26.93591	29.68	35.65
At most 4	0.205976	9.631995	15.41	20.04
At most 5	0.036241	1.328890	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) levels
Trace test indicates 3 and 2 cointegrating equation(s) at the 5% (1%) levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.928569	95.00490	39.37	45.10
At most 1 *	0.641896	36.96959	33.46	38.77
At most 2	0.495421	24.62509	27.07	32.24
At most 3	0.381628	17.30392	20.97	25.52
At most 4	0.205976	8.303105	14.07	18.63
At most 5	0.036241	1.328890	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 2 and 1 cointegrating equation(s) at the 5% (1%) levels

Source: Author's own computation

The conclusion drawn from this result is that there exists a unit long-run relationship between LGDP, LBCR, LR, LCNFPF, MGDP and RDEP. Since there is one cointegrating vector, an econometric interpretation of the long-run growth (GDP) can be obtained by normalizing the estimates of unrestricted cointegrating vector on the GDP. The PT–matrix of the beta coefficient from the Johansen cointegrating analysis and the preferred cointegrating (CI) equation are presented in table 4.4. Using Max-Eigen statistics, only one cointegrating relations was chosen among the two, base on statistical significance and conformity of the coefficients with economic theory. As shown by the chosen CI equation, which normalizes the coefficient of log of GDP, all the explanatory variables are significant in influencing changes in GDP. The most significant of the determinants of GDP are expected MGDP and RDEP.

Table 4: Unrestricted cointegrating coefficients (normalized by B'*S11*B=I)

LGDP	LR	MGDP	LBCRP	LCNFPF	RDEP
-8.992255	0.485049	-152.0910	9.265538	-1.807147	182.3710
24.79221	-0.425667	190.0903	-22.57386	0.114019	-128.8521
0.687088	-0.056927	111.4026	-4.583119	3.246361	-139.9876
10.22750	0.261798	44.25546	-10.11899	-0.405380	-14.61502
-2.749861	0.079249	-10.01815	5.258640	-2.477223	6.594902
0.683407	0.192233	33.32911	-3.621369	2.466079	-39.89889

The first cointegrating equation: (standard error in parentheses)					
LGDP	**LR**	**MGDP**	**LBCRP**	**LCNFPF**	**RDEP**
1.000000	-0.053941	16.91355	-1.030391	0.200967	-20.28090
	(0.00385)	(0.92984)	(0.03773)	(0.03313)	(1.29562)

Source: Author's own computation

Having ascertained the stationarity levels of the variables that they are cointegrated, the stage is set to formulate an error correction model. The intuition behind the error correction model is the need to recover the long-run information lost by differencing the variables. The error correction model rectifies this problem by introducing an error term. The error correction term is derived from the long- run equation base on the economic theory, proximity and statistical significance. The error correction term enable us to gauge the speed of adjustment of GDP to its long-run equilibrium. It gives us the proportion of the disequilibrium errors accumulated in the previous period which are corrected in the current period. This results show that the speed of adjustment of GDP to the long-run equilibrium path is very high specifically, about 327 % of the disequilibrium errors, which occurs in the previous year, are corrected in the current year. It also shows a high growth rate of GDP (600%) thereby suggesting the existence of a strong GDP inertia as shown in Table 6

The over-parameterized model from which the parsimonious error correction model emanated is shown in Table 5.

Table 5: The over–parameterized error correction model of GDP

Dependent Variable: LGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.437020	1.922063	2.308467	0.0338
LGDP(-1)	0.223076	0.465751	0.478960	0.6381
LGDP(-2)	-0.383770	0.286460	-1.339699	0.1980
LR	0.005995	0.005215	1.149608	0.2662
LR(-1)	0.022627	0.005918	3.823221	0.0014
LR(-2)	-0.002828	0.013162	-0.214880	0.8324
LBCRP	1.047369	0.298310	3.511010	0.0027
LBCRP(-1)	-0.156114	0.511165	-0.305409	0.7638
LBCRP(-2)	0.127751	0.194743	0.656000	0.5206
LCNFPF	-0.153230	0.099744	-1.536233	0.1429
LCNFPF(-1)	0.140249	0.100840	1.390810	0.1822
LCNFPF(-2)	0.022417	0.095357	0.235085	0.8170
MGDP	-12.99614	1.286637	-10.10086	0.0000
MGDP(-1)	5.850581	5.780157	1.012184	0.3256
MGDP(-2)	-2.245721	2.633086	-0.852886	0.4056
RDEP	14.90639	1.505420	9.901814	0.0000
RDEP(-1)	-9.843578	6.725362	-1.463650	0.1615
RDEP(-2)	1.753241	4.092879	0.428364	0.6738
ECM(-1)	-0.111937	0.510634	-0.219212	0.8291
R-squared		F-statistic		92.38201
Adjusted R-squared		0.907897 Prob(F-statistic)		0.000000
S.E. of regression		0.097883 Durbin-Watson stat		2.163911

Source: Author's own computation

Preceding the dynamic analysis, the result from the estimated static model shows that MGDP, LR, RDEP, LBCRP, &CNFPF, are the long-run determinants of growth in Nigeria. From the result in table 4.5, the over–parameterized model was further estimated using the general to specific approach and the summary of the parsimonious model was presented in table 4.6 (see appendix 3 for detail). We achieved the parsimonious model by eliminating the jointly insignificantly variables. An examination of the parsimonious results shows that the error correction term is well specified as it has the expected a priori sign and statistically significant.

Table 6: Result from the parsimonious correction model

Dependent Variable: LGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.335801	0.465192	5.021152	0.0000
LGDP(-2)	0.600220	0.126874	4.730852	0.0001
LR(-1)	0.044913	0.008582	5.233478	0.0000
LBCRP	0.513012	0.146265	3.507410	0.0015
LCNFPF	-0.242962	0.101840	-2.385715	0.0241
MGDP	-9.976410	1.799803	-5.543058	0.0000
RDEP	11.22705	2.060681	5.448223	0.0000
ECM(-1)	0.326622	0.101181	3.228096	0.0045
R-squared	0.940883	F-statistic		43.47171
Adjusted R-squared	0.888603	Prob(F-statistic)		0.000000
S.E. of regression	0.227886	Durbin-Watson stat		1.766314

Source: Author's own computation

Findings of model

The adjusted R^2 of the estimated model shows that about 89% of the variation in GDP is explained by the combined effects of all the determinants while the F-statistics value of 43.5 shows that the overall regression is significant at both the 1% and 5% level. Also, the equation's standard error of 0.228 signifies that in about two-thirds of the time, the predicted value of GDP would be within 22.8 percent of the actual value. In table 4.6, the Durbin-Watson value is 1.8, which shows that it falls in between the inconclusive zone. Therefore we can not

say whether serial correlation exists or not. Also, the first lagged value of GDP greatly influenced the changes in current GDP growth over time with a strong inertia of 600 percent.

Lending rate (LR) does not conform to our theoretical expectation by bearing a positive sign. This not withstanding, they are both significant at 5% level. Therefore, a rise in lending rate leads to the availability of loan-able fund which provides funds for businesses (both private and public). There is need therefore to improve LR in order to create employment as well as make loan-able fund available to intending borrowers to stimulate the required level of investment and economic growth. In other words, Lending rate (LR) exerts very significant positive influence on the level of GDP. That is, if lending rate increases by one percent, gross domestic product (GDP) will increase by 4.5 percent. Current expectation about future levels of bank credit to private sector (BCRP) significantly influenced the growth of GDP in Nigeria. Specifically given the coefficient of 0.513 would lead to an increase in GDP by 513 percent if BCRP increases by one percent. Therefore, government policies aimed at channeling funds to the productive sectors of the economy through the private sector should be encouraged and pursued vigorously.

The coefficient of the variable credit to non-financial private firm (CNFPF) is significantly different from zero but negative. This apparent strong negative impact of the CNFPF variable, in spite of concerted government effort or commitments to improve the private sector, as it is the growth engine of her economy, may be attributed to high level of corruption, policy inconsistency, unstable government policies in the past, prior to 1999 couple with bureaucratic bottleneck ensured that these credit did not get to the real investor hence this scenario. The variable of financial deepening (MGDP) was found to be negative and significant at 5%. This means that if financial deepening increases by 1%, the Nigerian economy will recess by 9976% which means its effects on the economy is enormous. RDEP that is ratio of bank deposit to GDP significantly impacted on GDP in Nigeria within the period of study and it was positive. The increase in bank deposit can be attributed to the consolidation and merger of banks in 2005 that boosted customer confidence in the banking industries. This increased bank deposits, means that banks will have at their possession enough money to lend to businesses and this will lead to an increase in GDP of the country.

Our next assignment is to establish the direction of causality between GDP and the selected variables used in our study. This is because the existence of long–run relationship does not indicate causality and the existence of causality between GDP and the independent variables will help to verify the Model

Granger causality test

The result of the granger causality is shown below:

LR ⟶ LGDP; MGDP ⟶ LGDP; LBCRP ⟶ LGDP;
LCNFPF ⟷ LGDP; LBCRP ⟶ MGDP; RDEP ⟷ MGDP;
LBCRP ⟶ RDEP
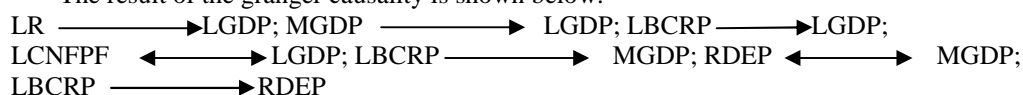
The Granger causality a result reveals that there is a unidirectional relationship running from lending rate to gross domestic product, financial deepening to LGDP. Also, a uni-directional relationship running from bank credit to private sector to LGDP, MGDP and RDEP. While a bi-directional relationship exists between LCNFPF and LGDP as well as between RDEP and MGDP.

Stability analysis

Here we examine the stability properties of the short – and long–run dynamic model. As shown in the graph of the recursive residual (figure 1), in some periods, particularly 1986 as well as between 2005 and 2008, the residual either went outside the plus or minus two (± 2) standard error bounds or became close to the bounds. This period corresponds to the period of massive deregulation and liberalization of the financial system in terms of interest rate and entry. This shows that the variables (economic agents or indicators) greatly affect the growth of GDP in Nigeria. Other stability test such as Jarque-Bera normality and actual, fitted and residual graphs in figure 2 and 3 lend credence to the stability of the parameters in the GDP model. The result of the various test suggest that the model is fairly well specified and robust for policy analysis. The graph of the dynamic forecast for the estimated period 1970 to 2008 is presented in figure 4. The forecast values could be closely related to the actual values.
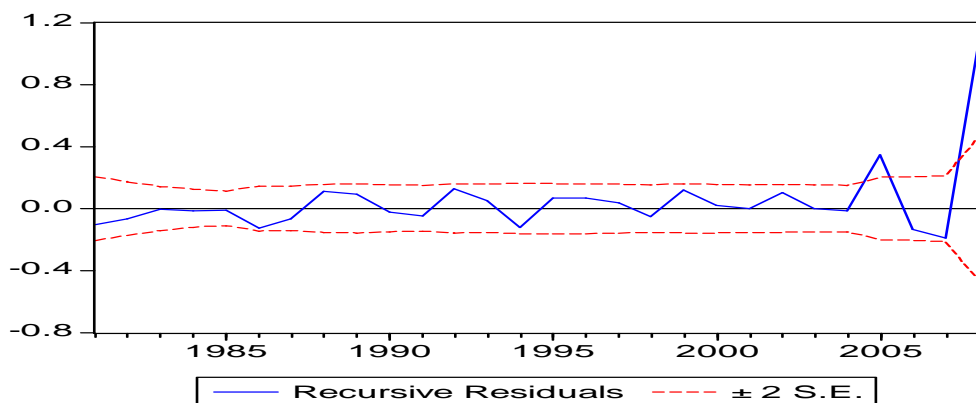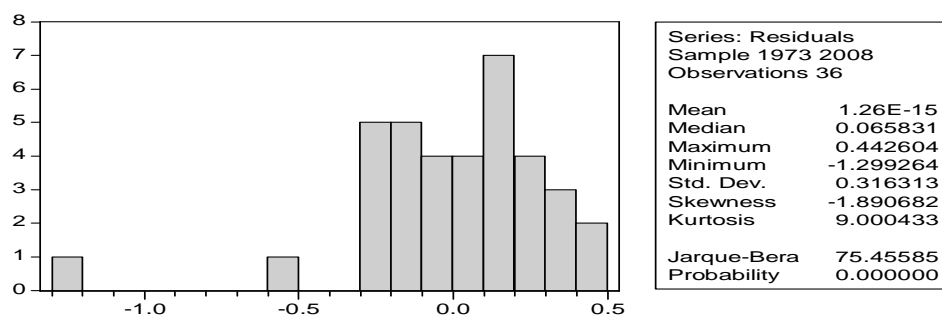
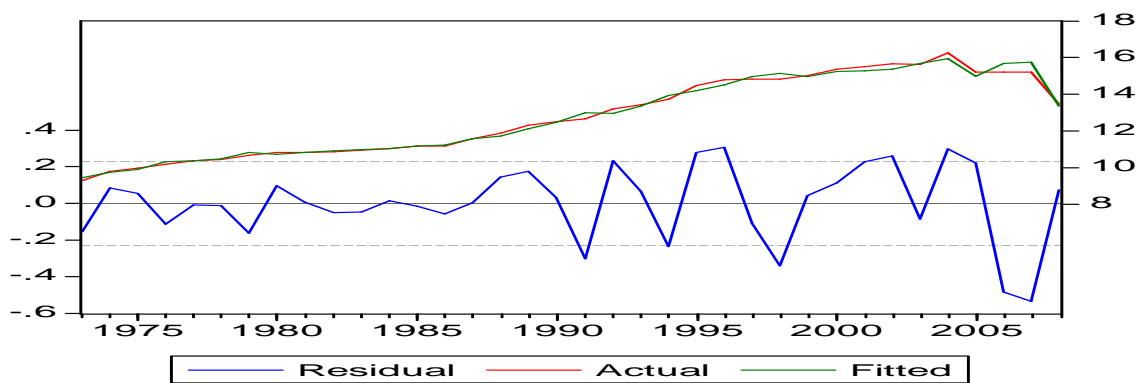Figure 1: Recursive residuals graph

Figure 2: Jarque–Bera Statistics

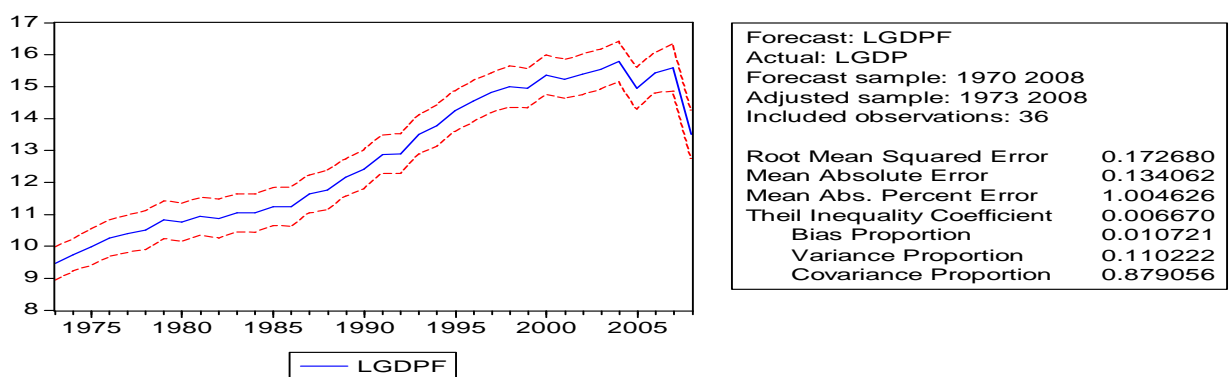Figure 3: Residual, actual and fitted graph

Figure 4: Forecast

Summary, Conclusion and Recommendations

We summarize the findings of our study, made some conclusive statements and recommendations here. The recommendations made in this paper, if given due consideration will help government, researchers and scholars in policy formulation, implementation as well as for further research. The major findings of this paper were as follows:

✓ The stationarity test on the variables in the model confirmed that the variables are at random work and co-integrated of order I(0) and I(1), as such the variables were used to run the co-integration estimates.

✓ The result of the co-integration estimates in the study showed that the selected independent variable used in this research explains long-run relationship between financial development and economic growth between 1970 and 2012.

✓ The study also reveals that lending rate did not conform to our theoretical expectation but impacts significantly on gross domestic product.

✓ Commercial bank credit to private sector has the expected a priori expectation sign and also positively affected financial development and economic growth in our study.

✓ Contrary to our expectation, MGDP negatively influenced financial development and economic growth in Nigeria.

✓ The study also indicates that commercial bank credit to non-financial private firm did not conforms to a priori expectation but significantly influenced or stimulated financial development and economic growth in the Nigerian economy.

✓ The ratio of commercial bank deposit to gross domestic product (RDEP) appeared with the right sign and also impacts significantly on financial development and economic growth in Nigeria.

✓ The evidence from our study shows that the entire model is stable within the period of study.

Conclusion

The paper set out to evaluate the impact of financial development on economic growth in the Nigerian economy; from 1970 – 2012 the model was estimated by the system of error correction model (ECM) and the stability test was conducted using the method of recursive regression by putting the recursive residuals about the zero line. Our findings confirm that all the variables have significant impact on GDP even though LR, CNFPF, and MGDP did not conform to a priori expectation. It therefore means that government policy patterning to MGDP, LR, and CNFPF by monetary authorities has not being too favourable. This might be added to inconsistencies in policies as well as frequent charges in government.

Recommendations

From the foregoing discussion, as it relates to financial development and economic growth in Nigeria, we make the following recommendations.

a) Financial development as measured by MGDP, RDEP, BCRP, LR and CNFPF exerted both negative and positive impact on economic growth; therefore, monetary authorities should endeavour to make policies that will impact positively on the overall growth of the economy.

b) The significant impact of lending rate on GDP does not no mean that government embark on policies measures that would improve lending rate but focus policies that would lead to employment generating, increase in income as well as conducive atmosphere for businesses to operate.

c) We found strong positive evidence that bank credit to private sector exerted positively to GDP. This means loans from bank to private sector went into the hands of businessmen who invested these funds into the economy thus the positive impact. Therefore, government should make policies as well as provide a conducive business environment that would ensure banks provide more credit to private sector (loans) for businesses, who will invest such funds for productive purposes that will yield the desired or required return and this will lead to an improvement in the GDP growth.

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